

# Concept Note

Project/Programme Title: Dakar Bus Rapid Transit Pilot Project\_\_\_\_\_

Country(ies): Senegal

National Designated Authority(ies) (NDA): Ministry of Environment and Sustainable Development\_\_\_\_\_

Accredited Entity(ies) (AE): World Bank\_\_\_\_\_

Date of first submission/  
version number: 2021-02-01 V.1

Date of current submission/  
version number: 2021-02-01 V.1



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## Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
- As per the Information Disclosure Policy, the concept note, and additional documents provided to the Secretariat can be disclosed unless marked by the Accredited Entity(ies) (or NDAs) as confidential.
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<b>A. Project/Programme Summary (max. 1 page)</b>			
<b>A.1. Project or programme</b>	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	<b>A.2. Public or private sector</b>	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector
<b>A.3. Is the CN submitted in response to an RFP?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, specify the RFP: _____	<b>A.4. Confidentiality<sup>1</sup></b>	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
<b>A.5. Indicate the result areas for the project/programme</b>	<p><b>Mitigation:</b> Reduced emissions from:</p> <input type="checkbox"/> Energy access and power generation <input checked="" type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p><b>Adaptation:</b> Increased resilience of:</p> <input type="checkbox"/> Most vulnerable people and communities <input type="checkbox"/> Health and well-being, and food and water security <input checked="" type="checkbox"/> Infrastructure and built environment <input type="checkbox"/> Ecosystem and ecosystem services		
<b>A.6. Estimated mitigation impact (tCO<sub>2</sub>eq over lifespan)</b>	2 million	<b>A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)</b>	<b>1.7 million</b> located in the BRT network catchment area ( <b>43%</b> of the Greater Dakar Area (GAD) population)
<b>A.8. Indicative total project cost (GCF + co-finance)</b>	Amount: USD 352.5 million	<b>A.9. Indicative GCF funding requested</b>	Amount: USD 60 million
<b>A.10. Mark the type of financial instrument requested for the GCF funding</b>	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input checked="" type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
<b>A.11. Estimated duration of project/ programme:</b>	a) disbursement period : - WB: 5yrs/8mths (11/14/2017-06/30/2013) - GCF: 2yrs/3mths (03/30/2021-06/30/2023) b) repayment period, if applicable:	<b>A.12. Estimated project/ Programme lifespan</b>	30 years
<b>A.13. Is funding from the Project Preparation Facility requested?<sup>2</sup></b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other support received <input type="checkbox"/> If so, by who: _____	<b>A.14. ESS category<sup>3</sup></b>	<input checked="" type="checkbox"/> A or I-1 <input type="checkbox"/> B or I-2 <input type="checkbox"/> C or I-3
<b>A.15. Is the CN aligned with your accreditation standard?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>A.16. Has the CN been shared with the NDA?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>A.17. AMA signed (if submitted by AE)</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing: _____	<b>A.18. Is the CN included in the Entity Work Programme?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>A.19. Project/Programme rationale, objectives and approach of</b>	Grand Dakar area, Senegal economic engine that concentrates 25 percent of the country population, is growing at a rapid pace, which has led to rapid private motorization, as limited quality public transport alternatives are provided for the poor and growing middle		

<sup>1</sup> Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

<sup>2</sup> See [here](#) for access to project preparation support request template and guidelines

<sup>3</sup> Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

**programme/project (max  
100 words)**

class. In response, the Government of Senegal (GoS) has been implementing a comprehensive urban transport strategy in Dakar with a focus on social, economic, and environmental objectives. As a backbone of this holistic plan to improve public transport the BRT project aims to improve the quality of public transport, while discouraging the use of individual vehicles and encouraging Non-Motorized Transport (NMT), promoting densification and encouraging cleaner technologies through the use of an electric bus fleet.

## B. Project/Programme Information (max. 8 pages)

### B.1. Context and baseline (max. 2 pages)

Senegal is experiencing rapid urban population growth (+3,9 percent per annum). About 45 percent of the population live in urban areas of which about half live in the Greater Dakar Area (GDA). Over the last five years, the country's average real GDP growth rate was around 4.1 percent (6.5 percent in 2015).

#### Climate vulnerabilities and impacts

The impacts of climate change have been rapidly increasing in Senegal. According to a recent World Bank study<sup>4</sup>, Senegal current climate variability is mainly characterized by i) a mean annual temperature increase by 0.9°C since 1960, ii) an average number of 'hot' nights per year increase increasing by 27 (an additional 7.3% of nights) between 1960 and 2003, iii) a period of particularly high rainfall occurring in the early 1960s, while the early 1980s were particularly dry and iv) a statistically significant decrease in wet season rainfall between 1960 and 2006. The current models that describe the future of Senegalese climate project that mean annual temperatures will increase by 1.1 to 3.1°C by the 2060s, and 1.7 to 4.9°C by the 2090s, with projected rates of warming faster in the interior of the country than in areas closer to the coast. Increasing temperatures and potential changes to rainfall patterns are of further concern for both the economy and for food security, given the important role of agriculture, a highly climate-sensitive sector that engages around half of Senegal's workforce. However, the economy is diversifying, with an increasing emphasis on services and tourism, the latter of which could further be prone to impacts of increasing temperatures and, in coastal areas, sea-level rise and associated stresses.

In Dakar, the main natural risks are flood risks. According to the Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal 2013<sup>5</sup>, the respective evolutions of land occupation and of climate will combine and lead to an increase of natural risks. In the Dakar agglomeration, flood risks are high, notably because of the insufficient evacuation capability of the stormwater network or the absence of a network in the neighbourhoods of Pikine and Guédiawaye. Another study realized in 2009 – Preparing to Manage Natural Hazards and Climate Change Risks in Dakar, A Spatial and Institutional Approach<sup>6</sup> – stated that flooding is one of the most severe hazards threatening Senegal, and in recent decades it has become a frequent and enduring reality.

#### GHG emissions profile

Senegal's total GHG emissions in 2011 were 31.65 million metric tons of carbon dioxide equivalent (MtCO<sub>2</sub>e), totaling 0.07 percent of global GHG emissions. GHG emissions in Senegal increased by 36 percent between 1990 and 2011. Senegal's GDP increased by 107 percent in the same period, indicating that GDP was growing faster than GHG emissions. But, as of 2011, Senegal's economy emitted approximately 3 times more GHGs relative to GDP than the world average, indicating significant potential for improvement.

Figure 1 summarises the sectors that account for the majority of national energy consumption. The second-largest consumer of energy is the transport sector, which is largely consumed as oil by road transport. The transport sector alone accounts for 2.3 MT CO<sub>2</sub>e out of a total of 6-8.8 MT CO<sub>2</sub>e emitted by fuel combustion (2018 AfDB Senegal National Climate Change Profile).

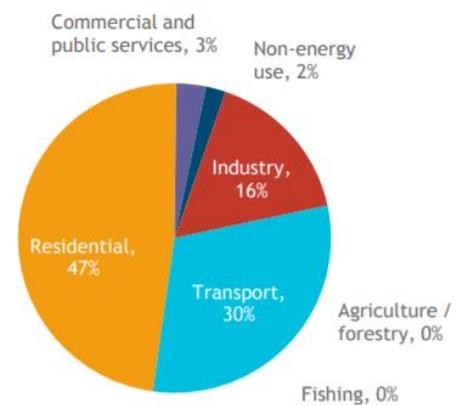


Figure 1. Distribution of Senegal national energy consumption by sector (2014-2016). Source: AfDB Senegal National Climate Change Profile, 2018

GDA is facing a mobility crisis due to the growth of mobility needs, exponential motorization, and limited capacity to respond to these challenges. It is often said that transport is the one economic sector that seems to degrade as incomes increase. The degradation is manifested in increasing congestion, global and local emissions, accidents, and other traffic-related maladies. The fuel consumption and GHG emissions in the transport sector are growing at a faster pace than in other sectors, mainly driven by the exponential motorization growth driven by private vehicle growth, especially in Dakar, and the low efficiency of vehicles (both private and commercial vehicles). It is expected that the number of daily trips in the city will double over the next 20 years, most of which will be additional private-vehicle-trips if no options for quality public transport are offered. Despite the low quality of services, today public transport accounts for 80 percent of all motorized daily trips in Dakar, highlighting the importance of this mode of transport from a social, economic, and environmental point of view. Furthermore, most land development in the GDA continues to occur on the city outskirts at relatively low densities, particularly in the northeast. This sprawl pattern of urban development combined with increased motorization can only exacerbate urban mobility and emissions if not addressed.

<sup>4</sup> Vulnerability, Risk Reduction and Adaptation to Climate Change – Country Profile of Senegal

<sup>5</sup> <https://openknowledge.worldbank.org/handle/10986/16986>

<sup>6</sup> <https://openknowledge.worldbank.org/handle/10986/12921>

***How the proposed project fits within the country's national priorities and the country's ownership of the project, including direct contribution to the INDC/NDC or national climate strategies.***

Senegal developed several national policies, programs, and activities on climate change mitigation and adaptation. Senegal is Party to the United Nation Framework Convention on Climate Change (UNFCCC) (signed in 1992 and ratified in 1994) and its Kyoto Protocol (signed in 2001 and ratified in 2005). The first and second National Communications were submitted in 1997 and 2010 respectively. The process for developing the 3rd National Communication is on-going. In 2006, Senegal completed its National Adaptation Plan of Action (NAPA) and started the process for developing the National Adaptation Plan (NAP) in June 2015 but was stalled due to lack of financial resources. These include the development of its Nationally Determined Contributions (NDC), completed in September 2015, and a US\$8 million Adaptation Fund project for protecting against coastal zone erosion.

In the NDC, Senegal commits to unconditionally reduce its GHG emissions by 3 percent, 4 percent, and 5 percent by 2020, 2025, and 2030 respectively, through mitigation actions in the energy, transport, agriculture, forestry, and other land use, industry, and waste sectors. Currently, only Euro 2/II standard for Diesel (CO: 1.0g/km; HC + NOx: 0.7g/km; PM: 0.08g/km) is available in Senegal compared to a minimum standard of Euro 5/V (CO: 0.50g/km; HC + NOx: 0.23g/km; PM: 0.005g/km) adopted in most developing countries.

The Dakar BRT project is specifically listed in the NDC as one of the government's flagship commitment projects to reduce emissions from the transport sector and the project benefits from strong political ownership. This pilot BRT project (red line) is indeed part of the mitigation activities in the climate action plan submitted by Senegal ahead of the 2015 Paris Agreement and is the only transport project under unconditional option. The Dakar BRT project is also part of the ambitious "Plan Emergent 2035 – PSE" of the Government of Senegal (GoS), which aims to accelerate poverty reduction and boost shared prosperity. This project will support the implantation of the first BRT project in francophone Africa, serving some of the city's most populated areas with a strong emphasis on promoting a shift to cleaner modes of transport (public transport and non-motorized transport), and reducing travel distances (promoting densification around transit and better integration), and building the enabling environment through government and operators enhanced capacity. Besides GoS committed in July 2020 to use an electric fleet rather than fuel-based vehicles to further curb GHG emission.

The proposed project will also contribute to five out of the seventeen sustainable development goals: (i) promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all – goal 8; (ii) build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation – goal 9; (iii) make cities and human settlements inclusive, safe, resilient and sustainable – goal 11 (iv) take urgent action to combat climate change and its impacts – goal 13; and, (v) strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development – goal 17.

***Mitigation and adaptation needs that the prospective intervention is envisaged to address***

Mitigation priorities identified for Senegal's transport sector are based on reducing emissions by introduction of integrated public transport systems Bus Rapid Transit system for Dakar. The proposed BRT project is supporting a much-needed Sustainable Plan for Urban Mobility in Dakar, that tackle mitigation needs. The GoS has endorsed a holistic and ambitious strategy for sustainable mobility and low-emission transport modes. To avoid lock-in and maintain the high share of public transport trips against individual motorized modes in a context of a likely increase in motorized trips in the future, GoS has adopted an ambitious comprehensive 5-year plan Letter of Urban Transport Sub-sector Policy (*Lettre de Politique des Déplacements Urbains à Dakar -LPDUD-2015-2020*) with the primary objective of limiting the increase of private modes of motorized transport and address issues related to integrated planning, institutional strengthening, non-motorized modes, parking and traffic management sustainable financing schemes and developing an integrated public transport network. This national strategy is strongly linked to the country's international pledge to combating climate change in the form of its intended nationally determined contributions (INDC). It is supported on 5 pillars:

1. The development of an integrated land-use and transport planning for sustainable mobility,
2. The construction of an efficient integrated public transport network with priority over the private modes, combining modern and informal sectors and favoring active modes,
3. The continued development of the road network, and the improvement of traffic and parking management with the goal of a better use of public spaces and of reducing congestion, accidentality, and air pollution,
4. The establishment of a simple and effective institutional governance framework, and
5. The determination of securing, increasing, diversifying, and ensuring the sustainability of funding for urban mobility.

This comprehensive Land Use and Transport Planning (LUTP) policy is an attainable vision and the GoS has already started implementing or preparing most of its components

1. Two mass transit corridors are in advanced preparation: the first pilot BRT line financed under the proposed project and an urban train project (TER) financed by AFD, AfDB, and IsBD for which construction is completed,

2. Technical assistance for sustainable mobility are financed under the proposed project including but not limited to the restructuring of the public transport network, fares integration, parking management plans, better integration of the BRT in the urban environment, etc,
3. Technical assistances for capacity building and improved governance are financed under component 3 of this project including but not limited to the professionalization of operators, reforming of the licenses issuance procedure for taxis and public transport, improvement of the vehicle control system, etc,
4. A project is in preparation for the renewal of the feeder buses and provision of street furniture for Public Transport along the feeder roads in addition to those financed under component 2 of the proposed project. The GoS is seeking French Development Agency (AFD) financing,
5. A lot of initiatives are ongoing for improved governance, strategy, and actions for Road Safety financed by SSATP and under component 4 of the proposed project.

The Dakar BRT project will considerably contribute to shifting GDA towards a Low-Carbon Transport Development path. The Dakar BRT will provide a mass transit solution increasing the modal shift from small aging buses and from users of private vehicles, which contributes to the avoidance of lock-in long-lived GHG emissions. The Dakar BRT project will also contribute to shifting to a more climate-friendly bus fleet. The GoS is indeed committed to introducing an electric fleet in the country and thus the project will finance electric buses and ancillary facilities. This BRT project is an initial investment as part of a comprehensive strategy for sustainable urban mobility that includes a series of public transport investments combined with complementary land use plans. The global experience suggests that the successful implementation of such a strategy would result in generating significant GHG savings in addition to savings associated with any particular investment project or policy by itself. Moreover, this national strategy is strongly linked to the country's international pledge to combating climate change in the form of its nationally determined contribution (NDC).

Beyond the construction of the BRT infrastructure, an important element of the World Bank-supported intervention is thus to (i) articulate a medium-term investment plan; (ii) support the establishment and increase capacity of governance systems; and (iii) support technical assistance as needed to allow for the successful implementation of complementary policies for automobiles, Land Use and Transport Planning and Non-Motorized Modes.

This project will also contribute to addressing flood vulnerability resulting from the adverse impacts of climate change. As the drainage system is an integral part of the BRT infrastructure and the urban roads and is carefully designed to adapt to flood risk, this project is contributing to the transport resilience agenda of the government. Moreover, the technical norms and design standards used to calculate the drainage system will further be adapted to take into account flooding vulnerability in the future. It is expected the BRT infrastructure and the urban roads will be resilient to flooding and will help in making the project area less flood-prone.

## **B.2. Project/Programme description (max. 3 pages)**

The core of the proposed project is the construction of an 18.3km fully segregated BRT line connecting Petersen Bus Station in Dakar plateau (town center) to Guédiawaye Prefecture (northern suburbs), including 3 major passenger terminals, 20 additional stations, provision of safe, convenient, secure access and crossings for pedestrian, last-mile connectivity for pedestrians and provision of electric buses fleet and a significant ITS to assist in managing and operating services and to collect fares (Component 1). The project also includes restructuring of the public transport network, provision of urban furniture along feeder routes, road works on feeder roads and on vicinal roads along the corridor, and various technical assistance and support with a strong emphasis on local accessibility and non-motorized modes (Component 2). Capacity building and project outcome monitoring make Component 3. Component 4 is dedicated to road safety activities, including communication and training.

Each component details more specifically the proposed activities to be financed by the GCF, for a US\$15 million grant and a US\$45 million loan.

**Component 1: BRT infrastructure, electric fleet, and systems** (US\$232 million financed by IDA, US\$55 million financed by GCF (of which US\$ 10 million in grant), *Outputs: BRT infrastructure, BRT fleet, and BRT system.*

This component will finance the infrastructure, electric rolling stock, equipment, and systems for the operation of the BRT in the 18.3 trunk corridor. This component will finance goods, works, and services for the detailed design, construction, and supervision of BRT core infrastructure including (i) transport infrastructure: the road infrastructure and its drainage system, landscaping, depot, terminals, stations, intersections, corridor traffic management systems, pedestrian crosswalks, sidewalks and bike lanes in some sections of the corridor; (ii) electric fleet and equipment: articulated electric buses (capacity of 150 passengers each) will be financed and purchased under this component by the private operator with government equity contribution. Electric equipment (transformers, charging stations) and ITS equipment for bus management and fare collection (to enable a centralized control of bus operations and fare management) will be part of this component.

**(i) BRT transport infrastructure.**

The BRT consists of an 18.3 km long segregated public transport infrastructure and non-motorized facilities in a dense urban area connecting Guédiawaye Prefecture in the northern suburb of Dakar to Petersen Bus Station on Dakar plateau. The public transport BRT infrastructure consists of a closed trunk-feeder system and fully segregated lane in the median of the roadway, 23 stations with passing lanes, and terminals at Grand Medine, Guédiawaye Prefecture, and Petersen Bus Station. The average distance between stations is 777m with a usual range between 650m and 750m. Terminals will enhance inter-modal connections with other modes with parking slots, safe and secure pedestrian access, convenient connections with other bus routes.

This component will integrate innovative solutions in stations, terminals, and landscape around stations to use solar power as a source of energy for the functioning of stations and terminals, and the lighting of surrounding areas to stations and landscaping to enhance the walking experience, safety, city livability and attractiveness to Non-Motorized Transport. These solutions will promote GHG emission reduction by encouraging low-emission transport modes (public transport and non-motorized transport) and by using renewable energy (solar) in the operations.

The construction of the corridor will put a strong focus on accessibility and road safety along the corridor with the rehabilitation of sidewalks, construction of bicycle paths, convenient and safe pedestrian crossings, assessment and mitigation measures for road safety during the design and construction of the infrastructure. Beyond accessibility, gender and safety receive also a strong focus: well-lit and camera surveilled stations for a safer environment and jobs opportunity for women with a long-term objective to offer the same opportunities for men and women workers in the BRT operating company.

*Proposed contribution of GCF: 10 million US\$ grant for renewable energy solutions for public transport operation and walking infrastructure. While the construction of transport infrastructure is covered by IDA funds, the additionality of GCF will be reflected in the renewable energy solutions in stations and terminals and in the support to enhance walkability around stations.*

**(ii) Electric fleet and equipment.**

The project includes the provision of 159 electric articulated buses for the operation in the main trunk BRT route. The eBuses will likely use a slow recharging system and have a capacity of 150 seats per bus. The number of buses was determined to serve a bus frequency of 2 min for express service at peak hour and a total of 27000 pax/h capacity over the corridor. ITS and fare collection systems will enable a centralized control of bus operations and fare management.

The project will include 76 charging stations to support the operation of buses and the development of 3 transformers. This equipment, which was not envisioned in the original design of fuel-powered buses, is needed to support the operations of the electric buses.

*Proposed contribution of GCF: 10 million US\$ loan for electric equipment (charging stations and transformers) and expected 35 million US\$ loan for electric buses<sup>7</sup>. While the main contribution for rolling stocks come from the private sector, the additionality of GCF will be making possible the substitution of fuel-powered buses to electric buses for the BRT corridor, by supporting the incremental capital cost to put in place electric buses, both in terms of capital investment for the fleet as well and ancillary equipment such as charging stations and transformers.*

**Component 2: Public Transport network restructuring and road works** (US\$44.2 million financed by IDA) Outputs: *Rehabilitated roads, non-motorized transport facilities, improved drainage system, feeder lines operational.*

This component will finance goods, works, and services for road works along feeder routes, road works on vicinal roads to support diverted traffic due to suppressing of left-turn movement as well as costs of clearing the right of way, and provision of urban furniture for public transport along feeder routes. It will also finance communication campaigns and technical assistance including but not limited to the restructuring of the public transport network, fares integration system, parking management plan, integration of the BRT in the urban environment, to make the BRT fully functional. Additional technical assistances targeting the whole transport system in GDA such as the development of consultation and coordination platform are also essential and will be financed. These technical assistances include the reforming of licenses issuance procedure for taxis and public transport, the professionalization of urban transport operators, the improvement of the vehicle control system.

<sup>7</sup> The exact amount will be known following completion of negotiation with the operator and assessment of the public financing needed (i) to cover the incremental cost of ebuses and (ii) to provide the best Value For Money for the GoS. Similarly, while GCF contribution will flow through GoS to subsidize the provision of ebuses, exact financing arrangements will be decided during negotiations with the private operator.

This component will support overall system restructuring for better integration of the BRT corridor with the overall public transport network. System integration is critical for the sustainability of the system, and it will be a key piece towards the future of public transport, that needs to be seen as a network.

**Component 3: Capacity building and project management** (US\$14 million financed by IDA, US\$5 million financed by GCF). Output: Capacity built in urban transport planning and eMobility technology, and air quality monitoring.

This component will finance the provision of technical assistances, capacity building to government institutions, project management, fiduciary and safeguard activities, monitoring and evaluation, and financial audits.

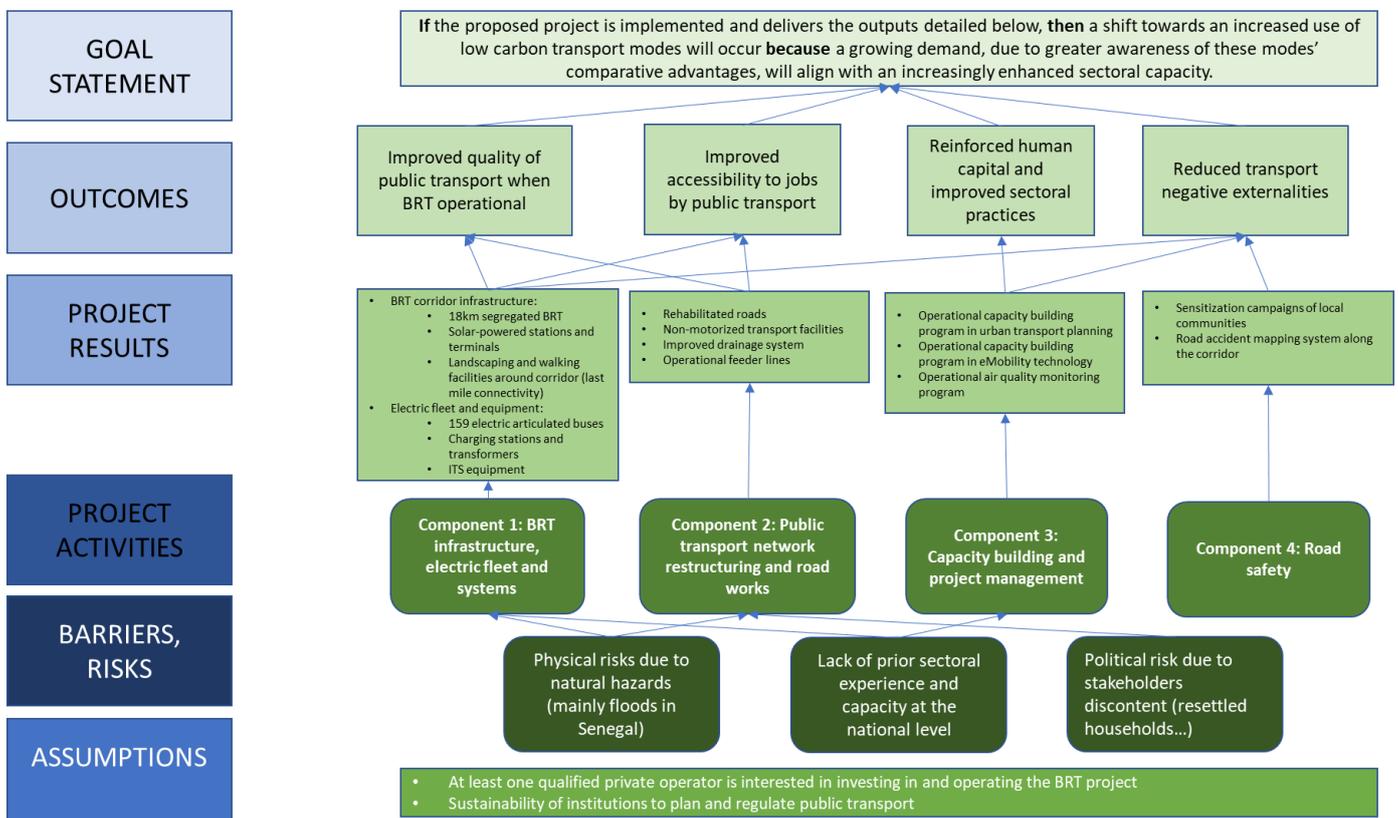
Knowing that the Dakar BRT will be the first eMobility project in Senegal, and the first BRT that uses electric buses in Africa, capacity building is critical for the sustainability of the system. This component will include technical assistance services to support the management of electric buses. It will also involve carrying out capacity building activities for actors including, among others, the CETUD and public transport operators in electric mobility, and finally for the implementation of a mechanism for monitoring environmental performance and air quality measurements for the BRT operations.

*Proposed contribution of GCF: 5 million US\$ grant for capacity building and technical assistances. While the main contribution to this component will be IDA funds, the additionality of GCF will be in bringing needed capacity on eMobility in the form of technical assistance and capacity building on eMobility, as well as the support for measuring the environmental parameters of the electric buses during the operation.*

**Component 4: Road safety** (US\$2.3 million financed by IDA). Output: Sensitization campaigns of local communities. A system for mapping road accidents along the BRT corridor.

This component will finance the provision of road safety technical assistances, education and sensitization campaigns of local communities to the BRT operations, training, and equipment. One technical assistance and provision of equipment will focus particularly on the development of a road accident mapping system along the BRT corridor.

**Theory of Change**



**The World Bank is the Accredited Entity**

The World Bank has been active in Senegal in Transport for more than 25 years and has currently a living portfolio in the Transport sector of more than \$510 million including \$300 million for the BRT project. The World Bank has a country office in Dakar which is in charge of ensuring correct communication and coordination with local project sponsors and stakeholders and with dedicated transport specialists for close supervision of projects.

### Implementation arrangements

The Ministry of Infrastructure, Land Transport, and Opening Up is the line ministry in charge of the BRT project. CETUD and AGEROUTE are under its aegis.

CETUD is the main implementing agency and has fiduciary and technical responsibility for all project-related activities. CETUD is a public entity whose main responsibility by law is to organize, monitor, and develop urban mobility in the GDA. Its organizational structure includes the President's Office (chair of the General Assembly) and the Permanent Secretary led by the Director-General who supervises a team of experts.

CETUD technically supervises the project's activities as well as performs all operationally related tasks such as M&E, financial management, procurement (except for the civil works which are undertaken by the Autonomous Road Management Agency (Agence Autonome de Gestion des Routes, AGEROUTE—an experienced road agency), and safeguards. The Administrative and Financial Unit of CETUD oversees the financial management aspects of the project, including the consolidation of financial statements for project activities, providing quarterly interim financial reports, monitoring financial transactions of the project's account through the Directorate for Investment (Direction de l'Investissement), and making the necessary arrangements for the annual financial audit. CETUD is strengthened through project component 3 to cope with the increased activity levels.

In addition to its implementing tasks as part of the project, CETUD will supervise performance contracts of local operators in charge of the 26 BRT feeder lines based on its obligations as Transport Authority.

AGEROUTE. CETUD delegates procurement responsibility of civil works to AGEROUTE . AGEROUTE prepares technical and bidding documents, conduct all the selection process, sign contracts, and supervise the execution. AGEROUTE, which has been created in 2010, is in charge of implementing all road works in Senegal including construction, rehabilitation, and maintenance.

### Capacity assessment of implementing entities

CETUD, the main implementing entity, has a long track record of past experiences with WB financed projects. CETUD, created in 1997, is a public entity whose main responsibility by law is to organize, monitor, and develop urban mobility in the GDA. The CETUD is familiar with World Bank financial management, procurement and safeguards policies and procedures. CETUD implemented the previous World Bank-financed Urban Mobility Improvement Project (P055472) and has implemented one component of the Transport and Urban Mobility Project (P153078). CETUD's capacity has continuously been reinforced through these projects. CETUD is now an empowered transport authority. Besides, the capacity building component of the proposed BRT continues reinforcing CETUD.

AGEROUTE is an experienced agency and was the main implementing agency of the Bank-financed Transport and Urban Mobility Project (P153078). It will be in charge of the infrastructure construction..

Capacity assessment. An assessment of the executing agencies' capacity to implement procurement, financial management and safeguards was carried out by the Bank during project appraisal in 2016. The assessment found that CETUD and AGEROUTE possessed satisfactory know-how, technical expertise, and experience in Bank financial management, procurement and safeguards policies and procedures during the implementation of the past and ongoing IDA-financed projects.

The following measures have been implemented to further strengthen the capacity of the implementing entities: (i) The signature of a MOD convention (*Convention de Maître d'Ouvrage Déléguée*) between CETUD and AGEROUTE. This agreement clearly defines activities to be implemented by AGEROUTE (procurement of civil works), establishes the responsibility of each party, and describes the organization to be put in place for the project implementation. The Bank has approved the document before signature, (ii) CETUD hired an additional qualified procurement specialist; (iii) AGEROUTE has hired a dedicated and qualified procurement specialist with strong experience in the Bank procedures for works and consultant selection; (iv) Hiring of technical experts for technical documents elaboration and bids evaluation; (v) A planning of the preparation of the technical specification and TORs and proposed actions to avoid delays in the production of these documents; (vi) A comprehensive procurement plan of the main activities.

### Implementation progress

The implementation of the Dakar BRT project is ongoing. Component 1, which includes BRT infrastructure, vehicles, and systems is advancing at a good pace. In total, as of December 2020, 15% of the infrastructure works are completed and CETUD is at an advanced stage in the recruitment of the private operator who will purchase, operate, and maintain the fleet of electric buses. The negotiations with the operator aim to be completed by March 2021. The studies that are part of components 2 are progressing, among the key studies: bus network restructuring study, urban logistics study, preparation of a multimodal transport model, and parking study. As part of component 3, the activities for the capacity building of CETUD are ongoing, with an almost full team already onboard. This component also includes the development

of a master program in transport and digital technologies. Finally, for component 4, the procurement is ongoing to develop the road safety plans, and support for the implementation is ongoing.

### B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

**Paradigm shift:** The Dakar BRT project supports a change of paradigm in the development of Dakar, from a congested and car-oriented city to a resilient and people-oriented city, where non-motorized transport and green public transport are at the core of the metropolitan vision. The BRT project aims to be a demonstration project, to showcase that electric mobility can be a reality in the African continent and its impact goes beyond a one-off project through replicability and scalability. GoS has a comprehensive road map of transformation of urban mobility in GDA through the LUTP. Success in this first project would gain popular and political support to scale up transformation.

**Impact potential.** The project will deliver significant impacts regarding climate change mitigation, lock-in avoidance of high-emission private motorized trips, shift towards greener bus fleet, and climate change adaptation. The Dakar BRT development project is a pillar of a comprehensive strategy of the Government of Senegal to limit private motorized modes and to contribute to the avoidance of lock-in long-lived GHG emissions. So far in the Greater Dakar Area, the motorization rate is 26 private vehicles for every 1000 people with 80% of annual trips (1.8 million). However, while experts assume a 5% income growth trend the correlated growth figures of individual motorization rates are expected to be rising as income grows. Without a strong urban mobility strategy, Senegal would thus experience a likely increase of individual motorized trips and modal share of cars and consequently an increase in GHG emissions, assuming that car technology remains at the same level. As the backbone of the comprehensive strategy adopted by the Government of Senegal, the Dakar BRT will offer an alternative to private motorized trips.

By progressively replacing the current public transport system with a new one based on an electric fleet, **the Dakar BRT project will lead to substantial GHG emissions reduction: 2 MtCO<sub>2</sub>e GHG total savings compared to a without-project baseline are forecasted.** Summary of assessment including results, methodology, and assumptions is depicted in a separate annex. This direct impact analysis does not capture additional savings that are expected to accrue from the implementation of a broader program of activities related to transport and land use that the city is implementing. This BRT Line is indeed an initial investment as part of an Integrated Land Use & Transport Planning (LUTP) program that includes a series of public transport investments combined with complementary land use plans. The global experience suggests that the successful implementation of such LUTP would result in generating significant GHG savings in addition to savings associated with any particular investment project or policy by itself. These additional savings would result from creating a dense transit-oriented urban environment that would fundamentally alter the demand for motorized trips. It was estimated that additional savings from a complete rollout of a full LUTP program could trigger a network effect which translates into supplemental indirect GHG emission savings that could be attributable to the project of about 1 million tons of CO<sub>2</sub> over the lifetime of the project.

**Sustainable development potential.** Apart from environmental benefit, the project has the potential to have a transformational effect in terms of economic and social development of GDA. The enhancement in the access to jobs, education and health services has been measured in project assessment using accessibility indicators. Particular benefits are expected for vulnerable groups, such as women, people with disabilities and the elder. Finally, significant environmental impact is expected in the reduction of local pollution of air in GDA.

**On climate adaptation, this project will also contribute to addressing flooding vulnerability resulting from the adverse impacts of climate change as the drainage system is an integral part of the BRT infrastructure.** The disaster risk profile of Senegal is dominated by two hydro-meteorological phenomena: drought and floods. Flooding is the major risk in urban areas and are estimated to affect 400,000 to 600,000 people every year in the country. They are caused by river overflows, a combination of heavy rainfall and insufficient drainage infrastructure. Exposure to flood has been increasing because of rapid unplanned urban expansion, notably in the periurban zones of Dakar<sup>8</sup>, where of the estimated US\$44 billion total land value for Dakar Metropolitan in 2009, over US\$2 billion of assets are considered exposed to high natural hazard potentials<sup>9</sup>. The 2009 floods in Dakar impacted 360,000 people and caused over US\$100 million in economic losses<sup>10</sup>. With 15% of total BRT infrastructure works cost allocated to drainage, 40km of new drainage network and rehabilitation of the existing drainage system, the BRT project will contribute to addressing this vulnerability.

### B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

*Please describe how engagement among the NDA, AE, and/or other relevant stakeholders in the country has taken place and what further engagement will be undertaken as the concept is developed into a funding proposal.*

<sup>8</sup> Initial market assessment: country scoping note – Senegal, sept 2013.

<sup>9</sup> World Bank. 2009. Preparing to Manage Natural Hazards and Climate Change Risks in Dakar, Senegal A Spatial and Institutional Approach

<sup>10</sup> Senegal: urban floods: Recovery and Reconstruction since 2009. GFDRR, August 2014.

**CETUD and the World Bank have engaged the National Designated Authority (NDA) – Ministry of Environment – for the development of this concept.** The preparation of the concept has included close coordination with NDA to obtain feedback about the content and guidance about the GCF procedure.

**Project design and preparation are based on consultative processes and stakeholder engagement at several levels.** Representatives of the national government, city authorities, local government officials, public transport operators and local communities in BRT corridor, were the key stakeholders consulted during the preparation of the project. Other groups specifically engaged included: formal and informal transport operators; project affected persons including youth, women, and local community leaders. Consultations with stakeholders have been and will continue to be carried out throughout the project cycle, from preparation to project completion. The public is informed about project developments on a regular basis through the media and through community consultations. The project office has an active program of community engagement that informs those affected as to project developments and the way in which the project will affect them.

### C. Indicative Financing/Cost Information (max. 3 pages)

#### C.1. Financing by components (max ½ page)

Please provide an estimate of the total cost per component/output and disaggregate by source of financing.

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
1. BRT infrastructure, fleet, and systems	287 million	55 million	loan (45 million) grant (10 million)	232 million	Loan	IDA
2. Public Transport network restructuring and road works	44.2 million	-	-	44.2 million	Loan	IDA
3. Capacity building and project management	19 million	5 million	grant	14 million	Loan	IDA
4. Road Safety	2.3 million	-	-	2.3 million	Loan	IDA
<b>Indicative total cost (USD)</b>	<b>352.5 million</b>					

For private sector proposal, provide an overview (diagram) of the proposed financing structure.

#### C.2. Justification of GCF funding request (max. 1 page)

**Justification for the concessionality that GCF is expected to provide:** GCF's financing is essential to meet the objectives of the project and to maximize the potential of environmental outcomes. GCF funds include US\$45 million in loan and US\$15 million in grants for a total of US\$60 million equivalent.

These funds will support component 1 of the project, in particular the proposed GCF will finance electric equipment and support electric buses procurement, to make possible the operation of the first BRT with electric buses in the Sub-Saharan region (10 million US\$ for electric equipment and 35 million US\$ for electric buses). The proposed contribution of GCF would also include solar equipment for stations and terminals and walking and landscaping facilities (10 million US\$).

The proposed contribution of GCF in Component 3 (capacity building) will include US\$5 million for technical assistance and capacity building activities for the involved actors, as well as for the monitoring of the environmental performance of BRT during the operations.

Table 1 summarizes the proposed GCF contribution, outputs, and GCF additionality.

Table 1. Summary of proposed GCF contribution and additionality

	Output	Proposed contribution of GCF	GCF additionality
Component 1	Solar equipment for stations and terminals and walking and landscaping facilities	10 million US\$ grant	While the construction of transport infrastructure is covered by IDA funds, the additionality of GCF will be reflected in the renewable energy solutions in stations and terminals and in the support to enhance walkability around stations.
	Electric equipment for bus operations: charging stations and transformers	10 million US\$ loan	While the main contribution for rolling stocks come from the private sector, the additionality of GCF will be making possible the substitution of fuel-powered buses to electric buses for the BRT corridor, by supporting the additional capital cost to put in place electric buses, both in terms of capital investment for the fleet as well and ancillary equipment such as charging stations and transformers.
	Contribution to electric buses	35 million US\$ loan	

Component 3	For capacity building and technical assistances.	5 million US\$ grant	While the main contribution to this component will be IDA funds, the additionality of GCF will be in bringing needed capacity on eMobility in the form of technical assistance and capacity building on eMobility, as well as the support for measuring the environmental parameters of the electric buses during the operation.
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Based on the GCF Financial Terms and Conditions of the Fund's Instruments (GCF/B.09/08, 17 February 2015), the proposed financial terms for the US\$ 45 million concessional loan include a 40-year-maturity senior loan with a 0.25% interest rate.

### C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

**This urban pilot project is included in the NDC and has a strong potential for scalability.** The BRT project is the backbone of an ambitious and comprehensive strategy for sustainable urban mobility and low emission transport modes. The BRT project included in the Emerging Senegal Plan (PSE – Plan Sénégal Emergent)<sup>11</sup>, constitutes the first step of a comprehensive plan for mass transit corridors development and is identified in the Nationally Determined Contribution (NDC) of Senegal as a major potential contribution of the transport sector to reduce GHG emissions. The proposed project will contribute to five out of the seventeen sustainable development goals of the United-Nations.

**This urban project has a strong potential for replicability.** As the first BRT project in Francophone Africa, this project has a strong potential for replication across African cities that are facing the same challenges as Dakar. In African cities where the motorization rate is still low, successful implementation of mass transit corridors as part of a comprehensive urban mobility strategy has indeed strong potential to take these cities to low motorization levels as seen in cities that reflect best practices in integrated land use and transport planning design.

### D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project/programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

### Self-awareness check boxes

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes  No

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes  No

<sup>11</sup> This is the Government development plan to make Senegal an emerging country by 2035.