Africa Infrastructure Fund

Terms of Reference – Section 7 of the Request for Proposal

Feasibility Study for a Proposed Elevated Mass Transit Rail System linking Cities and Towns in the Greater Banjul Area

6 July 2020

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1. General Background and Summary Project Description

Africa Infrastructure Fund (Gambia) Ltd ("AIF") in collaboration with the Gambia Tourism Board ("GTBoard") intends to finance a Feasibility Study by (a) a qualified consulting firm; or (b) a consortium of qualified consulting firms; or (c) a consortium of qualified consulting firms and transportation sector related contractors, operators or systems providers, for an Elevated Mass Transit Rail System ("EMTRS") in the Greater Banjul Area ("GBA") for the services outlined in these Terms of Reference ("TOR").

GBA is defined to include areas of Banjul and the entire West Coast Region (WCR) administrative boundaries for the purposes of this TOR. GBA has a population of approximately one million people and is the economic engine of growth of The Gambia and accounts for a significant portion of its GNP. Continuous migration into the GBA has led to significant increases in road traffic volumes. This has resulted in traffic congestion during peak periods, travel time delays, increased journey times, road accidents, and air pollution. High land acquisition costs, lack of available contiguous land parcels, increased population densities and a dearth of finances have made constructing alternative road networks and maintaining the current roads network unviable. With very high fuel prices, historically, deemed unsustainable at the consumer level, and the non-productive time spent in congested traffic, especially during the peak hours, movement and access to key services, industry, and daily business continue to place a significant burden on residents, businesses, and the national economy.

AIF, in line with its mandate to assist with the financing, developing and planning of infrastructure in Sub Saharan Africa, in collaboration with GTBoard, is exploring various options to resolve the transportation challenges in GBA to improve the quality of life of the people, minimize pollution, and enhance the economy.

AIF intends to present the results of the Feasibility Study to its Board to evaluate financing options for the development of a Mass Transit Rail System in the GBA.

2. Scope of Services

The scope of services is to undertake a Feasibility Study (FS) for the implementation of an Elevated Mass Transit Rail System (EMTRS) in the Greater Banjul Area (GBA). The study shall assess the Technical, Engineering, Regulatory, Financial, Economic, Environmental, Social, and Land Use aspects of the feasibility of the EMTRS.

The potential routes to be investigated comprise a key network with possible interconnected routes. The key networks are identified as follows, and are subject to validation in the FS : -

- Brikama > Banjul International Airport > Westfield Junction > Banjul; and
- Brikama > Banjul International Airport > Brusubi Junction > Senegambia Junction > Kairaba Avenue Traffic Light Junction > Westfield Junction > Banjul International Airport

The following possible interconnected routes are to be investigated in the FS :-

- Kartong > Gunjur > Brufut > Brusubi > Sukuta > Bakoteh > Serrekunda > Westfield Junction;
- Brikama > Banjul International Airport; and
- Westfield Junction > Kanifing Industrial Estates/Jimpex Junction > Banjul
- Kairab Avenue Traffic Light Junction > Fajara (Atlantic Boulevard)/Bakau Newtown > Cape Point > Banjul

The services are to be divided into **two** stages as follows:

Stage 1: Pre- Feasibility Study: Fact Finding and preparation of an interim report (the "Pre-Feasibility Study Report") as basis for decision-making.

Stage 2: Feasibility Study: To be conducted based on the Pre-Feasibility Study Report and the decisions taken during the workshops and from further investigations and analysis of the selected routes, technologies, options, etc.

The selected consulting firm will present their findings and reports jointly to the Chief Executive Officer, AIF and the Director General, GTBoard.

Furthermore, both Stage 1 and Stage 2 findings and reports will be presented at each stage, at a workshop to be organized and attended by all relevant stakeholders in Banjul as well as with Gambian diaspora stakeholders in two major EU Cities (tbd) , London, Washington DC, and Atlanta in the US. Please refer to section & below for additional reporting requirements.

3. Detailed Tasks for the Feasibility Study

A. Technical Analysis

The Consultant shall: -

1. Review and discuss the spatial plans and strategies of the cities and towns in the GBA.
2. Review the existing literature on the laws, design, and other technical requirements for transportation design and operations, and undertake a gap assessment and analysis using international best practice as a baseline system.
3. Collect, review and analyze the studies and other documentation, including existing feasibility studies and engineering designs where they are available (including undertaking site visits as necessary), for recently completed, on-going and/or planned transportation and other development projects carried out and to be carried out in the GBA, that may potentially have influence or connect with the planned EMTRS. Evaluate and review to

determine their completeness, engineering robustness, sustainability and level of integration into the city's strategies and plans. Discuss and present findings.

4. Appropriate and relevant data shall be collected from available sources to identify potential Right-of-Way (ROW) constraints. The focus of this task shall be to identify major issues with ROW related to potential environmental, land use, and infrastructure facilities. Potential viable routes should be studied further, and the preferred routes identified so that they could be reserved exclusively for the EMTRS.

5. Producing an estimate of the potential ridership for the EMTRS will be a key matter of interest for the relevant Authorities, Financiers and other Stakeholders. Therefore, any available information from National Transport Models shall be used to assist with ridership forecasts. In addition, detailed travel surveys are to be undertaken to establish current travel trends, and help to predict/forecast future travel trends. This may include, but not be limited to a reasonable size household and roadside travel surveys.

6. Undertake traffic surveys along key existing road network routes and along the proposed viable option routes using appropriate and industry recognized and approved standard methodologies.

7. Review and analyze the traffic survey data and routes. Discuss and present findings. Based on this review and survey, establish a baseline'.

8. Review and analyze all technical, engineering, environmental, social, and operations and maintenance aspects of potentially viable routes, corridors and systems in the GBA of potential tangible route alternatives. Discuss and present findings using charts and drawings as needed.

9. Based on socio-economic, demographic, historical, migration and spatial planning data and trends, travel demand, and the traffic survey results, predict/forecast future traffic volumes and trends along existing and proposed routes over 5- and 10- year cycles, until 2070 (i.e., for the next thirty years).

10. The consultant shall review all available and relevant technology relating to the operations of the EMTRS to recommend the most energy efficient, and cost-effective system for commercial deployment and commissioning.

11. Perform detailed data collection and analysis – Review existing data and literature, but complete, fill in the data gaps and verify by undertaking as necessary detailed technical and engineering survey, to obtain required data to enable sound technical and engineering analysis and design, based on the parameters and indicators related to, inter alia, hydrological (ground and surface), geological, geotechnical, topographic, topology, environmental, ground and air pollution, storm water and storm drainage concerns etc.

12. Provide schematic technical options and alternatives, on the explored routes to improve over various medium to long term horizons, including using modular approaches. Undertake a comprehensive qualitative and quantitative analysis of reasonable

alternatives by assessing the extent to which these alternatives(e.g. buses vs rail, underground vs surface vs elevated, routes, alignments, technology choices, power systems (renewable vs fossils, inter modal and inter nodal connectivity features, inter alia), may be more appropriate from a technical requirement, to strengthen the justification for the recommended solution, which is expected to be an elevated system powered by renewable sources. Present detailed Schematic technical options should include underground, surface or elevated routes or a combination of the three at different nodal points based on technical reasons including, *inter alia,* engineering, geographic, geological, environmental and social considerations and reasons These shall be presented in the Feasibility Study Reports.

13. The incorporation of a central station in a key location along the proposed routes should be considered, where the central station serves as a key economic and commercial hub with integrated mixed used commercial and retail spaces with seamless on and off access to the rail service. The other stations may include smaller more suitable retail kiosks.

14. The submitted reports shall include schematic designs of the final recommended route option/design, which shall also include, inter alia, typical schematic general arrangement, sections, plans, elevations and 3D rendering where appropriate, including HD graphic futuristic video.

B. Institutional and Regulatory Analysis

The Consultant shall:

1. Carry out a detailed review and analysis of the existing institutional framework at the national, local and municipal level that have a planning responsibility;

2. Undertake a review of the existing regulatory framework for the implementation of transportation projects, and recommend, as required, the appropriate institutional set up and regulatory procedures under which the project will be developed and implemented.

3. Perform a detailed review and analysis of the existing institutional framework governing transportation, environmental management, land use and acquisition and social development;

4. Provide a staff assessment of the relevant stakeholder institutions at the national and sub national levels, including job profiles and descriptions, reporting lines, current occupants and their qualifications, aggregating the data to ensure personal names and information are not specified;

5. Discuss and review options for strengthening the institutional framework based on the existing regulatory framework;

6. Discuss, present and recommend options for procurement, design, construction and operation and maintenance (O&M) such as, Design and Build, Build Own Operate and

Transfer (BOOT), Engineering Procurement Construction (EPC), etc., to operationalize the recommended options;

7. Present a detailed and tangible Capacity Building Plan, based on capacity assessments and training needs of the existing institutional framework and propose a Human Resources Plan for relevant sector Ministry, Local Government Departments and other stakeholders; and

8. Analyze and discuss the need for oversight or regulatory functions that could be undertaken by the AIF and other relevant sector Ministry, Local Government Departments and other stakeholders.

9. Based on these findings, discuss, present and recommend suitable institutional and regulatory models that would enhance revenue generation and management for bankability of the proposed EMTRS for full cost recovery at commercial levels and to achieve the required EIRR and FIRR to secure the financing to construct, operate and maintain the proposed EMTRS.

10. Conduct, discuss and present the findings of a comparative qualitative and quantitative analysis of the relevant global lessons learned from similar light to medium speed mass transit rail systems.

C. Financial and Economic Analysis

The Consultant shall:

1. Undertake a market demand survey and analysis for a mass transit system aligned with the proposed routes, systems (light rail and others) and alternatives to determine real demand for a modal shift in passenger ridership from personal and commercial road vehicles to mass transit systems;

2. Preliminary ridership and revenue models shall be developed based on existing and projected population and employment and anticipated service levels. Any assumptions made regarding alignment, station locations, station-to-station travel times, service frequency and reliability, and passenger tariff structures shall be based on sound professional and engineering judgement, and shall be technically justified. Ridership and revenue models are iterative processes that shall be reviewed, adjusted, calibrated and validated, as required, at each successive project phase.

3. Determine and analyze the costs in each proposed segment backbone (i.e. key network) and interconnector routes in the integrated network as a whole, clearly identifying the actual costs across the entire networks being explored;

4. Conduct willingness and ability to pay surveys integrated with the market demand analysis;

5. Then carry out a detailed and thorough Financial and Economic Analysis of the considered technical route (backbone and interconnect routes) options and different technologies and

engineering solutions. This analysis should take into account, *inter alia*, the cost of environmental and social impacts and required mitigation measures for each of the proposed alternatives and be done according to relevant best practice guidelines;

6. Compute the economic internal rates of returns (EIRR).

7. Based on projected financial and budget data, compute relevant financial indicators, including, but not limited to, debt service coverage ratios, and operating ratios. Compute for each option the overall project financial internal rates of return (FIRRs) and weighted average cost of capital (WACC) for each option and route.

8. Analyze and discuss viability gap funding measures that might be required for each alternative option;

   For each route/engineering solution in the chosen option/alternative - estimate the local and foreign costs of the proposed activities across the value chain, including inter alia, the civil works, equipment, transportation systems, including physical and price contingencies;

9. Develop and analyze fixed and variable operations and maintenance costs, including amortization. Prepare these costs to cover the entire temporary O&M period presented above.

10. Define suitable tariff systems for the EMTRS to achieve recovery of O&M costs by a phased / gradual approach taking into consideration affordability of the different population categories, and maximum financing costs.

11. Conduct financial analysis (dynamic prime cost for a period of 30 years at an agreed discount rate, cash flow for a period of 10 years) based on some likely scenarios of development, revenues, costs and tariff systems.

12. Clearly estimate the need for subsidies and strategy for reduction of subsidies and increased cost recovery rate; suitable tariff adjustment concept considering ability to pay and possible cross subsidization.

13. Provide in open source, the financial and economic model to the AIF.

D. Land use, Land acquisition and Social Impact Assessment (SIA)

1. Review, discuss and present the relevant policies, plans, laws and regulations and compliance standards of The Gambia, related to Land Use, Land Acquisition, labour and other social development outcomes.

2. Determine, discuss and present the land use and acquisition needs for the various options being considered and incorporate the cost of land into the financial and economic analysis.

3. Undertake, using meaningful and participatory approaches, a comprehensive social impacts analysis and assessment (SIA) to determine, identify, and map all stakeholders[1] of the proposed EMTRS, as well as assess the social impact on affected communities and/or groups (such as taxi drivers, other public transport operators, roadside vendors, squatters etc.) and on their livelihoods. The consultant shall be required to prepare preliminary outlines of a livelihoods management and restoration plan (LMRP).

4. The SIA should also include information on the general Social baseline conditions along the corridor and project area of influence, including on socio-demographic and socio-economic aspects (population, land-use, planned development activities, community structures, employment, distribution of income, goods and services, recreation, public health, cultural properties, customs, communities/households' aspirations and attitudes, and Project Affected People (PAPs') views on the proposed project).

5. Prepare and execute a Stakeholder Engagement and Management Plan (SEMP).

6. The findings including costs of the corresponding mitigation plans of the Land Use, Land Acquisition and Social Analysis work will be incorporated into the design of alternatives, the financial and economic analysis.

7. The final SIA, SEP and LMRP reports will be for the final recommended EMTRS corridor routes.

E. Environmental Analysis (EIA)

1. The Environmental Impact Assessment (EIA) is required to comply with the Government of Gambia's, AIF's own requirements and international best practice for Environmental Impact Assessment requirements and will be undertaken as part of these tors.

2. Determine and establish the relevant baseline parameters and data to undertake the environmental impact assessment. To do so by carrying out site investigations to collect primary data and review all available relevant secondary data to establish a comprehensive environmental and social baseline (including physical, biological, GHG, social, cultural and economic environments) in the area of influence of the proposed EMTRS.

3. Special attention should be paid to the relevant air quality parameters such as current vehicular emission levels (both in terms of air pollutants and greenhouse gases), and other relevant data for noise, traffic survey, dust, resource efficiency, landscape and natural

[1] Stakeholders being defined as those who are potentially directly impacted and/or likely to be impacted by the proposed EMTRS and those who might have an interest/represent those directly impacted.

physical features, cultural and religious heritage, biodiversity, sensitive habitats, solid waste and waste water, fuel types, current land use, etc., along the corridor and proposed project area of influence.

4. Thoroughly undertake a qualitative and quantitative analysis of the potential impacts (positive and negative) of the alternatives of the proposed EMTRS, including cumulative impacts and all associated/ancillary works and linked activities if any, such as park and ride facilities, terminals, feeder facilities etc., are taken into account.

5. Besides the EMTRS alignments being considered, other potential project alternatives might include engineering design alternatives, technology changes including for compliance with emission standards, construction techniques and phasing, and operating and maintenance procedures.

6. Establish the relevant environmental compliance standards for the proposed EMTRS, compliant with the National Environmental Quality Standards (NEQS), relevant Environment, Health and Safety Guidelines (EHSGs) and/or other relevant internal best practice standards.

7. Determine the relevant mitigation and monitoring measures to avoid, reverse or otherwise management the potential adverse impacts to acceptable levels at all stages of the proposed (planning, construction and operations and maintenance), including the institutional arrangements and required capacity building to implement all such measures, and present these in an Environmental Management Plan (EMP).

8. Conduct meaningful consultations. During both the SIA and EIA process, project-affected peoples, groups and local nongovernmental organizations (NGOs) and all other stakeholders are to be about the proposed project's environmental aspects and their views are taken into account. For meaningful consultations to occur, relevant material must be provided in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.

9. The findings of the EIA including costs of the corresponding EMP work will be incorporated into the design of alternatives, the financial and economic analysis.

10. However, the final EIA and corresponding EMP will be for the final recommended EMTRS corridor and routes.

4. Climate Change Mitigation

1.The proposed EMTRS is expected to lead to significant reduction in Green House Gases (GHG) provided the shift from road vehicles to the mass transit rail system occurs. The consultant shall, using applicable international best practice methodologies, such as those from Climate Action for Urban Sustainability (CURB),Institute of Global Environmental Strategies (IGES) , inter alia, to calculate, analyse and determine the Green House Gas emissions impact of the considered and final recommend options over a thirty year economic life cycle.

5. Implementation Plans

1. Prepare a concept, structure and time schedule for the implementation of the recommended options in the EMTRS, taking into account the following but not limited to geographic constraints, logistics, economies of scale, types of areas / communities served (rural / villages, semi – urban and urban areas), availability of contractors and absorption and management capacity of the AIF and other relevant national and sub-national agencies;

2. Arrange the chosen activities into suitable works and equipment packages for bidding and for implementation;

3. Prepare a priority list with sequential and/or parallel implementation of the contract packages;

4. Assessment of implementation capacities of the relevant national stakeholders, of the local/regional construction capacities and contractors; need for and tasks and role/responsibilities of an implementation consultant;

5. Propose implementation arrangements for carrying out and executing these packages and the proposed project;

6. Outline of principles of project administration, role of the stakeholders, procedures for project implementation (pre-qualification of contractors, type of contract documents, tendering / request for proposals, contracting, supervision and quality control, invoicing, payments, funds flow, disbursements etc.), recommendations on implementation and type of contract with contractors/operators, such as DBO, BOT, BOO, BOOT or others.

7. Prepare final procurement documents for the Design and Build contracts for the recommended activities, alignment, technology choices and parameters, etc., based also on the recommendation of paragraph 6 above, to enable seamless progression to the next phase of this project, which is to procure and employ the design consultant and/or the contractor to design and build.

8. Prepare the procurement package for the selection of the engineer based on the procurement method in paragraph 7 above.

6. Key Institutions and Stakeholders

The successful execution of this potential project will require the active partnership, collaboration and ownership of a number of stakeholders, who key representatives must be consulted during the carrying out of these services, including but not limited to;

- The Ministry of Transportation, Works and Infrastructure
- Ministry of Local Government and Lands
- Ministry of Finance and Economic Affairs
- Ministry of Environment
- Banjul City Council
- Kanifing Municipal Council
- Brikama City Council
- Gambia Roads Authority
- Organization of Islamic Cooperation (OIC), Secretariat, The Gambia
- National Environment Agency
- Gambia Civil Aviation Authority
- GIETAF Special Economic Zone developers at the Banjul International Airport
- Gambia emergency services (i.e. The Gambia Police, The Gambia Fire Service and Ministry of Health)
- Gambia Transport Union and other relevant unions.
- Gambia Public Transport Company
- Gambia Police Force, Gambia National Army and other relevant security agencies.

7. Reporting Requirements

The Consultant shall prepare the following reports in the English language. The reports shall be submitted as hard copies and as electronic data files in PDF, Word, Excel, GIS, or .dwg format as appropriate and agreed. The reports and the proposed timing of their submission are presented below.

A. Inception Report

Inception Report, to be submitted within **four (4) weeks** of commencing the assignment giving a brief outline of the methodology, detailed work plan and activity schedule, schedule for technical teams fieldwork in the cities and towns in the GBA, team composition and staff assignment, reporting schedule, tentative table of content of draft reports described and any other key issues regarding the execution of the assignment. .

B. Stage 1: Pre-Feasibility Study Report (Interim Report)

All the initial findings, analysis, conclusions and recommendations will be presented in an Interim report 16 weeks from project commencement stage, including preliminary initial draft Environmental Impact Assessment, Social Impact Assessment and Land acquisition reports . The findings will be submitted to the CEO, AIF and the DG, GTB in advance and presented to all interested stakeholders during workshops in Banjul, London, two EU Capital Cities, and the two US cities of Washington DC and Atlanta, Georgia. The workshops are expected to commence 22 weeks after the commencement of the study and carried out over a period of 4 weeks. The purpose of the workshop is to sensitize the Gambia diaspora, to seek a decision about the measures in the interim report and to further examine, evaluate and validate the interim feasibility study findings.

C. Stage 2: Feasibility Study Report (Draft and Final)

Stage 2 will only begin after written approval of the results of Stage 1 is given to the consultant, and instructions to proceed with Stage 2.

The findings, analysis, conclusions and recommendations will be presented in a draft feasibility study report, which will be submitted to the CEO, AIF and the DG, GTB in advance and presented to the stakeholders during workshops in Banjul, London, and two EU Capital Cities, and the US cities of Washington DC and Atlanta, Georgia. These workshops are expected to commence 32 weeks after the commencement of the study and carried out over a period of 4 weeks. The purpose of the workshop is to evaluate the proposals and recommendations in the Stage 2 Feasibility Study and to inform decision making on the options. The consultant shall;

- Prepare a Draft Feasibility Study Report with suitable annexes, sub-reports and concise data sheets for each measure/route/technology choice;
- Prepare suitable presentation material and hand-outs;
- Preparation of the final Feasibility Study Report considering the results and recommendations of the workshop as recorded in the minutes, approved by the stakeholders;

- Preparation of bidding documents for the procurement packages for design, build and supervision; and
- The Feasibility Study Reports will contain suitable charts, schematic designs and general arrangement plans, typical elevations and sections, maps, annexes and relevant data.
- 3D High definition graphic video of the final recommended schematic design.
- Prepare final Environmental Impact Assessment Report with required corresponding management plans for the final recommended option/design.
- Prepare Social Impact Assessment Report, Land Acquisition Management Plan and other required corresponding management plans for the final recommended option/design.

8. The Costs of the national and International Workshops

The cost of travel of the consultants participation in these consultation workshops shall be borne by the consultant. The travel costs that the consultant shall be responsible for shall include hotels, per diem and air fares for the consultants staff traveling to the workshop locations. However, the costs of the venue and the workshop event will not be borne by the consultant. In addition to their travel costs, the consultant shall be responsible for the;

- Logistical organization of the workshops with all stakeholders; and
- Preparation of suitable presentation material and hand-outs for the workshop.

The names of the two EU capitals that the international workshops will be held, will be chosen by the AIF and communicated to the selected consultant prior to the submission of the inception report.

Preparation of suitable presentation material and hand-outs for the workshop

9. Key Timelines for Deliverables

D	Date of formal Engagement of Consultant
D + 2 weeks	Mobilization in Country
D + 6 weeks	Submission of Inception Report
D + 18 weeks	Submission of Stage 1 Draft Pre-Feasibility Study Report
D + 22-26 weeks	National and International stakeholders' workshops
D + 26 – 32 weeks	Submission of Stage 2 Draft Final Feasibility Study Report
D + 32 weeks	National and International stakeholders' workshop on the Draft Feasibility Study Report

D + 40 weeks	Submission of Final Feasibility Study Report and Procurement documents.

10. Consultant's Expertise and Resources

The services of the following are being sought to provide the services stated in this tor;

(a) a qualified international engineering design consulting company; or

(b) a consortium of such companies; or

(c) a consortium of qualified international engineering design consulting companies and potential qualified transportation sector contractors and operators and transportation systems providers.

The Consultant must have the required skill, expertise and experience needed to perform these services to a professionally high standard. The Consultant must have no less than 10 years corporate experience performing services such as envisaged here in the transportation sector under similar contracts.

These services would require the following professional expertise in the team at a minimum:

- Transportation Technical Specialist/Engineer who is a Chartered/Professional Transport Planner/Engineer with a minimum of 10 years of relevant experience and will also serve as the Team Leader for this assignment.
- Civil and Structural Engineer who is a Chartered/Professional Engineer with a minimum of 10 years of relevant experience.
- Design Architect who is a Chartered/Professional Architect with a minimum of 10 years of relevant experience, including with designing mixed used commercial and retail spaces in modern central rail stations in urban areas.
- Geotechnical Engineer, Chartered/Professional Engineer with a minimum of 10 years of relevant experience.
- Infrastructure and/or Transport Economist (qualified economist with minimum 10 years experience.
- Infrastructure Transaction specialist with a minimum of 10 years or relevant experience structuring and packaging such transactions for procurement, financing and financial close.
- Urban Planner/Chartered Urban or Town Planner with a minimum of 10 years of relevant experience.

- Local Government Institutional Management/ Reform Specialist with a minimum of 10 years of experience.
- Environmental Engineer with a minimum of 10 years of experience preparing environmental impact assessments and corresponding management plans for major infrastructure projects that meet the standard of international development agencies.
- Social Development Specialist with a minimum of 10 years of experience preparing land acquisition and resettlement plans, social impact assessments and corresponding management plans for major infrastructure projects that meet the standard of international development agencies.