

TERM OF REFERENCES

RECRUITMENT OF A CONSULTING FIRM TO CONDUCT FEASIBILITY STUDY- WASTEWATER SYSTEMS FOR BANJUL AND KOTU- EMERGENCY WORKS AND MEDIUM-LONG TERM PLANS

1. Project Background Information:

The Gambia Electricity Restoration and Modernization Project (GERMP) additional financing, in the amount of USD 43 million, was approved by the World Bank Board of Directors on 29 June 2020. This project, which expands the scope of the parent GERMP, aims to improve NAWEC's operational performance for electricity, water and sewerage services and will fund important investments in water and sanitation infrastructure that can help address the water and sanitation crisis in NAWEC's service area.

The GERMP Additional Financing will provide essential support to NAWEC to address some of these challenges. The project plans to strengthen the utility's functioning through a service contract covering both electricity and water; the introduction of water drinking modules in the information management system (IMS); training; and strategic studies on sanitation. A separate component will strengthen NAWEC's planning on non-revenue water reduction; install retail meters and district metered areas (DMAs); introduce energy efficiency measures; rehabilitate storage tanks; finance new water connections; and improve water quality at selected water treatment facilities. Moreover, considering the current coronavirus pandemic, the project has provided emergency support to NAWEC to purchase IT equipment for staff and handwashing and hygiene kits to the population; and implement hygiene campaigns. It will also provide water supply to unconnected areas through borehole drilling and extension of water network. It has provided refilling of water plastic tanks by service providers to water stressed zones in the GBA, will also purchase needed spare parts and equipment to ensure continuity of service provision.

The objective of this assignment is to help NAWEC develop a strategic plan in addressing the sewerage problems in the Banjul and Kotu areas including Senegambia.

2. Background information of the wastewater system in Banjul and Kotu

The Banjul wastewater system was built in 1982. The system is an off-site sanitation originally designed to serve the residential, institutional, and commercial establishments within Banjul.

It is believed that the system was constructed mainly due to the high ground water level which could result in individuals incurring significant cost for an on-site sanitation system. In addition, high ground water could impact the operations of these onsite system.

The system's infrastructure- network and wastewater disposal system is in poor condition both structurally and from a serviceability perspective.

The sewage system comprises of two main catchments that drains by gravity to the PN4 and PN11 pumping stations.

The system is consisted of an interconnected network with a total length of about 35Km with pipe diameters that is varying from 200mm to 600mm. About 15km of the network with 150 mm pipe size is used for house-connections.

Wastewater Collected at P4 pumping station is screened using coarse screen then pumped to PN11 pumping station from where the combined flows from P4 and P11 is screened before it is discharged approximately 1km into the sea via a DN600 pressure pipe.

It is believed that the diffuser is broken at the end of the sea outfall pressure pipe. There is no treatment of sewage at these stations.

The Kotu system was constructed in 1988 to treat wastewater generated from tourist development areas mainly hotels and commercial buildings. It has since been used as a dumping point for faecal sludge mainly from individual households other than Banjul- the Capital.

Wastewater generated within the Kotu catchment is conveyed to four pumping station from where it is pumped to the treatment facility. The treatment system consists of a pretreatment (coarse screens and grit removal) and from where it discharges into four lagoons operated in series from where the effluent discharges into Kotu stream.

The reasons attributed to the current failure of the systems are associated with an aging infrastructure, poor operations and maintenance culture and management. A quick intervention in a form of emergency actions is therefore required to improve the systems.

The feasibility study (FS) will be required to be carried out in two folds:

For emergency/immediate actions FS, the duration is 1.5 months, and all deliverables will be detailed assessments and reports.

For medium to long term actions FS, the durations 3.0 months and all deliverables will be high level reports.

3. Objectives of recruiting a consulting firm

The main objective of this assignment is to conduct a feasibility study of the wastewater system in Banjul and Kotu, develop an investment plan with specific focus in areas such as the institutional set up, financing options and benefits, payback period in case of a public private partnership or performance-based arrangements, technical/operational challenges and customer acceptability and sanitation marketing.

The consulting firm is also expected to assess the system's ability to meet the current demand.

As part of the feasibility study, the consulting firm will also include an analysis of the different options with specific focus on Net Present Value (NPV), Internal rate of Return (IRR) and Return on Investment (ROI).

The methodology shall include but not limited to data gathering through site visits, inspections, focus groups, brainstorming interviews with different stakeholders to assess the acceptability and willingness of citizens for such in Banjul and Kotu.

At each stage of the assessment of the system, the consultant must consider timeframes for each of the emergency actions. The assessment includes the entire system including electrical controls and civil works.

3.1 Sub-objectives

Below are some specific objectives for the consulting firm to observe during the feasibility studies:

3.1.1 Situational analysis or assessment of the wastewater system in Banjul and Kotu:

It shall be the responsibility of the consulting firm to conduct a study of the existing systems. Should there be missing data or lack of available data, it will be the consultant's responsibility to establish the baseline information with the support of the client's project team. The firm is expected to investigate and establish reasons why the system is failing and outline the challenges that will be required for an improved service delivery in the short term.

3.1.2 Solutions proposal

The solutions shall be presented considering the short term, medium time and long-term investment and intervention plans.

The short-term plan will detail recommendations for immediate actions, each plan shall have different options with cost benefit analysis.

3.1.3 Develop standard bills of quantities and technical specifications

The consulting firm shall provide tender documents including designs, BoQ and technical specifications for all emergency actions and shall serve the purpose of contractor recruitment and purchase necessary equipment for the short term.

3.1.4 Prepare and develop an institutional strengthening/transformation plan and associated investments

Including a capacity building plan, the consulting firm shall assess the institutional set-up, review the organograms and staffing roles and responsibilities to identify gaps. The firm shall also develop a procedural or operational manual with the objective to improve operational efficiency.

4. Scope of work

The consulting firm shall compose of professionals with adequate profiles for specific studies on policy, regulatory, institutions, finance, business planning, technical, social, economic, and environment as it is related to this assignment.

Phase 1: Emergency actions/interventions – 1.5 MONTHS

Task 1: Infrastructural problems

The current system has infrastructure that will need urgent intervention and in some cases replacement and to some extent a revamp. The firm shall do an assessment of the infrastructure and should include the service laterals, sewer network (inclusive of manholes) , pumping stations and the treatment and disposal facilities.

Determine the current state of infrastructures through site visits and visual inspections. Outline the problems, root causes and suggestions for future management of such infrastructures.

- Identify assets including equipment to be replaced, specifications and related cost for immediate works. Explore a range of possible appropriate technologies for use to improve service delivery. Any recommendation shall take into consideration the local context and sustainability.
- Identify other problems and failure of the sewerage system such as the diffuser installed on the outfall pipeline.
- Provide detailed designs for any new proposals

Task 2: Operational/Technical problems

Through interviews, focus group, stakeholder's engagements determine the operational and technical challenges.

- Evaluate the technical and operational aspect of the existing system and determine the associated challenges, constraints, and issues.
- Explore why the system is deteriorating and propose plans to improve the service delivery. Assess the gap and need for expansion.
- Identify if any illegal connections to the system and the extent of such actions and by extension possible environmental, social, and public health impacts.
- Assessment on the working conditions of the working sanitation team, their challenges, constraints and identify their issues to be urgently addressed. Also focus a specific assessment on the tools and equipment available to the team during operations as well as the personal protective equipment and give recommendations on how to improve the situation.
- Effect of power outages at the two pumping stations and the unavailability of equipment to adequately maintain and repair the system.
- The issue of overflows and how to address this in the short term
- Carry out water quality tests by taking water samples at specific areas such as the sea outfall point and the nearby beaches to determine if there will be any important environmental concerns.

Task 3: Development of bill of quantities, detailed technical specifications, drawings/designs and schedules for emergency actions/interventions

- Prepare tender document with clear specifications and bills of quantities for immediate actions
- Also include a schedule plan for implementation

Phase 2: Medium- and long-term actions/interventions- 3 MONTHS

Task 4: Institutional analysis

- Identify the main players or all stakeholders and map them to demonstrate their engagement points.
- Indicate roles and responsibilities of the different stakeholders.
- Identify any gap during the assessment or stakeholders' engagements.

- Through stakeholders' engagements including the end users, conduct interview through community engagements to rate their level of satisfaction of the current system.
- Conduct stakeholders' engagements using recommended tools, techniques, and approaches.
- Assessment of the regulatory framework to identify the main players. Review the existing regulations of sanitation and assess the completeness of the paper. Identify the regulatory gaps, constraints, issues in the actual and planned wastewater service delivery system.
- Capacity building needs assessment, sensitization plan of the users on improving the usage and management of the system at household's level.
- Explore the current regulatory policy to recruit, engage and assign private sector participation. Considering the past comparable projects in other similar countries to the present context, provide recommendations to improve and encourage public private partnership in the sanitation sector focusing on service providers for both the network and pumping stations

Task 5: Customer Acceptability and Sanitation Marketing

- Assess status of the service delivery to establish satisfaction level of the beneficiaries through surveys, interviews of all types of stakeholders. Focus on current practices, behaviors, and views of existing customers. Also assess their willingness to pay for an improved services and perception of the existing wastewater service options.
- Assess illegal dumping of garbage and connections to the sewer pipe with specific focus on customers' inappropriate behaviors.
- Explore possibilities of sanitation awareness/behavior change programs and include recommendations or approaches for improvement of service delivery.
- Summarize the existing methodology or approach used for sensitization, sanitation marketing communication and hygiene promotions including the materials and equipment. Focus on tools and techniques.
- Establish if these existing programs made any impact and how to improve on it. Prepare specific lessons learned to use and ensure impactful programs in the future.

Task 6: Alternative solutions and cost benefit analysis

The consultant shall be explicit in analysis to such that it will be easier to determine an option by employing the methodology of cost benefit analysis and taking into consideration the NPV, IRR, payback period and ROI

Task 7: Funding/financing options or arrangements

Assess the existing tariff structure and determine if it is appropriate and the reason why it is not sustainable. It is considered that the service delivery of sanitation is not sustainable and is therefore subsidize by the returns from the water business and sometimes by the electricity business. The firm is therefore expected to do a detailed study of the existing situation taking into considerations the CAPEX, OPEX and tariffication.

- Explore the appropriateness of tariff structure and determine acceptability, ability, and willingness to pay by the customers. This study will include payment methods, frequency, invoicing mechanism, collection methods
- Determine if there exist any government budget allocations for investment and running cost. In case the utility is subsidizing from other units within, indicate the percentage.
- Assess and propose appropriate tariff to at least break even in the wastewater system operations
- Assess the existing payment mechanism and their preference of the different options
- Assess private investors and commercial banks for possible public private partnership. Determine the willingness, interest, and ability of specifically the commercial banks for such collaboration. This study shall include conditions for investment example payback period, ROI, IRR, NPV. Identify and assess level of private investors or service providers involvement through, management contracts, performance-based contract, design-build-operate (DBO) contracts etc to operate, maintain treatment stations, networks, transfer stations etc.

Task 8: Business development

- Assess the current business model and what would be required to become more financially viable
- Identify and explore different business models particularly those in same context and similar environment including new and sustainable innovations such as equipment to be used in the service delivery
- The advantages and disadvantages of each business model shall be clearly outlined
- Assess and identify different options for possible collaborations with private sector investors or service providers
- Any impacts by the business models on the World Banks's Environmental and Social Safeguards Framework should be considered and appropriately detailed.
- Carry out a review of sanitation technology pilots/innovations in the same or comparable cities that have been previously tried and provide a review of their successes/lessons learned from failures and implementations.
- Explore the options of generating energy to promote access to renewable energy from wastewater management.

Task 9: Development of bill of quantities, detailed technical specifications, drawings/designs, and schedules in both medium and long-terms

- Prepare tender document with clear specifications and bills of quantities for medium- and long-term works.
- Also include a schedule plan for implementation of medium and long-term solutions

5. Deliverables/milestones

The consulting firm will provide the following deliverables or outputs, at the stipulated times:

5.1 Inception report- 4 weeks after contract signing. The following items but limited shall form part of the report:

- Updated work plan or schedule buttressing on the key stakeholder's engagement such as end users or community, utility personnel and municipal authorities. The method of collaboration shall be outlined in a manner that is concise and clear. The method shall also include the techniques and tools to be used.
- List of the data gathered and identified.
- Possible constraints and risks to the assignment and mitigations.

5.2 Draft report – 10 weeks after contract signing – covering all aspects under objective and sub-objectives mentioned above, including those on the inception report.

- Situational assessment of the wastewater system and the entire network including the connections at households in the capital.
- Needs assessment for an improved service delivery
- Demand for such an improvement from the stakeholders
- Viable options for the improvement, management, and operations of the entire system with special attentions on policy, regulatory, financial, institutional, technical, environmental, social, and legal issues.
- Detailed description including maps and preliminary technical designs and indicative costs. This report shall also include the best practice in wastewater treatment process from pre-treatment to the effluent disposal.
- Pumping systems controls and sizing including the civil infrastructures

5.3 Stakeholder workshop

After the draft report is submitted, the firm is expected to organize a workshop either face to face or virtually to discuss comments from the draft. The alternatives for the works shall also be discussed and agreed for the consultant to move to the next phase of the assessment works.

5.4 Final report -4 weeks after receiving comments on draft report

With specific attention on the draft reports, comments and inputs of the different stakeholders including the client, the consultant shall update the document accordingly and including:

- Detailed technical specifications, standard drawing/designs, and Bill of Quantities
- Costed and outlined plans for required stakeholder development, training, and marketing
- Prepare tender documents for implementation stage.

6. Payment method

All payment will be tied to the following milestone or deliverables as stipulated below:

- 15% on approval of the inception report
- 45% on approval of the draft report
 - 20% on approval of the draft report 1 on emergency actions/interventions
 - 25% on approval of the draft report 2 on medium- and long-term plans
- 10% after stakeholder workshop

- 30% on approval of the final report

7. Contract administration

The contract is expected to take a duration of 5.5 months and the consultant will report to the project coordinator, in the PIU office, the Gambia.

8. Special contract conditions

- The consulting firm is requested to provide a separate technical and financial proposal to conduct CCTV inspection of the entire network including the laterals connecting to households. The PIU will decide if CCTV inspection will be part of the study or not depending on the budget involved.
- Potential firms are strongly encouraged to partner with local partners.

9. Qualifications

The consulting firm shall have a team with the following profiles or requirements:

Institutional specialist

- Relevant Master's degree in social sciences, public policy, or other relevant field of study
- 10 years of relevant work experience and extensive professional experience in similar projects
- Experience working with municipal authorities and utilities
- Deep knowledge of water and sanitation institutional setting in a comparable country
- Experience on urban sanitation
- Experience working with all stakeholders or players in urban sanitation management
- Fluent in written and spoken English
- Strong analytical and needs assessment skills
- Ability to provide clear and concise reports

Financial Specialist

- Relevant master's degree in finance, economics, MBA, or other relevant field of study
- 10 years of relevant work experience and extensive professional experience in a similar project
- Experience of working with municipal authorities and utilities
- Fluent in written and spoken English
- Ability to provide clear and concise reports
- Relevant experience in project selection

Economic specialist

- Relevant master's degree in MBA, Finance, economics, public policy, and other relevant field of study
- At least 10 years of relevant work experience

- Experience in small-medium enterprise development
- Strong analytical and strategic action plan development skills
- Fluent in written and spoken English

Technical specialist

- Relevant master's degree in civil, sanitation, environmental engineering, or other relevant field of study
- At least 10 years of relevant work experience
- Experience in urban sanitation management or similar projects in the region
- Fluent in written and spoken English

Customer service specialist

- Relevant master's degree in social sciences, public policy, MBA, or other relevant field of study
- At least 10 years of relevant work experience in urban sanitation
- Experience in conducting stakeholder engagements and interviews in the sanitation field
- Experience performing social economic surveys in a comparable country
- Strong analytical and needs assessment skills
- Ability to produce concise and clear reports
- Fluent in written and spoken English