

Procurement of Transaction Advisory Services for Project Preparation of Waterval Wastewater Treatment Works Water Reuse Project.

Issued under the Water Reuse Programme and Water Partnership Office

Specialist Services for Socio-Economic Analysis of a Water Reuse Project

ANNEX E: TERMS OF REFERENCE FOR SOCIO-ECONOMIC ANALYSIS AND ANNEXURE

This document – Terms of Reference for Socio-Economic Analysis Specialist - must to be read with the following:

Terms of Reference for Transaction Advisors

Annex A: Technical Requirements and Scope of Project

Annex B: Table of Contents of the Feasibility Study

Annex C: Terms of Reference Technical Options

Annex D: Terms of Reference ESIA

Annex E: Terms of Reference for Socio-Economic Analysis and Annexure

Annex F: Gender Action Plan

The Terms of Reference for Socio-Economic Analysis is a template for use by the Project Owner and the WPO when preparing the Request for:

1. New and complete wastewater and sludge treatment plants,
2. Improvements to and/or rehabilitation of, existing wastewater and/or sludge treatment plants, and either of these combined with,
3. Reuse of treated wastewater in Direct Potable Reuse (DPR) or Reuse Treatment Plant (RTP) configurations.

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1. BACKGROUND

Funding sources, such as the National Treasury's Budget Facility for Infrastructure (BFI) and the DBSA's Infrastructure Fund (IF) in conjunction with the DBSA's Water Partnership Office (WPO) were established to use blended finance mechanisms to increase the overall investment in public water reuse infrastructure and to accelerate infrastructure implementation. The functions of the BFI, the IF and the WPO are to:

- Develop blended financing solutions for projects on behalf of the Project Sponsors
- Identify and develop appropriate funding structures (grants, capital contributions, user pays, interest rate guarantees or a combination), financial models, financial delivery mechanisms and incentives for infrastructure projects
- Where appropriate (depending on the project), arrange, coordinate, structure and engage with financial markets to develop financial instruments to enable investments in the projects by investors
- Encourage collaboration between public and private role-players to unlock adequate and affordable blended finance for projects to quickly reach financial close
- Actively support Project Sponsors in the development of financial mechanisms for blended finance projects
- Monitor and where possible drive the process of moving projects through the planning stage until financial closure
- Where required, work with partners to develop procurement, financing and implementation plans for the projects and provide support to Project Sponsors
- Monitor the application of blended financing mechanisms for projects and ensuring effective asset management; and
- Actively work with Project Sponsors to track the progress made on projects implemented with the involvement of the IF.

The approval of budgets for BFI, IF and WPO linked projects and programmes are currently allied to the Budget Facility for Infrastructure (BFI) which is a reform to the budget process that establishes structures, procedures, and criteria for committing fiscal resources to public infrastructure expenditure.

The BFI creates a window of budget submissions and allocations for large infrastructure projects and programmes, assesses the submissions, and makes recommendations to budget authorities and political decision makers.

The BFI and other sources of funding require a socio-economic analysis that justify financial support for the projects through a credible analysis of social and economic benefits and costs. The socio-economic analysis required by the BFI provides information that enables the assessment of welfare changes and estimation of the project's impact on all segments of the society.

This is done by calculating economic performance indicators such as the Economic Net Present Value (ENPV), the Economic Rate of Return (ERR) and Cost-Effective Ratios (CER).

2. OBJECTIVES OF THE TERMS OF REFERENCE

The DBSA through its WPO would like to procure a Socio-Economic Analysis Specialist (SEAS or Specialist) to conduct detailed socio-economic analysis studies for the reuse of water from the Waterval Wastewater Treatment Works. The targeted sectors for water reuse are industry, electrical power generation, irrigation for agriculture and agro-processing in the Vaal Triange.

3. DETAILED SCOPE OF WORK

The scope of work to be undertaken by the Specialist is described below. The service provider is required to prepare a comprehensive socio-economic analysis report (based on the financial and economic models developed by the Specialist) with dedicated and clearly delineated sections for each of the projects covering the:

- Review of the socio-economic profiles of the location of project and confirmation of need and demand for the water reuse project
- Assessment of the socio-economic impacts of the water reuse project on the local and national economies
- Justification for fiscal support for the water reuse project through a credible analysis and assessment of social and economic costs and benefits of the project (as per the BFI guideline methodology([www.treasury.gov.za/publications/guidelines/2024%20BFI%20Special%20Window%20Guideline_Final%2025%2003%2024%20\(004\).pdf](http://www.treasury.gov.za/publications/guidelines/2024%20BFI%20Special%20Window%20Guideline_Final%2025%2003%2024%20(004).pdf)))
- Provision of information that enables an assessment of welfare changes due to the implementation of the water reuse project and estimation of the project's impact on all segments of the society as measured by the calculation of economic performance indicators such as the ENPV, ERR and CER
- Provision of a scientific method of demonstrating economic costs and benefits of a project through CBA and/or CEA to assess their socio-economic viability
- Policy alternatives and measure the economic impact of the projects against a "do nothing" scenario on all the alternatives
- Review of the project's delivery options and conducting a CBA and or/ CEA for the preferred option
- Identification, quantification, categorisation and timing of impacts, and costs and benefits. The Specialist needs to identify the impact of the preferred technical option under consideration, categorise the impact as costs or benefits
- Comparison of benefits with costs using the social discount rate (SDR). The costs and benefits of the preferred option must be discounted using a selected SDR to bring future values into their present-day equivalent, and
- Demonstration of distributional impact(s) in relation to the accrual of gains or losses to different stakeholder groups from the implementation of the project.

Annexure A – Additional details on the Scope of Work for a Cost Benefit Analysis.

4. MANAGEMENT OF THE SPECIALIST

The Transaction Adviser will appoint the specialist and is responsible for the day-to-day management of the Specialist's work. The Specialist will report to the Transaction Adviser's Project Manager and may from time to time be required to present and submit progress reports within stipulated timeframes. Successful bidders will be expected to confirm professional indemnity cover for the active duration of the instruction/s, once appointed.

The Project Sponsors will be the primary source of information for the studies. However, the Specialist is also required to conduct independent research or use other ways of data collection and verification to obtain or strengthen the project's available information. The Specialist must note the following:

- Any financial and economic models developed must be done in Microsoft Excel while the detailed report should be produced using Microsoft Word
- The model(s) will become the property of the Transaction Adviser and the WPO and must be fully functional and operational upon handover. The Specialist should be available to fix any technical glitches on the models

- Training of the Transaction Adviser and the WPO employees in using the models is included in the scope of work.

5. EXPERTISE AND EXPERIENCE

The Specialist must have expertise and experience in the following areas:

- Financial analysis and modelling
- Economic/socio-economic including gender analysis
- Cost-benefit analysis, and
- Cost-effectiveness analysis.

6. QUALIFICATIONS AND EDUCATION

The assigned Specialist should at least hold a postgraduate degree or its equivalent in Development Finance, Economics, Econometrics, Statistics or related field, and a minimum of five (5) years of relevant experience in socio-economic analysis of water and sanitation water reuse, energy, agriculture and agro-processing and infrastructure projects. Demonstrable previous experience in these sectors using CBA and CEA methodologies confers an added advantage.

7. DURATION

The duration of the assignment is approximately 6 months.

Annexure: Additional details on the Scope of Work for a Cost Benefit Analysis

A cost-benefit analysis (CBA) for a water reuse project in South Africa should consider both the costs (e.g., treatment, infrastructure, and operation) and the benefits (e.g., reduced water demand, environmental improvements, and economic gains), helping decision-makers assess the project's economic viability and sustainability.

Below is a breakdown of key considerations for a CBA of a water reuse project in South Africa.

1. Defining the Project Scope and Objectives

- **Clearly specify the project's purpose:** Is the goal to reduce water demand for irrigation, industry, or municipal use?
- **Identify alternative solutions:** Consider other water management strategies, such as water conservation measures or new water sources.
- **Determine the service area:** Define the geographic area that will benefit from the water reuse project.
- **Conduct a market assessment:** Evaluate the potential demand for reused water and identify potential users.

2. Identifying and Quantifying Costs

Capital Costs:

- **Treatment plant infrastructure:** Costs associated with building and equipping the wastewater treatment plant.
- **Pumping and distribution systems:** Costs for pipelines, pumps, and storage facilities to deliver treated water.
- **Land acquisition:** Costs for acquiring land for the treatment plant and associated infrastructure.

Operational Costs:

- **Treatment and maintenance:** Costs for operating and maintaining the treatment plant, including energy consumption and personnel.
- **Water distribution:** Costs for pumping, maintaining, and distributing the reused water.
- **Monitoring and testing:** Costs for monitoring water quality and ensuring compliance with regulations.
- **Sludge handling:** Sludge from the water re-use plant including either disposal or conversion into a value-add product and environmental costs.

Environmental Costs:

- **Potential environmental impacts:** Costs associated with mitigating any negative environmental effects of the project, such as pollution or habitat disturbance.

Social Costs:

- **Public perception and acceptance:** Costs associated with addressing public concerns and ensuring community support for the project.

3. Identifying and Quantifying Benefits

Economic Benefits:

- **Reduced water demand:** Savings in water consumption for irrigation, industry, or municipal use.
- **Reduced water tariffs:** Lower water bills for users of reused water.
- **Increased agricultural productivity:** Enhanced crop yields and revenues from irrigation with reused water.
- **Economic development:** Job creation and economic activity related to the project.

Environmental Benefits:

- **Reduced wastewater discharge:** Lower pollution levels in rivers and oceans.
- **Improved water quality:** Enhanced water quality in receiving water bodies.
- **Water resource conservation:** Reduced pressure on existing water sources.

Social Benefits:

- **Improved public health:** Reduced risks of waterborne diseases.
- **Enhanced water security:** Increased resilience to water scarcity.
- **Community development:** Improved livelihoods and living conditions.

4. Conducting the Analysis

Use appropriate valuation methods:

- Employ techniques like net economic present value (ENPV), benefit-cost ratio (BCR), and economic internal rate of return (EIRR) to assess the project's economic viability.

Consider both internal and external impacts:

- Evaluate the project's economic, environmental, and social impacts.

Perform sensitivity analysis:

- Assess the project's vulnerability to changes in key parameters, such as water demand, costs, and benefits.

Incorporate stakeholder perspectives:

- Engage with stakeholders to ensure that the project's design and implementation are aligned with their needs and concerns.

5. Key Considerations for South Africa and Location of the Project

Water scarcity:

- South Africa is a water-scarce country, making water reuse projects particularly important.

Water quality regulations:

- Ensure that reused water meets the relevant quality standards for its intended use.

Institutional capacity:

- Assess the capacity of local authorities and water management agencies to implement and manage water reuse projects.

- **Public acceptance:**

Address public concerns about water reuse and ensure community support for the project

END