

## TERMS OF REFERENCE

### SENIOR TECHNICAL & ENGINEERING SPECIALIST

#### KARACHI WATER & SEWERAGE SERVICES IMPROVEMENT PROJECT

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##### 1. Introduction

Karachi is Pakistan's largest city, main seaport and international trade hub. It encounters numerous challenges among which water supply and sewerage are the worst affected services, falling far short of the city's expanding needs. To mitigate this gap, develop these services for Karachi and strengthen the Karachi Water and Sewerage Corporation (KWSC) to become a financially viable and technically well performing water utility that ensures clean, safe drinking water and sewerage services to public, the Government of Sindh GoS / KWSC partnered with the World Bank Group through the Karachi Water and Sewerage Services Improvement Project (KWSSIP). The Karachi Water and Sewerage Services Improvement Project (KWSSIP) encompass a USD 1.6 billion reform-led investment program, to be implemented in four phases over a period of 12 years. Phase 1, with an investment portfolio of USD 100 million, is currently under implementation, and a Project Implementation Unit (PIU) has been established for this purpose. The Project Proposal Form (PC-1) for the Second Phase of KWSSIP amounting to US\$600 Million has been approved by the Executive Committee of the National Economic Council (ECNEC). The project was been approved by the World Bank Board on 12th December 2024. The project is being implemented by the Government of Sindh (GoS) and the Karachi Water and Sewerage Corporation (KWSC) through multiple procurement processes, expected to occur within a short timeframe. The project activities aim to achieve key milestones, including addressing environmental aspects associated with the proposed project components.

The following are the project components:

##### **Component 1 – Operational & Enabling Environment Reform**

- a. Institutional Reforms and Capacity Building in Human Resource (HR)
- b. Implementation of Communication Program & Capacity Development of Customer Relations Management (CRM)
- c. Implementation of Gender Action Plan
- d. Capacity Building in Asset Management, GIS and Data Collection Strategy
- e. Preparation and Implementation of Water Safety Plans
- f. Outsourcing of Metering & O&M
- g. Advance Studies for the adaptation of Trenchless technology of Infrastructure development in Karachi Water and Sewerage Program
- h. Financial Management improvement

##### **Component 2 – Infrastructure Investments**

- a. Rehabilitating Water Supply and Sewerage in Selected Low-Income Communities
- b. Priority Sewer Network Rehabilitation and Extension:

- c. Priority Water Network Rehabilitation including O&M equipment, meters & District Metered Areas (DMAs) to reduce NRW
- d. Priority Works for Reducing Energy Consumption
- e. K-IV Augmentation and Downstream Allied Works
- f. Rehabilitation of Existing Filtration Plants (NEK K-II, 100 MGD, Pipri JBIC 50 MGD)
- g. Viability Gap Funding (VGF) to support PPP Interventions

### **Component 3 – Project Management and Studies**

- a. Design Review and Construction Supervision of the Proposed Sub-Projects of Phase2
- b. Follow-up studies on energy audits

Preparation of KWSSIP -3, feasibility, E&S study, designing & PC-1, follow up study from the Master Plan Study

### **2. Key duties, functions and responsibilities:**

The Senior Technical & Engineering Specialist will assist the Manager Technical & Engineering in Project Planning & Coordination, Engineering & Technical, teams. The Senior Technical & Engineering Specialist will also assist the Manager Technical & Engineering in supporting the procurement and contract management teams of the Project Implementation Unit (PIU). The specific tasks/duties, functions, and responsibilities of the Senior Technical & Engineering Specialist will be as outlined below.

#### **A. Technical and engineering supervision and leadership**

- Provide technical and engineering supervision, guidance and leadership.
- Ensure alignment of technical activities with the Project Development Objectives (PDOs), the Project Operational Manual (POM), World Bank guidelines, and Government of Sindh (GoS) regulations.
- Provide guidance and leadership in the preparation of procurement documents to hire service providers, including Terms of References (ToRs), Expressions of Interest (EoIs), Requests for Proposals (RFPs), Requests for Quotations (RFQs), Requests for Bids (RFBs), specifications, etc.
- Provide guidance and leadership in the evaluation of bids and proposals, preparation of evaluation reports, pre-contract negotiations and technical discussions and drafting contracts.
- Provide guidance and leadership in the preparation, review and coordination technical studies, designs, plans, and reports and ensure quality control, compliance, and timely delivery.
- Provide guidance, leadership and supervision in developing and implementing technical work plans, performance targets, and milestones.
- Provide guidance and, leadership in facilitating coordination/consultations and clearances with relevant utilities and authorities during the design stage and approval stages.
- Provide leadership in monitoring and address shortcomings in the client's or consultant's daily inspections and checks to ensure compliance with technical specifications, safety standards, and contract provisions.
- Provide leadership in reviewing and finalizing technical deliverables and reports submitted by consultants prior to submission to the Project Director for approval.

- Support in preparing and deliver progress presentations and technical briefs and reports for the Project Director and World Bank missions.
- Provide technical support and guidance to consultants to facilitate smooth implementation of project components.
- Provide guidance and, leadership in managing consultants and other service providers engaged under the project to implement technical and engineering assignments including designs, bidding packages, and studies.
- Provide leadership in reviewing and recommending clearance or payment of claims or payment certificates submitted by consultants and contractors and other service providers hired under the project to implement technical and engineering assignments.
- Provide technical inputs (through the Manager Technical & Engineering) to support the Project Director in decision-making by providing technical inputs during meetings with stakeholders, consultants, and World Bank representatives.
- Assist in maintaining systematic documentation, verification, and archiving of technical drawings, reports, and records to meet compliance and audit requirements.
- Provide recommendations for improving work processes, resolving site-level bottlenecks, and ensuring timely delivery of project outputs.

#### **B. Leadership & Capacity Building**

- Assist in coordinating technical staff (Engineering teams), fostering a collaborative, professional, and high-performing work environment.
- Support the identification of capacity-building needs of technical and engineering staff and design training/coaching plans in collaboration with HR.
- Encourage knowledge sharing, lessons learned, and adoption of innovative tools/approaches across teams.
- Supervise, mentor and provide guidance to technical and engineering staff of the PIU.

#### **C. Other Responsibilities**

- Provide technical inputs and background analysis to support the Project Director for decision-making on project design, implementation, and risk management.
- Support the implementation and monitoring of effective grievance redressal and citizen feedback mechanisms are embedded within technical operations.
- Assist in facilitating project audits, mid-term reviews, and evaluations by ensuring technical data and reports are accurate and accessible.
- Assist in maintaining proper documentation and archiving of technical studies & reports, engineering designs and progress monitoring outputs.
- Support the preparation and submission of periodic technical and progress reports to the Project Director and donor agencies.
- Carry out any other technical and engineering support and coordination assignments related to technical management, as assigned/directed by the Project Director.

### **3. Qualifications and Experience**

Bachelor's degree with a major in Civil/ Mechanical /Environmental Engineering or equivalent plus a Master's degree in Civil/Water and Wastewater Engineering/Sanitary Engineering/Hydraulic/Environmental Engineering or Mechanical equivalent from a

university recognized by the Higher Education Commission (HEC). The candidate should have a minimum of 15 years' experience and at least 5 years' experience in a senior position on major civil and mechanical works projects based on the International Federation of Consulting Engineers (FIDIC) form of contracts and funded or supported by Multilateral Development Banks (MDBs). The candidate should have strong technical and engineering skills and experience including planning, design, preparation of specifications and bidding packages, construction supervision and contract management. Prior exposure to the technical management practices of the World Bank or other multilateral development partners will be considered a strong advantage. Experience working in Pakistan or other countries in Central or South Asia is required. Membership and/or registration with a recognized professional engineering body is a requirement. Good English language communication and writing skills. Knowledge of local language (Urdu) is an added advantage.

#### **4. Reporting Line**

The Senior Technical & Engineering Specialist will report to the Manager Technical & Engineering.

#### **5. Contract Duration**

The Senior Technical & Engineering Specialist is initially required to work for the period of three (03) years with an annual review on performance which will form the basis of renewal. The Probation Period will be for 3 months during/up to which the contract may be terminated owing to unsatisfactory performance. The contract can be terminated with one month notice period by either party. The position is based in Karachi with travel requirements to the site as and when required. The Senior Technical & Engineering Specialist may also be required to travel to other places or areas within or outside Pakistan on duty carrying out project related tasks including but not limited to meetings, workshops, training, due diligence for procurement, witnessing factory acceptance tests (FAT) etc.

#### **6. Salary And Benefits, And Conditions Of Service**

Market competitive salary based on qualification and experience will be offered. The salary, benefits will be discussed and agreed with the successful candidate. The contract and conditions of service follow the general conditions of service as stipulated in the Project Operations Manual (POM). These will also be discussed and agreed with the successful candidate.

#### **7. Selection Process**

An individual will be selected in accordance with process stipulated in Section VII of "Approved Selection Methods: Consulting Services, Clause 7.34, Approved Selection Methods for Individual Consultants under The World Bank Procurement Regulations for IPF Borrowers (Fifth Edition September 2023) available on <https://thedocs.worldbank.org/en/doc/6c0602876d68949e80820507d90a14ed-0290012023/original/Procurement-Regulations-September-2023.pdf>