TERMS OF REFERENCE

Hiring of Performance Auditor of Karachi Water & Sewerage Corporation (KW&SC)

Karachi Water & Sewerage Services Improvement Project (KWSSIP)

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List of Acronyms and Abbreviations

Acronym	Description
ADP	Annual Development Programme
AIIB	Asian Infrastructure Investment Bank
BoD	Board of Directors
CE	Chief Engineer
CRM	Customer Relationship Management
CSI	Customer Satisfaction Index
DMA	District Metered Area
E&S	Environmental and Social
ERP	Enterprise Resource Planning
ESMS	Environmental and Social Management System
GIS	Geographic Information System
GoS	Government of Sindh
IWA	International Water Association
K-IV	Karachi Bulk Water Supply Scheme, Phase-IV
KPI	Key Performance Indicator
KW&SC	Karachi Water & Sewerage Corporation
KWSSIP	Karachi Water and Sewerage Services Improvement Project
LEA	Law Enforcement Agency
LGD	Local Government Department

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Acronym	Description
MGD	Million Gallons per Day
NRW	Non-Revenue Water
O&M	Operation and Maintenance
OCCR	Operating Cost Coverage Ratio
PA	Performance Agreement
PPP	Public-Private Partnership
RRG	Revenue & Resource Generation
SCADA	Supervisory Control and Data Acquisition
SE	Superintending Engineer
SEQS	Sindh Environmental Quality Standards
Sindh EPA	Sindh Environmental Protection Agency
SOP	Standard Operating Procedure
STP	Sewage Treatment Plant
ToR	Terms of Reference
TP-IV	Treatment Plant-IV
WB	World Bank
XEN	Executive Engineer

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1. Background

Karachi, the largest city in Pakistan, serves as the country's economic and industrial hub. According to the Pakistan Bureau of Statistics (PBS), the population of Karachi exceeds 20 million, making it not only the most populous city in Pakistan but also one of the largest metropolitan areas in the world. The city is known for its cultural diversity, bustling ports, and dynamic urban landscape. As a key center for finance, trade, and media, Karachi plays a vital role in shaping the nation's socio-economic development.

Karachi, has grown so rapidly that it now struggles to deliver basic infrastructure and services, including potable water and wastewater collection and treatment. The Karachi Water and Sewerage Corporation (KW&SC), which is responsible for the provision of water and sewerage services in Karachi, is not able to effectively deal with the challenging reality on the ground. There is a huge unmet demand for drinking water supply services (550 MGD current pumping capacity versus an estimated demand of 1200 MGD) coupled with a high non-revenue water (NRW) level estimated at around 50-60 percent of water pumped. There is currently limited sewage treatment, as the greater part of the city's sewage treatment facilities are dilapidated and not working, resulting in a significant quantum of sewage/day being discharged into the Arabian Sea. There has been no significant capital and major repairs and rehabilitation investment for water and sewerage infrastructure for more than a decade. As such, most of the water and sewerage infrastructure is now worn out and operating far below its rated capacity.

There are two different water sources for Karachi City which are the Indus River and the Hub Dam. The total approved water abstraction quota from Indus River is 1200 cusecs (648 MGD) while 185 cusecs (100 MGD) is drawn from Hub Dam. The current combined water supply from both the sources has proven to be insufficient to meet current demand and the needs for the city's expansion in horizontal and vertical dimensions. The unprecedented population growth coupled with continuous influx of people from other parts of the country has put KW&SC under tremendous pressure to meet the ever-growing demand for water and sanitation services. Thus, the scarcity and shortage of water and environmental degradation are directly contributing to public health risks and undermining sustainable development with the passage of time.

To transform KW&SC into a financially sustainable and technically sound water utility and to improve the water and sewerage services delivery levels, the Government of Sindh (GoS) and KW&SC, with the assistance of World Bank (WB) and Asian Infrastructure Investment Bank (AIIB), have conceived Karachi Water and Sewerage Services Improvement Program (KWSSIP) to provide clean, safe drinking water and efficient sewerage services to the residents. The Karachi Water and Sewerage Services Improvement Program (KWSSIP) is being implemented by the GoS through KW&SC and a Project implementation Unit (PIU) to manage the series of projects.

The KWSSIP-Phase 1 closed on June 30, 2026 whereas Phase-2 (KWSSIP-2) was approved by Executive Committee of the National Economic Council (ECNEC) in 2024 amounting to USD 600 Million. The total investments for Phase2 sub-projects will be around USD 600 million out of which USD 240 million would be funded by IBRD & AIIB each and USD 120 million will be funded by GoS.

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Further, for KWSSIP-2 PPP projects, (TP-IV, WTP, ESCOs) GoS contribution would be USD 250 million, private equity will be USD 81 million & Commercial debt will be USD 188 million. KWSSIP-2 will deepen the reforms undertaken during the KWSSIP-1 project and significantly scale-up the infrastructure investments to improve water supply and sewerage services in Karachi City. The investments in the rehabilitation of existing infrastructure and the construction of new infrastructure will enhance the development impacts by reaching more beneficiaries. At the same time, the investments will build support for continued mainstreaming of the operational reforms.

The KWSSIP-2 consists of four components as outlined below:

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 (GAP)
- **d.** Capacity Building in Asset Management, GIS and Data Collection Strategy
- **e.** Preparation and Implementation of Water Safety Plans
- **f.** Outsourcing of Metering & Operation and Maintenance (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 Non-Revenue Water (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 Public Private Partnership (PPP) Interventions

Component 3 – Project Management and Studies

- **a.** Design Review and Construction Supervision of the Proposed Sub-Projects of Phase-2:
- **b.** Follow-up studies on energy audits
- **c.** Preparation of KWSSIP -3, feasibility, E&S study, designing & PC-1, follow up study from the Master Plan Study

The Government of Sindh (GoS), through the Local Government Department (LGD), in collaboration with the World Bank, is supporting a comprehensive reform program at the Karachi Water & Sewerage Corporation (KW&SC) aimed at strengthening operational efficiency, financial sustainability, governance, and service delivery for the citizens of Karachi.

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As part of this reform program, the LGD, GoS and KW&SC have entered into (or are entering into) a Performance Agreement (hereinafter referred to as the "Performance Agreement" or "PA") which sets out: (i) commitments and time-bound performance targets to be achieved by KW&SC across key functional domains; (ii) the strategies and reform actions through which these targets are to be pursued; and (iii) the corresponding facilitation, funding, and policy commitments of the GoS.

To ensure transparency, accountability, and credible measurement of progress under the Performance Agreement, the GoS intends to engage an independent consulting firm or consortium of firms (hereinafter referred to as the "Consultant" or "Performance Auditor") to undertake an independent performance audit of KW&SC.

The Performance Agreement, as executed (and as may be amended from time to time), constitutes the authoritative reference for all performance targets, milestones, baselines, and definitions referred to in these Terms of Reference (ToR

2. Objective of the Assignment

The overall objective of the assignment is to undertake an independent, evidence-based performance audit of KW&SC to assess the extent to which KW&SC has achieved (or is on track to achieve) the performance targets, milestones, and reform commitments set out in the Performance Agreement.

Specific objectives of the assignment include:

- Independently assess KW&SC's performance against the targets, milestones, and timelines set out in the Performance Agreement, and report what has been achieved, the extent of achievement, what is partially achieved, and what is not yet achieved;
- Independently verify and validate the accuracy, completeness, and reliability of data reported by KW&SC against the Performance Agreement;
- Evaluate the design adequacy and implementation effectiveness of the strategies and reform actions adopted by KW&SC to deliver the targets;
- Assess the efficiency, effectiveness, and economy of KW&SC's operations across the audit areas defined in Section 3;
- Identify institutional, operational, financial, governance, legal, and external constraints affecting performance, including any unmet commitments by counterparties (e.g., GoS, LEAs, financiers); and
- Provide prioritized, actionable, and time-bound recommendations to close performance gaps and accelerate achievement of the Performance Agreement objectives.

3. Scope of Services

The Consultant shall undertake an independent performance audit of KW&SC covering the audit areas set out below. This is not a financial audit of the utility rather an audit of target specified in the Performance Agreement. Means of verification can be deduced from the Performance Agreement, however any other credible measurement method will be appreciated For each audit area of the Performance Agreement, the Consultant shall (i) assess actual performance against the targets, milestones, and definitions specified in

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the Performance Agreement; (ii) evaluate the adequacy and execution of the strategies adopted to achieve those targets; (iii) validate the underlying data; and (iv) report achievements, partial achievements, and gaps with supporting evidence.

3.1 Commercial Performance and Revenue Management

The Consultant shall assess KW&SC's commercial performance, including but not limited to:

- Bill collection efficiency, including verification of the underlying definition (Total Collections / Total Billed Amount), and assessment of progress against PA targets;
- Expansion of the consumer base, including measures to identify, regularize, and/or disconnect illegal, unauthorized, and unregistered connections, and growth in the active billing base;
- Implementation of the metering program, including phased coverage of industrial/bulk and domestic consumers, transition toward volumetric billing, and the supporting tariff and SOP framework;
- Tariff rationalization, including establishment and operation of a formal tariff review mechanism, application of cost-of-service principles, and timeliness of tariff approval and notification by GoS;
- Effectiveness of outsourced bill delivery and recovery arrangements, including contractual structuring, performance monitoring, and value for money;
- Integrity and coverage of the customer database, including reconciliation with field conditions; and
- Arrears management, including aging analysis, recovery actions, and write-off policies.

3.2 Technical and Operational Performance

The Consultant shall evaluate the technical and operational performance of KW&SC, including but not limited to:

- Water supply capacity, transmission, and distribution – including progress on major capital projects (such as K-IV and augmentation works), additional supply mobilization, and rehabilitation/expansion of the distribution network;
- Service coverage and reliability, including provision of safely managed drinking water complying with applicable standards (e.g., Sindh Environmental Quality Standards);
- Wastewater collection, treatment, recycling, and safe disposal, including rehabilitation and expansion of treatment infrastructure (e.g., STP-I, STP-III, TP-IV) and progress against treatment coverage targets;
- Non-Revenue Water (NRW), including verification of baselines using IWA water-balance methodology, progress on District Metered Area (DMA) pilots and scale-up, and implementation of physical and commercial loss reduction measures;
- Energy efficiency of operations, including specific energy consumption (kWh/m^3), pumping system optimization and uptake of renewable/green energy alternatives; and
- Quality, timeliness, and value for money of capital works executed under KW&SC, World Bank/AIIB-supported programs (e.g., KWSSIP), or PPP modalities.

3.3 Financial Management and Sustainability

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The Consultant shall assess KW&SC's financial management and sustainability, including but not limited to:

- Operating Cost Coverage Ratio (OCCR), including independent recalculation against verified data and assessment of the trajectory toward financial self-sustainability;
- Revenue performance and expenditure management, including identification of key cost drivers and efficiency gaps;
- Adoption and implementation of accounting policies, financial management regulations, and audit regulations, including their approval by the Board;
- Preparation, independent audit, and Board approval of annual financial statements within prescribed timelines;
- Implementation of separate cost accounting for water and sewerage services;
- Modernization and digitization of Finance and Revenue & Resource Generation (RRG) functions;
- Establishment and functioning of an Investment & Finance Cell for project financing and bankability;
- Liability and cash flow management, including monitoring and orderly reduction of payables;
- Subsidy dependence and the implementation of a phased subsidy reduction pathway;
- Timeliness, predictability, and utilization of GoS budget releases (including ADP allocations) and donor disbursements; and
- Funding flows, budget execution, debt profile, and financial risk management.

3.4 Human Resource Management

The Consultant shall evaluate KW&SC's HR systems and workforce performance, including but not limited to:

- Design and implementation of the performance appraisal system, including KPI-linked incentives and the cascading of performance targets to key staff (executives, reform managers, CEs, SEs, XENs, etc.);
- Capacity building and training, including coverage of staff against annual training plans and alignment with departmental and organizational needs;
- Gender diversity and inclusion, including approval and execution of the Gender Action Plan, the gender-inclusive recruitment strategy, and trends in annual appointment of female staff in technical and managerial positions;
- Staff productivity, including the staff-to-connection ratio and the impact of outsourcing of non-core functions and process automation; and
- Workforce optimization, recruitment controls, attrition management, and career management policy.

3.5 Institutional, Strategic, and Governance Framework

The Consultant shall assess governance and institutional arrangements, including but not limited to:

- Implementation of the KW&SC Act, 2023, and operationalization of corporatization;

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- Board composition, functioning, frequency of meetings, decision-making, and timely filling of vacancies;
- Operational autonomy of KW&SC and avoidance of undue interference in day-to-day management;
- Preparation, approval, and execution of the rolling 5-year Strategic Business Plan (2027–2030) and its alignment with GoS budget and development programs;
- Establishment and functioning of the PPP Node within KW&SC, approval of the PPP strategy by the Board, and progress toward implementation of major PPP transactions (e.g., wastewater recycling, energy efficiency, NRW reduction);
- Digital transformation, including ERP implementation (Finance, HR, Operations, RRG), GIS-based asset and network mapping, SCADA-based monitoring, customer-facing mobile applications, and an associated cyber risk management plan; and
- Adoption of modern reporting practices, including online publication of operational and financial data.

3.6 Legal and Regulatory Framework

The Consultant shall review the adequacy and effectiveness of the legal and regulatory framework supporting KW&SC, including but not limited to:

- Establishment and functioning of the water and sewerage tribunals, including their staffing, procedures, and case throughput;
- Enforcement of anti-theft provisions, including coordination with police and other LEAs, periodic enforcement drives, and prosecution of violators (e.g., illegal hydrant operators, untreated industrial dumping);
- Issuance of all required rules, bylaws, and notifications under the KW&SC Act, 2023 (including service bylaws, tariff rules, wastewater rules, penalties, etc.);
- Any further legal amendments enacted to enhance KW&SC's autonomy, financial powers, or service delivery capacity; and
- Compliance with applicable environmental and sectoral regulations.

3.7 Environmental and Social Management System (ESMS)

The Consultant shall assess the establishment, functioning, and effectiveness of KW&SC's ESMS framework, including but not limited to:

- Establishment and functioning of the E&S Cell, including dedicated annual budget allocations, allocation of suitable physical space, and hiring of managerial and support staff;
- Development and Board approval of the Environmental and Social (E&S) Policy;
- Development and implementation of the ESMS strategy based on gap analysis and recommendations, including monitoring and corrective action mechanisms;
- Establishment and Sindh EPA certification of the KW&SC Environmental Laboratory, including procurement of equipment and ongoing performance monitoring; and
- Integration of ESMS requirements across operational units and compliance reporting.

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3.8 Customer Relationship Management (CRM) and Customer Satisfaction

The Consultant shall evaluate KW&SC's CRM framework and customer satisfaction outcomes, including but not limited to:

- Establishment and operation of CRM functions, processes, and supporting systems;
- Definition and tracking of a Customer Satisfaction Index (CSI), including service attribute coverage and weighting; and
- Independent customer surveys conducted at the project mid-term review and at project closing, including the methodology, sampling, and credibility of results.

3.9 Counterparty Commitments and External Enabling Conditions

The Consultant shall separately and explicitly assess the extent to which counterparties (notably GoS, LGD, LEAs, and financiers) have delivered the facilitation, funding, policy, and enforcement commitments made under the Performance Agreement, and the impact of any shortfalls on KW&SC's ability to achieve agreed targets. This includes, but is not limited to, timeliness of tariff approvals, release of budgeted funds, enforcement support, and inter-agency coordination.

4. Duration of Assignment

The assignment is expected to be carried out over an initial period of 48 months, with the option of extension by mutual agreement to align with the full performance horizon of the Performance Agreement (up to December 2030). The phasing of deliverables shall be aligned with the performance monitoring cycles of the Performance Agreement (typically annual).

5. Key Experts (Indicative)

The team shall include, at a minimum, the following key experts. Bidders may propose additional positions as required to deliver the assignment:

Sr. No.	Key Expert (Position)	Minimum Qualification and Experience Requirements	Man-Months Input
1	Team Leader / Senior Utility Sector Specialist	Master's degree in civil/environmental engineering, economics, finance, business or public administration; at least 15 years' experience in the water/utility sector, including institutional reform, performance management or utility	16

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Sr. No.	Key Expert (Position)	Minimum Qualification and Experience Requirements	Man-Months Input
		turnaround; proven leadership of multidisciplinary teams on donor-funded assignments.	
2	Financial Management and Tariff Expert	Master's degree in finance, accounting or economics, or a professional accountancy qualification (CA/ACCA/CPA/ICMA); at least 12 years' experience in utility financial management, cost-of-service and tariff studies, and financial sustainability/OCCR analysis.	12
3	Water Supply and Distribution Engineer	Bachelor's (Master's preferred) in civil, water or environmental engineering; at least 12 years' experience in water supply, transmission and distribution systems, network rehabilitation and hydraulic modelling.	12
4	Wastewater and Treatment Engineer	Bachelor's (Master's preferred) in environmental or civil engineering; at least 12 years' experience in wastewater collection, treatment plant design and operations, and effluent/recycling compliance.	12
5	Commercial / Billing and Metering Specialist	Bachelor's (Master's preferred) in engineering, IT, business or a related field; at least 10 years' experience in utility commercial operations, billing and collection systems, metering and customer database management.	12
6	Non-Revenue Water (NRW) Specialist	Bachelor's (Master's preferred) in water or civil engineering; at least 10 years' experience in NRW reduction, IWA water-balance methodology, DMA design, leak detection and pressure management.	12
7	Energy Efficiency Specialist	Bachelor's (Master's preferred) in electrical, mechanical or energy engineering; at least 10 years' experience in energy audits, pumping-system optimization, and energy efficiency/renewable integration in water utilities.	12
8	Institutional / Governance and PPP Specialist	Master's degree in public administration, management, economics or law; at least 12 years' experience in institutional reform, corporatization, corporate governance and PPP structuring/transactions in infrastructure.	12

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Sr. No.	Key Expert (Position)	Minimum Qualification and Experience Requirements	Man-Months Input
9	Human Resources and Organizational Development Specialist	Master's degree in human resources, management or organizational development; at least 10 years' experience in HR systems, performance management, workforce optimization, capacity building and gender mainstreaming.	12
10	IT / ERP / Digital Systems Specialist	Bachelor's (Master's preferred) in IT, computer science or a related field; at least 10 years' experience in ERP implementation, GIS, SCADA, utility digital transformation and data governance/cybersecurity.	12
11	Environmental and Social (E&S) Specialist	Master's degree in environmental science/management or social sciences; at least 10 years' experience in ESMS, environmental and social safeguards (including World Bank ESF/ESS), compliance and stakeholder engagement.	12
12	Legal and Regulatory Expert	Law degree (LL.B.; LL.M. preferred); at least 12 years' experience in legal and regulatory frameworks for utilities/infrastructure, with familiarity with the KW&SC Act, 2023 and Sindh water/sewerage legislation.	12

6. Deliverables

The Consultant shall provide the following deliverables. All deliverables shall be submitted in English, in both hard and soft copies. Indicative timelines are provided; the Client may adjust these in the contract.

#	Deliverable	Indicative Timeline (from contract effectiveness)	Payment %
1	Inception Report	Within 2 months	5%
2	Diagnostic / Baseline Performance Audit Report	Within 5 months	10%
3	Draft Interim Performance Audit Reports	Annually, or as agreed in the work plan (04 Annual Reports @ 10% per annual draft report)	40%

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#	Deliverable	Indicative Timeline (from contract effectiveness)	Payment %
4	Final Interim Performance Audit Reports	Annually, or as agreed in the work plan (04 Annual Reports @ 05% per annual draft report)	20%
5	Draft Final Performance Audit Report	At least 2 months before contract end	10%
6	Final Performance Audit Report (incorporating Client feedback)	Within 1 month of receipt of consolidated comments on the draft	5%
7	Stand-alone Financial Sustainability and OCCR Roadmap (forms part of the Final Report and may also be submitted as a stand-alone note)	With the Final Report	10%

The Consultant shall also make presentations to the GoS, LGD, KW&SC Board, and other stakeholders at the inception, diagnostic, interim, and final stages, and at any other points reasonably required by the Client.

7. Reporting Requirements

- All reports shall be submitted in English, in both hard copies (number of copies to be specified in the contract) and editable soft copies, together with all supporting datasets, calculation models, and workings;
- Each report shall be accompanied by a concise executive summary suitable for presentation to senior decision-makers;
- The Consultant shall present findings at each key milestone (inception, diagnostic, interim reviews, draft final, final);
- The Client shall provide consolidated written comments on draft deliverables within a reasonable time (typically 21 calendar days), and the Consultant shall address such comments in subsequent versions; and
- All deliverables and underlying datasets shall be the property of the Client.

8. Performance Standards and Independence

The Consultant shall carry out the assignment in accordance with internationally accepted standards for performance auditing ensuring:

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- Objectivity, independence, and professional scepticism.
- Evidence-based analysis and clear documentation of working papers
- Transparency in methodology and assumptions and
- Accountability for conclusions and recommendations.

The Consultant shall maintain full independence and objectivity and shall disclose any actual or potential conflict of interest. Firms with prior or ongoing involvement in KW&SC's operational, advisory, or transaction-execution functions that may impair independence shall not be eligible. The same restrictions shall apply to proposed individual experts.

09. Expected Outcomes

The assignment is expected to deliver:

- An independent, credible, and evidence-based assessment of KW&SC's performance against the Performance Agreement, presented in a clear and decision-useful format;
- Verified data and recalculated KPIs that the GoS, LGD, KW&SC, and the World Bank can rely on for monitoring, decision-making, and disbursement-related decisions;
- Identification of performance gaps, root causes, and the relative contribution of internal (KW&SC) and external (counterparty) factors;
- Prioritized, actionable, and time-bound recommendations to close performance gaps; and
- A consolidated roadmap toward improved revenue and cost recovery, enhanced service delivery, and financial sustainability.

10. Procurement Method

Consultant's Qualification-based selection, World Bank Procurement Regulations, Fifth Edition, September 2023. https://thedocs.worldbank.org/en/doc/6c0602876d68949e80820507d90a14ed-0290012023/original/Procurement-Regulations-September-2023.pdf

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