REQUEST FOR EXPRESSION OF INTEREST

CONSULTING FIRMS for PUNJAB AFFORDABLE HOUSING PROGRAM

Technical Study on Wastewater Treatment Options for Housing Schemes

1. The Government of Punjab has received a Credit (Project ID P173663) from the International Development Association (IDA) for funding the Punjab Affordable Housing Program (PAHP). The Program is being implemented by The Urban Unit and Punjab Housing and Town Planning Agency (PHATA) with the Housing and Urban Development Department bearing the overall responsibility of the program. The Program Management and Implementation Unit (PMIU) of PAHP intends to engage services of a Consulting Firm to conduct a technical study on "Wastewater Treatment Options for Housing Schemes in Punjab Province". The assessment and findings of the study will form a theory of change that will ultimately help PHATA adopt technically and financially viable solutions for wastewater treatment in future housing schemes across Punjab.

2. The study will provide options for wastewater treatment systems with safe disposal arrangements for PAHP-supported Housing Schemes with preliminary design details to establish PEQS compliance, cost estimates per household (HH) for capital and O&M costs, institutional arrangements for implementation and O&M. The time period of the assignment is 3 months which is expected to start by December, 2023.

3. The detailed Qualification/Short listing Criteria & Terms of Reference (TORs) for the assignment are uploaded at the link **https://urbanunit.gov.pk/pahp**

4. The PMIU – PAHP invites eligible consulting firms ("Consultants") to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The eligibility criteria are:

- Registration with Registrar of Firms or SECP for National firms.
- Registration with the relevant tax Authorities (FBR and PRA) for National firms.
- Registration with Pakistan Engineering Council as Consulting Firm for National Firms.
- Litigation History, if any.
- Blacklisting if any, by any Procurement Agency.
- Experience in the relevant sector since incorporation of firm.
- Experience of conducting technical studies / feasibility studies / consultancy on design/ construction / management of Wastewater Treatment Plants.
- Experience of conducting technical studies / feasibility studies / consultancy on design/ construction / management of Wastewater Treatment Plants for Housing Schemes.
- Experience of conducting studies/ consultancies including Institutional Framework / Environmental and Social Impact Assessment.
- Experience of consultancy assignments with the multilateral agencies/ donor funded projects.

5. The attention of interested Consultants is drawn to Section III, paragraphs, 3.14, 3.16, and 3.17 of the World Bank's "Procurement Regulations for 1PF Borrowers" July 2016 (revised 2020), setting forth the World Bank's policy on conflict of interest. (https://www.worldbank.org/en/projects-operations/products-and-services/brief/procurement-new-framework)

6. Consultants may associate with other firms to enhance their qualifications, but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract if selected. The association agreement shall clearly describe the role of each partner whereas each partner shall have the prior experience for the proposed role in the association.

7. The Consultant will be selected to conduct services in accordance with the Consultant's Qualifications-based selection (CQS) method set out in the World Bank Procurement Regulations.

8. Further information can be obtained at the address given below during office hours (9:00 am to 5:00 pm) on all working days.

9. Expressions of interest must be delivered in a written form to the address below on or before **December 26, 2023, by 11:00 am** which will be opened on same day at 11:30 am.

Program Director
Program Management and Implementation Unit (PMIU)
608 - Shaheen Complex, Egerton Road, Lahore
Ph: 042-99205316-22 Ext: 225 Fax: 042-99205323 www.urbanunit.gov.pk/pahp
Email Address: pmiu.pahp@gmail.com

1 Qualification Criteria

Shortlisting of Consultants will be based on the criteria given below regarding applicant's Mandatory Documents, General and Relevant Experience & Managerial Capabilities as demonstrated by the Applicant's responses. EOI Applications will be evaluated based on the following criteria:

1.1 Mandatory Documents for Prequalification

The following Mandatory Documents are required for Prequalification:

Sr. No.	Description	Requirement
1	Certificate of Company/Firm Registration/Incorporation under the laws of Pakistan (Registrar of Firms or SECP or Relevant) for National Firms	Mandatory
2	Valid Income Tax Registration (FBR) for National Firms	Mandatory
3	Valid Sales Tax Registration (Status Active with PRA) for National Firms	Mandatory
4	Valid Registration with Pakistan Engineering Council (PEC) as Consultancy for National firms	Mandatory
5	Submission of undertaking on legal valid and attested stamp paper that the firm is not blacklisted and not involved in litigation with any Provincial or Federal Government Department, Agency, Organization or autonomous body anywhere in Pakistan. In case involved in any litigation process, details of litigation and its status are required.	Mandatory

1.2 Firm Experience

Experience shall be evaluated on the basis of following parameters:

Sr. No.	Description	Scoring (Maximum)
1	**Experience in the relevant field since incorporation.** Score = (Years since incorporation/ 10) x 25 *Certificate of Incorporation / Registration or relevant document is required to be provided.*	25
2	**Experience of conducting technical studies/feasibility studies/consultancy on design/construction/management of Wastewater Treatment Plants.** Score = (Number of Relevant Assignments worth PKR 5 Million or above in last 10 years / 5) x 25	25

	Letter of Award / Contract Agreement or relevant document reflecting Value, Scope and Date of Assignment, and completion certificates from Clients are required to be provided	
3	**Experience of conducting technical studies/feasibility studies/consultancy on design/construction/management of Wastewater Treatment Plants for Housing Schemes.** Score = (Number of Relevant Assignments worth PKR 3 Million or above in last 10 years / 4) x 20 *Letter of Award / Contract Agreement / or relevant document reflecting Value, Scope and Date of Assignment and completion certificates from Clients are required to be provided/*	20
4	**Experience of conducting studies/consultancies including Institutional Framework/Environmental and Social Impact Assessment.** Score = (Number of Relevant Assignments worth PKR 3 Million or above in last 10 years / 4) x 20 *Letter of Award / Contract Agreement / or relevant document reflecting Value, Scope and Date of Assignment and completion certificates from Clients are required to be provided.*	20
5	**Experience of consultancy assignments with multilateral agencies/donor-funded projects.** Score = (Number of Relevant Assignments worth PKR 5 Million or above in last 10 years / 2) x 10 *Letter of Award / Contract Agreement / Completion Certificate or relevant document reflecting Value, Scope and Date of Assignment is required to be provided.*	10
	Total	**100**

2 TERMS OF REFERENCE

TECHNICAL STUDY ON WASTEWATER TREATMENT OPTIONS FOR HOUSING SCHEMES UNDER PUNJAB AFFORDABLE HOUSING PROGRAM (PAHP)

2.1 CONTEXT

Islamic Republic of Pakistan is urbanizing at the rate of 3 percent per annum, which is the highest urbanization rate in South Asia. Its population is also expected to reach between 270 and 300 million people by 2050 as per World Bank estimates. Over the next 20 years, annual urban population increase is expected to be 2.3 million per year (around 360,000 households if they remain at 6.5 individuals per household).

2.1.1 Provincial Context

Punjab Province is the most populous province with a population of 110 million and represents 46 percent share of Pakistan's population. 36.7 percent of the Punjab's population lives in urban areas. Urban population growth in the Punjab is primarily driven by migration from rural areas (60 percent of all recent migrants to Punjab's urban centers came from rural areas). The five major cities of Punjab Province have half of the urban population of the whole province. The demand for urban housing is particularly strong in the largest urban agglomerations. Growing urbanization is putting constraints on the government's efforts to provide affordable housing, infrastructure and services, and economic opportunities. Housing investment and construction make up 12.8 percent of Pakistan's GDP in 2019, while construction and real estate sectors counted for 7.6 percent of urban employment during 2017–18.

Over the past decade, private sector supply of affordable housing in Punjab Province has been minimal and it has predominantly catered for the richer segments of the population. The housing market in Punjab Province is divided between the formal and informal. The formal market primarily targets high-income groups and speculators and is beyond the reach of most of the population. The informal market encompasses unapproved developments and slums or katchi abadis. Such informal housing, along with regularized katchi abadis with rented and self-occupied units, provide the de facto "affordable housing" for the low- and lower-middle income population in Punjab Province.

2.1.2 PAHP Background

World Bank is supporting Punjab Affordable Housing Program Technical Assistance (PAHP-TA). This Program will be executed jointly by Urban Sector Planning & Management Service (Pvt.) Ltd. (The Urban Unit - Government of Punjab) and PHATA (Punjab Housing and Town Planning Agency) across Punjab.

The Program Development Objective (PDO) is to support the Government of Punjab in strengthening its housing institutions, processes and systems while enhancing the quantity and quality of affordable housing supply too. In collaboration with the World Bank, the PAHP will be

implemented during the span of five-years (i.e. 2022-27) using two instruments and three windows.

PAHP will support climate resilience in future and planned affordable housing schemes through adaptation measures, which may include green storm water infrastructure with a high capacity to capture and absorb rainwater on site, permeable pavement materials on roads to slow runoff, solid waste collection points to discourage dumping in open drains and sewerage system.

The three windows are as follow:

Window-1: P4R (Program for Results)

Window-2: IPF (Investment Project Financing) Support to strengthen housing policy, enabling environment, & institutions

Window 3: (IPF) Program Management and Implementation Unit (PMIU)

2.2 Objectives of the Study

The legal framework of the Punjab province demands wastewater treatment by all housing schemes. In practice, except for Faisalabad and Multan cities, no wastewater treatment facilities are available.

Alternatives for wastewater treatment systems range from the simple (oxidation and stabilization ponds with a larger area demand, and sewage septic tanks with partial treatment) to very complex (Activated Sludge system with large capital and energy demands) with varying capital and O&M costs per household. Addressing city scale wastewater treatment options is beyond the scope of this TORs.

In the Environmental and Social Systems Assessment (ESSA) of the Program, a technical study is proposed on alternative wastewater treatment for housing schemes. The recommendations of the study will be made part of the Environment and Social Compliance Framework (ESCF) proposed for the Program.

To find the feasible solutions, the PMIU of the PAHP intends to engage services of a Consulting Firm to conduct a technical study on **"Wastewater Treatment Options for Housing Schemes in Punjab Province"**. The assessment and findings of the study will form a theory of change that will ultimately help PHATA for the adoption of technically and financially viable solutions for wastewater treatment in its future housing schemes.

The objective of this study are as follows:

a) Establishing the expected characteristics of wastewater of PAHP Housing schemes based on the wastewater characterization of similar housing schemes in Punjab.

b) Analyzing, evaluating, and recommending alternative wastewater treatment methods and technologies along with sludge treatment and its final disposal in an environmentally friendly way. This will be based on pollution loading, land requirements, site and geotechnical conditions, simplicity/complexity, energy and related resources demand, sensitive environmental and social receptors, and equipment and material demands.

c) Developing designs and specifications, and suggesting institutional arrangements for the disposal of wastewater from PAHP Housing Schemes to existing sewerage and drainage systems of Water and Sanitation Agencies (WASA), Municipal Corporations and Committees (MCs), Local Governments (LGs) etc. in compliance with the applicable environmental regulatory framework and standards.

d) Proposing preferred options for wastewater treatment systems including disposal for PAHP Housing Schemes located at sites which will not be able to connect with existing sewerage and drainage infrastructure, in line with technical, financial, and E&S considerations.

e) Developing per household capital and O&M cost estimates of alternative wastewater systems and sludge treatment options for Housing Schemes.

2.3 Scope of Services, Tasks (Components) and Expected Deliverables

The study will provide list of alternative wastewater treatment systems with safe disposal arrangements for PAHP Housing Schemes with preliminary design level details to establish PEQS compliance, engineering estimates for per household capital and O&M costs, institutional arrangements at implementation and operational stages, for the PAHP Housing Schemes.

2.3.1 Details of Outputs / Tasks

Task 1: Consultant will collect and analyze relevant data on sources and volume of wastewater, and establish the characteristics of wastewater (physical, chemical, and biological) as per PEQS of existing similar housing schemes included in the program from at least nine (9) cities of Punjab based on their size (large, medium and small) and location (north, center and south) (at least 05 schemes to be studied and evaluated in each city, spread across the city in different zones, for example, near industrial zone, in the densely populated zone, near commercial zone, and away from the main city centers etc.). The samples of wastewater will be collected for testing from following locations:

1. Near Households.
2. At boundary of scheme / settlement.

Task 2: Carry out comparative analysis of different alternative wastewater treatment processes / technologies suitable for PAHP housing schemes including green infrastructure options based on the factors including but not limited to pollution loading, land requirements, per household capital and operation & maintenance costs, treatment efficiency, sludge production, energy demand and efficiency, simplicity / complexity, comparison of merits and demerits, design age, ease of operation & maintenance, labor qualification, equipment and material demand, and environmental and social sustainability etc. to reach at a most suitable treatment technology.

Task 3: Recommend the most feasible optimal technologies as per the size and location of the city as well as the category of the housing schemes in the program with respect to population / number of unit (at least three categories) . The criteria for the comparison of alternative wastewater treatment technologies will include but not be limited to the following as well as the criteria mentioned in task-2:

- Wastewater Characteristics
- Space / Area Requirements
- Acceptable quality of the treated wastewater and sludge as prescribed in PEQS based on final safe disposal and drainage arrangements.
- Complexity of alternative technologies with respect to configuration, ease in Operation and Maintenance (O&M), and the Capital and O&M costs
- Health and Safety of Community Residents living in proximity for each option
- Energy / Power / Water Requirements
- Possibility of Production of Energy (Co-generation Preferred wastewater treatment methods and technologies for those PAHP Housing Schemes located at sites not connected with trunk sewerage / drainage system of the Area).

Task 4: Identify and analyze relevant laws, rules, regulations, and standards applicable on the wastewater treatment of PAHP Housing Schemes and recommend modifications if required for the selected alternatives. Carry out the economic / financial, environmental, social and legal framework analysis of the alternative of the wastewater treatment options and recommend design mechanisms and institutional terms and conditions for the disposal of wastewater from PAHP housing scheme to the existing city sewerage and drainage network (WASAs, Local Governments etc.) and for those schemes which will not be connected with existing sewerage and drainage network in line with technical, financial and E&S considerations.

Task 5: Prepare Conceptual Designs, Specifications and per household Capital and O&M Cost estimates of preferred options including treated wastewater quality (as per PEQS), sludge

management for WWTPs and its final disposal. Moreover, assessment of environment & social impacts including but not limited to identification of possible environmental and social risks, impacts, and mitigation measures for the recommended options should be included.

Task 6: Develop institutional responsibilities for constructing and operating the recommended wastewater treatment systems. In this regard, the Consultants will liaise with all concerned entities (Water & Sanitation Agencies / Local Governments, HUD & PHE Departments and NGOs working in the sector to ensure coordination and compatibility of solutions. In addition, support the Client to develop inter-institutional terms and conditions for transporting wastewater from PAHP Housing Schemes to existing infrastructure networks of WASAs, MCs, and LGs and coordinate with Punjab EPA.

Task 7: Organize a Technical Consultation with Stakeholders

Organize technical consultations with stakeholders including the World Bank, PHATA, The Urban Unit, other relevant Government Departments, Water and Sanitation Agencies, Developers, end users etc. in order to review the findings of the draft report and gather feedback to be incorporated in the final output. The final deliverable will take into account the feedback and comments received on the draft report.

2.4 Reporting requirements and time schedule of deliverables

Timing and reporting

The duration of this assignment is expected to be **3 months** (post signing of agreement). The selected consulting firm will report to Program Director PMIU for PAHP.

Timeline and Payments

The selected consulting firm will prepare an Inception Report, which will provide a detailed account of the procedures/work methodology, timelines, tests to be conducted, equipment to be used. Following this, the consulting firm will submit a draft report for comments, review and clearance regarding wastewater technologies and other tasks mentioned above in details. This will be accompanied by a clean and well documented data set for all the field-based tests performed under the assignment.

The final deliverable will be a Report that takes into account the feedback and comments received during Technical Consultation on the draft report.

The total contract duration is three (03) months, after the signing of the Contract. Detailed delivery timelines and payments are outlined in Table 1 below.

Table 1: Deliverables, Timelines and Associated Payment Percentages

Description of Deliverables	Timeline	Payment Breakdown
Submission of Inception Report	T +15 days	10%
Submission of Draft Report	T+ 2 Month	40%
Submission of Final Report	T+ 3 Month	50%
T = Date of Signing of the Contract Agreement.		

Each deliverable will be shared with the Client electronically plus two hard copies.

The Consulting Firm will also deliver presentations detailing the findings, options, and recommendations presented in the draft Report, for discussion, consultations, and finalization after reflecting comments received.

2.5 Consulting Firm Qualification

For the study the Consulting firm should present the following key personnel:

Serial	Team Member	Education & Experience Requirement
1	Team Leader / Wastewater Treatment Specialist:	Master's or higher Degree in Environmental / Civil Engineering or a relevant field. At least 15 years of proven experience in the field of WASH .The team leader must have professional experience of designing / construction / management of wastewater treatment systems. Practical experience of carrying out alternative analysis for wastewater treatment studies for housing schemes would be an added advantage.
2	Design Engineer	Master's or higher degree in Environmental/Civil Engineering or relevant field. At least 10 years of experience in designing, costing and estimation of wastewater treatment projects, preferably in Pakistan and ideally in Punjab. Expertise and knowledge relating to the designing, cost estimation in government led projects will be required.
3	Institutional/Regulatory Compliance Specialist	Master's or higher degree in Public Health / Engineering / Urban Planning / Environment / Law or related field. At least 10 years of experience in Institutional / Regulatory Compliance of WASH and/or Environmental Laws / Rules and/or Regulations.
4	Environment & Social Safeguard Specialist	Master's or higher degree in Environment or Social sciences, or similar. More than 10 years of experience in environmental and social impact assessment of wastewater systems, impact of treated/untreated

		wastewater and sludge on human health, occupational health and safety aspects of wastewater treatment plants, experience in participatory methods of stakeholder consultations and development of operational manuals.

2.6 The Client Responsibility

The Client will provide relevant documents (listed below) to the consulting firm and will facilitate meetings with relevant stakeholders.

a. Documents to be shared by the Client.

i. PAHP Program Appraisal Document (PAD)
ii. Environment and Social Systems Assessment
iii. Environment and Social Compliance Framework
iv. Stakeholder Engagement Plan.