



Consultancy Ref No: 162/Freshwater/25-26

RFP FOR CONSULTANCY SERVICES WWF-PAKISTAN

Subject:

**Identification, Mapping and Profiling of Potential
Groundwater Recharge Zones in different areas of
Karachi**

Application Submission:

Application Submission: Application Submission: Interested consultants should submit the Proposal on the Application Form Available Online or can access through the following Link: <https://forms.office.com/e/sxNStCNxPM>

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1) INTRODUCTION & BACKGROUND

Contract type: Consultancy and Services

Duration of assignment: 3 Months (September 1, 2025, to November 30, 2025)

Type: Firms

Background of Project & Assignment:

WWF Pakistan, founded in 1970, is the most significant independent nature conservation NGO in Pakistan, with over 20 offices nationwide and an average annual budget of 5.06 million euros, mainly financed by private and public funding. WWF Pakistan has a mission to preserve the country's incredible biodiversity and natural resources through the aforementioned practices. Since its inception, WWF Pakistan has implemented over 200 projects and programmes. WWF Pakistan collaborates closely with local and national partners, the government, private sector partners, researchers, and communities.

Under the Freshwater Programme, WWF-Pakistan, in collaboration with GSK, is implementing a five-year project across strategically important regions of the Indus River Basin, including Karachi, Lahore, Keenjhar Lake, and the Indus Delta. The project aims to protect and restore freshwater ecosystems through nature-positive solutions, aligned with global frameworks such as the Sustainable Development Goals (SDGs), the Global Biodiversity Framework, and the Freshwater Challenge.

2) GENERAL CONDITIONS

The WWF-PAKISTAN reserves the right to reject or accept any proposal. The WWF-PAKISTAN reserves the right to proceed with the implementation of any Service, in whole or in part, as described in the Proposal.

1) The WWF-PAKISTAN reserves the right to engage in discussions with any BIDDER to clarify responses or discuss certain issues with regards to the proposal or services requested. The WWF-PAKISTAN has no obligation to notify the other BIDDERS of the discussions, clarifications, or other information provided by a BIDDER. Any additional information required for preparation of the BID shall be distributed to all participants at the same time.

- 2) The WWF-PAKISTAN reserves the right to award the proposal based on experience, qualification, completion date, service cost and other criteria, and not necessarily the lowest cost.
- 3) Based on the RFP BID the WWF-PAKISTAN is entitled to change/replace or omit any clause/part of the preliminary defined scope of services of the proposal. The WWF-PAKISTAN shall conduct negotiations with WWF to achieve the full compliance to the requirements.
- 4) The WWF-PAKISTAN reserves the right in the event the successful CONSULTANT fails to comply with the terms and conditions as listed, to cancel this contract and award it to another CONSULTANT without penalty or action against the WWF-PAKISTAN. The RFP does not constitute an agreement or order.
- 5) The RFP is not a binding agreement between the parties, submission of a proposal or response by a proponent is voluntary.
- 6) By submitting a bid, the BIDDER is deemed to have acknowledged all of the undertakings, specifications, terms and conditions, **WWF Fraud and Corruption Prevention and Investigation Policy and WWF's Environment Social & Safeguard for consultant agreement** and to be bound by them if the BID is accepted. All expenses incurred by the Bidder in connection with the preparation of its proposal are to be borne by the RFP participant, and the WWF-PAKISTAN shall not incur any obligation whatsoever toward the Bidder regardless of whether such bid is accepted or rejected.

3) PURPOSE OF CONSULTANCY

Objective of the Consultancy:

The purpose of this consultancy is to provide technical expertise for Identification, Mapping and Profiling of Potential Groundwater Recharge Zones across different areas of Karachi, contributing to the broader goal of building water-sensitive cities through nature-based solutions and inclusive water stewardship.

The consultant will conduct a city-wide assessment to identify and map areas with high groundwater recharge potential, including ponding or low-lying zones that may support natural or enhanced infiltration. The assessment will be based on geological, hydrological, and infrastructure suitability. The study will analyse infiltration dynamics, rainfall-runoff interactions, and urban drainage patterns to propose feasible recharge well locations with complete technical designs and cost estimation. This task aims to support Karachi's long-term groundwater sustainability strategy and strengthen its resilience against water scarcity, aligning with WWF's urban freshwater conservation goals and Pakistan's climate adaptation priorities.

Detailed Terms of Conditions of the Assignment:

The consultant(s) is expected to perform the following tasks as per the timeline:

- **Baseline Hydrogeological Assessment of Potential Recharge Sites:**
 - Identify and compile information on at least 15 potential groundwater recharge locations within different areas of Karachi, selected based on hydrogeological suitability using available secondary data sources, including GIS layers, published literature, and institutional datasets.
 - For each site, develop a detailed technical profile covering key parameters such as soil characteristics, permeability, rock formations, geological layering, groundwater table depth, seasonal variations, estimated recharge rates, potential extraction capacity, and baseline water quality. The quality indicators should include TDS, EC, nitrate, pH, temperature, dissolved oxygen, turbidity, E. coli, nutrients, heavy metals, and any other site-relevant parameters. These profiles will be used to evaluate each site's compatibility for recharge intervention.
 - Using the established criteria, shortlist five priority sites for piloting the groundwater recharge interventions. These sites will be selected based on their overall hydrogeological suitability and the absence of contamination or any other significant barriers that would require complex treatment or render them unfeasible for immediate implementation.
 - The sites for the above details will be mutually agreed between WWF-Pakistan and the consultant.
- **Stakeholder Mapping for the Identified Groundwater Recharge Potential Sites:**
 - Identify and

document relevant stakeholders for all identified potential groundwater recharge sites, including government agencies, local communities, private industries, and other entities with a stake in the respective locations.

- Conduct in-person stakeholder consultations and meetings specifically for the 5 shortlisted sites, engaging identified stakeholders to gather insights, assess local acceptance, and understand context-specific concerns.
- Compile the outcomes of these consultations into a comprehensive report, including meeting minutes, participant lists, and supporting documentation such as photographs and summary notes.
- Also identify and outline the roles and responsibilities of each stakeholder in relation to site ownership, operational engagement, infrastructure maintenance, and the long-term sustainability of recharge interventions
- **Rainfall Patterns and Climatic Conditions Analysis** ○ Study the long-term rainfall data of Karachi for at least the past 8–10 years and assess seasonal trends, rainfall intensity, and anomalies to estimate the natural recharge potential for all identified 15 sites. Keeping the historical data in view, model future climatic conditions including rainfall and drought patterns for estimating groundwater recharge zones in the potential sites. ○ Based on this comprehensive information, estimate the groundwater recharge rate for the 5 shortlisted sites, incorporating site-specific conditions and projected climatic scenarios.
 - Evaluate the implications of climate change and rainfall variability on the overall feasibility of groundwater recharge at the selected locations.
- **Community Survey for the validation of collected data**
 - Conduct community-level surveys (e.g focused groups, household surveys) at the 5 shortlisted recharge sites to validate site suitability for recharge by confirming the rainfall patterns particularly the duration, intensity, and impact of rainfall events, seasonal ponding and community observations with respect to local knowledge and lived experiences.
 - Assess the community observations related to the site’s response during past rainfall events and identify any natural retention or infiltration characteristics.
 - Maintain proper records of all community consultations, including signed survey forms, photographic documentation, and meeting logs.
 - Ensure that WWF-Pakistan reviews and validates the findings and documentation as part of the overall site feasibility assessment.
- **GIS and Google Earth Mapping** ○ Prepare GIS-based maps for all identified groundwater recharge zones, incorporating key spatial layers such as elevation, slope, land use, and hydrogeological features.
 - Develop Google Earth-compatible maps in editable format, clearly marking both potential and shortlisted recharge sites. These maps should include detailed information layers for the purpose of extracting all the information in form of layers in a single click. This includes:
 - Stakeholders present at each site
 - Groundwater quality indicators
 - Community boundaries and relevant demographics
 - Groundwater recharge potential and site-specific attributes
 - Any additional relevant parameters as identified during the study
- **Site-Specific Recharge Well Design and Costing** ○ Develop design proposals for each of the five shortlisted sites, including conceptual layouts, technical drawings and Bills of Quantities (BoQs) for the construction of the proposed recharge structures.
 - Define detailed operation and maintenance protocols, covering routine inspections, filtration media replacement, and periodic water quality monitoring to ensure long-term performance and safety of the recharge systems.
 - Provide preliminary cost estimates for each site, including:
 - Capital costs (e.g., excavation, construction, equipment installation)
 - Operational and maintenance costs (e.g., filter media replacement, monitoring systems)
 - Cost-benefit analysis (e.g., estimated cost per cubic meter of water recharged)

- **Environmental and Social Safeguard Measures**
 - Assess potential environmental and social risks associated with recharge interventions.
 - Recommend mitigation measures to ensure safe, inclusive, and sustainable implementation of recharge systems.
 - Ensure that all activities related to site implementation are carried out in compliance with **WWFPakistan’s Environmental and Social Safeguards (ESS) Policy:**
https://www.wwfpak.org/about_us/_wwf_s_policies/environmental_and_social_safeguards/

4) Deliverables

- A comprehensive report on 15 potential groundwater recharge zones in Karachi, including detailed technical profiles of each site, analysis of rainfall trends over the past 8-10 years, seasonal variations, recharge potential, soil characteristics, permeability, groundwater quality indicators (such as TDS, pH, nitrates, and heavy metals), stakeholder mapping and consultation.
- A detailed community validation report for the 5 shortlisted recharge sites, including comprehensive surveys to gather local knowledge on rainfall patterns, seasonal ponding, and site-specific observations regarding natural retention or infiltration characteristics.
- GIS-based / Google Earth-compatible map with layers highlighting recharge zones, groundwater quality indicators, stakeholder presence, and community demographics.
- Technical designs and drawings, Bill of quantities (BoQs), operation and maintenance protocols, and preliminary cost estimates for recharge structures at the 5 shortlisted sites.

5) REQUIREMENTS

- **Education:** The consultancy firm should have a PhD or Master’s degree holder in civil engineering/urban engineering and a Hydrologist/Geologist or Water Management Specialist. Additional degree in environment is a plus point.
- **Experience:** At least 03-05 years in conducting hydrological assessment, Hydrogeological assessments, community assessment and catchment studies using distributed hydrologic simulation mode.
- **Skills:** GIS, data handling, report writing and survey skills
- **Software:** ArcGIS / QGIS, HEC-HMS, HEC-RAS, Modflow, HydroGeoAnalyst, HYDRUS etc.
- **Experience in providing quality technical reports.**
- **Knowledge of WWF’s work globally and regionally is an asset.**

6) CORRESPONDENCE & SUBMISSION OF PROPOSAL

1. **Application Submission:** Interested consultants should submit the Proposal on the Application Form Available Online or can access through the following Link: <https://forms.office.com/e/sxNStCNxPM>

2. If Any **Queries** may send through Email by attention to the Following:

To: Faiza khan (fakhan@wwf.org.pk)

Cc: Muzzammil Ahmed (mahmed@wwf.org.pk)

Mehak Sikandar (msikandar@wwf.org.pk)
Syed Ali Larosh Zaidi (salzaidi@wwf.org.pk)

The RFP submission deadline mentioned on WWF-Website.

3. Any information and responses to enquiries will be made in writing and distributed by email to all proponents. Enquiries after the foregoing deadline will not receive a response.

7) FORMAT OF THE PROPOSAL

The BID submitted by the participant must be structured as per the below provided instructions:

- 1) **Application Form available at WWF-Website** -General information about the Bidder, covering, qualification and experience, CV and all related Information.
 - a) **Description of the complete projects:** the list and general information about the complete projects, description of the role in the project, other accomplishments of the Consultant.
- 2) **Proposal outlining scope consultancy service-** Description of scope and working process, stages, deliverables, exclusions, conditions;
- 3) **Provide template of already complete similar type of reports-** the WWF-PAKISTAN may request additionally;
- 4) **Service Provision Timeline** – Provide Detailed Work Plan as per Deliverable and TORs.
- 5) **Financial Proposal-** the prices shall be provided in Pak Rs, the total price shall include all costs related to service provision including applicable taxes.

Note:

Templates of all Information is provided on Application form available at WWF-Website. Any Additional Information related to the RFP can be attached along with application Form.

8) FINANCIAL PROPOSAL

The proposed prices shall be provided in PKR, the total price shall include all costs related to service provision including all Direct and Indirect taxes, Travel, Boarding & Lodging shall be based on actual receipt up to max Ceiling (If Any).

The consultant will submit the cost of the assignment in a lump sum, including all applicable taxes according to the Government of Pakistan and the Government of Sindh

The Payment Term: shall be defined by the contract to be concluded between WWF -Pakistan and the consultant.

9) EVALUATION PROCESS

Applicant's proposal shall be evaluated based on Quality and Cost Based Selection (QCBS) method. Under QCBS both technical and financial proposals shall be evaluated as per following criteria against a maximum score of 100 points.

- A) Technical Proposal (70%)
 - Detailed workplan
 - Expression of interest (EOI)
 - Company's Profile

- Detailed methodology

B) Financial Proposal (30%)

- Detailed financial proposal which should be inclusive of all applicable taxes and out of pocket expenses. The financial proposal should follow a breakdown structure i.e., specifying cost(s) to each head and subhead
- Company's registration certificate
- NTN detail(s)
- Any legal or technical certification required for the task
- Audited Accounts Report (if available) of last FY

Note: Late/ incomplete submissions will not be accepted. Only three (03) top-ranked firms will be included in the comparative process

10) DOCUMENTATION AND CONFIDENTIALITY

All documents completed based on requirements of the present RFP shall be the property of the WWFPakistan, and shall not without the consent of the WWF-Pakistan be used, reproduced or made available to third parties beyond what is necessary in respect of the fulfilment of the Project. All documents issued and information given to the BIDDER shall be treated as confidential.

11) BUDGET

The total budget allocated for this consultancy, including direct and indirect taxes, travel, boarding and lodging, and out-of-pocket expenses, is **PKR 2,500,000**.