Ref # 48/Freshwater/Central/24-25

RFP for Consultancy Services-WWF Pakistan

Subject:

Hydrogeological Assessment of Site Area and Study on Main Water Resources of Karachi with a Special Focus on Keenjhar

Application Submission:
Interested consultants should submit the Proposal on the Application Form Available Online or can access through the following Link:

https://forms.gle/zGq2gRUHyuFRCxhM9

CONTENT

1) INTRODUCTION & BACKGROUND

Contract type: Consultancy and Services
Duration of assignment: 3 months

WWF-Pakistan, in partnership with Reckitt Pakistan, is implementing a community-based project in Karachi focused on promoting water stewardship and replenishment through a collective action approach. The project will be executed in close coordination with communities, government departments, and other relevant stakeholders to demonstrate water stewardship practices in designated areas of Karachi. The overarching goal of the project is to foster community well-being and environmental health by instituting an effective water management system and promoting nature-based solutions and achieve Reckitt's goal of becoming water positive.

2) GENERAL CONDITIONS

1) 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.

2) 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.

3) 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.

4) 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.

5) 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.

6) The RFP is not a binding agreement between the parties, submission of a proposal or response by a proponent is voluntary.

7) 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 (Annex 2) contained in the RFP, 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

The purpose of this consultancy is to conduct two interconnected assessments in two distinct geographical locations: 1) Site Area Karachi and 2) the Keenjhar Lake Catchment. The consultancy will focus on performing a Hydrogeological Assessment of Site Area Karachi and a Hydrological and Socio-economic Assessment of the Keenjhar Lake Catchment area.

The study will primarily (but not exclusively) focus on the following:

- Keenjhar Lake catchment mainly focusing on the part from which water is supplied to Karachi.

- It will include a detailed hydrological and hydrogeological assessment to understand water flow dynamics, groundwater recharge, and aquifer interactions of Keenjhar lake.
- Analyzing the socio-economic reliance of surrounding communities of Keenjhar lake on water resources, assessing vulnerabilities, and identifying opportunities for sustainable management.
- Risk evaluation will target contamination, over-extraction, and climate change impacts, providing data-driven insights for mitigation strategies.
- An assessment of the water balance, availability, and quality to address local water challenges and opportunities in Site Area.
- The study aims to validate interventions for achieving Reckitt's water-positive objectives, ensuring they contribute effectively to sustainable water resource management.
- Findings will guide strategic actions for collective water stewardship, benefiting both communities and industrial stakeholders.

These assessments aim to provide a comprehensive understanding of the current water situation, including quantity, quality, accessibility, distribution, and the main water resources for Karachi. Additionally, they will evaluate the socio-economic conditions in the study areas, flow patterns, identification of Important Water-Related Areas (IWRA), shared water-related challenges, groundwater recharge potential, details of aquifers, soil types, and geology. The results will help assess water-related risks and identify opportunities for improved water stewardship and sustainability in the catchments.

4) TASKS AND DELIVERABLES

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

Task 1: Hydrological and Community Assessment of Keenjhar Lake (Main Water Resource of Karachi)

1) Water Balance Assessment of Keenjhar Lake

- Conduct an annual water accounting analysis to evaluate the lake's inflow, outflow, and storage dynamics.
- Assess water availability and variability over time to support effective management strategies.

2) Mapping the Karachi Water Supply Catchment for Keenjhar Lake

- Utilize satellite imagery, remote sensing, and GIS tools to accurately delineate the water supply catchment for Karachi.
- Focus on critical intake points and associated infrastructure to ensure precision in mapping.
- Define the catchment scope considering the broader inflow region, including the Indus River.
- Finalize the socio-economic study area within the Keenjhar Lake catchment in consultation with WWF-Pakistan during the inception phase.

3) Aquifer Properties, Groundwater Levels, and Flow Direction (Secondary Data)

- Collect and analyze secondary data to assess aquifer properties around Keenjhar Lake, including groundwater levels, flow directions, and interactions between the lake and aquifers.

4) Risk Assessment

- Conduct a risk assessment to identify key water resource risks in the Keenjhar Lake catchment, such as contamination, over-extraction, and climate change impacts.

5) Water Quality Assessment (Primary Data)

- Conduct on-site water quality sampling and analysis from Keenjhar Lake and its catchment area.
- Analyze approximately ten representative samples, covering basic freshwater parameters such as pH, TDS, TSS, hardness, chlorides, total bacterial count, total fecal coliform, and *E. coli*.

6) Socio-Economic Study of Keenjhar Lake Area

- Conduct a socio-economic study of communities surrounding the identified part of Keenjhar Lake, focusing on water dependency, livelihoods, and the impact of water management practices.

- The questionnaire/survey for this study will be reviewed and approved by WWF-Pakistan prior to implementation.

Task 2: Hydrogeological Assessment of Site Area Karachi

1) **Impact Mapping of Reckitt's Water Use**
- Identify all areas directly and indirectly impacted by Reckitt's water use, including the aquifer being pumped from and the areas from where they get tankered water
- Map volumetric water impacts and separately assess water quality implications to provide a comprehensive understanding of Reckitt's water footprint.

2) **Topography, Drainage, Physiography, Geology, and Soil Data Analysis**
- Conduct an in-depth analysis of the topography, including elevation maps and slope characteristics within Reckitt's catchment.
- Analyze drainage patterns, rock formations, and soil characteristics impacting groundwater recharge and flow.

3) **Factory Groundwater Wells Survey**
- Evaluate existing groundwater wells at Reckitt's factory, assessing their condition, usage patterns, well depths, extraction rates, construction specifications, and maintenance schedules.
- Model the cone of depression caused by Reckitt's well operations to define their zone of impact.

4) **Aquifer Properties, Groundwater Levels, and Flow Direction (Secondary Data)**
- Collect and analyze secondary data on aquifers within Reckitt's catchment, emphasizing groundwater levels, flow directions, and aquifer interactions.

5) **Rainfall Data Collection and Analysis**
- Gather and analyze historical rainfall data for Reckitt's catchment to assess how it affects groundwater recharge, surface water levels, and water availability.

6) **Freshwater Assessment**
- Conduct on-site sampling and analysis of groundwater and surface water within the catchment area.
- Analyze approximately ten representative samples, covering basic freshwater parameters such as pH, TDS, TSS, hardness, chlorides, total bacterial count, total fecal coliform, and *E. coli*.

7) **Wastewater Assessment**
- Conduct on-site sampling and analysis of major wastewater ponds, drains, and other important water-related areas within the catchment.
- Analyze approximately eight representative samples, covering basic wastewater parameters such as pH, TDS, TSS, and heavy metals.

8) **Water Sanitation and Hygiene (WASH) Issues**
- Assess potential threats to water quality from inadequate sanitation practices within the catchment and surrounding communities, including access to clean drinking water and functional wastewater treatment facilities.

9) **Shared Water Challenges and Opportunities**
- Identify shared water challenges around Reckitt's catchment, such as over-extraction, pollution, and competing water demands, through consultative sessions with local communities, industries, government departments, and NGOs.

10) **Significant Groundwater Recharge Areas Identification**
- Identify significant groundwater recharge areas in Reckitt's catchment, assessing factors like soil permeability, land use, and rainfall patterns that influence recharge rates.

11) **Risk Assessment**
- Conduct a risk assessment to identify key water resource risks in Reckitt's catchment, such as contamination, over-extraction, and climate change impacts.

12) **Identification of Key Interventions for Water Positivity**

- Identify and design feasible and cost-effective interventions that directly contribute to Reckitt's water positivity target by enhancing water availability, improving quality, or reducing demand within the defined catchments.

13) Important Water-Related Areas (IWRA) Identification

- Identify and assess IWRAs in Reckitt's catchment, evaluating their ecological and hydrological significance, and recommend strategies for sustainable use and protection.

14) Catchment Water Balance Analysis

- Conduct a comprehensive water accounting analysis using WA+ worksheets to detail water inputs, outputs, and storage changes within the catchment area of Reckitt's factory.
- Quantify water use by Reckitt's factory and other local users, linking it to natural replenishment rates from rainfall, surface inflows, and groundwater recharge.

Deliverables:

A separate report for each task (total 02 reports, covering all the activities mentioned in task 1 and task 2 respectively). Details of the final deliverable are as follows:

Deliverable 1 (for task 1):

I. Annual water accounting report for Keenjhar Lake's inflow, outflow, and storage.
II. GIS maps delineating Karachi's water supply catchment and intake points.
III. Report on aquifer properties, groundwater levels, and flow directions.
IV. Risk assessment identifying key water-related risks and mitigation strategies.
V. Water quality analysis report based on on-site sampling.
VI. Socio-economic survey findings on water dependency, livelihoods, and stakeholder input.

Deliverable 2 (for task 2):

I. GIS Map of areas impacted by Reckitt's water use, including aquifer and abstraction zones.
II. Analysis report on topography, drainage, geology, and soil data.
III. Survey report on groundwater wells at Reckitt's factory, including condition and impact zone.
IV. Assessment report on aquifer properties, groundwater levels, and flow direction.
V. Historical rainfall data analysis and its impact on water recharge and availability.
VI. Freshwater quality analysis report based on on-site sampling.
VII. Wastewater quality analysis report with key parameter findings.
VIII. WASH assessment report highlighting sanitation issues and water quality threats.
IX. Summary of shared water challenges and consultative feedback from stakeholders.
X. Identification and report on significant groundwater recharge areas.
XI. Risk assessment report for Reckitt's catchment addressing contamination and over-extraction.
XII. List of feasible interventions for water positivity.
XIII. Assessment of IWRAs with recommendations for sustainable use and protection.
XIV. Water balance analysis report quantifying inputs, outputs, and replenishment rates.

5) PROJECT/ ASSIGNMENT TIMELINE

Duration of assignment: 3 months, Days starting from 10th January 2025 till 10th April 2025

6) REQUIREMENTS

The interested consultant(s) or firm should meet the following criteria:

Minimum requirements

- **Education:** The consultants or firm should have a PhD or Master's degree in civil engineering/urban engineering and a Hydrologist/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 etc.

7) CORRESPONDENCE & SUBMISSION OF PROPOSAL

1. **Application Submission:**
   Interested consultants should submit the Proposal on Application Form Available Online or can access through following Link:
   https://forms.gle/zGq2gRUHyuFRCxhM9

2. Interested consultants should submit the technical and financial Proposal to

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

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

3. The proposal submission deadline is mentioned on WWF-Website.
4. 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.

8) 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, experience and CV.
2) **Experience:**
   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.
3) **Proposal outlining scope of consultancy service-** Description of scope and working process, stages, deliverables, exclusions, conditions, methodology
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 must be exclusive of all types of 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.

9) FINANCIAL PROPOSAL

The proposed prices shall be provided in PKR, the prices shall be provided in Pak Rs, the total price must be exclusive of all types of applicable taxes.

The prices will include all the Travel, Boarding & Lodging and other expenses

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

10) 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%

b) Financial Proposal 30%

The following criteria shall be used as a basis for evaluation of technical proposals:

Qualifications (maximum 30 points)

- Experience relevant to the assignment (maximum 30 points)
- Adequacy of the proposed methodology and work plan (maximum 20 points)
- Skills & Competencies for the assignment (maximum 10 points)
- Prior experience with WWF-Pakistan (maximum 10 points)

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

11) DOCUMENTATION AND CONFIDENTIALITY

All documents completed based on requirements of the present RFP shall be the property of the WWF-Pakistan, 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.

Total budget Incl of Tax and Out of Pocket Expenses : 3,710,000/-PKR