



Reference Number:280-GSK/26-27

RFP for Consultancy Services-WWF Pakistan

Subject:

Consultancy for Research, Development, and Local Manufacturing of Automated Weather Stations

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: 06 months

Type of Consultant: Academia/Researcher

WWF-Pakistan, under its partnership with GSK, is implementing a project focused on improving water resource management, strengthening climate resilience, and promoting nature-based solutions in urban and peri-urban landscapes of Pakistan, particularly in Karachi and Lahore.

As part of efforts to enhance **climate resilience and disaster preparedness**, WWF-Pakistan aims to establish **locally developed Automated Weather Stations** through engagement with academia. This initiative will support the scaling up of locally developed, contributing to improved real-time weather monitoring, forecasting, and early warning systems for vulnerable communities. These systems will also enable the monitoring and analysis of microclimatic conditions, supporting more accurate forecasting in the near future.

WWF-Pakistan intends to engage a Research Institute as a consulting partner to undertake research, development, prototyping, and local manufacturing of systems aligned with PMD standards.

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 support the research, development, and local manufacturing of Automated Weather Stations in Karachi under WWF-Pakistan's partnership with GSK. The consultancy will contribute to strengthening climate resilience and disaster preparedness through the design, testing, and operationalization of locally manufactured Automated Weather Stations aligned with Pakistan Meteorological Department (PMD) standards, improving real-time weather monitoring, forecasting, and early warning systems for vulnerable communities.

Considering increasing climate-related risks including urban flooding, erratic monsoon patterns, and extreme weather events, Karachi requires strengthened, real-time weather monitoring infrastructure that can support accurate forecasting and early warning. This consultancy will therefore focus on translating locally available technology and academic expertise into practical, PMD-aligned Automated Weather Station systems that can be manufactured, deployed, and maintained within Pakistan.

The assignment will further support the establishment of standardized protocols for data collection, validation, transmission, and integration with PMD systems, while strengthening the capacity of academic institutions to develop, calibrate, and maintain locally manufactured weather stations.

Additionally, the consultancy will facilitate alignment between locally manufactured Automated Weather systems and PMD's existing standards, calibration requirements, and national weather monitoring network, ensuring that the resulting technology is both scalable and formally integrated into Pakistan's meteorological infrastructure.

The consultancy will particularly focus on:

1. Design, develop, install, test, and operationalize locally manufactured Automated Weather Stations in alignment with PMD standards to strengthen weather monitoring, forecasting, and early warning systems.
2. Strengthen the capacity of academic institutions through coordination with PMD by facilitating technical training on the development, calibration, installation, and maintenance of Automated Weather Station, and the effective utilization of generated data.
3. Establish standardized protocols for data collection, validation, transmission, storage, and integration of data with PMD systems to support real-time monitoring and forecasting.
4. Provide the relevant calibration and/or certification required by PMD for integration of locally manufactured Automated Weather Station into PMD's current database.
5. Identify and prioritize suitable sites for Automated Weather Station installation, and engage universities and local communities to ensure ownership, sustainability, and long-term operation of the systems.
6. Assess the performance of locally developed Automated Weather Station and develop evidence-based recommendations, documentation, and a scale-up strategy to promote wider adoption and replication at regional and national levels.

The consultant will be responsible for researching, developing, prototyping, testing, and locally manufacturing **Automated Weather Station units** for deployment across Karachi. The assignment will focus on translating existing PMD standards into practical, locally manufactured monitoring systems that can strengthen real-time weather monitoring, forecasting, and early warning capacity for vulnerable communities under a changing climate.

The consultancy will adopt an integrated research and engineering approach, emphasizing the use of locally available technologies, sensor integration, and data transmission systems to design Automated Weather Station units suitable for Karachi's environmental and infrastructural context.

4) SCOPE OF WORK

The consultant will undertake the following key tasks:

1. Research and Design

- Review existing Automated Weather Station models used by PMD.
- Engage students in developing the Automated Weather Station prototype.
- Identify key meteorological parameters (e.g., rainfall, temperature, pressure, humidity, wind speed & direction, solar radiation, soil moisture, etc.).
- Assess the feasibility of local manufacturing, including sourcing of sensors and components, and a cost-benefit analysis of locally manufactured versus commercially available Automated Weather Station.
- Develop, design, and install one unit of Automated Weather Station, aligned with standardized requirements to be agreed with PMD (but not limited to):

S.No	Item	Description/Recommended Type	Minimum Requirement
1	Datalogger	With RS 485 Sensors Input Support with 4G communication support	
2	Sensor for Barometric Pressure	Shall be suitable for long-term operation under extreme weather conditions & support simultaneous measurement of air temperature, relative humidity, and atmospheric pressure.	10 to 110 kPa
3	Sensor for Air Temperature		-50 to 60 °C
4	Sensor for Humidity		0-100%
5	Precipitation Sensor/Rain Guage	Shall incorporate a low-resistance tipping bucket with stainless-steel construction and a funnel mesh to prevent debris, leaves, and insects from entering the sensor and affecting its operation	Resolution: 0.2mm Range: 0 to 300 mm/h Material: SS304
6	Wind Speed Sensor	3-cup anemometer, expertly engineered to accurately measure wind speed and wind run	Range: 0-45m/s
7	Wind Direction Sensor	Shall be constructed primarily from carbon-fiber material, providing high corrosion resistance, lightweight construction, and suitability for long-term outdoor operation.	Range: 0 to 359°
8	Solar Radiation Sensor		Range: 0 to 1500 W/m2
9	Soil Moisture & Temperature Sensor	Set of 6 sensors to be installed at 05, 10, 20, 30, 50 & 100cm	Moisture Range: 0-100%, Accuracy: ±3% Temperature Range: -30-70°C, Accuracy: ±0.3°C
10	Solar Power System	Solar Panel: 150 Watt Battery: 40AH	
11	Weather Resistant Enclosure for Data Logger & Battery	Versatile & Weather Resistant Enclosure ,Lockable	
12	10 Meter Triangular Mast with Guy Wires, Cross Arm and Sensor Mounting		Pole and Cross Arms would be of Galvanized Iron
13	Lightning Arrestor and Grounding Rod for Mast		
14	Configuration, Installation & Training		
15	Cloud Server – 1.5 Years		

2. System Development and Prototyping

- Design and develop Automated Weather Station prototype(s) using locally available technologies.
- Integrate sensors, data loggers, telemetry systems, and power solutions (e.g., solar-powered units).

- Develop data acquisition, storage, and transmission systems (GSM/IoT-based).

3. Testing and Calibration

- Conduct laboratory and field testing of prototype systems.
- Coordinate with, and acquire a calibration certificate from, PMD.
- Refine system design based on testing results.

4. Deployment and Community Mobilization

- Identify and map 10 suitable installation sites in collaboration with PMD, taking into consideration the standards and requirements for the installation of Automated Weather Station.
- Ensure that the selected sites are feasible and appropriate in terms of sustainability, suitability, and accessibility.
- All selected sites shall be verified by WWF-Pakistan.
- Engage relevant university departments to support the mobilization and sensitization of the identified communities, ensuring the sustainability and effective use of the systems.
- Ensure that the systems are properly installed, fully operational, and capable of transmitting reliable and accurate data.

5. Data Management, Integration and Capacity Building

- Develop user-friendly dashboards or interfaces for data visualization.
- Ensure compatibility of Automated Weather Station data with PMD systems where required.
- Establish protocols for data sharing, storage, and access.
- Train WWF-Pakistan staff and relevant stakeholders on the operation and maintenance of Automated Weather Station.
- Develop operation manuals and maintenance guidelines.

Key Deliverables

The consultant will be required to submit the following deliverables:

1. Inception Report

Covering the following content (but not limited to):

- Conduct a comprehensive literature review to assess the need for Automatic Weather Stations in Karachi and their potential contribution to long-term climate change management, adaptation, and mitigation.
- Assess the linkages between urban flooding and weather-related parameters and explore the potential role of Automated Weather Station as a tool for strengthening early warning systems and improving urban flood management.
- Review and recommend the standard requirements, including the appropriate number and spatial distribution of Automated Weather Station units required in Karachi, to improve monitoring and management of extreme weather events.

- Develop a detailed methodology, work plan, mobilization strategy, and technical approach for engaging relevant PMD departments, academia, and local communities. The inception report shall also include a list of key stakeholders, universities, and academic institutions proposed for engagement.
- Develop site selection criteria and a methodology for monitoring the functionality, performance, and data transmission of the installed Automated Weather Station units.

2. Installed, Fully Functional Automated Weather Station Unit

- Development and installation of the fully functional Automated Weather Station system.
- Deployment of the developed Automated Weather Station system at an agreed location (as per the standards and recommendations of PMD, and the approval of WWF).
- Functional real-time data transmission.
- Dashboard/interface for data visualization and monitoring.
- Ensure the usage of the verified data by PMD where required.

3. Testing and Calibration Report

- Performance evaluation results.
- PMD validation and calibration certification.

4. Capacity Building and Training Manuals

- Training sessions conducted as agreed by PMD and WWF-Pakistan.
- Training manuals for the communities in a relevant language for better understanding (to be approved by WWF).

5. Final Technical Report

- Comprehensive documentation of the R&D process and cost analysis of the locally developed Automated Weather Station.
- Lessons learned and recommendations for scaling.
- Detailed technical report on system components, architecture, and specifications.

5) DURATION OF THE ASSIGNMENT

The consultancy is expected to be completed within 06 months, starting from the date of contract signing.

6) REPORTING REQUIREMENTS

The consultant will report to WWF-Pakistan's project team and will:

- Submit periodic progress updates (monthly/bi-monthly).
- Participate in coordination meetings with WWF and PMD.
- Present key deliverables for review and approval

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

Minimum requirements

The consultant/team lead should demonstrate relevant academic and technical experience to undertake research, development, and local manufacturing of Automated Weather Stations, preferably in Pakistan or similar developing country contexts.

The minimum requirements include:

- The consultant/team lead should preferably be a Professor, Associate Professor, or other senior academic/research professional affiliated with a recognized university or research institution.
- Minimum **master's degree in meteorology**, Atmospheric Sciences, Climate Science, Hydrology, Water Resources, Environmental Science/Engineering, Disaster Risk Management, or other relevant disciplines. A PhD will be preferred.
- At least 10 years of relevant academic, research, or professional experience in meteorology, climate change, hydrology, urban flooding, disaster risk reduction, or environmental monitoring.
- Demonstrated technical knowledge and/or experience in weather and climate monitoring systems, including Automatic Weather Stations, sensors, data loggers, telemetry, data transmission, calibration, and data quality control.
- Good understanding of Pakistan's, particularly Karachi's, climate, weather, urban flooding, and environmental challenges.

7) CORRESPONDENCE & SUBMISSION OF PROPOSAL

1. 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>

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

Cc: Assadullah (assadullah@wwf.org.pk)
Mehak Sikandar (msikandar@wwf.org.pk)

1. The proposal submission deadline is mentioned on WWF-Website.
2. 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** - Completed application form including general information about the bidder, educational qualifications, relevant experience, and CV(s) of the proposed consultant(s) or training team.
- 2) **Experience:**
 - a) Description of the complete projects: A list and brief description of relevant assignments completed by the consultant or firm, particularly those related to meteorology, climate monitoring, Automated Weather Stations, or environmental research. The description should include the consultant's role in the project, scope of work, and key outcomes achieved.
- 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 inclusive 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 inclusive 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.

Financial Proposal				
Description	Units	Quantity	Rate	Total Amount
1. Remuneration: • Field • Office	Man Days [MD] / Man Months [MM]			
2. Air Travel	N/A	N/A	N/A	0
3. Road Travel	Road travel costs for consultants will be reimbursed on actual basis.			
4. Boarding/Lodging	Boarding and lodging costs for consultants will be paid on actual basis.			
5. Others (Please specify) Training Material, Printing, Photocopies, Colour printing, practical demonstration equipments e.g candling	Please separate remuneration and out-of-pocket expenses.			
Grand Total Inclusive of All direct or indirect Taxes and Out of Pocket Expenses				

10) EVALUATION PROCESS

Applicants' 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.

- Technical Proposal 70%
- 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

Legends:

Q Qualifications/CVs of team is mandatory

**Maximum
Points**

30

E	Experience relevant to the assignment	30
A	Adequacy of the proposed methodology and work plan	20
S	Skills & Competencies for the assignment	10
P	Prior experience with WWF-Pakistan	10

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.

12) BUDGET

The total Budget for this activity inclusive of all taxes and Out of Pocket expenses is **PKR 2,500,000**.