

Pre-Qualification Document

REPAIR AND REPLACEMENT OF PARTS FOR GLACIAL LAKE OUTBURST FLOOD EARLY WARNING SYSTEM (GLOF EWS) (Goods)

National

Single Stage-Two Envelope



September 10, 2026

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INVITATION FOR PRE-QUALIFICATION

PROCUREMENT OF GOODS

1. The **Pakistan Meteorological Department (Pakistan Meteorological Department)** has reserved Funds for the procurement planned for FY **2026-27**. The **Pakistan Meteorological Department (Pakistan Meteorological Department)** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the "**REPAIR AND REPLACEMENT OF PARTS FOR GLACIAL LAKE OUTBURST FLOOD EARLY WARNING SYSTEM (GLOF EWS)**" with the reference of "**P116395**"
2. The **Pakistan Meteorological Department (Pakistan Meteorological Department)** intends to pre-qualify suppliers for Invitation to Bid(s), and sign the contract agreement(s) with the selected bidder(s) subsequent to bidding process.
3. The objective of the intended pre-qualification is the on-demand supply of "**REPAIR AND REPLACEMENT OF PARTS FOR GLACIAL LAKE OUTBURST FLOOD EARLY WARNING SYSTEM (GLOF EWS)**" through subsequent signing of contract with successful bidders, and the purpose of this Pre-qualification Notice is to provide the very basic information to enable the potential applicants to decide whether or not to respond to this Pre-qualification Notice.
4. Only the pre-qualified applicants shall be entitled to participate in the procurement proceedings, and it is expected that the Invitation to Bids will be made to the Pre-qualified Applicants.
5. Pre-qualification process is open for all **National** Applicants subject to fulfilling the eligibility requirements mentioned in the respective Pre-qualification Documents. Interested Applicants may obtain further information from the Pakistan Meteorological Department (Pakistan Meteorological Department) through **EPADS v2.0** during office hours. A complete set of Pre-qualification Documents may be accessed by interested Applicants through **EPADS v2.0** at **<https://epads.gov.pk/opportunities/federal/procurements/116395>**.

6. The application, prepared in accordance with the instructions in the Pre-qualification Documents, must be submitted through **EPADS v2.0** on or before **Thursday, October 1, 2026 10:30 AM**. E-bids will be opened using **EPADS v2.0** on the same day at **Thursday, October 1, 2026 11:00 AM**. Manual submission of Bids shall not be entertained. Those vendors who have not yet registered on the new version of **EPADS v2.0**, may register themselves on <https://vendors.epads.gov.pk/>. A tutorial to explain the registration process is available at <https://www.youtube.com/watch?v=MNW6T38v7tc>

In terms of Rule 48 of Public Procurement Rules, 2004 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website and on Authority's website at (www.ppra.org.pk).

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Instructions to Applicants

A. General

B. Contents of the Prequalification Documents

Sections of Prequalification Documents

1. **Scope of Application**

1.1. In connection with the “**Invitation for Prequalification**”, the Procuring Agency, as defined in Section II (Prequalification Data Sheet abbreviated as PDS), issues this set of Prequalification Documents (PD) to prospective applicants (also hereinafter referred as Applicants) interested in submitting applications (also hereinafter referred as Applications) to determine the capacity and capability of the Applicant(s) for supply of Goods and Related Services incidental thereto as specified in Section VII (Schedule of Requirements).

2. **Source of Funds**

2.1. Source of funds is same as referred in Invitation for Pre-qualification.

3. **Fraud and Corruption**

3.1. The Procuring Agency requires that the Applicants /Bidders/ Suppliers/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such agreements and contracts.

3.2. The Applicants/Bidders shall permit and shall cause their agents (whether declared or not), sub-contractors, sub-consultants, service providers, suppliers, and their personnel, to permit the Procuring Agency to inspect all accounts, records and other documents relating to any, Application/Bid submission, Secondary Procurement process, and to have them audited by auditors appointed by the Procuring Agency.

3.3. Any communications between the Applicant and the Procuring Agency related to matters of alleged corrupt and fraudulent practices must be made in writing or in electronic forms that provide record of the content of

communication.

3.4. Procuring Agency will reject an application or bid or proposal, if it is established that the Applicant or the Bidder or Prosper was engaged in corrupt and fraudulent practices in competing for the contract.

3.5. Procuring Agency will also declare the Applicant as blacklisted in accordance with rules and predefined standard mechanism.

4. Eligible Applicants

4.1. An Applicant may be a private entity, a state-owned enterprise or institution subject to ITB 4.6, or any combination of such entities in the form of a joint venture (JV) under an existing JV agreement or with the intent to enter into such an agreement supported by a letter of intent.

In case of single (private or state-owned entity), it shall be liable for execution of all the provisions of the Contract Agreement.

In the case of a joint venture, all members shall be jointly and severally liable for the execution of all the provisions of the Contract Agreement (if signed b/w the Procuring Agency and the JV), in accordance with the Contract conditions that apply.

The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the Prequalification process, Bidding process (in the event the prequalified JV submits a Bid) and during the period of contract agreement and contract execution (in the event the JV is awarded the Contract). Unless specified in the PDS, there is no limit on the number of members in a JV.

4.2. An Applicant may apply for Prequalification both individually, and as part of a joint venture, or participate as a subcontractor. If prequalified as a JV only, it will not be permitted to bid for the same contract as an individual entity. Bids submitted in violation of this provision will be rejected.

4.3. An Applicant and any of its affiliates (that directly or indirectly control, are controlled by or are under common control with that entity) may submit its Application for Prequalification either individually, as joint venture or as a sub-contractor among them for the same contract. However, if prequalified only one prequalified Applicant will be allowed to bid for the same contract.

All Bids submitted in violation of this provision will be rejected.

4.4. Applicants shall be considered to have a conflict of interest, if they participated as a consultant in the preparation of the design or technical specifications or have been hired or proposed to be hired by the Procuring Agency for execution of subsequent Contract Agreement. In addition, Applicants may be considered to have a conflict of interest if they have a close business or family relationship with such professional staff of the Procuring Agency (or a recipient of a part of the funds) who:

4.4.1. are directly or indirectly involved in the preparation of the Prequalification Documents or Bidding Documents or specifications of Contract and/or the Prequalification or Bid evaluation process of such Contract; or

4.4.2. would be involved in the implementation or supervision of such Agreement t, unless the conflict stemming from such relationship has been resolved throughout the Procurement Process, Bidding.

4.5. An Applicant that has been declared debarred or blacklisted shall be ineligible to be prequalified to bid for such period of time and for such type of procurement for which he has been declared debarred or blacklisted. The list of debarred firms and individuals is available at PPRA's website.

4.6. An Applicant shall provide such documentary evidence for determining the eligibility of the Applicant to the reasonable satisfaction of the Procuring Agency.

5. Eligibility (in terms of Nationality)

5.1. Applicants may be ineligible if they are nationals of ineligible countries as indicated in Section V.

B. Contents of the Prequalification Documents

6. Sections of Prequalification Documents

6.1. This set of Prequalification Documents consists of Parts 1 and 2 which comprise all the sections indicated below, and which should be read in conjunction with any Addendum issued in accordance with ITA 8.

PART 1 Prequalification Procedures PART 2 Supply Requirements

6.2. Section I - Instructions to Applicants (ITA)

6.3. Section II - Prequalification Data Sheet (PDS)

6.4. Section III - Qualification Criteria and Requirements

6.5. Section IV - Application Forms

6.6. Section V - Eligible Countries

6.7. Section VI - Fraud and Corruption

6.8. Section VII – Schedule of Requirements

6.9. The Procuring Agency accepts no responsibility for the completeness of the Prequalification documents, responses to requests for clarification, the minutes of the pre-Application meeting (if any), or Addenda to the Prequalification documents in accordance with ITA 8. In case of any discrepancies, documents issued directly through ePADS shall prevail.

6.10. The Applicant is expected to examine all instructions, forms, and terms in the Prequalification Documents and to furnish with its Application all information or documentation as is required by the Prequalification Documents.

7. Clarification of Pre-qualification Documents and Pre-Application Meeting

7.1. An Applicant requiring any clarification of the Pre-qualification Documents shall contact the Procuring Agency in writing through ePADS as. The Procuring Agency will respond in writing through ePADS to any request for clarification provided that such request is received no later than three (03) days prior to the deadline for submission of the Applications. The Procuring Agency shall forward a copy of its response to all prospective

Applicants through ePADS who have obtained the Prequalification Documents from ePADS, including a description of the inquiry but without identifying its source. If so indicated in the PDS, the Procuring Agency shall also promptly publish its response through ePADS. Should the Procuring Agency deem it necessary to amend the Prequalification Documents as a result of a clarification, it shall do so in accordance with the provisions of ITA 16.2.

7.2. If indicated in the PDS, the Applicant's designated representative is invited at the Applicant's cost to attend a pre-Application meeting through online platform / **EPADS v2.0** as per date and time mentioned in the PDS. During this Pre-Application meeting, prospective Applicants may request clarification of the schedule of requirement, the qualification criteria or any other aspects of the Pre-qualification Documents.

7.3. Minutes of the Pre-Application meeting, if applicable, including the text of the questions asked by Applicants, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be transmitted promptly through ePADS to all prospective Applicants who have obtained the Pre-qualification Documents. Any modification to the Pre-qualification Documents that may become necessary as a result of the pre-Application meeting shall be made by the Procuring Agency exclusively through the use of an Addendum pursuant to ITA 8 and through **EPADS v2.0**. Non-attendance at the pre-Application meeting will not be a cause for disqualification of an Applicant.

8. Amendment of Prequalification Documents

8.1. At any time prior to the deadline for submission of Applications, the Procuring Agency may amend the Prequalification Documents by issuing an Addendum through **EPADS v2.0**.

8.2. Any Addendum issued shall be part of the Prequalification Document and shall be communicated in writing through ePADS to all Applicants who have obtained the Prequalification Documents from the Procuring Agency. The Procuring Agency shall promptly publish the Addendum at the Procuring Agency's web page and **EPADS v2.0**.

Provided that an Applicant who had already submitted their Applications

prior to the issuance of any such addendum shall have the right to withdraw his already submitted Application and submit the revised Application prior to the original or extended Application submission deadline through **EPADS v2.0**.

8.3. To give Applicants reasonable time to take an Addendum into account in preparing their Applications, the Procuring Agency may at its discretion, extend the deadline for the submission of Applications in accordance with ITA 16.2:

Provided that the Procuring Agency shall extend the deadline for submission of Applications, if such an addendum is issued within last three (03) days of the Application submission deadline.

C. Preparation of Applications

9. Cost of Applications

9.1. The Applicant shall bear all costs associated with the preparation and submission of its Application. The Procuring Agency will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Pre-qualification process.

10. Language of Application

10.1. The Application as well as all correspondence and documents relating to the Pre-qualification exchanged by the Applicant and the Procuring Agency, shall be written in the language specified in the PDS. Supporting documents and printed literature that are part of the Application may be in another language, provided they are accompanied by an accurate translation of the relevant passages in the language specified in the PDS, in which case, for purposes of interpretation of the Application, the translation shall govern.

11. Documents Comprising the Application

11.1. The Application shall comprise the following:

11.1.1. **Application Submission Letter**, in accordance with ITA 12.1;

11.1.2. **Eligibility**: documentary evidence establishing the Applicant's eligibility, in accordance with ITA 13.1;

11.1.3. **Qualifications**: documentary evidence establishing the Applicant's qualifications, in accordance with ITA 14; and

11.1.4. any other document required as specified in the PDS.

11.2. **Application Submission Letter**

11.2.1. The Applicant shall complete an Application Submission Letter as provided in Section IV (Application Forms). This Form must be completed without any alteration to its format.

11.3. **Documents Establishing the Eligibility of the Applicant**

11.3.1. To establish its eligibility in accordance with ITA 4, the Applicant shall complete the eligibility declarations in the Application Submission Letter and Form ELI-1.1 (eligibility), included in Section IV (Application Forms).

11.4. **Documents Establishing the Qualifications of the Applicant**

11.4.1. To establish its qualifications to perform the contract(s) in accordance with Section III (**Qualification Criteria and Requirements**), the Applicant shall provide the information requested in the corresponding Information Sheets included in **Section IV (Application Forms)**.

11.4.2. Wherever an Application Form requires an Applicant to state a monetary amount, Applicants should indicate the Pak Rupee equivalent using the rate of exchange determined as follows:

11.4.2.1. for turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted).

11.4.2.2. value of single contract - Exchange rate prevailing on the date of the contract.

11.4.3. Exchange rates shall be taken from the publicly available source identified in the PDS. Any error in determining the exchange rates in the Application may be corrected by the Procuring Agency.

11.4.4. The documentary evidence of the Applicant's qualifications to conclude a contract Agreement, shall establish to the Procuring Agency's satisfaction:

11.4.4.1. that, if required in the BDS, an Applicant that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization using the form included in Section IV A (Bidding Forms) to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in the Procuring Agency's Country;

11.4.4.2. that, if required in the BDS, in case of an Applicant not doing business within Islamic Republic of Pakistan (or the country where the procurement is being made), the Applicant is, or will be, (if awarded the call off contract) represented by an Agent in the country, equipped and able to carry out the Supplier's maintenance, repair, and spare parts stocking obligations in respect of the Goods.

D. Submission of Applications

15. Submission of the Applications through EPADS v2.0

15.1. The Bidder shall prepare and submit Bid with due diligence after carefully reading all the terms and condition before submission through ePADS in accordance with the procedures specified in the PDS.

15.2. In case the Applicant is a JV, the Application shall submit an authorized representative of the JV on behalf of the JV and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally

authorized signatories.

16. **Deadline for Submission of Applications**

16.1. Applicants shall be submitted through ePADS no later than the deadline indicated in the PDS.

16.2. If required in accordance with the provisions of ITA 8.3, the Procuring Agency will extend the deadline for the submission of Applications, in which case all rights and obligations of the Procuring Agency and the Applicants subject to the previous deadline shall thereafter be subject to the deadline as extended.

16.3. The deadline will be extended in the same manner as that of original Invitation for Prequalification (or the advertisement) through **EPADS v2.0**.

17. **Opening of Applications**

17.1. The Procuring Agency shall open all Applications on the date and time specified in the PDS through **EPADS v2.0**. Late Applications shall be treated in accordance with ITA 16.1.

E. Procedures for Evaluation of Applications

18. **Confidentiality**

18.1. Information relating to the Applications, their evaluation and results of the Prequalification shall not be disclosed to Applicants or any other persons not officially concerned with the Prequalification process until the notification of Prequalification results is made to all Applicants in accordance with ITA 26 through **EPADS v2.0**.

18.2. From the deadline for submission of Applications to the time of notification of the results of the Prequalification in accordance with ITA 26, any Applicant that wishes to contact the Procuring Agency on any matter related to the Prequalification process may do so only in writing through **EPADS v2.0**

19. **Clarification of Applications**

19.1. To assist in the evaluation of Applications, the Procuring Agency may, ask an Applicant for a clarification (including missing documents) of its Application, to be submitted within a stated reasonable period of time. Any request for clarification from the Procuring Agency and all clarifications from the Applicant shall be in writing through **EPADS v2.0**

19.2. If an Applicant does not provide clarifications and/or documents requested by the date and time set in the Procuring Agency's request for clarification, its Application shall be evaluated based on the information and documents available at the time of evaluation of the Application.

20. Responsiveness of Applications

20.1. The Procuring Agency may reject any Application which is not responsive to the requirements of the Prequalification Documents. In case the information furnished by the Applicant is incomplete or otherwise requires clarification as per ITA 19.1, and the Applicant fails to provide satisfactory clarification and/or missing information within prescribed time, it may result in disqualification of the Applicant.

21. Margin of Preference

21.1. Unless otherwise specified in the PDS, a margin of preference shall not apply in the Bidding process resulting from this Pre-qualification.

22. Sub-contractors

22.1. Subcontractors' qualification and experience will not be considered for evaluation of the Applicant. The Applicant on its own (without taking into account the qualification and experience of the Subcontractor) should meet the qualification criteria.

F. Evaluation of Applications and Prequalification of Applicants

23. Evaluation of Applications

23.1. The Procuring Agency shall use the factors, methods, criteria, and requirements defined in Section III, Qualification Criteria and Requirements, to evaluate the qualifications of the Applicants, and no other methods, criteria, or requirements shall be used. The Procuring Agency reserves the right to waive minor deviations from the qualification criteria if they do not materially affect the technical capability and financial resources of an Applicant to perform the contract, however subject to the provisions of ITA 25.

23.2. Subcontractors proposed by the Applicant shall be fully qualified for their parts of the Scope of Supply of the Goods and Allied Services.

23.3. In case of multiple contracts, Applicants should indicate in their Applications the individual contract or combination of contracts in which they are interested. The Procuring Agency shall prequalify each Applicant for the maximum combination of contracts for which the Applicant has thereby indicated its interest and for which the Applicant meets the appropriate aggregate requirements. The Qualification Criteria and Requirements are mentioned in Section III.

Only the qualifications of the Applicant shall be considered. The qualifications of other related entities such as the Applicant's subsidiaries, parent entities, affiliates, subcontractors or any other firm(s) different from the Applicant shall not be taken into consideration in determining the qualifications of the Applicant.

24. Procuring Agency's Right to Accept or Reject Applications

24.1. The Procuring Agency reserves the right to accept or reject all the Applications, and to annul the Prequalification process at any time, without thereby incurring any liability to the Applicants. However, the procuring agency shall record its reasons and justifications on **EPADS v2.0**, duly approved by the Principal Accounting Officer or Head of Organization.

25. Pre-qualification of Applicants

25.1. All Applicants whose Applications substantially meet or exceed the specified qualification requirements will be prequalified by the Procuring

Agency.

25.2. An Applicant may be “conditionally prequalified,” that is, qualified subject to the Applicant submitting or correcting certain specified nonmaterial documents or deficiencies to the satisfaction of the Procuring Agency.

25.3. Applicants that are conditionally prequalified will be so informed along with the statement of the condition(s) which must be met to the satisfaction of the Procuring Agency before or at the time of submitting their Bids.

26. Notification of Prequalification

26.1. The Procuring Agency shall notify all Applicants in writing through **EPADS v2.0** indicating the names of those Applicants who have been prequalified or conditionally prequalified. In addition, those Applicants who have been disqualified will be informed separately through **EPADS v2.0**.

26.2. The procuring agency shall communicate to those suppliers or contractors who have not been pre-qualified the reasons for not pre-qualifying them through **EPADS v2.0**

27. Request for Bids

27.1. Promptly after the notification of the results of the Prequalification, the Procuring Agency will invite the Bids from all the Applicants that have been prequalified through **EPADS v2.0**.

28. Changes in Qualifications of Applicants

28.1. Any change in the structure or formation of an Applicant after being prequalified in accordance with ITA 25 and invited to bid (including, in the case of a JV, any change in the structure or formation of any member thereto) shall be subject to the written approval of the Procuring Agency prior to the deadline for submission of Bids. Such approval shall be denied if:

28.1.1. a prequalified Applicant proposes to associate with a disqualified Applicant or in case of a disqualified joint venture, any of its members;

28.1.2. as a consequence of the change, the Applicant no longer substantially meets the qualification criteria set forth in Section III, Qualification Criteria and Requirements; or

28.1.3. in the opinion of the Procuring Agency, the change may result in a substantial reduction in competition.

28.2. Any such change should be submitted to the Procuring Agency before the date of "Invitation to Bids".

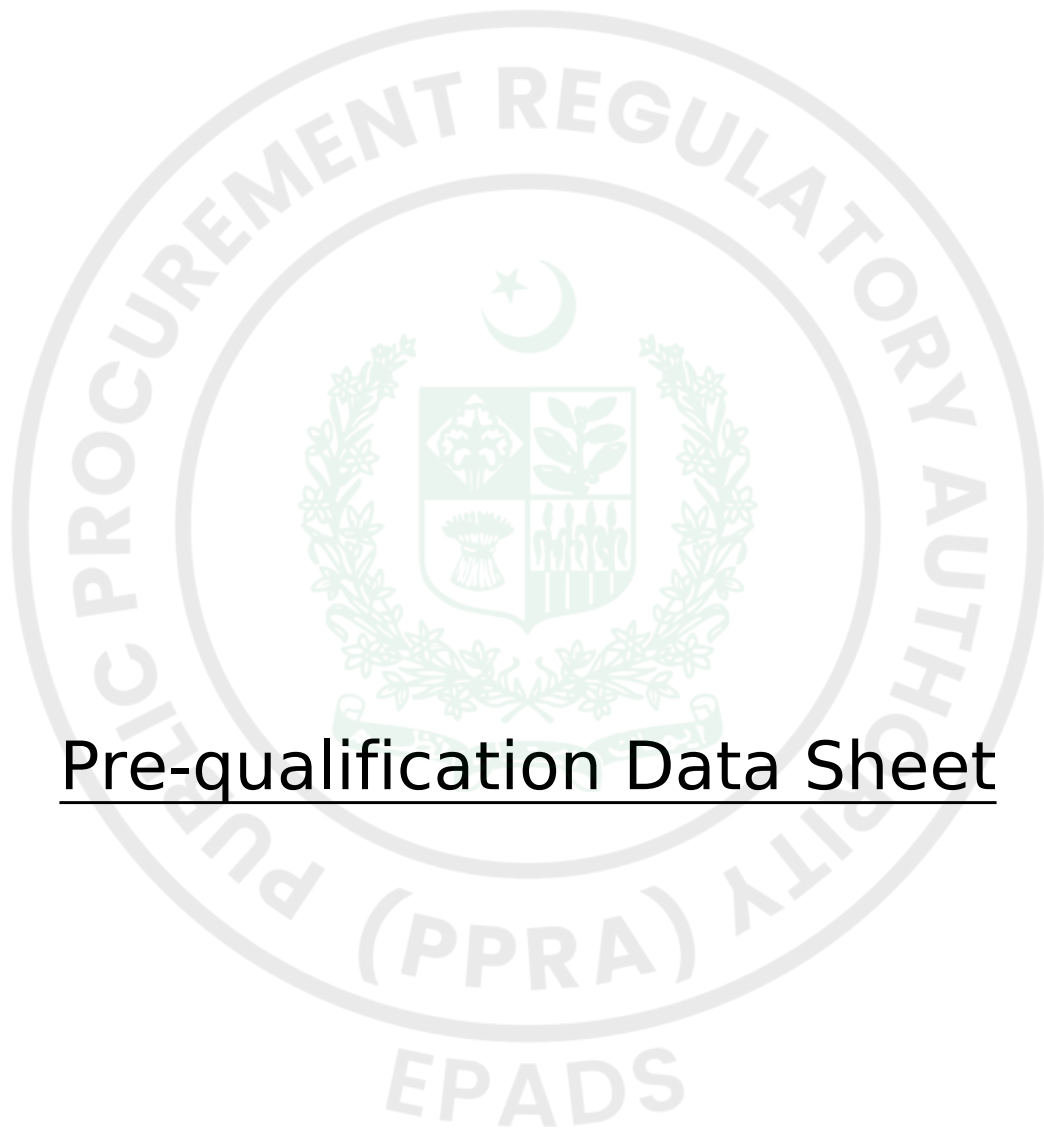
29. Redressal of Grievances

29.1. Procuring agency shall constitute a Grievance Redressal Committee (GRC) and proceed in accordance with the procedure and mechanism defined under Rule-48 of Public Procurement Rules, 2004.

29.2. The GRC shall not have any of the members of Procurement Evaluation Committee. The committee must have one subject specialist depending on the nature of the procurement.

30. Mechanism of Blacklisting

30.1. The procuring agency shall initiate blacklisting or debarment proceedings against any bidder, supplier or contractor in accordance with the mechanism prescribed under Rule-19 of Public Procurement Rules, 2004 read with "Mechanism for Blacklisting Regulations, 2024".



Pre-qualification Data Sheet

Prequalification Data Sheet (PDS)

The following specific data for the Prequalification of Applicants shall complement, supplement, or amend the provisions in the Instructions to Applicants (ITA). Whenever there is a conflict, the provisions herein shall prevail over those in ITA.

PDS Clause No

ITA No

Amendments of, and Supplements to, Clauses in the Instructions to Applicants

A. General

PDS Clause No 1

ITA No 1.1

Identification Number of the Invitation for Prequalification: **P116395**

The Procuring Agency is: **Pakistan Meteorological Department (Pakistan Meteorological Department)**

List of Contracts:

See section items and Lots

PDS Clause No 2

ITA No 2.1

The name of Procuring Agency is: **Pakistan Meteorological Department (Pakistan Meteorological Department)**

The name of Project / Procurement is: **REPAIR AND REPLACEMENT OF PARTS FOR GLACIAL LAKE OUTBURST FLOOD EARLY WARNING SYSTEM (GLOF EWS)**

PDS Clause No 3

ITA No 4.2

Maximum number of members in a Joint Venture (JV): **3**

PDS Clause No 4

ITA No 4.5

A list of debarred firms and individuals is available on PPRA website: **<https://ppra.gov.pk>**

B. Contents of the Prequalification Document

PDS Clause No 5

ITA No 7.1

For clarification, the Applicant shall seek clarifications through: **EPADS v2.0**

PDS Clause No 6

ITA No 7.1 & 8.2

Information related to Prequalification shall be published on: **EPADS v2.0**

PDS Clause No 7

ITA No 7.2

Pre-Application Meeting: **Clarification Date: Wednesday, September 30, 2026**

C. Preparation of Applications

PDS Clause No 8

ITA No 10.1

This Prequalification Document has been issued in the language: **English**

PDS Clause No 9

ITA No 11.1(d)

Additional documents to be submitted through EPADS v2.0:

No

PDS Clause No 10

ITA No 14.2

Source for determining exchange rates: **Not Applicable**

D. Submission of Applications

PDS Clause No 11

ITA No 16.1

Deadline for Application Submission:

Day: **Thursday**

Date: **Thursday, October 1, 2026**

Time: **10:30 AM**

PDS Clause No 12

ITA No 17.1

Opening of Applications shall be conducted through: **EPADS v2.0**

Day: **Thursday**

Date: **Thursday, October 1, 2026**

Time: **11:00 AM**

Virtual participation link: **<https://vendors.epads.gov.pk/>**

E. Procedures for Evaluation of Applications

PDS Clause No 13

ITA No 21.1

Margin of Domestic Preference: **Not Applicable**

(Applicable only if authorized in Procurement Plan)

PDS Clause No 14

ITA No 29.1

Prequalification-related complaints / grievances shall be submitted in writing through: **EPADS v2.0**

A complaint may challenge:

- The terms of the Prequalification Documents
- The Procuring Agency's decision not to prequalify an Applicant

Eligibility & Qualification Criteria

Bidder's Type	Required Registration
Individual / Individual Consultant	NADRA CITIZENSHIP (CNIC/NICOP)
Sole Proprietorship	FBR (NTN)
Partnership Firm	FBR (GSTN)
Company (Private Limited)	
Company (Public Limited)	
Company (Holding Company)	
Company (Limited by Guarantee)	
State Owned Enterprise (Private Limited)	
State Owned Enterprise (Public Limited)	
IGO	

Evaluation Criteria

Quality Based Selection (QBS)

Weightage (Without Financial Criteria)

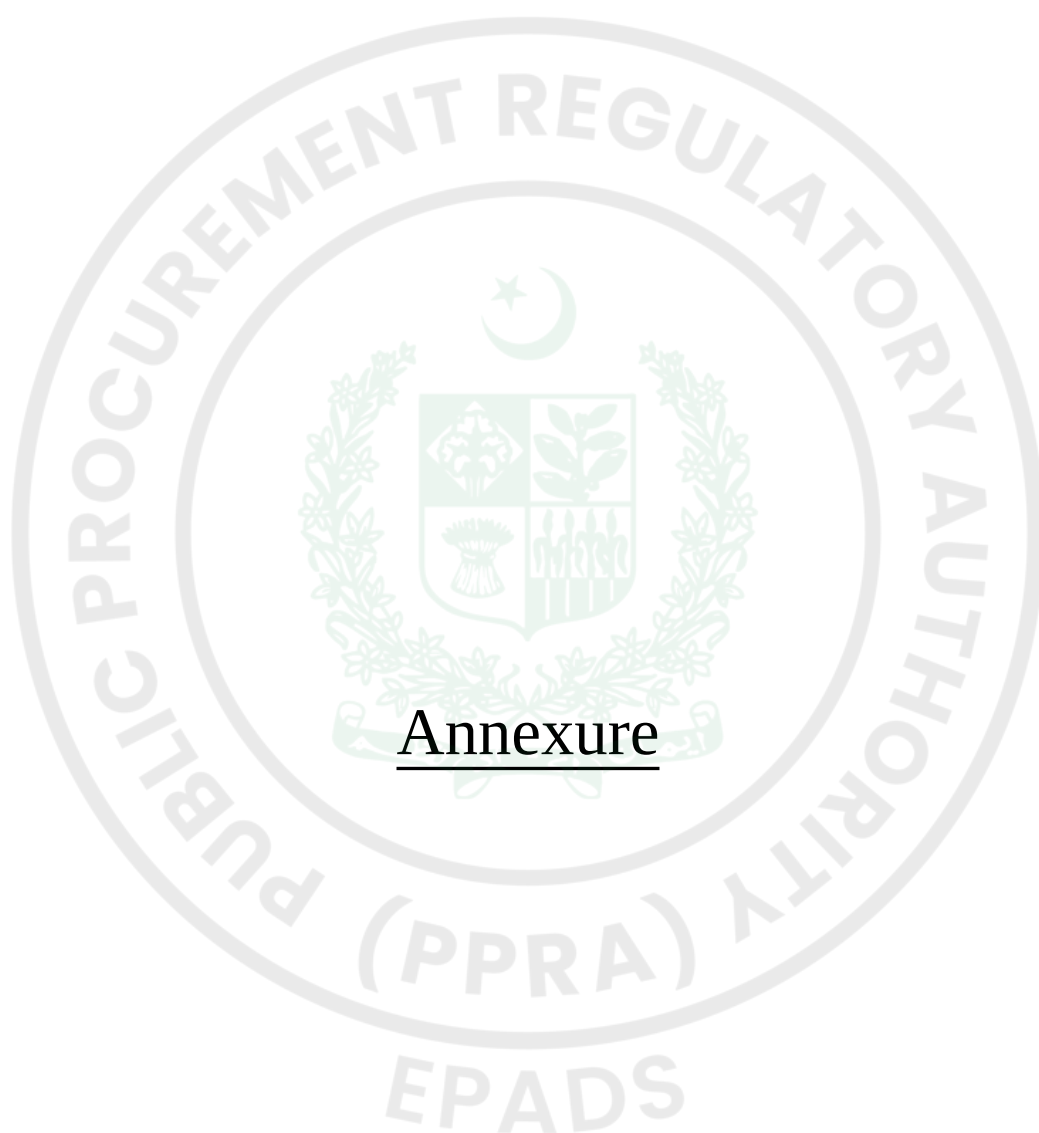
Technical Evaluation %	
100	
Technical Marks	100
Passing Marks	65
Technical Evaluation Criteria	
Demonstration (Quantitative)(Doc Required)	30
a. Practical demonstration with full Compliance (30) b. Online demonstration with full Compliance (20) c. Documented demonstration/ Written with full Compliance (10)	
Presence in Pakistan (Regional / Area Office) (Quantitative)(Doc Required)	10
a. ≥ 10 years (10) b. ≥ 5 years (5) c. < 5 years (1)	

Experience in providing similar systems (Quantitative)(Doc Required) a. ≥ 10 years (10) b. ≥ 5 years (5) c. < 5 years (1)	10
After sales services with proven availability (in terms of years) (Quantitative)(Doc Required) a. ≥ 10 years (10) b. ≥ 5 years (5) c. < 5 years (1)	10
Technical team (provide complete details / CV) (Quantitative)(Doc Required) a. ≥ 10 team of technical person (10) b. ≥ 5 team of technical person (5) c. < 5 team members (1)	10
Customer Feedback (Quantitative)(Doc Required) a. Qty of systems delivered with customer feedback ≥ 10 (10) b. Qty of systems delivered with customer feedback ≥ 5 (5) c. Qty of systems delivered with customer feedback < 5 (1)	10

WMO Traceable Calibration certificates (equipment / sensors) (Quantitative)(Doc Required)	20
a. 100 % sensor traceable certificate (20) b. 90 % sensor traceable certificate (10) c. Below 90 % sensor traceable certificate (1)	







Annexure

Background and Introduction

Repair and Replacement of Parts for Glacial Lake Outburst Flood Early Warning System (GLOF EWS)

1. Title of Procurement Repair and replacement of parts for hydro-meteorological equipment installed for Glacial Lake Outburst Flood Early Warning System (GLOF EWS) in Gilgit-Baltistan (G-B) and Khyber Pakhtunkhwa (KP).

2. Introduction The United Nations Development Programme (UNDP) successfully implemented and completed the Glacial Lake Outburst Flood Risk Reduction Project (GLOF-II). A network of hydro-meteorological equipment installed to establish and support the GLOF Early Warning System in the glaciated regions of Gilgit-Baltistan (G-B) and Khyber Pakhtunkhwa (KP). The ownership, operation, management, and maintenance responsibilities for the installed hydro-meteorological equipment were transferred to the Pakistan Meteorological Department (PMD) to ensure long-term sustainability and continued operation of EWS. The availability of compatible and technical compliant parts is essential for maintaining the operational integrity, reliability, and longevity of EWS network established in the targeted valleys of G-B and KP. Accordingly, PMD intends to repair/ replace the required parts to ensure timely maintenance and uninterrupted functionality of these installed systems, particularly during flood and monsoon season.

3. Scope of Work / Technical Specifications The successful bidder shall supply and deliver genuine, new and unused parts and equipment for the hydro-meteorological systems installed for GLOF EWS.

All supplied items shall:

- Be fully integrate-able with the existing installed equipment and associated data acquisition and communication systems;
- Be factory-tested and supplied in proper working condition;
- Where applicable, be calibrated in accordance with internationally recognized standards and relevant World Meteorological Organization (WMO) requirements;
- Meet the technical specifications, accuracy, resolution, measurement ranges, signal output configurations, communication protocols, and power supply requirements specified in this document; and
- Be capable of integration and configuration with the existing installed systems without compromising the functionality, reliability, or performance of the EWS.

The bidder shall be responsible for ensuring the exact specifications of the offered parts with the existing installed equipment as per specifications

Information (Read-Only)

See Form Under Additional Forms and Documents: **Background and Introduction** (page number: 33)

Pre- Qualification Requirements

Pre-Qualification Requirements for Technical Compatibility

The bidder shall demonstrate, to the satisfaction of the Pakistan Meteorological Department, that the offered equipment, parts, and associated data acquisition components are fully compatible with the existing Glacial Lake Outburst Flood Early Warning System (GLOF-EWS) installed in Gilgit-Baltistan and Khyber Pakhtunkhwa. The bidders are allowed to visit the PMD HQs office, Islamabad for any queries and observation of the existing system.

Failure to successfully complete the technical compatibility demonstration may result in rejection of the bid.

1. Existing System Compatibility

2. Data Logger Compatibility Demonstration

3. Communication Demonstration

4. FTP Communication Demonstration

5. Date and Time Synchronization

6. Functional Testing Under Different Scenarios

7. TECHNICAL EQUIVALENCE, COMPATIBILITY AND INTEGRATION REQUIREMENTS

8. Evaluation Criteria

Information (Read-Only)

See Form Under Additional Forms and Documents: **Pre- Qualification Requirements** (page number: 34)

LOT-1 Technical Specification

<p>Annex attached</p>
Information (Read-Only)

See Form Under Additional Forms and Documents: **LOT-1 Technical Specification** (page number: 40)

LOT- 2 Technical Specification

<p>Details Attached </p>
Information (Read-Only)

See Form Under Additional Forms and Documents: **LOT- 2 Technical Specification** (page number: 44)

Requirements, Delivery and Validity of the Offer

Information (Read-Only)

See Form Under Additional Forms and Documents: **Requirements, Delivery and Validity of the Offer** (page number: 48)



Procurement Forms







Additional Forms and Documents

BACKGROUND AND PURPOSE

Repair and Replacement of Parts for Glacial Lake Outburst Flood Early Warning System (GLOF EWS)

1. Title of Procurement

Repair and replacement of parts for hydro-meteorological equipment installed for Glacial Lake Outburst Flood Early Warning System (GLOF EWS) in Gilgit-Baltistan (G-B) and Khyber Pakhtunkhwa (KP).

2. Introduction

The United Nations Development Programme (UNDP) successfully implemented and completed the Glacial Lake Outburst Flood Risk Reduction Project (GLOF-II). A network of hydro-meteorological equipment installed to establish and support the GLOF Early Warning System in the glaciated regions of Gilgit-Baltistan (G-B) and Khyber Pakhtunkhwa (KP).

The ownership, operation, management, and maintenance responsibilities for the installed hydro-meteorological equipment were transferred to the Pakistan Meteorological Department (PMD) to ensure long-term sustainability and continued operation of EWS. The availability of compatible and technical compliant parts is essential for maintaining the operational integrity, reliability, and longevity of EWS network established in the targeted valleys of G-B and KP. Accordingly, PMD intends to repair/ replace the required parts to ensure timely maintenance and uninterrupted functionality of these installed systems, particularly during flood and monsoon season.

3. Scope of Work / Technical Specifications

The successful bidder shall supply and deliver genuine, new and unused parts and equipment for the hydro-meteorological systems installed for GLOF EWS.

All supplied items shall:

- a. Be fully integrate-able with the existing installed equipment and associated data acquisition and communication systems;
- b. Be factory-tested and supplied in proper working condition;
- c. Where applicable, be calibrated in accordance with internationally recognized standards and relevant World Meteorological Organization (WMO) requirements;
- d. Meet the technical specifications, accuracy, resolution, measurement ranges, signal output configurations, communication protocols, and power supply requirements specified in this document; and
- e. Be capable of integration and configuration with the existing installed systems without compromising the functionality, reliability, or performance of the EWS.

The bidder shall be responsible for ensuring the exact specifications of the offered parts with the existing installed equipment as per specifications mentioned in the document.

Pre-Qualification Requirements for Technical Compatibility

The bidder shall demonstrate, to the satisfaction of the Pakistan Meteorological Department, that the offered equipment, parts, and associated data acquisition components are fully compatible with the existing Glacial Lake Outburst Flood Early Warning System (GLOF-EWS) installed in Gilgit-Baltistan and Khyber Pakhtunkhwa. The bidders are allowed to visit the PMD HQs office, Islamabad for any queries and observation of the existing system.

Failure to successfully complete the technical compatibility demonstration may result in rejection of the bid.

1. Existing System Compatibility

The bidder shall provide documentary evidence and demonstration that the offered parts are fully compatible with the existing installed hydro-meteorological stations, sensors, communication equipment, and data acquisition system currently deployed by PMD.

The bidder shall demonstrate that:

- Bidders should be the sole authorized dealer of offered parts and with authentic certificate of OEM products for at-least next three years from the date of award of tender.
- Fully compatible with the existing hydro-meteorological EWS systems.
- Sensor communication interfaces completely identical IO architecture with the existing Compact/Compact+ C.A.E dataloggers, and mounting arrangements are fully compatible with the existing equipment.
- Existing sensor wiring, power supply arrangements, communication protocols, and station configuration shall remain unchanged.

2. Data Logger Compatibility Demonstration

Where an alternate/ equivalent data logger is offered, the bidder shall demonstrate that the logger is fully compatible with the existing GLOF-EWS infrastructure.

The demonstration shall include, but not be limited to:

- Successful integration with the existing satellite communication modem HUGHES-9502.
- Compatibility with GSM modem TRM-240.
- Compatibility and integration with all existing sensors installed at PMD hydro-meteorological EWS systems.
- Compatibility with all communication protocols currently used in the hydro-meteorological EWS systems.
- Successful communication with the existing Database server/system.
- The bidder shall demonstrate the supplied logger configuration in accordance with PMD's required data formats, intervals, and communication protocols.

3. Communication Demonstration

The bidder shall demonstrate successful communication between the supplied logger and the existing satellite modem hughes-9502 and GSM modem TRM-240. The demonstration shall verify:

- Successful establishment of communication.
- Correct transmission intervals.

- Successful data packet generation.
- Data integrity.
- Error-free communication.
- Automatic recovery following communication interruption.

4. FTP Communication Demonstration

The bidder shall demonstrate successful FTP communication with the existing PMD server.

The demonstration shall include verification of:

- Automatic connection.
- Authentication.
- File creation.
- Correct file naming convention.
- Successful upload with acknowledgement.
- Automatic retry mechanism.
- Successful transfer after communication interruption.

5. Date and Time Synchronization

The bidder shall demonstrate that:

- Logger date and time are synchronized correctly with NTP.
- Time zone settings comply with PMD requirements.
- Time stamps are generated correctly.
- Time stamps are identical to PMD data format.
- Time synchronization is maintained after restart.
- No time drift occurs during continuous operation.

6. Functional Testing Under Different Scenarios

The logger shall be tested under various operational conditions, including:

- Power interruption and automatic recovery.
- Sensor disconnection.
- Sensor failure.
- Communication failure.
- Satellite link interruption.
- GSM network loss.
- FTP server unavailability.
- Memory overflow.
- Data buffering during communication outage.
- Automatic transmission of buffered data after communication restoration.
- Restart after power restoration.
- Clock synchronization after restart.
- Simultaneous operation of multiple sensors.
- Continuous operation for a minimum of 24 hours without malfunction.

7. TECHNICAL EQUIVALENCE, COMPATIBILITY AND INTEGRATION REQUIREMENTS

- Where the bidder offers an item, component, sensor, data logger, communication device, or other equipment that is different in make, model, design, or technical configuration from the existing installed equipment, it may be considered only if the bidder demonstrates that the offered item is functionally, electrically, mechanically, and communicational compatible with the existing GLOF-EWS infrastructure.
- Merely meeting or exceeding individual specifications such as measurement range, accuracy, resolution, memory, processor speed, or communication interface shall not, by itself, constitute technical equivalence.
- The bidder shall provide sufficient documentary evidence and, where required, conduct a practical demonstration to establish that the proposed alternative can be integrated with the existing system without requiring replacement or modification of other installed components, unless such modifications are explicitly approved by PMD.
- Where an alternative/equivalent data logger is proposed in place of the existing Compact/Compact+ data logger, the bidder shall demonstrate that:
 - The proposed data logger can be connected to and operate with the **existing installed sensors without replacement of the sensors**.
 - Existing sensor wiring, connectors, power arrangements, and mounting arrangements can be retained, wherever applicable.
 - The proposed logger accepts the **same sensor input types and signal characteristics** used by the existing system, including applicable analogue, digital, RS-485, SDI-12, pulse/frequency, PT100, and other installed sensor interfaces.
 - The proposed logger generates sensor data in a format and structure that is **fully compatible with the existing PMD data processing and database system**.
 - Existing data fields, parameter identification, units, timestamps, sampling intervals, recording intervals, and transmission intervals are maintained, or any proposed change is demonstrated to be fully compatible with the existing PMD system and approved by PMD.
 - The existing communication arrangements, including the HUGHES-9502 satellite modem and TRM-240/GSM communication system, can be retained and operated without loss of functionality.
 - The replacement of the logger does not require replacement of the existing sensors, communication modem, server/database interface, or other station equipment solely to make the proposed logger operational. Historical and real-time data generated by the proposed logger can be processed by the existing PMD system without alteration to the established data interpretation and monitoring arrangements.
- Where an alternative/equivalent sensor is proposed in place of an existing sensor, the bidder shall demonstrate that the proposed sensor:
 - Performs the **same measurement function** as the existing sensor.
 - Same measurement range, accuracy, resolution, response characteristics, and environmental suitability equal to or better than the specified requirements.
 - Provides an **input/output signal compatible with the existing data logger**, without requiring replacement of the data logger.
 - Uses a compatible communication protocol and addressing/configuration arrangement, where applicable.
 - Can be connected to the **existing sensor wiring and input channel** without modification, wherever the existing interface is required to be retained.
 - Produces measurement values in the same required units and with the same data interpretation as the existing sensor.

- Can be configured so that the existing PMD data acquisition, logging, transmission, and database systems receive and interpret the data correctly.
- Does not require changes to the existing data file structure, parameter identification, or data-processing logic, unless such changes are demonstrated and approved by PMD.
- For replacement of any logger or sensor, the bidder shall demonstrate that the replacement equipment can generate and/or transmit data using the **same established data structure, file format, parameter sequence, parameter identification, units, timestamp format, and transmission protocol** currently used by the existing GLOF-EWS.
- The bidder shall demonstrate, at its own responsibility and cost, that the data can be converted or configured so that the **existing PMD server/database and monitoring system receive and process the data without disruption**.
- A proposed item shall not be considered technically equivalent merely because its output can be converted through an additional device or software layer; such an arrangement shall require prior technical approval by PMD.
The bidder shall demonstrate that the proposed replacement item has compatible:
 - Electrical input/output characteristics;
 - Signal type and signal range;
 - Communication interface;
 - Communication protocol;
 - Data structure;
 - Sampling and recording configuration;
 - Power supply requirements;
 - Connector/wiring arrangement; and
 - Mechanical installation/interface requirements.
- Where the bidder claims that an offered item is a direct replacement / drop-in replacement for an existing component, the bidder shall demonstrate that the existing component can be removed and the proposed item installed in its place with no modification to the remaining EWS system. The demonstration shall verify, as applicable:
 - **Existing Sensor → Proposed Logger → Existing Communication System → Existing PMD Server/Database**
or
 - **Existing Logger → Proposed Sensor → Existing PMD Server/Database.**
- The complete chain shall operate successfully and produce valid, correctly identified and correctly interpreted data at the PMD central system.
- The bidder shall demonstrate:
 - Physical connection and installation;
 - Sensor recognition and data acquisition;
 - Correct measurement values;
 - Correct units and parameter identification;
 - Correct timestamp;
 - Correct recording interval;
 - Correct data-file generation;
 - Correct data transmission;
 - Successful communication through the existing modem;
 - Successful receipt by the existing PMD server/database;
 - Correct display/interpretation of data at the central system; and
 - Continued operation following power and communication interruption.

- The bidder shall clearly identify any additional hardware, software, converter, interface, gateway, adapter, license, subscription, or modification required to integrate the proposed alternative item with the existing EWS.
- PMD shall not be required to procure additional components or undertake modifications merely to make an offered “equivalent” item compatible with the existing system, unless such requirements are explicitly identified by the bidder and accepted by PMD before technical evaluation.
- The burden of proof of technical equivalence and compatibility shall rest entirely with the bidder.
- PMD shall have the right to reject any proposed alternative item where the bidder fails to provide adequate documentary evidence or fails to satisfactorily demonstrate compatibility with the existing GLOF-EWS infrastructure.
- The final determination of technical equivalence and compatibility shall rest with the Pakistan Meteorological Department, based on the submitted documentation, technical evaluation, and/or practical demonstration.
- For the purpose of pre-qualification, compatibility shall be assessed on a **complete system basis** and not solely on individual component specifications.
- An item shall be considered technically acceptable only where its integration does not adversely affect the existing EWS's chain:
measurement → data acquisition → data logging → data formatting → communication → transmission → server/database → monitoring/alerting.

8. Evaluation Criteria

Sr. No.	Criteria	Evaluation
Technical Evaluation		
i.	It is validly incorporated under the laws of Pakistan (to the extent applicable), registered with relevant government agencies, active tax payer and OEM sole certificate. The bidder shall demonstrate the claimed equivalence and compatibility through verifiable technical documentation and/or practical demonstration to the satisfaction of PMD.	Mandatory
ii.	Demonstration.	30 Marks
	a. Practical demonstration Practical demonstration with 100% compliance Practical demonstration with 75% compliance Practical demonstration with 50% compliance Practical demonstration with < 50% compliance b. Online demonstration 100% compliance 75% compliance 50% compliance <50% compliance c. Documented demonstration/ Written	30/30 15/30 5/30 0/30 20/30 10/30 5/30 0/30

	100% compliance	10/30
	75% compliance	5/30
	<75% compliance	0/30
iii.	Presence in Pakistan (Regional / Area Office)	10 Marks
	a. ≥ 10 years	10/10
	b. ≥ 5 years	5/10
	c. < 5 years	0/10
iv.	Experience in providing similar systems	10 Marks
	a. ≥ 10 years	10/10
	b. ≥ 5 years	5/10
	c. < 5 years	0/10
v.	After sales services with proven availability (in terms of years)	10 Marks
	a. ≥ 10 years	10/10
	b. ≥ 5 years	5/10
	c. < 5 years	0/10
vi.	Technical team (provide complete details / CV)	10 Marks
	a. ≥ 10 team of technical person	10/10
	b. ≥ 5 team of technical person	5/10
	c. < 5 team members	0/10
vii.	Customer Feedback	10 Marks
	a. Qty of systems delivered with customer feedback ≥ 10	10/10
	b. Qty of systems delivered with customer feedback ≥ 5	5/10
	c. Qty of systems delivered with customer feedback < 5	0/10
viii.	WMO Traceable Calibration certificates (equipment / sensors)	20 Marks
	a. 100 % sensor traceable certificate	20/20
	b. 90 % sensor traceable certificate	10/20
	c. Below 90 % sensor traceable certificate	0/20
	Total	100 Marks

Passing Marks: - 65/100

9. Technical Specifications (LOT-1)

Item	Parameter / Sensor Model	Measurement Range	Accuracy / Resolution	Output Options	Power Supply
1	Barometric Pressure (BARO sense-M)	300 – 1100 hPa (Configurable analog output default: 600–1100 hPa)	- Accuracy: ± 0.3 hPa (700...1100 hPa) @ 20°C; ± 1 hPa (500...1100 hPa); ± 0.3 hPa (300–500 hPa @ T=0...60°C) - Resolution: 0.01 hPa	RS485 (Modbus-RTU/ASCII); Optional Analog (0/4–20 mA, 0–1/5/10V)	7 – 30 Vdc
2	Rainfall/ Rain Gauge (HD2013SR-1)	Max rate: 600 – 1000 mm/h	- Accuracy: $< 1\%$ up to 30 mm/h - Resolution: 0.1, 0.2, or 0.5 mm/tip	NC Contact; Optional Analog (4–20 mA, 0–10V) or SDI-12	7 – 30 Vdc (for optional outputs)
3	Global Solar Irradiance (LPPYRA02)	0 – 2000 W/m ²	- Classification: Spectrally Flat Class B - Sensitivity: 6 – 12 $\mu\text{V/W/m}^2$	Passive mV; Analog (4–20 mA, 0–1/5/10V); Digital (Modbus-RTU, SDI-12)	5 – 30 Vdc (active versions)
4	Water Level & Flow Velocity (RVM20)	- Level: 0 – 30 m - Velocity: 0.15 – 15 m/s	- Level Accuracy: ± 3 mm - Velocity Accuracy: ± 0.01 m/s ($\pm 1\%$)	RS485 (Modbus/SDI-12); Analog (4–20 mA)	8 – 16 Vdc
5	4-Component Net Radiation (NR01)	- Solar: 285 – 3000 nm - Longwave: 4.5 – 40 μm	- ISO Second Class (Pyranometer) - Sensitivity: ~ 15 $\mu\text{V/W/m}^2$	Passive (4 differential channels); Pt100 for body temp	Passive (Sensor); 12 Vdc (Heater)
6	Snow / Water Level (ULM30)	0.5 – 15 m	- Precision: ± 0.01 m - Resolution: 0.01 m	SDI-12; Analog (0/4–20 mA, 0–5/10V)	10 – 15 Vdc

7	Temp. & Relative Humidity (THS)	Not specified	PT100 (Temp); 0–1 V (Humidity)	Analog (Temp/Humidity); Digital UART	10 – 16 Vdc (standard)
8	Wind Speed (VV20)	0 – 100 m/s	• Accuracy: ± 0.07 m/s • Resolution: 0.06 m/s	10 Vp Square Wave (frequency proportional to speed)	12 Vdc
9	Wind Direction (DV20)	0 – 360°	• Accuracy: $\pm 2.8^\circ$ • Resolution: 0.35°	Analog (0.5 V – 4.5 V)	5 Vdc (Excitation)
10	Hydrostatic Level (PR-26Y)	0 – 10 m H ₂ O		4 – 20 mA	8 – 32 Vdc
11	Data Logger (Compact)	Processor: 528 MHz ARM Cortex A7 MPCore RAM: 512MB of SDRAM DDR3 NAND flash: 2 GB NOR flash: 16 MB	Network Interface: Ethernet, Wifi, Bluetooth Accuracy: 0.012 % of the measure Resolution: 24 bit		10—16V
12	Data Logger (Compact Plus)	Processor: 168 MHz ARM Cortex M4 A/D converter: 24 bit Total Flash memory: 5 MB Total RAM: 704 KB	Network Interface: Ethernet, Wifi, Bluetooth Accuracy: 0.012 % of the measure Resolution: 24 bit	Number of available inputs: 9 Single-Ended / 4 differential + 1 Single-Ended	10—16V
13	Charge Controller MPPTWRM20	12V/24V 20A			
14	RAM for Compact Data Logger	512MB of SDRAM DDR3	Compatible with 528MHz ARM Cortex A7 Mpcore Processor		

15	Huges Satellite Modem 9502 with Antenna	Transmission frequency 1626.5 – 1675MHz Receiving Frequency 1518 – 1559 MHz Antenna Dimensions(385 mm x 385 mm x 33 mm)		RJ45 connector (Ethernet 10BaseT)	+12VDC / +24VDC 1.5A / 0.75A
16	Solar Panel (Monocrystalline, Grade- A)	100-180W, 12V DC, Pole-mounted with adjustable brackets and accessories			
17	Battery	80A, 12V, AGM Gel battery			
18	GSM Modem (Industrial Grade)	4G/LTE/5G, Wifi Cellular router, 5V powered via microUSB and compatible with the Compact Series Data Logger, PTA approved			
19	Warning Sirens	24V DC, Max Sound level 122*dB or more , Vol control -9dB, Flash energy 10J, 1HZ			

20.	Enclosure for Data Logger and Battery Box	Outdoor industrial enclosure, Lockable, IP66 rating, Pole mounted with nuts, bolts, clamps and other accessories. UV-resistant powder coating	Dimensions:- L x W x Depth 25.5 x 16 x 8 inches in accordance with the drawing (attached)		
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Note: The quantities of individual items shall be as specified in the approved Bill of Quantities (BoQ) / Financial Schedule. The Procuring Agency reserves the right to procure all or part of the listed items, subject to applicable procurement rules and the approved procurement requirements.

10. Technical Specifications (LOT-2)

Item	Parameter / Sensor Model	Measurement Range	Accuracy / Resolution	Output Options	Power Supply
1	Barometric Pressure	300 – 1100 hPa (Configurable analog output default: 600–1100 hPa)	• Accuracy: ± 0.3 hPa (700...1100 hPa) @ 20°C; ± 1 hPa (500...1100 hPa); ± 0.3 hPa (300–500 hPa @ T=0...60°C) • Resolution: 0.01 hPa	RS485 (Modbus-RTU/ASCII); Optional Analog (0/4–20 mA, 0–1/5/10V)	7 – 30 Vdc
2	Rainfall/ Rain Gauge	Max rate: 600 – 1000 mm/h	• Accuracy: < 1% up to 30 mm/h • Resolution: 0.1, 0.2, or 0.5 mm/tip	NC Contact; Optional Analog (4–20 mA, 0–10V) or SDI-12	7 – 30 Vdc (for optional outputs)
3	Global Solar Irradiance	0 – 2000 W/m ²	• Classification: Spectrally Flat Class B • Sensitivity: 6 – 12 $\mu\text{V/W/m}^2$	Passive mV; Analog (4–20 mA, 0–1/5/10V); Digital (Modbus-RTU, SDI-12)	5 – 30 Vdc (active versions)

20.	Enclosure for Data Logger and Battery Box	Outdoor industrial enclosure, Lockable, IP66 rating, Pole mounted with nuts, bolts, clamps and other accessories. UV-resistant powder coating	Dimensions:- L x W x Depth 25.5 x 16 x 8 inches in accordance with the drawing (attached)		
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Note: The quantities of individual items shall be as specified in the approved Bill of Quantities (BoQ) / Financial Schedule. The Procuring Agency reserves the right to procure all or part of the listed items, subject to applicable procurement rules and the approved procurement requirements.

10. Technical Specifications (LOT-2)

Item	Parameter / Sensor Model	Measurement Range	Accuracy / Resolution	Output Options	Power Supply
1	Barometric Pressure	300 – 1100 hPa (Configurable analog output default: 600–1100 hPa)	- Accuracy: ± 0.3 hPa (700...1100 hPa) @ 20°C; ± 1 hPa (500...1100 hPa); ± 0.3 hPa (300–500 hPa @ T=0...60°C) - Resolution: 0.01 hPa	RS485 (Modbus-RTU/ASCII); Optional Analog (0/4–20 mA, 0–1/5/10V)	7 – 30 Vdc
2	Rainfall/ Rain Gauge	Max rate: 600 – 1000 mm/h	- Accuracy: < 1% up to 30 mm/h - Resolution: 0.1, 0.2, or 0.5 mm/tip	NC Contact; Optional Analog (4–20 mA, 0–10V) or SDI-12	7 – 30 Vdc (for optional outputs)
3	Global Solar Irradiance	0 – 2000 W/m ²	- Classification: Spectrally Flat Class B - Sensitivity: 6 – 12 $\mu\text{V/W/m}^2$	Passive mV; Analog (4–20 mA, 0–1/5/10V); Digital (Modbus-RTU, SDI-12)	5 – 30 Vdc (active versions)

4	Water Level & Flow Velocity	• Level: 0 – 30 m • Velocity: 0.15 – 15 m/s	• Level Accuracy: ± 3 mm • Velocity Accuracy: ± 0.01 m/s ($\pm 1\%$)	RS485 (Modbus/SDI-12); Analog (4–20 mA)	8 – 16 Vdc
5	4-Component Net Radiation	• Solar: 285 – 3000 nm • Longwave: 4.5 – 40 μm	• ISO Second Class (Pyranometer) • Sensitivity: ~ 15 $\mu\text{V/W/m}^2$	Passive (4 differential channels); Pt100 for body temp	Passive (Sensor); 12 Vdc (Heater)
6	Snow / Water Level	0.5 – 15 m	• Precision: ± 0.01 m • Resolution: 0.01 m	SDI-12; Analog (0/4–20 mA, 0–5/10V)	10 – 15 Vdc
7	Combine Temp. & Relative Humidity (THS)	Not specified	PT100 (Temp); 0–1V (Humidity)	Analog (Temp/Humidity); Digital UART	10 – 16 Vdc (standard)
8	Wind Speed	0 – 100 m/s	• Accuracy: ± 0.07 m/s • Resolution: 0.06 m/s	10 Vp Square Wave (frequency proportional to speed)	12 Vdc
9	Wind Direction	0 – 360°	• Accuracy: $\pm 2.8^\circ$ • Resolution: 0.35°	Analog (0.5 V – 4.5 V)	5 Vdc (Excitation)
10	Hydrostatic Level	0 – 10 m H ₂ O		4 – 20 mA	8 – 32 Vdc
11.	DJI Phantom 4 Pro Intelligent Flight Battery	Compatible with DJI Phantom 4 Pro/Phantom 4 Pro V2.0 aircraft. Intelligent LiPo battery with built-in battery management system (BMS). Battery Capacity: 5870 mAh or higher . Voltage: 15.2 V (4S). Flight Time: Up to 30 minutes . OEM or equivalent quality.			
12.	DJI Phantom 4 Pro Remote Controller Battery	Compatible with DJI Phantom 4 Pro/Phantom 4 Pro V2.0 Remote Controller. Rechargeable Lithium-ion (Li-ion) battery. Battery Capacity: 6000 mAh or higher . Voltage: 7.2 V . OEM or equivalent quality.			

13	Data Logger	The data should be recorded and saved in the internal non-volatile memory for at least 72 hours with an option of archiving to external memory. Recording/ measurement type: Instantaneous, average, min, max Recording Cycle: 1 min, 10 mins, 60 mins, 24 hrs or user defined. • Capable of transferring data using GSM, Satellite, Wi-Fi. • Direct data logger access through wireless and wired mode. • Complete end-to-end system, to transmit data from remote loggers to the Central data processor unit at pre-programmed intervals, or alternately respond to Polls from Central data processing unit. • The logger must support connection through different protocols such as RS-232, RS-485, Ethernet TCP/IP, USB, SDI etc. • The logger must be compatible to support data input from third party sensors using any of the above mentioned protocols. • Simultaneous communication on all ports automatically or could be defined by the user. • Sufficient number of channels to connect digital and analogue sensors with an option for extension. • Flash Card Memory 8GB included • LCD panel to display data and configure the logger • Operating temperature range -40°C to +60°C and humidity Range 0-100%. • Automatic system reset upon microprocessor failure • All exposed connectors must be rugged industrial grade material for corrosion and climate/environment proofing. Software for Connectivity with Data Logger: • Easily configure and connect with the logger for set-up and data downloading. • Should provide easy tools for displaying instantaneous and stored historical data in graphical and tabular/text format. Cabinet for logger : The AWS/Smart Sensor and the electronic equipment required for the AWS/Smart Sensor, should be installed in an outdoor cabinet with a protection category of IP65, IP66 or IP 67 (IEC 60 529). The material of the cabinet should be chosen so that the cabinet can survive at least 10 years in the environment of the installation without physical damage. The outer layer of the cabinet should be UV resistant, and not show external or internal corrosion in case it is made of metal. The cabinet should have at least one lock and should open/close with a key. At the bottom of the cabinet glands should be built in for incoming and outgoing cables. The cabinet should be supplied with all necessary pole mounting brackets or wall mounting brackets, as required. Charge Regulator (MPPT): • Smart Charge regulator to charge 12Volt, 100AH battery or better from power supplied by solar panel with intelligent charge control.
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14	Standalone 4G Remote Monitoring Camera with external battery , solar panel and battery enclosure	Suitable for remote and harsh weather conditions in both day and night operations. Support Local SIM cards (PTA approved equipment) 4 MP image resolution. Color: 0 Lux with white light ON IP67 Operating temperature: -20°C to +60°C. Automatic time-based (periodic) image capture and transmission to remote server. User-configurable capture interval from 1 minute to 24 hours. Date and time stamp embedded on each image. Support for image upload via FTP, SFTP, HTTP/HTTPS, or equivalent. Internal storage and/or microSD card (minimum 64 GB).	Battery Capacity: Sufficient capacity to provide a minimum of 2 days of autonomous backup operation under normal system load during periods of no sunlight. Battery Type: 12 V maintenance-free, sealed deep-cycle AGM battery or equivalent Battery Enclosure: The battery shall be installed inside a minimum IP67-rated weatherproof enclosure suitable for outdoor installation. The enclosure shall include appropriate cable entry glands/openings for solar panel, camera, and power connections, and shall be supplied with all necessary pole-mounting brackets, fixing hardware, and installation accessories. Solar Charge Controller: The system shall include a suitable solar charge controller. The controller shall be compatible with the selected battery type and solar panel capacity.	The system shall include a high-efficiency monocrystalline solar panel with a capacity of 100 W to 180 W The solar panel shall be supplied with a corrosion-resistant mounting frame/bracket suitable for pole mounting, including all required clamps, and accessories.	Average power consumption: ≤5 W. The camera system shall include all necessary pole-mounted accessories for installation
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Note: The quantities of individual items shall be as specified in the approved Bill of Quantities (BoQ) / Financial Schedule. The Procuring Agency reserves the right to procure all or part of the listed items, subject to applicable procurement rules and the approved procurement requirements.

11. Service Requirements

The bidder shall comply with the following requirements:

a. Item-by-Item Statement

The bidder shall submit a detailed, item-by-item statement against all technical specifications provided in this document. The statement shall clearly indicate whether the offered item **complies with, exceeds, or deviates from** each specified requirement.

Any deviation, exception, or alternative specification shall be clearly identified and fully explained.

b. Calibration Certificates

All applicable sensors and measuring instruments shall be supplied with valid factory calibration certificates traceable to internationally recognized standards (calibration certificate before January 2026 is not acceptable). Where applicable, calibration shall be traceable to relevant **ISO / WMO** standard.

c. Technical Documentation

The technical bid shall include complete and authentic technical documentation for each offered item, including, where applicable:

- Manufacturer's technical datasheet;
- Operation and maintenance manual;
- Installation and configuration manual;
- Wiring and pinout diagrams;
- Communication protocol details;
- Power supply requirements; and
- Any other documentation necessary for integration with the existing EWS infrastructure.

d. Warranty

All supplied items shall carry a minimum comprehensive warranty of **twelve (12) months from the date of installation, commissioning, or acceptance, whichever is later**, against manufacturing defects, material defects, workmanship defects, and abnormal measurement deviations attributable to the supplied equipment.

The supplier shall repair or replace defective items, at no additional cost to PMD, during the warranty period.

12. Delivery

- a. All equipment and parts shall undergo appropriate factory testing and quality checks prior to dispatch (the produced calibration certificate will not be accepted if it dates back before January 2026).
- b. The supplier shall provide evidence of factory testing and inspection, where applicable, along with the shipment.
- c. Upon delivery, the supplied items shall be subject to inspection and verification by PMD.
- d. Post-delivery inspection and functional testing may be conducted at designated PMD facilities or station locations to verify compliance with the approved technical specifications.

- e. Any item found defective, damaged, non-genuine shall be replaced by the supplier at no additional cost to PMD.
- f. The supplier shall ensure that all equipment is suitably packed and protected against damage during transportation, handling, and storage.

13. Validity of Offer

All supplied equipment and parts shall be **new, genuine, unused, and sourced from the Original Equipment Manufacturer (OEM).**

The bidder shall be solely responsible for ensuring the accuracy, completeness, authenticity, and technical compliance of the information submitted in its technical bid.

Failure to comply with the mandatory technical requirements may result in the rejection of the bid in accordance with the applicable procurement rules and tender conditions.

