

Meghalaya State Watershed & Wasteland Development Agency (MSWWDA)

REQUEST FOR QUOTATIONS

– SUPPLY of GOODS –

Supply and Installation of Automatic Weather Station (AWS)

For projects governed by Procurement Regulations for ADB Borrowers: Goods, Works, Non-Consulting and Consulting Services (2017)

REQUEST FOR QUOTATION - GOODS (RFQG)

Project Title : CLIMATE-ADAPTATIVE COMMUNITY-BASED WATER-HARVESTING PROJECT
IN MEGHALAYA

Source of Funding : Asian Development Bank

Contract Ref : GS-5 (MSWWDA/ADB-14/63)

Date of Issue of Request: 22nd July, 2025

To : _____

Sir/Madam:

1. The Meghalaya State Watershed & Wasteland Development Agency (MSWWDA) hereby requests you to submit price quotation/(s) for the supply of the following item:

Supply, Installation and commission of Automatic Weather Station (AWS) – 20 Nos

To assist you in the preparation of your price quotation we enclose the necessary **Supply and Delivery Schedule, Technical Specifications, Form of Quotation** and draft **Contract**.

2. If you/your firm, however, falls under any of the following conditions, your proposal shall not be considered:
 - (a) you/your firm are/is not a citizen/national of an ADB member country, or
 - (b) you/your firm have/has been associated with the firm that prepared the design and specifications, or engaged in the preparation of the Project for which the contract that is subject of this request for quotations was identified, or
 - (c) you/your firm are/is owned by the Purchaser, or
 - (d) you/your firm are/is currently sanctioned or temporarily suspended by the Asian Development Bank for a violation of its Anticorruption Policy (1998, as amended to date), or
 - (e) the importation of goods or services from your country or any payment to persons or entities in your country is prohibited in compliance with a decision of the United Nations Security Council under Chapter VII of the Charter of the United Nations.
3. To be qualified, you must have experience as a manufacturer or authorized supplier of the items covered by this **Request for Quotation** and, as evidence submit the following:
 - a) The bidder must have successfully completed project of Govt /PSU for Supply, Installation & Maintenance of Automatic Weather Stations of minimum **20 AWS** during last five (5) financial years in a single contract.
 - b) Original Manufacturer Authorization Certificate from the Original Equipment Manufacturer of the quoted product.
4. Your quotation should be submitted in accordance with the following instructions, procedures, and the terms and conditions of the **Contract**.

Preparation of Quotations

- (a) Your price quotation/(s) shall be for all the items as described in attached documents and submitted only in the attached **Form of Quotation** with the priced **Supply, Delivery and Price Schedule**. The currency of quoted prices and payment shall be Indian Rupees (INR).
- (b) The prices should be quoted for civil works wherever applicable or as per site condition and supply and delivery of Automated Weather Stations to Engineering Division, Soil & Water Conservation Department, Risa Colony, Shillong, Meghalaya, and should be accompanied by adequate technical documentation and catalogue(s) and other printed material or pertinent

information (in English language) for each item quoted, including names and addresses of firms providing after-sales service facilities in Shillong, Jowai, Nongpoh, Nongstoin, Tura, Baghmara, Resubelpara and Williamnagar.

- (c) You shall submit only one set of quotations for the above items. Your quotation must be typed or written in indelible ink and shall be signed by you or your authorized representative. Without a signature in your **Form of Quotation**, your quotation will not be considered further.
- (d) You shall submit one original of the **Form of Quotation**, and clearly marked "Original". In addition, you shall also submit one copy marked as "COPY". In case of any discrepancy between the Original and Copy, the original shall prevail.
- (e) Your quotation(s) should be valid for a period of 30 days from the deadline for submission of the quotation(s) as indicated below. If you withdraw your quotation during the validity period and/or refuse to accept the award of a contract when and if awarded, then you will be excluded from the list of Suppliers for the project for two years.
- (f) The Firms/ Contractors shall obtain a valid trading license from the concerned Autonomous District Council (ADCs)

Submission and Opening

- (g) Your **Form of Quotation** with the priced **Supply and Delivery Schedule** should be submitted by **13th August, 2025 before 2:00 PM** with the required documents that should be signed, sealed in an envelope and addressed to and delivered to the following address:

Purchaser's Address : Chief Executive Officer, MSWWDA
Office of the Meghalaya State Watershed & Wasteland
Development Agency (MSWWDA)
Upper Nongrim Hills, Meghalaya, Shillong -793001

Telephone :03643510017

- (h) Quotations shall be opened in public, in the presence of participating suppliers' representatives who choose to attend, on the **13th August, 2025 at 3:00 PM** at the following address.

Office of the Director of Soil & Water Conservation Department
&
Deputy Chief Executive Officer, MSWWDA
4th Administrative building, 1st floor
Lower Lachumiere, Meghalaya Shillong-793001

Evaluation and Comparison

- (i) Quotations determined to be substantially responsive to this **Request for Quotation** will be evaluated by comparison of their offer prices. A quotation is not substantially responsive if it contains material deviations or reservations to the terms, conditions, and specifications in this **Request for Quotation**.
- (j) In evaluating the quotations, the Purchaser will adjust for any arithmetical errors as follows:
 - (i) where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and
 - (ii) where there is a discrepancy between the unit rate and the line-item total resulting from

multiplying the unit rate by the quantity, the unit rate as quoted will govern.

If you refuse to accept the correction, your quotation will be rejected.

Award of Contract


- (k) The Purchaser shall award the contract to the Supplier whose quotation has been determined to be substantially responsive to this **Request for Quotation** and who has offered the lowest price quotation.
- (l) The Supplier whose quotation has been accepted will be notified by the Purchaser within 21 days from the date of submission of quotation through the return of a copy of the **Form of Quotation** with **Acceptance** signed by the authorized representative of the Purchaser.
- (m) The successful Supplier shall sign the **Contract** governed by the **Contract Terms and Conditions**. In addition to the quoted price, the contract price shall include Goods and Service Tax (GST) and any other taxes applicable in Meghalaya, India.
5. Further information can be obtained from:
- | | |
|-----------|---|
| Name | : Mr. Z.D. Shira, (Deputy CEO) |
| Address | : Meghalaya Sate Watershed & Wasteland Development Agency
(MSWWDA), Shillong, Meghalaya. |
| Telephone | : 0364 2224551 |
| E-mail | : megsoil49@gmail.com |
6. The Purchaser intends to apply funds from the **Asian Development Bank (ADB)** for eligible payments under the **Contract** resulting from this **Request for Quotation**.
7. Under ADB's Anticorruption Policy (1998, as amended to date), suppliers shall observe the highest standard of ethics during the procurement and execution of such contracts. ADB may reject a proposal for award, and may impose sanctions or other remedial actions on parties involved, if it determines that the supplier recommended for award or any other party, directly or through an agent, has engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for, or in executing, the Contract. At the time of submission of your quotation, you should not be in ADB's sanctions list. A firm/individual shall not be eligible to participate in any procurement activities under an ADB-financed, -administered, or -supported project while under temporary suspension or debarment by ADB pursuant to its Anticorruption Policy, whether such debarment was directly imposed by ADB, or enforced by ADB pursuant to the Agreement for Mutual Enforcement of Debarment Decisions.
8. You/your firm, joint venture partners, associates, parent company, affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, are not, or have never been, temporarily suspended, debarred, declared ineligible, or blacklisted by the purchaser's country, any international organization, and other donor agency.

If so debarred, declared ineligible, temporarily suspended, or blacklisted, please state details (as applicable to each joint venture partner, associate, parent company, affiliate, subsidiaries, subcontractors, and/or suppliers):¹

- (a) Name of Institution: _____
- (b) Period of debarment, ineligibility, or blacklisting (start and end date): _____
- (c) Reason for the debarment, ineligibility, or blacklisting: _____
-

9. You/your firm's, joint venture partners', associates', parent company's affiliates or subsidiaries', including any subcontractors' or suppliers', key officers and directors have not been [charged or convicted] of any criminal offense (including felonies and misdemeanors) or infractions/violations of ordinance which carry the penalty of imprisonment.
If so charged or convicted, please state details:²
- (a) Nature of the offense/violation: _____
- (b) Court/Area of jurisdiction: _____
- (c) Resolution (i.e. dismissed; settled; convicted/duration of penalty): _____
- (d) Other relevant details: _____
10. You/your firm understands that it is your obligation to notify ADB should you/your firm, joint venture partners, associates, parent company, affiliates or subsidiaries, including any Subcontractors or Suppliers, be temporarily suspended, debarred or become ineligible to work with ADB or any other multilateral development banks, the purchaser's country, international organizations, and other donor agencies, or any of your key officers and directors be charged or convicted of any criminal offense or infractions/violations of ordinance which carry the penalty of imprisonment.
11. Any misrepresentation that knowingly or recklessly misleads, or attempts to mislead may lead to the automatic rejection of the quotation/bid or cancellation of the contract, if awarded, and may result in remedial actions, in accordance with ADB's Anticorruption Policy (1998, as amended to date) and Integrity Principles and Guidelines (2015 as amended from time to time).
12. A bidder shall not have a conflict of interest. All bidders found to have a conflict of interest shall be disqualified.
13. Please confirm by fax/e-mail the receipt of this request and whether or not you will submit the price quotation(s).

Sincerely,



(Purchaser)- Chief Executive Officer, CEO
MSWWDA

Attachment 1

1. Price List

Item No	Description of Goods	Quantity	Physical Unit	Unit Price with GST & other applicable taxes	Total Price
1	Civil Works as per scope of services (Point no 4). At locations as listed in Table 1: Approximate location of AWS in tabular format	20	Site / Location		
2	Supply, Installation and commission of Automatic Weather Station (AWS) with 2 years Comprehensive warranty	20	Number		
3	AMC – 3 Years after warranty. Minimum of 4 visits per year for attending the fault and routine maintenance is mandatory. In addition, the successful bidder has to respond to any type of communication like over phone, mail and other correspondence to attend/rectify the fault and bring the instrument in normal operation condition within 96 hrs.	3	Years		
	Total Price (in figure)				
	Total Price in (Word)				
	The number of locations may change during implementation of project				

2. List of Goods and Delivery Schedule

Item No	Description of Goods	Quantity	Physical unit	Delivery Destination	Delivery Date		
					Earliest Delivery Date (days after effectiveness of contract)	Latest Delivery Date (days after effectiveness of contract)	Bidder's offered Delivery date
1	Supply, Installation and commission of Automatic Weather Station (AWS)	20	Number	As per the sites mentioned in the scope of work (Location as in Scope of services Table 1)	1	45	

Payment Schedule:

Civil works (If applicable)	100% payment of item1 within 45 days of successful installation
Supply and installation.	80% payment of item 2 within 45 days of successful installation
Maintenance of of AWS during Warranty Period	10 % of quoted price of item 2 at the end of Year 1. 10% of quoted price of item 2 at the end of Year 2.
AMC	30% of quoted price of item 3 at the end of Year 1 after Warranty Period. 30% of quoted price of item 3 at the end of Year 2 after Warranty Period. 40% of quoted price of item 3 at the end of Year 3 after Warranty Period.

**FORM OF QUOTATION
(Goods)**

(Date)

To: _____ [Purchaser's Name]
_____ [Purchaser's Address]

We offer to execute the _____ in accordance with the **Contract Terms and Conditions** and the priced **Supply and Delivery Schedule** accompanying this Quotation for the Contract Price of Indian Rupees _____. We propose to complete the delivery of Goods described in the Contract within the Delivery Time indicated in the priced **Supply and Delivery Schedule**.

This Quotation and your written acceptance will constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any Quotation you receive.

We hereby confirm that this Quotation complies with the Validity of the Offer and Warranty conditions imposed by the **Request for Quotation** document and the **Contract Terms and Conditions**, respectively.

We: (a) are a national of an ADB member country; (b) have not been associated with the firm that prepared the design and specifications of the contract that is subject of this request for quotation; (c) are not owned by the Purchaser; (d) are not currently sanctioned or temporarily suspended by the Asian Development Bank; and (e) to the best of our knowledge, is not prohibited from being contracted in compliance with a decision of the United Nations Security Council.

Name of Supplier : _____
Authorized Signature : _____
Name of Signatory : _____
Title of Signatory : _____
Address : _____
Telephone Number : _____
Fax Number, if any : _____
Email address (optional): _____

ACCEPTANCE

The Purchaser accepts the Supplier's offer to supply and deliver the goods. Attached is the Contract with accepted Contract price for Supplier's signature to be submitted to the Purchaser within 7 days from receipt.

Name of Purchaser:

Authorized Signature:

Name of Signatory:

Date : _____

CONTRACT

Name of Country: India

Project Name: CLIMATE ADAPTATIVE COMMUNITY BASED WATER HARVESTING PROJECT IN MEGHALAYA

Name of Contract: Supply, Installation and commission of Automatic Weather Station

(AWS) **Contract Number:**

This Contract is entered into on __[date]__ day of __[month]__, [year], between __[name of Purchaser]__ (hereinafter called "the Purchaser") on the one part, and __[name of Supplier]__ (hereinafter called "the Supplier") on the other part.

Whereas the Purchaser has requested for quotation for _____ [description of goods] to be supplied by Supplier in accordance with the **Contract** and has accepted the Quotation by the Supplier in the amount of __[amount in words]__ [amount in figures] hereinafter called "the Contract Price".

The Purchaser and the Supplier agree as follows:

1. The following documents shall be deemed to form and be read and construed as part of this Contract, viz:
 - a) **Form of Quotation**, with **Supply and Delivery Schedule**;
 - b) **Contract Terms and Conditions**; and
 - c) **Technical Specifications**
2. Taking into account payments to be made by the Purchaser to the Supplier as provided herein, the Supplier hereby enters into this **Contract** with the Purchaser to execute and complete the supply of goods under the Contract and remedy any defects therein in conformity with the provisions of this **Contract** and its **Terms and Conditions**.
3. The Purchaser agrees to pay the Supplier, in consideration of the supply and delivery of the goods and the remedying of defects therein, the **Contract Price** as indicated and accepted in the **Form of Quotation**, under payment terms stipulated in the **Contract Terms and Conditions**.

IN WITNESS whereof the parties hereto have executed the Contract under the applicable laws.

Signature and seal of the Purchaser:

For and on behalf of

Signature and seal of the Supplier:

For and on behalf of

Name of Authorized Representative

Name of Authorized Representative

CONTRACT TERMS AND CONDITIONS

Project Name: CLIMATE-ADAPTATIVE COMMUNITY-BASED WATER-HARVESTING PROJECT IN MEGHALAYA

Purchaser: Meghalaya State Watershed and Wasteland Development Agency, MSWWDA.

Contract No:

1. Definitions

- (a) "Contract" means the agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendixes, and all documents incorporated by reference therein.
- (b) "Contract Documents" means the documents listed in the Agreement, including any amendments thereto.
- (c) "Contract Price" means the price payable to the Supplier as specified in the Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.
- (d) "Delivery" means the transfer of the Goods from the Supplier to the Purchaser in accordance with the terms and conditions set forth in the Contract.
- (e) "Completion" means the fulfilment of the delivery and any related service by the Supplier in accordance with the terms and conditions set forth in the Contract.
- (f) "Goods" means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.
- (g) "Purchaser" means the entity purchasing the Goods and Related Services, as specified in the SCC.
- (h) "Supplier" means the natural person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Agreement, and includes the legal successors or permitted assigns of the Supplier.
- (i) "ADB" is the Asian Development Bank.

2. Applicable Law

- 2.1 The Contract shall be interpreted in accordance with the laws of the Purchaser's country.

3. Language

- 3.1 All communications and documents related to the Contract shall be in English.

4. Assignment

- 4.1 Any assignment of this Contract or of any rights hereunder, in whole or in part without the prior written consent of the Purchaser shall be void.

5. Fraud and Corruption

- 5.1 This Contract shall be covered by the provisions of ADB's Anticorruption Policy (1998, as amended to date) and Integrity Principles and Guidelines (2015, as amended from time to time) that requires Borrowers (including beneficiaries of ADB-financed activity), as well as Suppliers and Contractors under ADB-financed contracts, to observe the highest standard of ethics during the procurement and execution of such contracts.

6. Fixed Contract Price

- 6.1 The prices indicated in the Form of Quotation are firm and fixed and not subject to any adjustment during contract performance.

7. Delivery Schedule

- 7.1 The delivery should be completed as per schedule indicated in the **Supply and Delivery Schedule**.

8. Required Technical Specifications (with attachments as necessary)

- (a) General Description
- (b) Specific details and technical standards
- (c) Performance Parameters

Supplier confirms compliance with above specifications.

9. Delivery and Documents

- 9.1 Upon delivery, the Supplier shall provide the following documents to the Purchaser:

- (a) copies of the Supplier's invoice showing goods' description, quantity, unit price, and total amount;
- (b) manufacturer's or supplier's warranty certificate; and
- (c) certificate of origin.

If goods are coming by courier, supplier shall also provide prior to delivery, copies of documents that will enable Purchaser to receive the goods. The above documents shall be received by the Purchaser at least one week before arrival of the goods and, if not received, the Supplier shall be responsible for any consequent expenses.

10. Taxes and Duties

- 10.1 The Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

11. Payment

- 11.1 Payment of the contract price shall be made in the following manner:

- (a) Bills in triplicate to be submitted to the office of the undersigned upon delivery of the materials along with the delivery challan.

12. Warranty

- 12.1 Goods offered should be covered by manufacturer's warranty for at least 24 months from the date of delivery to the Purchaser.

13. Defects

- 13.1 All defects will be corrected by the Supplier without any cost to the Purchaser within 15 days from the date of notice by Purchaser. The name and address of service facility where the defects are to be corrected by the Supplier within the warranty period are:

Facility : _____

Address : _____

14. Resolution of Disputes

- 14.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute between them under or in connection with the

Contract. In the case of an unresolved dispute between the Purchaser and the Supplier, the dispute shall be settled in accordance with the provisions of the arbitration laws or rules of India.

15. Failure to Perform

- 15.1 The Purchaser may cancel the Agreement if the Supplier fails to deliver the Goods, in accordance with the above terms and conditions, despite a 14-day notice given by the Purchaser, without incurring any liability to the Supplier.

16. Force Majeure

- 16.1 The supplier shall not be liable for penalties or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

- (a) For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but not restricted to, act of Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- (b) If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by Force Majeure event.

17. Termination Due to Integrity Violation

- 17.1 The Purchaser may terminate this Contract, in whole or in part, if the Supplier, in the judgment of the Purchaser has engaged in integrity violations in accordance with Clause 5 [Fraud and Corruption], in competing for or in executing this Contract.

18. Accounts and Records

- 18.1 The Supplier shall keep accurate and systematic accounts and records in respect of the delivered goods in such form and detail as are customary in the industry, for a period of no less than 3 years after the expiration or termination of this Contract.

19. Suspension of ADB Loan or Credit

- 19.1 In the event that ADB suspends the Loan or Credit to the Purchaser, from which part of the payments to the Supplier are being made,
- (a) the Purchaser is obligated to notify the Supplier, with copy to the Purchaser's representative, of such suspension within 7 days of having received ADB's suspension notice.
 - (b) if the Supplier has not received sums due it within the 21 days for payment provided for in Clause 11 [Payments], the Supplier may immediately issue a 14-day termination notice.

Scope of Service.

1. Background

Government of Meghalaya through Government of India has applied for loan from the Asian Development Bank (ADB) for the Climate-Adaptative Community-based Water-Harvesting Project in Meghalaya (CACBWHP). The project intends to develop 532 Water Harvesting Systems (WHS). Meghalaya State Watershed & Wasteland Development Agency (MSWDA), a Society formed under the aegis of the Soil & Water Conservation Department (SWCD) of the Government of Meghalaya would be the implementing agency (IA) for the CACBWHP.

The project is proposed to be implemented in all 12 districts of Meghalaya. The project aims to ensure water security of rural Meghalaya by developing and managing a robust network of integrated and multiple-use water conservation, harvesting and storage structures (Water Harvesting Systems (WHS)).

The scope of project is to develop around 532 water harvesting systems (WHS) costing tentatively \$62.5 million, for which \$50 million would be provided as a loan from ADB and \$12.5 million would be contributed by Government.

SWCD has prepared Batch-1 of the Detailed Project Reports (DPRs) consisting of 382 WHS. A summary design report has been prepared containing an overview of the technical details, and the individual DPRs are annexed to it. The DPRs of village level schemes contains details of individual schemes comprising water harvesting structures (WHS) (to be built by contractors) and upstream (namely, catchment area treatment, CAT interventions) and downstream (namely, command area development, CAD interventions) watershed and livelihood activities which are to be implemented by village employment council (VEC). The survey, designs and cost estimates are prepared by Divisional Offices of SWCD in consultation with the VEC. The schemes are then reviewed by the district councils under the chairmanship of Deputy Commissioners. The District Watershed Cell cum Data Center (DWDC) review the DPRs of the sub-watershed scheme (water supply, irrigation, agriculture, fisheries, ecotourism, livelihoods, etc.) along with the viability of the cost estimates, and opportunities for the convergence with existing government programs, work schedules and VEC agreement. The community procurement is proposed to be administered as per Mahatma Gandhi National Employment Guarantee Scheme.

The project's outcome is climate resilient water management for community livelihoods and wellbeing improved. The proposed outputs of the project are:

Output 1: Institutional capacity for climate resilient and sustainable management of water harvesting systems developed: This output will (i) develop a WHS master plan for future decision-making and incorporate parameters for gender equality and social inclusion (GESI), climate variability, and disaster risk management that include digital mapping of all WHS, (ii) support operationalization of the water policy and prepare village water security plans as required by the Meghalaya State Water Policy, (iii) build capacity of SWCD staff and other stakeholders, with a focus on improving operation and maintenance, (iv) provide technical support to prepare design and feasibility reports for subsequent phases, and (v) establish water user associations and/or watershed committees with participation of women in decision-making process.

Output 2: Climate resilient water harvesting systems developed. This output will (i) construct 532 climate resilient WHS in 12 districts with 5 years of operation and maintenance support, and

(i) install automatic weather stations with information communication technology-based mobile application for climate resilience. WHS investments will generally comprise: (i) construction or rehabilitation of small multipurpose reservoirs similar to weir or check dams; (ii) catchment area treatment, such as contour trenches and afforestation; (iii) irrigation command area development interventions downstream of each reservoir, such as terracing,

irrigation, and agricultural and horticultural development; and (iv) fencing to prevent animal nuisance. The WHS will increase water security for communities and underpin livelihood activities.

Output 3: Enhanced Livelihood for Communities demonstrated. This output will: foster communities' livelihood activities by benefitting from the WHS and their reliable water supplies. This will be achieved by: (i) piloting value addition interventions for selected commodities for agriculture, horticulture, and fishery value chains; (ii) training beneficiary communities on alternative livelihood practices; (iii) piloting renewable energy generation such as micro-hydro and solar for domestic use and lift irrigation; (iv) establishing pilot demonstrations of climate-smart agricultural practices, including micro-irrigation; and (v) applying the graduation approach method to promote economic opportunities and social inclusion among women, poor, and vulnerable peoples, providing financial sustainability and resilience.

The project will introduce high-level technologies such as remote sensing, geographic information systems, and decision support systems for effective governance, monitoring, and project management of scattered schemes from project inception.

2. Benefits:

The key benefits of Automatic Weather Station are as follows:

- i Safe guarding the crop against adverse environmental conditions such as hail, excess or deficient rain
- ii Helping anticipates weather conditions that may aggravate plant diseases or lead to pest and insect intrusion
- iii For the crops like tea, coffee, and other crops grown in the hilly regions, weather parameters can be drastically different in the different patches due to a different altitude, soil quality, and land slope. Installing multiple automatic weather stations is a must in such scenarios to track the 'micro-climates' in different parts.
- iv Agricultural or crop insurance in India is a big market and companies rely on the data from automatic weather stations in order to settle or refuse the claims by farmers.

The Importance of Environmental Data in Geotechnical Projects

(a) Understanding Site Conditions:

Weather stations are indispensable in understanding site-specific environmental conditions. The data they provide is crucial for assessing how external factors like temperature fluctuations and rainfall affect soil behavior and structural integrity. Continuous temperature and humidity monitoring are essential in regions prone to freezing and thawing cycles, which can significantly impact soil stability.

(b) Impact on Soil Mechanics:

Weather conditions have a direct impact on soil mechanics. Rainfall data is particularly critical, as increased moisture content can reduce soil shear strength, leading to potential slope failures or foundation instability. Moreover, temperature variations influence soil expansion and contraction, affecting the overall stability of structures. For instance, temperature monitoring is essential in permafrost regions to prevent thawing, which could destabilize foundations.

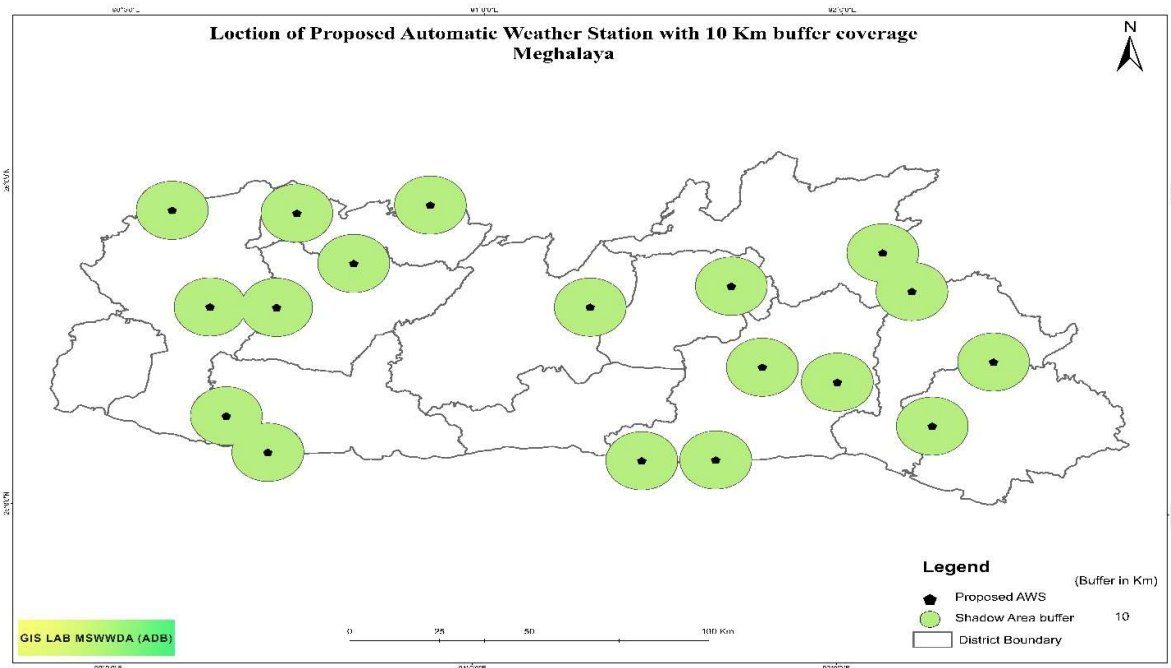
(c) Influence on Construction Activities:

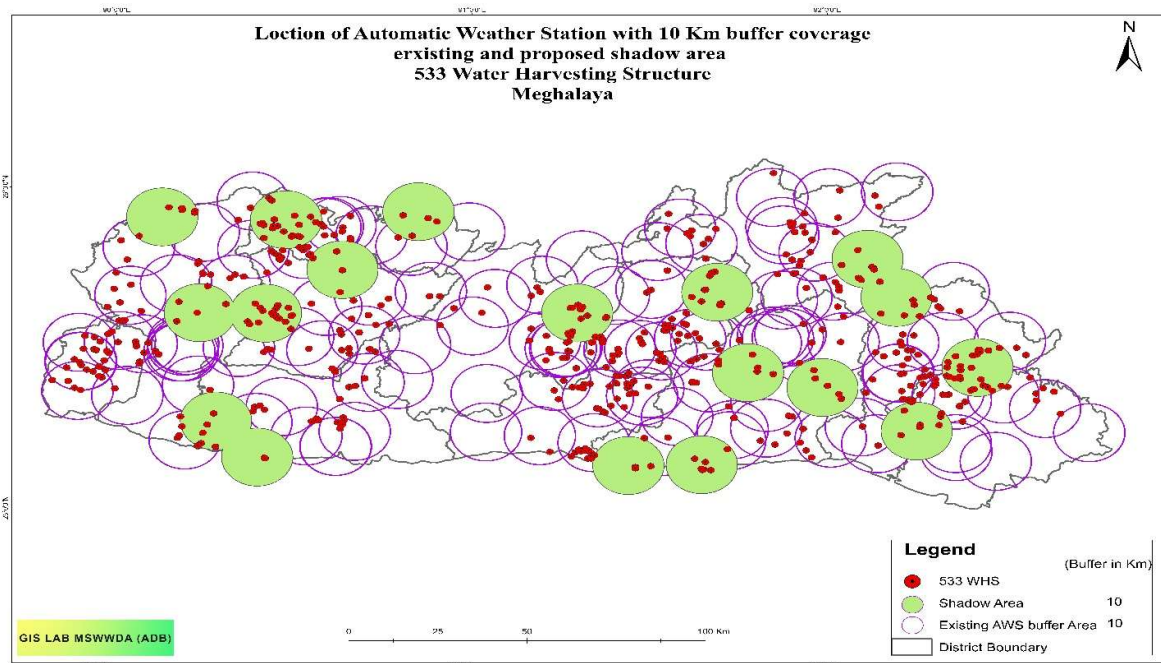
Construction activities are susceptible to weather conditions. Wind speed and direction data are critical for crane operations and for ensuring the safety of workers and equipment on-site. Precipitation data helps in planning construction phases, particularly in managing excavation and concrete pouring activities, where water content needs to be precisely controlled.

Benefits of Integrating Weather Stations into Geotechnical Monitoring

- **Enhancing Project Safety:**
Real-time weather data enhances site safety by enabling proactive measures against environmental hazards. For instance, the ability to predict heavy rainfall allows for the timely reinforcement of slopes and embankments, reducing the risk of landslides.
- **Improving Decision-Making:**
Accurate environmental data supports better decision-making during all project phases. Engineers can adjust designs and construction methods based on real-time weather conditions, ensuring the project remains on schedule and within budget.
- **Cost Efficiency and Risk Mitigation:**
The integration of weather stations helps anticipate and mitigate risks, reducing project delays and potential damage to infrastructure. The long-term cost savings from avoiding such issues can be substantial.
- **Long-Term Data Collection:**
Long-term weather data is invaluable for understanding a site's evolution over time. This data can inform the maintenance of existing structures and the planning of future projects, providing a historical baseline for environmental conditions.

3. Map Location required for Automatic Weather Station.





Approximate location of AWS in tabular format

S.No.	Type	District	Latitude	Longitude
1	AWS	EGH	25.620761	90.439400
2	AWS	EGH	25.760249	90.650454
3	AWS	WGH	25.618932	90.254900
4	AWS	SGH	25.171822	90.424749
5	AWS	WKH	25.634066	91.308595
6	AWS	EKH	25.159735	91.457560
7	AWS	EKH	25.164303	91.661813
8	AWS	EKH	25.408023	91.995636
9	AWS	EKH	25.452757	91.787671
10	AWS	EJH	25.273346	92.259280
11	AWS	WJH	25.472745	92.427746
12	AWS	WJH	25.690227	92.200269
13	AWS	RI BHOI	25.809201	92.118416
14	AWS	Ri Bhoi	26.085028	91.873285
15	AWS	EWKH	25.703077	91.699155
16	AWS	NGH	25.944354	90.859681
17	AWS	NGH	25.913421	90.489437
18	AWS	WGH	25.915800	90.142987
19	AWS	SGH	25.282412	90.307551
20	AWS	SWKH	25.372036	91.482255

4. DETAILS OF AWS SITE PREPARATION AT AWS SITES

AWS SITE

1. Area of the AWS site should be 10 m x 10 m. The site should be leveled and made free of obstacles like bushes and trees. Herbicide should be sprayed and sites should be cleaned.

2. A provision of concrete path 2 feet wide from Gate to Mast on AWS site.

3. Fencing for the AWS site

3.1 The height of the fencing for the AWS site enclosure must be 2 metres from the ground level.

3.2 The fencing must be made over a concrete wall which is nine inches above ground level having a width of one foot. The depth of the foundation should be 2 ft. below ground level. Fencing angles must be mounted within the concrete and chainlink fixed around it.

3.3 Fencing angle should be of size 50mm x 50mm x 6mm and pre coated with red-oxide. Length of the angle shall be 2.8 metres i.e. (2.0m above ground level + 0.8 m below ground level)

3.4 Two MS angles must be used diagonally at each of the four corner angles of the site. The angles can be attached (with welding or the other appropriate means) from the middle of the existing corner angle to the ground. The depth of the support will remain the same as of main angle.

3.5 Distance between each fencing angle should be not more than 1 m

4. Chainlink

4.1 Dimensions of GI Chainlink : 3 inches x 3 inches and of Gauge : 10 (3 mm diameter).

4.2 GI chainlink mesh must be stretched and welded/fixed properly on the fencing angles.

4.3 A pipe or angle must be fixed on the upper part of the fencing to have a neat finishing and at the same time to avoid loosening of the fencing over a period of time.

5. Gate

5.1 Dimensions: 2 m X 1 m x 6 mm (Length x Width x Thickness) with locking facility.

5.2 The gate must be fabricated by MS Angle whose dimensions should be minimum 40mm x 40mm x 6mm

5.3 Suitable locking facility with 3 keys for safety purposes is mandatory. Standard rust-proof locks like Godrej shall be used.

5.4 Make sure that tower foundation and the gate are in a straight line.

5.5 Gate and MS Angle must be well painted with white / silver colour

5.6 Gate should have proper support of MS angles with additional support of crossed MS angles.

6. Rain Gauge Foundation

The Rain gauge foundation must be of dimensions 1 ft x 1ft (length x width) and 2ft height (1.0 ft below ground level and 1.0 ft above the ground level).

7. Earthing for signal ground and Lightning Arrestor

a. All AWS stations shall be provided with 2 earth pits - one for signal earth, another for lightning arrestor.

b. The earth pits shall ensure 100 % protection for all sensors and systems from severe lightning.

c. The lightning arrestor rod shall be made of copper which mounted on the top most of the AWS tower. It should be of thickness 12 mm and of one-meter length with a connected copper wire of dimension 15-meter length and 6 mm thickness (gauge). At other end of the copper wire is earthing rod of dimensions 15 mm thickness and 1.8m length, which is buried into the ground. On the bottom of earthing rod, one copper plate of dimension (1 feet X 1 feet) should be connected.

AWS DATALOGGER enclosure should be grounded with local earthing.

d. Material required:

Salt: 20 Kg; Charcoal: 20 Kg; Sand: 100 kg

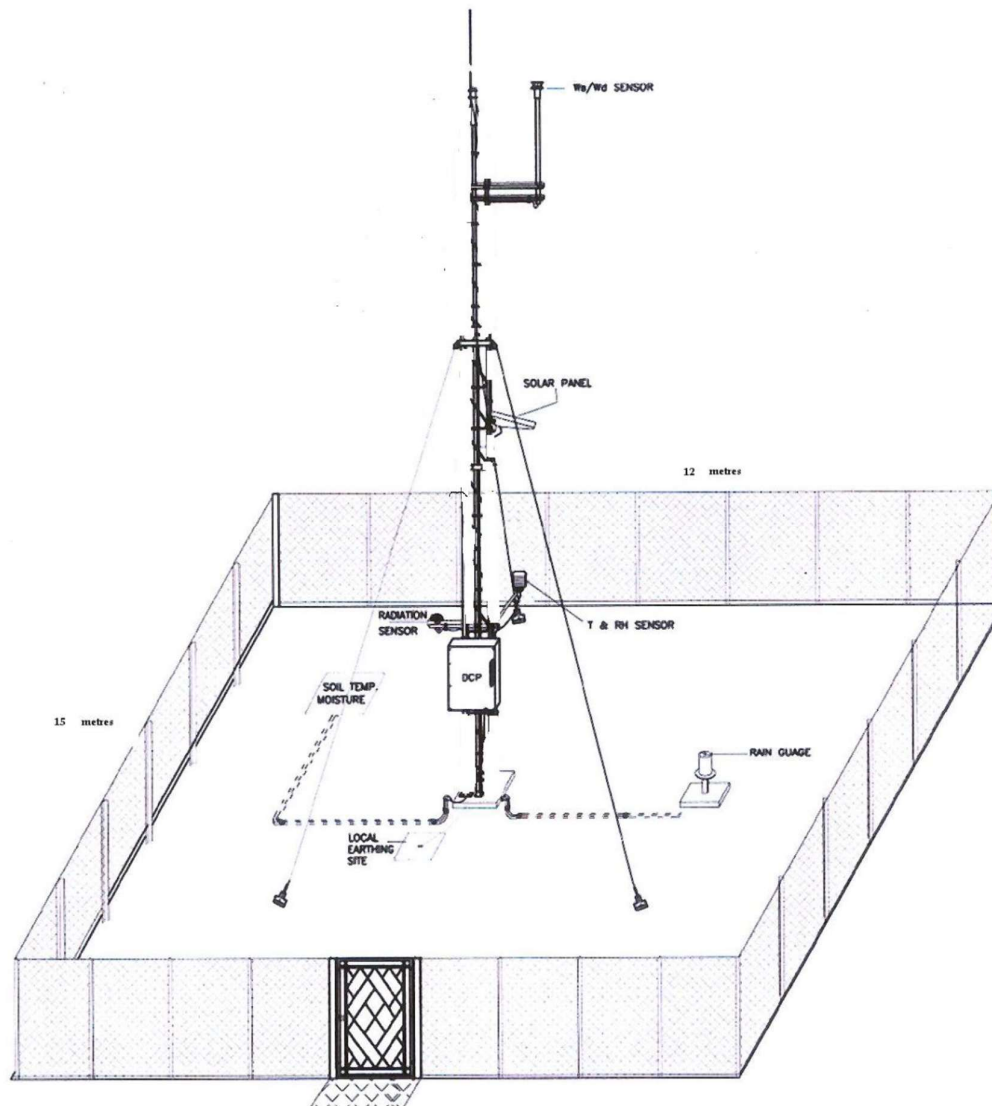
e. Procedure:

- a) A Pit of 4-5 feet depth, 2 feet X 2 feet wide at bottom (like a cone shaped) has to be dug.
- b) After levelling the bottom pit, uniform layer of sequence of 6 inches of salt + 6 inches charcoal + 6 inches sand is filled. Such sequence is repeated 3 times till the earth pit is filled at the top. The copper earthing rod is placed in the centre of the pit. The pit is closed and levelled.

8. Sensor Installation

- a. Temperature and Humidity sensor will be installed at a height of 1.5 m and sensor is kept at North Direction and should be kept at distance of tower by 1m.
- b. One Wind sensor will be installed at a height of 10 m.
- c. Pressure sensor will be installed inside the Enclosure of AWS.
- d. Rain gauge sensor will be installed at distance of 3 meters from the tower.

SCHEMATIC VIEW OF AWS SITE



AWS TECHNICAL REQUIREMENT

Air Temperature Sensor

Parameters	Values
Range	-50° to 140° F (-45° to 60° C)
Accuracy	±1°F (±0.5°C)
Resolution	. 1.0° or 0.1°, selectable, F or C
Units of Measure	16 seconds (max)

Relative Humidity Sensor

Parameters	Values
Range	0 to 100% RH
Accuracy	± 2 %

Barometric Pressure Sensor

Parameters	Values
Range	Pressure sensing range: 300-1100 hPa (9000m to -500m above sea level)
Accuracy	0.03hPa / 0.25m resolution (Accuracy 1 hpa).

Anemometer (Wind Sensor)

Parameters	Values
Range (Wind Speed)	1 to 200 mph, 1 to 173 knots, 0.5 to 89 m/s, 1 to 322 km/h
Accuracy	. ±2 mph (2 kts, 3 km/h, 1 m/s) or ±5%, whichever is greater
Resolution	1 mph (1 knot, 0.1 m/s, 1 km/hr)
Units of Measure	2.25 seconds

Wind Direction

Range	0° to 360° or 16 compass points
Accuracy	. ±7°
Units Displayed	. 8 seconds (Monitor & Wizard)

Rain Fall Sensor

Parameters	Values
Type	Tipping bucket with magnetic switch

Accuracy	±4.0%, ±1 rainfall count between 0.2 and 50.0 mm (0.01 and 2.0 in.) per hour; ±5.0%, ±1 rainfall count between 50.0 and 100.0 mm (2.0 and 4.0 in.) per hour
Resolution	0.01 in. (S-RGC-M002) or 0.2 mm (S-RGD-M002)
Units of Measure	0 to 10.2 cm (0 to 4 in.) per hour, maximum 4,000 tips per logging interval
Measurement Data Rate	0.00" to 99.99" (0.0 mm to 999.8 mm)
Height of Sensors	3 to 10 M
Solar Panel/Batteries	Solar Panel with 84 Ah battery
Fencing	Required
GPS in-built	Required
GPRS/Satellite Station numbers	150 GPRS 50 Satellites
Warranty available with the devices	
Lightning arrestor and Earthing	

TRAINING The successful bidder shall provide comprehensive ONLINE training in installation, integration, calibration, operation, maintenance, troubleshooting and replacement of defective modules of proposed Datalogger, GPRS modem, sensors, Datalogger programming and system related topics to officers nominated by department for a minimum period of Two Working Days. Training syllabus, material and documentation in English language shall be provided along with time table well before commencement of training for evaluation by Department. Soft copy of finalized training material should be provided to all the trainees.

Manufacturer's Authorization

Date: *[insert date (as day, month, and year) of bid submission]*

RFQ No.: *[insert number of bidding process]*

To: *[insert complete name of the Purchaser]*

WHEREAS

We *[insert complete name of the manufacturer]*, who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of manufacturer's factories]*, do hereby authorize *[insert complete name of the bidder]* to submit a bid the purpose of which is to provide the following goods, manufactured by us *[insert name and/or brief description of the goods]*, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause a-f of this letter, with respect to the goods offered by the above firm.

- a) We warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.
- b) Subject to point a, supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.
- c) The warranty shall remain valid for a period as indicated in clause 12.1 of RFQ after the Goods, or any portion thereof as the case may be, have been delivered installed and accepted at the final destination .
- d) The Purchaser shall give Notice to the Supplier, stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.
- e) Upon receipt of such Notice, the Supplier shall, within the 96 hours, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.
- f) If having been notified, the Supplier fails to remedy the defect within the period specified in the above, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

Signed: *[insert signature(s) of authorized representative(s) of the manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the manufacturer]*

Title: *[insert title]*

Duly authorized to sign this Authorization on behalf of *[insert complete name of the manufacturer]*

Dated on _____ day of _____, _____ *[insert date of signing]*

All italicized text is for use in preparing this form and shall be deleted from the final document.

The bidder shall require the manufacturer to fill out this form in accordance with the instructions indicated. This letter of authorization should be signed by a person with the proper authority to sign documents that are binding on the manufacturer. The bidder shall include it in its bid, if so indicated in the Bid Data Sheet (BDS).

Form - Compliance Matrix

S.no	Name of Goods or Related Service	Unit Of Measurement	Qty to be procured	Technical Description , Specifications and standards as per bidding documents	Offered Technical Specification with make and Model	Deviation if any	Country of Origin*
1	Civil Construction	LS		As per RFQ			Not Applicable
2	Supply Installation and Testing of AWS	No's	20	As per RFQ			
3	Warranty			As per RFQ			Not Applicable
4	AMC			As per RFQ			Not Applicable

* All Goods and Related Services to be supplied under the Contract and financed by ADB shall have their origin in Eligible Countries. For the purpose of this clause, "country of origin" means the country where the goods have been grown, mined, cultivated, produced, manufactured, or processed; or through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its imported components.