

GOVERNMENT OF UTTARAKHAND
Office of Executive Engineer (Procurement Officer-1),
SPMU, NHP, Irrigation Research Institute Roorkee-247667
E-mail: uttarkhandwrd@gmail.com, Website: www.iriroorkee.res.in

RFQ No. 02/PO-1/SPMU/NHP/2020-21, Dated 20.03.2021

Executive Engineer (Procurement Officer-1), SPMU, NHP, Irrigation Research Institute, Roorkee on behalf of "Governor of Uttarakhand" invites item wise rates for the supply of following through e-tenders in "Two Bid System" as given below.

S. No.	Name of work	Earnest Money (Rs.)	Cost of tender form (Rs.)	Validity of Tender	Period of completion
1	2	3	4	5	6
1	Supply, Installation, Testing, Commissioning and Maintenance of Automatic Weather Station (AWS) at Bhimtal under National Hydrology Project (NHP)	28,000.00	1,500.00+ GST @ 18%	30 Days	01 months

Key Dates

1	Date of calling	20.03.2021	-
2	Date of online publication	22.03.2021	5.30 PM
3	Documents downloads start date	22.03.2021	6.00 PM
4	Pre-bid meeting date	30.03.2021	11.45 AM
5	Bid submission start date	07.04.2021	03.30 PM
6	Bid submission end date	15.04.2021	03.00 PM
7	Physical Submission of bid security and cost of bidding document	15.04.2021	03.00 PM
8	Date of opening of Technical bid	15.04.2021	03.30 PM

For further details please log on to www.uktenders.gov.in


Executive Engineer
(Procurement Officer-1)
SPMU, NHP
Irrigation Research Institute, Roorkee

**Supply, Installation, Testing, Commissioning
and Maintenance of Automatic Weather
Station (AWS)
in Bhimtal under National Hydrology Project
(NHP)**

(Two-Envelope with e-Procurement)

March 2021

REQUEST FOR QUOTATIONS
Procurement of Goods under RFQ/Shopping Procedures
E-Procurement Notice
(Two-Envelope with e-Procurement Bidding Process)

Purchaser: *Executive Engineer (Procurement Officer-1), SPMU, NHP, IRI, Roorkee*

Contract title: *Supply, Installation, Testing, Commissioning and Maintenance of Automatic Weather Station (AWS) in Bhimtal under NHP*

RFQ No: **02/PO-1/SPMU/NHP/2020-21**

Date: *20.03.2021*

Applicable Procurement Guidelines/Regulations Date: *[insert date]*

1. The Government of India has received financing from the World Bank in various currencies towards the cost of the National Hydrology project and intends to apply part of the proceeds towards eligible payments under the contract for which this request for quotations is issued. Office of the Executive Engineer (Procurement Officer-1), State Project Monitoring Unit, National Hydrology Project, Irrigation Research Institute, Roorkee invites quotations electronically from eligible bidders for the following goods.

Sl. No.	Brief Description of the Goods	Unit & Quantity	Delivery Period	Place of Delivery
1	<i>Supply, Installation, Testing, Commissioning and Maintenance of Automatic Weather Station (AWS) in Bhimtal under NHP</i>	1 No.	1 Months	Bhimtal

*[*Where ISI certification marked goods are available in market, purchaser should generally limit the procurement to goods with those or equivalent marking only.]*

2. The Bidders may submit Quotations for all items mentioned above in table.
3. This e-Procurement notice includes the terms and conditions applicable to submission of quotations; criteria for qualification, evaluation, and for award of supply order(s); and relevant forms to be filled by the bidders. Implementing Agency has not issued a separate RFQ document for this purchase. The e-Procurement notice including the terms and conditions etc. can be downloaded free of cost by logging on to the website www.uktenders.gov.in. The bidders would be required to register in the website which is free of cost.
4. For submission of the bids, the bidder is required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities, authorised by Government of India for issuing DSC. Bidders who have not obtained the user ID and password for participating in e-procurement in this Project, may obtain the same from the website: www.uktenders.gov.in.
5. Quotations, both Technical Part and Financial Part shall be submitted on www.uktenders.gov.in on or before 15.00 hours on 15.04.2021. Any quotation or modifications to quotation received outside e-procurement system will not be considered. The electronic bidding system would not

allow late submission of quotations. The ‘Technical Part’ of the Quotations will be opened online on 15.04.2021 at 15.30 hours, this can also be viewed by the bidders online. The electronic summary of quotation opening of technical part will be generated and uploaded online.

6. If the Purchaser’s office happens to be closed on the date of opening of the Quotations as specified, the ‘Technical Part’ of the Quotations will be opened on the next working day at the same time. The Financial Parts of the Quotations shall remain unopened in the e-procurement system, until the subsequent online opening, following the evaluation of the Technical Parts of the Quotations.
7. Other details can be seen in the RFQ document. The Purchaser shall not be held liable for any delays due to system failure beyond its control. A Bidder requiring any clarification of the RFQ Document may notify the Purchaser online or may visit the office of the Purchaser at the address given below.

Executive Engineer
(Procurement Officer-1)
State Project Monitoring Unit
National Hydrology Project
Irrigation Research Institute, Roorkee

RFQ No: 02/PO-1/SPMU/NHP/2020-21

Date: 20.03.2021

Terms and Conditions

- 1. Eligibility:** A Bidder (a) shall not participate in more than one Quotation; (b) shall not have conflict of interest as defined in the Bank's Procurement Regulations; and (c) should not have been (i) temporarily suspended or debarred by the World Bank Group in compliance with the Bank's Anti-Corruption Guidelines and its Sanctions Framework; or (ii) blacklisted or suspended by Central or any State Government Departments in India.
- 2. Clarifications & Amendments:** If the Purchaser receives any request for clarification of this RFQ Document, it will upload its response together with any amendment to this document, on the e-procurement portal for information of all Bidders. Bidders should check on the e-procurement system, for any amendments to the terms and conditions.
- 3. Documents:** The Quotation shall comprise two Parts, namely the Technical Part and the Financial Part. Both Parts shall be submitted simultaneously.
- 4. The Technical Part of Quotation shall comprise the following:**
 - (a) Letter of Quotation – Technical Part;
 - (b) Delivery Period Offered: List of Goods & Related Services indicating Bidder's offered delivery period in the prescribed Form;
 - (c) Technical Specifications: confirmation that the offered Goods and Related Services conform to the required specifications;
 - (d) Evidence in accordance with Clause 8 establishing Bidder's qualifications to perform the contract, if its quotation is accepted;
 - (e) Performance Statement of supplies of similar goods made during the last 3 years, in the prescribed Format;
 - (f) Complete address and contact details of the Bidder having the following information:
Name of Firm
Address for communication
Telephone No(s): Office
Mobile No.
Facsimile (FAX) No.
Electronic Mail Identification (E-mail ID)
 - (g) The Technical Part of Quotation shall not include any financial information related to the Quotation price. Where material financial information related to the Quotation price is contained in the Technical Part of Quotation, the Quotation shall be declared non-responsive
- 5. The Financial Part of Quotation shall comprise the following:**
 - (a) Letter of Quotation - Financial Part
 - (b) Price Schedule (using the Schedule uploaded with the RFQ document) wherein the rates shall be entered online.
- 6. Quotation Prices**

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- a) The contract shall be for the full quantity for all items or for full quantity of each item, as specified in the Price Quotation Form. Corrections, if any, can be carried out by editing the information before electronic submission.
 - b) All duties, taxes and other levies payable on the raw materials and components shall be included in the total price.
 - c) GST and any other taxes, which will be payable on the goods at the time of invoicing in connection with the sale, shall be shown separately. If these are only stated to be extra, such quotations are liable to be rejected. Wherever these taxes are not shown, these will be assumed to have been included in the quoted price.
 - d) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - e) The Prices shall be quoted in Indian Rupees only.
- 7. Conformity of Goods:** The Bidder shall furnish as part of the Technical Part of Quotation, documentary evidence that the Goods conform to the technical specifications and standards, as relevant for example catalogue, warranty/ guarantee etc. of the manufacturer.
- 8. Qualification of the Bidder:**
- (a) Bidder should have supplied goods of similar type (& capacity) up to at least 100% quantity in any one of last 3 years. Details of supplies made during the last 3 years shall be submitted in the specified Proforma. At least 40 % of the quantity in case of equipment offered for supply should have been in successful operation for at least one year as on date of quotation opening.
 - (b) Supplies for any particular item in each quotation should be from one manufacturer only. Quotations offering supplies from different manufacturers for the same item in the quotation will be treated as non-responsive.
- 9. Validity of Quotation:** Quotation shall remain valid for a period not less than 15 days after the deadline date specified for submission.
- 10. Signing of Quotations:** The name and position held by each person signing the quotation and related documents must be typed or printed below the signature.
- 11. Quotation Submission:** The Letter of Quotation – Technical Part, and Letter of **Quotation** – Financial Part shall be filled, signed and scanned copies shall be uploaded along with the Price Schedules that shall be furnished using the Forms available online without any alterations. All blank spaces shall be filled in with the information requested. Scanned copies of all other documents shall also be uploaded on this website.
- 12. Online Opening and Evaluation of Technical Parts of Quotations:** The ‘Technical Part’ of the Quotations will be opened online on the specified date and time. This can also be viewed by the bidders online, and electronic summary of quotation opening of technical part will be generated and uploaded online. The Financial Parts of the Quotations shall remain unopened in the e-procurement system, until the subsequent online opening, following the evaluation of the Technical Parts of the Quotations.
- (a) The Purchaser shall examine the technical part of the quotation to determine whether the quotation (a) has been properly signed (Clause 10); b) meets the eligibility criteria (Clause 1); (c) conforms to all terms, conditions, technical specifications, warranty/guarantee etc.; and (d) the bidder has accepted the delivery schedule (Purchaser’s Requirement Form 1).

- (b) Only Quotations that are both substantially responsive to the RFQ document, and meet all Qualification Criteria shall qualify for opening of the Financial Parts of their Quotations at the second online opening.
- (c) Purchaser shall notify in writing those Bidders who have failed to meet the Qualification Criteria or whose Quotations were considered non-responsive to the requirements in the RFQ document, advising them that their Technical Part of Quotation failed to meet the requirements of the RFQ document; and that their Financial Part of the Quotation shall not be opened.
- (d) Simultaneously Purchaser shall notify in writing those Bidders whose Technical Parts of Quotations have been evaluated as substantially responsive and meeting the Qualification Criteria that their Quotation has been evaluated as substantially responsive to the RFQ document and that their Financial Part of Quotation will be opened online at 15.04.2021 at 3.30 PM.

13. Online Opening and Evaluation of Financial Parts of Quotations: The 'Financial Part' of the Quotations will be opened online on the specified date and time. This can also be viewed by the bidders online, and electronic summary of quotation opening of financial part will be generated and uploaded online.

- (a) The Purchaser shall examine and confirm that Letter of Quotation – Financial Part and Price Schedules are in accordance with the requirements specified in the RFQ document. If any of these documents or information is missing, the offer shall be rejected.
- (b) The Quotations would be evaluated for all the items together/would be evaluated separately for each item. [Purchaser shall specify one of the two options].
- (c) The evaluation shall be based on the total price of Goods and Related services at project site including GST and any other taxes, which will be payable on the finished goods at the time of invoicing.

14. Award of contract: The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

- (a) Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
- (b) The bidder whose quotation is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the supply order (sample form attached).
- (c) 100% Payment shall be made immediately after delivery and successful testing & commissioning of AWS excluding four years operation & maintenance and comprehensive warranty. Payment of GST and other taxes payable for the goods at the time of invoicing, although already included in the total cost, will be at actuals or the rate/amount of these taxes specified in the supply order, whichever is lower.
- (d) Payment towards four years operation & maintenance and comprehensive warranty shall be made 25% per year and to be paid on Half Yearly basis (12.5% at every six month) inclusive of GST payable on related services.

Normal commercial warranty/ guarantee shall be applicable to the supplied goods.

Quotation Forms

Letter of Quotation–Technical Part

The Bidder must prepare the Letter of Quotation on stationery with its letterhead clearly showing the Bidder's complete name and address. The italicized text is for Bidder's guidance in preparing these forms and shall be deleted from the final products.

RFQ No.: *[insert identification]*

Our Reference: No..... Dated.....

To:
(Purchaser's name and address)

Subject: Supply of.....

Sir,

1. We, the undersigned, hereby submit our Quotation in two parts, namely:

- (a) Technical Part; and
- (b) Financial Part

2. In submitting our Quotation, we make the following declarations:

- (a) **No reservations:** We have examined and have no reservations to the RFQ Document;
- (b) **Conformity:** We offer to supply in conformity with the RFQ Document and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods and Related Services *[insert a brief description of the Goods and Related Services]*;
- (c) **Quotation Validity Period:** Our Quotation shall be valid for the period of 15 days, from the deadline fixed for the Quotation submission;
- (d) **Eligibility:** We meet the eligibility requirements and have no conflict of interest, we are not participating in more than one quotation in this bidding process, and we have not been temporarily suspended or debarred by the World Bank or blacklisted or suspended the Central or any State Government;
- (e) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of corrupt, fraudulent, collusive, coercive, or obstructive practices; and we will strictly observe the laws against fraud and corruption in force in India namely, "Prevention of Corruption Act 1988."

Yours faithfully,

Authorized Signature

Name & Title of Signatory _____

In the capacity of *[insert legal capacity of person signing the Letter of Quotation]*

Name of Bidder _____

Address _____

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

Letter of Quotation–Financial Part

The Bidder must prepare the Letter of Quotation on stationery with its letterhead clearly showing the Bidder's complete name and address. The italicized text is for Bidder's guidance in preparing these forms and shall be deleted from the final products.

RFQ No.: *[insert identification]*

Our Reference: No..... Dated.....

To:

(Purchaser's name and address)

Subject: Supply of.....

Sir,

1. We, the undersigned, hereby submit the second part of our Quotation, the Financial Part. In submitting our Financial Part we make the following additional declarations:
 - (a) Our Quotation shall be valid for the period of 15 days from the deadline fixed for the Quotation submission;
 - (b) The total price of our Quotation, including any unconditional discounts offered is:
Total price of the Quotation ***[insert the total price of the quotation including GST and any other taxes, which will be payable on the finished goods, in words and figures];***
 - (c) **Commissions, gratuities and fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the Bidding process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity. If none has been paid or is to be paid, indicate "none."]*

Yours faithfully,

Authorized Signature

Name & Title of Signatory _____

In the capacity of *[insert legal capacity of person signing the Letter of Quotation]*

Name of Bidder _____

Address _____

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

FORMAT OF QUOTATION

Sl. No.	Description of Goods	Quantity	Units	Unit price EXW [excluding GST] To be entered by the Bidder Rs. P	GST and other Taxes Amount Rs. P	TOTAL AMOUNT Without Taxes in Rs. P	TOTAL AMOUNT With Taxes Rs. P	TOTAL AMOUNT In Words
1	Automated Weather station (AWS) comprising of following equipment	No	1					
1.01	Automated Rainfall Stations (ARS) Sensor Equipment set necessary hardware as per technical specifications.	No	1					
1.02	Air Temperature & Relative Humidity sensor, cable with Radiation shield, Equipment set necessary hardware as per technical specifications	No	1					
1.03	Wind speed & wind direction sensor and cable set necessary hardware as per technical specifications	No	1					
1.04	Atmospheric Pressure sensor and cable set necessary hardware as per technical specifications	No	1					
1.05	Solar Radiation sensor and cable set necessary hardware as per technical specifications	No	1					
1.06	Automated pan evaporimeter Equipment set necessary hardware as per technical specifications	No	1					
1.07	Data Logger with 8 AI channels with INSAT, GSM & GPRS based telemetry including antenna and all necessary equipment for data transmission as per technical specifications.	No	1					
1.08	Solar panel with all connectors, cables and conduit as per technical specifications.	No	1					
1.09	Battery, charger regulator with all interconnecting connectors, cables for DCP as per technical specifications	No	1					
1.10	NEMA4X OR Equivalent Enclosure box to suit master unit equipment with locking, other ancillary equipment, fittings earthing, lightning arrester with all connectors, cables and conduit for	No	1					

	cables, 10mts tower with guy rope to mount DCP, sensor mount complete as per technical specifications							
2	Installation of Automated Weather Station (AWS) comprising of following related services							
2.01	Installation testing & Commissioning of Automated Weather Stations sensors which includes air temperature, relative humidity, wind speed & wind direction, Atmospheric pressure, solar radiation sensor, and Automated Rainfall Sensor, pan evaporimeter Equipment set with required cable and necessary hardware set as per technical specifications	1	Nos					
2.02	Installation testing & Commissioning of Data Logger Data Logger with 8 AI channels with INSAT, GSM & GPRS based telemetry, Antenna including all necessary equipment for data transmission as per technical specifications.	1	Nos					
2.03	Installation testing & Commissioning of solar panel with all connectors, cables and conduit as per technical specifications	1	Nos					
2.04	Installation, Testing & Commissioning of Battery, charger regulator with all interconnecting connectors, cables for DCP as per technical specifications	1	Nos					
2.05	Installation, Testing & Commissioning of NEMA4X or equivalent Enclosure box to suit master unit equipment with locking, other ancillary equipment, fittings earthing, lightning arrestor with all connectors, cables and conduit for cables, 10mts tower with guy ropeto mount DCP, sensor mount complete as per technical specifications	1	Nos					
2.06	Installation of Chain-link Fencing (as per site condition) along with lockable gates as per technical specifications for external protection of Sensors and DCP at RTDAS stations as mentioned in Schedule of Requirements	1	Nos					
3	Four Years operation & maintenance and comprehensive warranty for AWS Station with Pan Evaporimeter with telemetry along with	1	Lot					

	accessories, installed at designated locations under this contract after final acceptance. This includes replacement of material & consumable as & when required at bidders cost. The cost of communication for GSM & GPRS telemetry for data transmission shall be borne by bidder. The license fee as applicable for DOT for INSAT transmission shall be borne by purchaser.							
	Total							

We agree to supply the above goods in accordance with the technical specifications for a total contract price (including all taxes and duties) of Rs. (Amount in figures) (Rs... amount in words) within the period specified in the Request for Quotations.

We also confirm that the normal commercial warranty/guarantee ofmonths shall apply to the offered goods.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf has engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices (as defined in the prevailing World Bank's sanctions procedures) in competing for or in performing the Contract.

Signature of Bidder

PROFORMA FOR PERFORMANCE STATEMENT*

Proforma for Performance Statement (for a period of last 3 years)

RFQ No. _____

Date of opening _____

Time _____ Hours

Name of the Bidder _____

Order placed by (full address of Purchaser)	Order No. and date	Description and quantity of ordered equipment	Value of order	Date of completion of delivery		Has the equipment been satisfactorily functioning? (Attach a certificate from the Purchaser/Consignee)
				As per contract	Actual	
1	2	3	4	5	6	7

Signature and seal of the Bidder _____

* This proforma shall be deleted if requirement of Performance Statement is deleted in Clause 4.

Purchaser's Requirement

1. LIST OF GOODS & RELATED SERVICES AND DELIVERY PERIOD

	Description of Item	Qty.	Unit	Final Destination (Project site)	Desired Delivery Period for completion of supply from the date of the Contract	Bidder's offered Delivery Period <i>[to be provided by the Bidder]</i>
1	Automated Weather station (AWS) comprising of following equipment					
1.01	Automated Rainfall Stations (ARS) Sensor Equipment set necessary hardware as per technical specifications.	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.02	Air Temperature & Relative Humidity sensor, cable with Radiation shield, Equipment set necessary hardware as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.03	Wind speed & wind direction sensor and cable set necessary hardware as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.04	Atmospheric Pressure sensor and cable set necessary hardware as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.05	Solar Radiation sensor and cable set necessary hardware as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.06	Automated pan evaporimeter Equipment set necessary hardware as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.07	Data Logger with 8 AI channels with INSAT, GSM & GPRS based telemetry including antenna and all necessary equipment for data transmission as per technical specifications.	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.08	Solar panel with all connectors, cables and conduit as per technical specifications.	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.09	Battery, charger regulator with all interconnecting connectors, cables for DCP as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>
1.10	NEMA4X OR Equivalent Enclosure box to suit master unit equipment with locking, other ancillary equipment, fittings earthing, lightening arrestor with all connectors, cables and conduit for cables, 10mts tower with guy rope to mount DCP, sensor mount complete as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>	<i>1 months from date of signing of contract</i>

Note:

1. All details should be filled in by Purchaser except for Colum 7.
2. Delivery Period offered by the Bidder should be filled in Column 7 by the Bidder.

List of Related Services [ITB Clause 14.8(b)] and Completion Schedule

Service	Description of Service	Qty	Unit	Place where Services shall be performed	Final Completion Date(s) of Services
S-1	Automated Weather station (AWS) comprising of following Related Services				
S-1a	Installation testing & Commissioning of Automated Weather Stations sensors which includes air temperature, relative humidity, wind speed & wind direction, Atmospheric pressure, solar radiation sensor, and Automated Rainfall Sensor, pan evaporimeter Equipment set with required cable and necessary hardware set as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>
S-1b	Installation testing & Commissioning of Data Logger Data Logger with 8 AI channels with INSAT, GSM & GPRS based telemetry, Antenna including all necessary equipment for data transmission as per technical specifications.	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>
S-1c	Installation testing & Commissioning of solar panel with all connectors, cables and conduit as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>
S-1d	Installation, Testing & Commissioning of Battery, charger regulator with all interconnecting connectors, cables for DCP as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>
S-1e	Installation, Testing & Commissioning of NEMA4X or equivalent Enclosure box to suit master unit equipment with locking, other ancillary equipment, fittings earthing, lightening arrestor with all connectors, cables and conduit for cables, 10mts tower with guy rope to mount DCP, sensor mount complete as per technical specifications	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>
S-1f	Installation of Chain-link Fencing (as per site condition) along with lockable gates as per technical specifications for external protection of Sensors and DCP at RTDAS stations as mentioned in Schedule of Requirements	1	Nos	Bhimtal Lake in Bhimtal	<i>1 months from date of signing of contract</i>
S-2	Operation & Maintenance during Four Years Comprehensive Warranty period, for AWS with Telemetry system as specified in Schedule of Requirement along with accessories, installed at designated locations and Data Center equipments after final acceptance of AWS systems. This includes replacement of material/goods & consumables as & when required at bidders cost. The cost of Communication for, GSM & GPRS telemetry for data transmission shall be borne by bidder. The license fee as applicable for DOT for INSAT transmission shall be borne by purchaser.	01	Lot	Bhimtal Lake in Bhimtal	<i>4 years after successful commissioning and final acceptance certificate</i>

TECHNICAL SPECIFICATIONS

1.0 GENERAL

Purpose Driven Studies (PDS) for the sustainable development of Bhimtal Lakes are being carried out under National Hydrology Project. Under the studies, real time data for various hydro-met parameters of lake are required to be collected by using AWS. Installed AWS will be a part of Real Time Hydro-Met data acquisition network which will be implemented under National Hydrology project provides key data required for forecasting Inflows into the Basin and other related activities. A Real Time Data Acquisition System (**RTDAS**) will consist of a telemetry network of automated rainfall stations, automated weather station and water levels stations along rivers/reservoirs which will be installed to provide inputs to the **RTDAS**. The concept of implementation on which the present technical specifications and special conditions are based intends to combine the advantages of modern Data Loggers, data storage, processing and data communication technologies with the requirements of high availability and sustainability required by such an important project. Preference will be given to robust, reliable technology. The real-time data acquisition system networks have the greatest possible reliability, thus minimizing the maintenance to the extent possible.

The Technical Specifications consists of the installation of the AWS, includes the design, manufacture, factory testing, deliver to site, installation (including the associated interface wiring/termination), knowledge transfers and other accessories, commissioning and site acceptance testing, supply of mandatory spares, training and documentation.

2.0 SCOPE OF WORK

- 1) Complete supply, installation, testing, commissioning of remote stations including civil works, sensors, data logger, software, hardware and ancillary equipment, solar panel, mounting poles, masts, cables and tethers, electrical and network cabling, lightning arrestors etc. complete.
- 2) Perform on-site assembly, start-up of the supplied goods.
- 3) Complete commissioning integration, testing & organization of the whole system. Bidder is responsible for integration with RTDAS
- 4) Provide operation & maintenance services during Four (4) year warranty period to include all components at the remote stations as well as all newly acquired equipment in the data center.
- 5) Provide installation and maintenance reports as required by the Purchaser and any delay is not acceptable in time schedule provided by supplier.
- 6) Supply on-site spares to repair any part of the remote stations upon determination of malfunction or failure. This includes, but is not limited to, DCP, sensors, batteries, solar panel and other accessories etc. required in seamless operation of the real time data acquisition system

- 7) Supply detailed operation and maintenance manual for each component in the system and compile Knowledge and working supply type Manual for training purpose (including multimedia training kits).
- 8) Onsite Calibration and validation of the installed system shall be performed on half yearly basis to be continued during the entire Warranty period.
- 9) The AWS should confirm to the extent practical to WMO guidelines. The purchaser will be responsible for obtaining permission to use property. River stage Reservoir Stage and weather data will be logged every 1 hour and transmit data based on a schedule set in the data logger (e.g. once an hour) and/or in case of GSM/GPRS communication the data transmission on an event (e.g. a measurement reaching programmed threshold values).
- 10) The remote stations (DCPs) shall store the data for at least one year.
- 11) Bidder shall Supply a detailed operation and maintenance manual for each appropriate unit of supplied goods and compile Knowledge and working supply type Manual for training purpose (including multimedia training kits).
- 12) A guarantee by the manufacturer that all equipment being provided will have maintenance & Spare support for a minimum of ten years from the date of issuance of final acceptance certificate by engineer in charge including Warranty and Operation & Maintenance period is needed.

4.0 GENERAL FEATURES/ SPECIFICATIONS

- i. It is imperative that all instrumentation, other equipment shall operate effectively with the Data Collection Platform (DCP)'s. In addition, the input/output protocols of individual items of equipment (gauges, DCP's, solar power arrangements, etc.) shall interface accurately.
- ii. The specific electrical, electronic and mechanical design parameters mentioned in case of individual sensors are indicative of a typical design and variations therein can be considered provided the output, resolution accuracy and ruggedness against environment are not compromised in any manner. In such cases where the supplier proposes to deviate from the specifications a full technical justification shall be provided. The Purchaser is not bound to accept such justification.
- iii. It shall be the Suppliers responsibility to ensure that the installation is robust and shall continue to work in extreme weather conditions.
- iv. Reliability of operation during normal and extreme weather conditions is imperative.
- v. The sensors and all accessories and facilities shall be fully compatible with the data acquisition and transmission system. The sensors and DCP,s shall form a complete automated data acquisition storage and transmission system.
- vi. In case of any of the sensors, the equipment is supplied with certain optional features which are required to be ordered separately and are not included as a part

of the offer; the same shall be clearly mentioned in the bid along with the functions of such features. The purchaser shall be provided with all necessary information which shall enable him to take an informed decision at the time of entering into the contract as to the ordering any such feature or otherwise.

- vii. The Bidder shall enclose technical literature with photographs in respect of all the sensors being quoted. The features which are mentioned in the literature but are not being quoted as a part of the current system shall be clearly brought out in the bid. In the event of failure of the Bidder to explicitly mention any such exclusion, it shall be taken as inclusion of all features mentioned in the bid as a part of the supply and the Bidder shall have to provide all such features/ accessories without claim of extra cost to the purchaser.
- viii. Although all accessories and fixtures required for installation of the equipment & their specifications have been specified in technical specifications however, bidder shall ensure the satisfactory performance & functioning of AWS complete, for this if any accessory or items are required that shall be provided by bidder, the cost towards that deemed to be included in the cost tendered by the bidder, no extra cost shall be paid to the bidder on this account.
- ix. Bidders shall give general layout of all the installations including all civil works for types of stations and materials including that for the equipment at the time of bidding. Afterwards, the successful Bidder shall furnish the details of all the mounting arrangements, including civil works. Indian Standard codes of practice shall be followed for all civil works and mounting arrangements.
- x. The security arrangement provisions for sensors installed in the open ground like chain-link fencing, locking etc. shall be provided by the Bidder.
- xi. Security of installed equipment's including theft and vandalism will be the responsibility of the Bidder till successful installation, commissioning, two stages of site acceptance testing.
- xii. All fixings shall be non-corrodible.
- xiii. The Bidder has to specify how the calibration will be carried out and has to use his own calibration equipment during the period of warranty.
- xiv. Ensure that all software licenses and maintenance agreements are in the name of Purchaser and should seek full support and updates for such software for the duration of the **Warranty** Period. Also all the software licenses should be valid for the design life of the system, that is 10 years from date of commissioning.

5.0 EQUIPMENT ARRANGEMENT AT REMOTE STATIONS

5.1 AUTOMATIC WEATHER STATIONS:

The Automatic Weather station (AWS) shall be equipped with all necessary equipment's and peripherals including the following:

- i. Data collection Platform (DCP) mounted inside an enclosure which will house the following items.
 - Datalogger with INSAT, GSM and GPRS facilities for transmission of data with built in display
 - Battery for power requirements
 - Pre-wiring and configuration.
 - Solar panel based power supply system.
 - Antenna (INSAT, GPS, GSM/GPRS) & required accessories
- ii. Installation of Rainfall, Wind Speed& Wind Direction, Air Temperature& Relative Humidity, Solar Radiation, Atmospheric pressure with all fittings, accessories and cables.
- iii. Installation of standard size evaporation PAN with sensor and all fittings, accessories and cables. The Pan Evaporimeter data shall be integrated with the AWS datalogger and transmit.
- iv. Wooden Platform for installation of PAN and Civil works for installation of PAN.
- v. Triangular Tower of 10m height with guy rope support & required mounting hardware to mount DCP & required sensors as per WMO guidelines for meteorological equipment's.
- vi. Tower can be shared with the DCP mast also.
- vii. Tower can be shared with the DCP, solar panel & INSAT antenna
- viii. Conduit for cables GI Flexible conduits and HDPE pipe conduits.
- ix. Civil works for 10mts Tower and guy support (provided locally by the Bidder).
- x. Chain-link fencing (10 m X 10 m X 2m height) and gate with lock if required
- xi. Power cables with conduits.
- xii. Grounding and lightning protection (provided locally by the Bidder)
- xiii. All necessary hardware required for the system to operate properly.
- xiv. The installation should be made as per WMO guidelines at standard height.

AUTOMATED PAN EVAPORIMETER SYSTEM

- It consists of Evaporation Pan Standard National Weather Service Class A type for measurement of water evaporation.
- It is used to determine the evaporation rate by measuring the changing water level in an evaporation pan. A standard National Weather Service Class an Evaporation Pan is to be used. The Evaporation gauge is connected to the pan using the stainless-steel pipe and fittings.
- Wooden Platform for installation of PAN
- Civil works for installation of PAN

- Evaporation Pan Gauge shall be integrated with the AWLR /AWS data logger.

6.2 INSTALLATION REQUIREMENTS

SITE PREPARATION AND INSTALLATION

1. The State of Uttarakhand will provide details of the installation sites before the scheduled installation date to allow the Bidder to perform site inspection and construction of suitable structures before the installation of the hardware.
2. The location of antenna and sensors will be decided by the respective Site Engineer-in-charge depending on the site and river flow conditions.
3. The Bidder should complete the required works at the site for proper installation of the equipment before receipt of the equipment.
4. These are the basic guidelines for installation of RTDAS system however it may vary as per site conditions, in case of variation from installation guidelines stated below drawings shall be approved by engineer-in charge prior to the start of installation work

7.0 SPECIFICATIONS FOR INSTALLATION

7.1 Automatic Weather Station (AWS)

AWS stations will be placed in open fields and away from any obstructions which may disturb the measurements. WMO guidelines will be followed during the installation and precise site selection. The AWS stations will require a 10mts tower. The hardened enclosure will be attached to the tower at 1.5 m about the ground. Then temperature/relative humidity will be mounted at 2 m above the ground and sufficiently away from any objects that may produce long wave radiation. The wind speed/direction sensor will be placed at the top of the 10 m tower. The rain gauge will be placed away from the tower, at least 3 m from the tower, and no closer than the 2 times the difference in height (top of the rain gauge to the top of the nearby objects) to other objects.

7.2 Specifications for Civil Works

Common Enclosure for Site

Area for Automatic Weather Station (AWS) should be ideally 10m * 10m * 2m height, If a rare condition demands then even lesser area (8m * 8m) can be demarcated in consultation with officials

The approach to the site should be made free of obstacles like bushes; trees etc. and a suitable cement path must be laid to approach the platform.

Following are the common specification for civil works for all the Telemetry sites.

Fencing for the site

- The height of the fencing for the site enclosure must be 2 meters from the ground level.
- The fencing must be made over a cement enclosure which is 300mm above ground level.
- Fencing angle should be of size 40mm x 40mm x 6mm and pre coated with red-oxide.

- The total length of the fencing angle should be 2.8 meters i.e. (2.0m above ground level + 0.8 m below ground level)
- 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.
- The dimensions of the fencing angle foundation should be 450 mm x 450 mm (length X width) and at a depth of 800 mm. The foundation should be square shaped. Distance between each fencing angle should be 1.5 to 2meter.

Chain-link

- Dimensions of GI Chain-link:3 inches x 3 inches and of Gauge: 10 (3 mm diameter)
- GI chain-link mesh must be stretched and welded/fixed properly on the fencing angles.
- 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.
- The chain-link fencing should be fastened with the help of screws fitted on the fencing angles. Alternately it may be welded neatly at four equidistant positions of 0.5 m each.

Gate

- Dimensions: 1 m X 2 m (Width x Height) with locking facility
- The gate must be fabricated by MS Angle whose dimensions should be minimum 40mm x 40mm x 6mm.
- Suitable locking facility with 3 keys for safety purposes is mandatory. Standard locks should be used.
- Gate and MS Angle must be well painted with white / silver colour.
- Gate should have proper support of MS angles with additional support of crossed MS angles. Alternately gate should be fixed with the support of RCC pillars.

Rain Gauge foundation

- Rain gauge foundation must be of dimensions 450 mm x 450 mm (length x width) and 800 mm deep.
- The rain gauge may be located so that it is at a minimum distance of 2 m away from obstructions on all four sides.
- The raised platform should be 230mm above the ground level.
- In the case of flood prone areas the base plate on which the rain gauge is mounted should be placed 1.0 m above ground level. The location must be decided after discussion with Field Officer.

Mast Foundation

- Foundation Dimensions: 750 mm X 750 mm (length x width) and 1.2 m deep. The raised platform of the foundation must be 300 mm. above the ground level.
- The height of the mast should be minimum 3 meters above raised platform.

10 mts Tower Foundation

- The 10m triangular tower foundation must be of dimensions 900 mm X 900 mm (length x width) and 1.5 m deep. The raised platform of the foundation must be 300mm above the ground level.
- Proper guy rope support (three Nos) with foundation (for 10 mts Tower). The foundation for the Anchor Rod which holds the guy rope must be of dimensions 450 mm X 600 mm (length x width) at the ground level and min 1.2 m deep
- The DCP, sensors and Antenna will be mounted on a 10-metertriangular tower, which should cater for fitments of assemblies for sensors, DCP, antenna and other accessories. The tower will have 3 sections of 3 meter height and one top section of 1 meter height. The tower should be made of MS Pipe and should be light as well as robust enough to withstand weight of at least two persons (200 Kgs). This tower with complete accessories will be part of the supplies and will be galvanized to avoid rusting and long life in outdoor conditions.

Proportions for concrete foundations

- Concrete pillar foundations for the mast /tripod /tower, fencing angle should be made in the volumetric mixing proportions as follows:
- Concrete foundation : 1 (Cement) : 2 (Sand) : 4 (Metal)
- Fine plastering : 1 (Cement) : 4 (Sand)
- Concrete Pillar must be cemented to achieve smooth finish above the ground level.
- After 8 hours, these foundations should be cured with water at least 3 times a day for four days.

Local Earthing

- Material required: Salt: 20 Kg; Charcoal: 20 Kg; Sand 100 Kg
- The lightning arrestor rod is made of copper which is mounted on the top most part of the mast /tripod /tower.
- It should be of thickness 12 mm and of one meter length with a connected copper wire of 6mm thickness (gauge). At the other end of copper wire is the earthing rod of dimensions 15mm thickness and 1.8 meter length, which is buried into the ground.
- On the bottom of earthing rod, one copper plate of dimensions 300mm x 300mm should be connected. Data logger enclosure should also be grounded with local earthing.
- A pit of 4-5 feet depth, 2' X 2' wide at bottom (like a cone shaped pit) has to be dug.
- After leveling the bottom of the pit, uniform layer in the 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 to the top. The copper earthing rod is placed in the center of the pit. The pit is closed and leveled.

Painting

- The tower, fencing angles, chain-link fencing and gate should be properly painted every year to avoid rusting.

- All concrete foundations shall be painted using white cement paint every year.

8.0 TECHNICAL SPECIFICATIONS

8.1 Automatic weather stations Sensors

FUNCTIONAL REQUIREMENT: To measure the weather parameter

DESIGN REQUIREMENTS: The equipment offered should conform to the following technical Specifications:

Feature	Value
Site Conditions	
Ambient Temperature	From -5 to +60 °C
Humidity	5 to 100 %
Altitude	0 to 2500 meter
Feature	Value
AUTOMATIC RAIN GAUGE STATIONS	
Sensor	
Sensor Type	Tipping Bucket type with reed switch
Range	250 mm/h or better
Resolution	0.5 mm or better
Accuracy	2% or better, ± 2 mm
General Features	
Output Interface	SDI-12/ RS-485 / 4-20 mA/ Switching closure output
Power Supply	To be powered by solar power provided by bidder
Material	Corrosion Resistance Metal (Stainless steel/ Aluminum)
Enclosure	NEMA 4 or IP65
Tools	Complete tool kit for operation and routine maintenance
Manuals	Full Documentation and maintenance manual in English
Accessories	Sensor Mounting support, cables and other accessories as required
Certification	IMD/ WMO certification shall be provided.
Air Temperature Sensor	
Sensor Type	Platinum resistance or better or equivalent
Range	-5 to 60 Degree Celsius
Resolution	$\pm 0.1^{\circ}\text{C}$
Accuracy	Within $\pm 0.2^{\circ}\text{C}$ in the entire working range

Response Time	10 secs or lesser
Relative Humidity Sensor	
Sensor Type	Capacitive/ Solid State Humidity Sensor
Range	0 to 100 %
Resolution	1%
Accuracy	±3% or better
Response time	10 secs or lesser
General	
Self-aspirated	To ensure continuous supply of air. Free from turbulence, water droplets and radiation
Power Supply	To be powered by solar power provided by bidder
Accessories	All accessories for mounting the instrument at ~1.5mts height above the ground level e.g. special cross arm clamps or flag, if any shall be provided
Output Interface	SDI-12/ RS-485/ Analog
Wind Speed and Direction Sensor	
Sensor Type	Ultrasonic sensor (No moving Parts)
Range	0-60 m/s for speed and 0–360 degrees for direction or better
Resolution	0.1m/s for Speed; ±5 degree for Direction
Accuracy	Wind speed ± 2% ± 0.1m/s (up to 20 m/s) and ± 3% (for 20 to 60 m/s) Wind direction ±5° or better
Response time	Less than 1 second lag in operating range
Mounting	All accessories for mounting the instrument at 10mts height above the ground level, e.g. special cross arm clamps or flag if any shall be provided.
Output Interface	SDI-12 / RS-232/ RS-485
Air Pressure Sensor	
Sensor Type	Temperature Compensated
Range	600 to 1100 hpa
Resolution	± 0.1 hPa
Accuracy	±0.2hPa
Power Supply	To be powered by solar power provided by bidder
Output Interface	SDI-12 / RS-232/ RS-485

Solar Radiation Sensor	
Sensor Type	Silicon Pyranometer
Threshold	120 W/m ² of direct solar irradiance
Methodology	Alternate shading of sensor to account for sky radiation or Sunshine duration shall be computed in data logger
Spectral Range	400nm to 1100 nm
Range	0-2000 W/Square meter
Resolution	1 W/Square meter
Accuracy (Including Temperature Compensation)	3% or better
General Features	
Material	Corrosion Resistance Metal (Stainless steel/Aluminum)
Tools	Complete tool kit for operation and routine maintenance
Manuals	Full Documentation and maintenance manual in English
Accessories	All accessories for mounting the instrument at ~1.5mts height above the ground level e.g. special cross arm clamps or flag, if any, shall be provided.
Output Interface	SDI-12/RS-485/ 4-20 mA/ Analog

8.2 Automated Pan Evaporimeter System

Feature	Value
Site Conditions	
Ambient Temperature	From -5 to +60 °C
Humidity	5 to 100 %
Altitude	0 to 2500 meter
General Features	
Measurement	Evaporation Pan with water level sensor
Sensor Type	Shaft Encoder / ultrasound radar / Float & pulley type As Specified by IS:5973 which known as the modified Class A Pan potentiometer
Pan size	1200 mm diameter
Accuracy	± 1% FSO
Resolution	1mm
Power Supply	To be powered by solar power provided by bidder

Accessories	As required for complete installation of the sensors and equipment
Material	The pan is made of copper or stainless steel sheet, tinned inside and painted white outside
Covering	The top of the pan is covered with a wire net of GI to protect water in the pan from birds
Platform	Rot resistance, timber treated with creosote or other effective Wood preservative
Measurement range	150 mm
Output of sensor	SDI-12 / RS-485 / 4-20 mA / Analog

To be compatible to use with other sensors viz. rainfall and data loggers to establish a complete monitoring system

ATTACHMENT

OFFICE OF
.....

PURCHASE/SUPPLY ORDER

To:

M/s
.....
.....
.....
.....

Dear Sirs,

Sub: Supply of
.....

Ref: Request for Quotation no..... dated

1. Your quotation no.....of(Date) for the supply of **has been accepted. You are requested to** supply the following goods/equipment at the rates quoted by you and specified against each as per the specifications and terms & conditions specified hereunder:

Serial. No	Brief description of goods/equipment	Specifications	Quantity to be supplied	Unit Rate (Rs.)	GST*	Total Price (Rs.) including all taxes and duties
1						
2						
3						
4						
5						
			Total			

*GST and similar other taxes and duties applicable on finished goods. Indicate each applicable tax separately.

2. Delivery Period:days from the date of issue of this supply order.
3. Place of delivery
4. Consignee Address:

- 5. GST and other taxes and duties, if any will be reimbursed at actual rates paid on the date of supply or the rate/amount shown in 1. above, whichever is lower.
- 6. Standard Manufactures commercial Warranty/Guarantee shall be..... months from the date of delivery and acceptance.
- 7. Payment shall be made on delivery or within 7 days of delivery; and acceptance of the goods/equipment.
- 8. Other terms and conditions are as under:
.....
.....

(Purchaser)

Date:

Place:

Name:

Designation:.....

Modify as appropriate for individual cases