



गोविन्द बल्लभ पन्त हिमालय पर्यावरण एवं विकास संस्थान
G.B. Pant Institute of Himalayan Environment & Development
कोसी-कटारमल, अल्मोड़ा – 263 643, उत्तराखण्ड, भारत
Kosi-Katarmal, Almora 263 643, Uttarakhand, India

Tender Notice

Sealed tenders are invited on behalf of the Director, GBPIHED, Kosi-Katarmal, Almora from reputed and registered firms/suppliers/manufacturers for the supply of **3D Sonic Anemometer and EC 150 with software, computer accessories.**

The last date of submission of tender is 16.02.2015 at 02:00 p.m. The full details of tender is available in the Institute Website: <http://gbpihed.gov.in>.

Administrative Officer
E-mail: ao@gbpihed.nic.in

(पर्यावरण एवं वन मंत्रालय, भारत सरकार का स्वायत्तषासी संस्थान)
(An Autonomous Institute of Ministry of Environment & Forests, Government of India)
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**G.B.PANT INSTITUTE OF HIMALAYAN ENVIRONMENT & DEVELOPMENT
KOSI- KATARAMAL, ALMORA – 263643, UTTARAKHAND**

Tender notice

Sealed tender are invited on behalf of the Director, GBPIHED, Kosi-Katarmal, Almora from reputed and registered firms/suppliers/manufacturers for supply of **3D Sonic Anemometer and EC 150 with Software, Computer Accessories**.

The tender document may be purchased in person on payment of Rs. 500/- + VAT @ 13.5% (i.e. Rs. 568/-) from the office of the undersigned in any working day (Monday to Friday) between 10:00 a.m. to 2:30 p.m. Those desirous of obtaining the tender document by speed post may send a D.D. of Rs. 550/- + VAT @ 13.5% (i.e., Rs. 624/-) drawn in favour of Director, GBPIHED, Kosi-Katarmal, Almora and payable at any bank at Almora branch. The tenderer will have to deposit an earnest money of amounting of Rs. 2.5% of the quoted price only in shape of D.D./pay order in favour of Director, GBPIHED and payable at any nationalized bank at Almora. Tender document may also be downloaded from the Institute web-site <http://gbpihed.gov.in> and can be submitted alongwith a demand draft of Rs. 500/- plus VAT 13.5% (Rs. 568-00). Late submission of tenders or submission through fax shall not be accepted. The Institute reserves the right to accept or reject any part of tender without assigning any reason whatsoever. The decision of the Competent Authority of the Institute shall be final and binding to all parties.

Note: "Technical bid and financial bid" in the prescribed proforma alongwith EMD/Terms & Conditions and duly signed be quoted in separate sealed envelopes superscribed suitable in bold letters (Technical or Financial Bid) both these envelopes should be placed inside a common bigger envelop superscribed tender for "**3D Sonic Anemometer and EC 150 with Software, Computer Accessories**" These tenders must reach Institute by Speed Post or registered post or placed in the tender box by due date and time.

a) Last date of sale of tender document	06.02.2015
b) Last date of submission of tender	16.02.2015 at 2:00 p.m.
c) Date of opening of the Technical bid	16.02.2015 at 3:00 p.m.

Administrative Officer
Email: ao@gbpihed.nic.in



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G.B. Pant Institute of Himalayan Environment & Development
कोसी-कटारमल, अल्मोड़ा – 263 643, उत्तरांचल
Kosi-Katarmal, Almora, 263 643, Uttarakhand, India

Tender Notice No. GBPI/14-15/03

**TENDER DOCUMENT FOR THE SUPPLY OF – 3D Sonic Anemometer and EC 150 with
Software, Computer Accessories.**

Price of Tender Document : Rs. 500.00 in person + Vat@13.5% =Rs. 568.00
Rs. 550.00 By post + Vat@13.5% =Rs. 624.00
(Non refundable)

Date of sale of tenders : 06.02.2015
Last date of submission of tenders : Up to 2.00 P.M. on 16.02.2015

Opening of tenders : At 3:00 P.M. on 16.02.2015

Kosi-Katarmal
Date:

Signature & Seal of
Administrative Officer

1.0. GENERAL TERMS AND CONDITIONS

1.1. This document contains the following:

- (i) Copy of the local competitive bidding notice
- (ii) General terms and conditions of bid
- (iii) Terms and conditions for submission of bid
- (iv) Payment terms
- (v) Settlement of dispute
- (vi) Application form
- (vii) Undertaking
- (viii) Bid form
- (ix) Schedule of earnest money to be deposited along with tender
- (x) Detailed specification of the items and required quantity
- (xi) Check list

1.2 The tender document is not transferable by the purchaser. The bid form supplied by the Institute at Annexure - II in original only is to be used for bidding. Bids must be submitted separately for each item or group of items for which separate tender forms need to be purchased. Bids made on Photocopy, *etc.*, will not be considered. However, the additional sheets containing the same proforma may be used. Each sheet including that provided by the Institute with this document must be signed by the bidder. **The price bid must be in the form provided herewith at Annexure - II.**

1.3 The tender will not be accepted from the firm to whom the document is not issued by the Institute through post or downloaded through website: <http://gbpihed.gov.in>.

1.4 The Institute takes no responsibility for delay or non receipt of Tender document sent by post either way and also reserves the right to accept or reject any or all the tenders in part or full without assigning any reason thereof.

1.5 No bid document will be sold after the last date of sale of tender document or between the extended period of opening date, if any.

1.6 The bidder is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bidding document. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding document in every respect will be at the bidder's risk and may result in the rejection of its bid.

1.7 This call of tenders does not bind the Institute to place order. The tenders submitted in response to this invitation can be rejected without assigning any reason.

1.8 The Institute at its discretion may extend the last date of submission of tender and opening of tenders. The final authority for acceptance of a tender will rest with the Director, G.B. Pant Institute of Himalayan Environment and Development, who does not bind himself to accept the lowest tender and is vested with the authority to reject any or all of the tenders received without assigning any reason.

1.9 Documents, literature, diagrams/leaflets, samples *etc.*, enclosed in the tender shall become the property of the Institute without any payment.

1.10 The warranty period is twelve months starting from the date of successful commissioning of the instrument or installation of furnitures, *etc.*

1.11 The tender would be regarded as turned down, if no award of contract has been obtained till the expiry of the tender validity. No separate communication will be made in this regard.

1.12 The items have to be supplied in standard packaging.

1.13 In case of the date of opening of tender is declared as Public Holiday, the tender shall be opened on the next working day at the same time.

1.14 The bid shall contain no interlineations, erasures or overwriting words except as necessary to correct errors made by the bidder, in which case such correction shall be initialed by the person or persons signing the bid.

1.15 Late and delayed tenders shall not be considered and may be returned unopened to the bidder.

1.16 It is advised that the outside suppliers should send the tender through registered post. However, the local supplier may drop their tenders in the office of the Institute.

1.17 Canvassing in any form will disqualify the bid.

1.18 Request for the tender document for bidding through telegram, telephone, money order and telefax shall not be entertained.

1.19 The tender notice no. **GBPI/14-15/03 Item code numbers (The item code number is given in the specification sheet)** must be invariably quoted in bid and further correspondence in this regard.

1.20 All the tenders should be marked as "Tender for 3D Sonic Anemometer and EC 150 with software, computer accessories" and to be addressed to:

The Director

Attention: The Administrative Officer

G.B. Pant Institute of Himalayan Environment and Development
Kosi-Katarmal, Almora 263 643, Uttarakhand, India.

2.0 Submission of Bid

2.1 The bid prepared by the bidder and all correspondence and documents relating to the bid exchanged by the bidder and the purchaser, shall be written in English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by English translation of its pertinent passages in such case, for purposes of interpretation of the bid English translation shall govern.

2.2 Bids must be made separately for each item or group of items for which separate tender forms need to be purchased. The bid must accompany Annexure - I with Techno Commercial part of Bid and Annexure - III along with "Price" part of the bid duly filled in and signed by the bidder along with the seal of the firm.

2.3 The bidders are requested to quote the rates item-wise and the total price of each instrument separately indicating the Government levies, transportation and other expenditure item-wise as FOR our Institute in case of LCB and FOB rates in the case of ICB.

2.4 Bidder can quote the rates for all the instruments or some of the instruments. The Institute reserves the right to accept the tender in full or in part.

2.5 The tender is to be submitted in "single stage - 2 envelopes system" *i.e.*, the first sealed envelope will contain full information required to judge pre-qualification, earnest money, complete details and specification of the instruments offered including the leaflets and catalogues, list of credentials with documentary evidence *i.e.*, purchase/work order *etc.*, Income Tax clearance certificates, sales tax registrations No., Affidavit for not being black listed, Commercial Terms and conditions, *etc.* It shall be marked "Prequalifications, technical and commercial bid No. GBPI/14-15/03 due on 16.02.2015". Both the above envelopes must be separately sealed and shall be kept in one envelope bearing the address of Institute and superscribed with bold letter "Tender for 3D Sonic Anemometer and EC 150 with software, computer accessories NOT TO OPEN BEFORE 16.02.2015".

2.6 Technical and commercial part of the tender will be opened on due date *i.e.*, at 3:00 p.m. on 16.02.2015 in the office of the Institute in presence of the Representative of the tenderers who choose to be present. Sealed price part commercial bid of technically acceptable tenders will be opened on a later date which will be communicated by the Institute on the same day or on a later day by post.

2.7 The bidders are to deposit an amount as per schedule at Annexure - III depending upon the instruments quoted by them towards the "Earnest Money" (2.5 % of the total cost) along with tender in the form of **Bank Draft only** in favour of G.B. Pant Institute of Himalayan Environment and Development" Payable at Almora. No Earnest Money shall be accepted in any other form. The earnest money may be forfeited if a bidder withdraws its bid validity specified in tender document or fails to supply the instruments within specified period in tender document. **TENDER SHALL NOT BE ENTERTAINED where a tenderer has not furnished adequate earnest money in prescribed acceptable form.** In case the instrument delivered is found defective and not attended to by the supplier, the earnest money deposited by the supplier will also be forfeited.

2.8 The firm who seek exemption from depositing earnest money being small scale industry or being registered with DGS&D and other Government agencies which entitles them for exemption must submit the valid Registration certificate covering the instrument offered by them along with a permissible value. The copy of Government notification granting exemption from deposit of EMD must be submitted along with the first part of tender (technical bid) along with the bid.

2.9 The Earnest Money as indicated at Annexure - IV of bid document must be submitted by the bidder along with tender through the demand draft only in favour of G.B. Pant Institute of Himalayan Environment and Development, payable at Almora.

2.10 The earnest money of the unsuccessful bidder will be refunded without any interest after the concerned purchase is finalised or within three months whichever is earlier and that of successful bidder will be refunded without any interest within one month of the successful installation and commissioning of the instrument.

2.11 The validity of tender would be for a minimum period of 90 days from the date of opening of tenders. A bid valid for a shorter period may be rejected by the Institute as non responsive. In exceptional cases the Institute solicit the bidder's consent to an extension on the period of validity and the bid shall remain valid for the extended period mutually agreed for.

2.12 The rates should be quoted both in words and figures.

2.13 Arithmetical error will be rectified on the following basis: -

If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is discrepancy between words and figures, the amount in words will prevail.

2.14 Tenders not in proper sealed cover or received telegraphically or by fax will not be entertained.

2.15 Conditional tenders will be rejected without assigning any reason.

2.16 The bid shall be typed or written in indelible ink and shall be signed by the bidder or a person duly authorized to sign the contract. The letter of authorization should bear the signatures of only the authorized person of the firm. All pages of the bid, except for unamended printed literature shall be initialed by the person or persons signing the bid.

2.17 To assist in the examination, evaluation and comparison of bids the buyer may, at its discretion, ask the bidder for a clarification of its bid. However, no change in the price or substance of the bid shall be sought, offered, re-permitted.

2.18 Eventual suggestions for modification or subsidiary tenders are principally not admissible.

2.19 The specifications are clearly mentioned in the document and the bidders are requested to submit bid only if their offer strictly comply to these specifications. Please note that no deviation in the required specification will be permitted. The bidding for the

instruments having different specification will be on bidder's risk as the Institute will not entertain such bids. BIDS CARRING THE STATEMENT LIKE "SPECIFICATION AS PER TENDER DOCUMENT" SHALL NOT BE ENTERTAINED. THE PRODUCT SPECIFICATIONS SUPPORTED BY TECHNICAL LITERATURE AND LIST OF USERS, MUST BE ENCLOSED.

2.20 The placement of work order/purchase order will be according to technical evaluation of the tender and after consideration of its price worthiness.

2.21 The price to be given in the tender are fixed prices, irrespective of rise in materials prices and increase in taxes etc., till the delivery of the overall consignment. No request in regard to increase in the price of instruments or in taxes etc., will be entertained after the submission of the tender.

2.22 The nomenclature of the Instruments and spares will be invariably same in proforma invoice, invoice, packing list and in other relevant papers in case the bidder is asked to supply the instruments against his offer.

2.23 With the submission of his tender the bidder accepts the conditions of the tender.

2.24 If the Instrument/item , *etc.*, supplied is of specifications other than asked for in the supply order(s) it will have to be replaced at their risk and cost. No freight and other charges for export and re-shipment will be paid by the Institute.

2.25 The installation of the instrument(s)/items, *etc.*, is the entire responsibility of the supplier. It must be done either by the principal supplier or their authorised agents within one month of the receipt of the instruments by the Institute. The supplier of agent should be in touch with the Administrative Officer of the Institute to know the exact day of receipt of stores supplied/despatched by them.

2.26 The list of instruments/items, their approximate quantity and their detailed specifications are given at Annexure - V of this document. For all items the point of delivery is Kosi-Katarmal, Almora, Uttarakhand. The quantity mentioned in the tender document may be reduced or increased at the discretion of the competent authority in the Institute without assigning any reason.

2.27 Each and every folio of the tender must be signed by the bidder.

2.28 Bidder can quote the rates for all the instruments or some of the instruments. The bid shall be considered only for those instruments for which the rates have been specifically quoted. The Institute further reserves the right to accept the tender for all the instruments or some of the instruments for which the tenderer has quoted the bid.

2.29 The instrument for which tenders are invited will have to be supplied within 30 days for LCB and 90 days for ICB from the date of issue of supply order. In case of non-observance of delivery period of supply in accordance with the supply order the supplier has to pay default compensation at the rate of 0.5 per cent of the total value of order per concluded week of the default, but not exceeding 5 per cent of the total value of orders.

2.30 The after sales services is most important to be considered for comparison bids from firms who do not have Indian agents to provide after sales service & service during warranty period, will not be entertained.

2.31 In the case of imported instruments, the quotations from principals, will only be considered. The quotations if any received from Indian Agents on behalf of their principals, will not be considered. The agency commission will be paid in Indian Rupees. Therefore, the charges on account of agency commission should be clearly mentioned. In the case of indigenous instrument price should be quoted on FOR Institute (Kosi-Katarmal, Almora) basis and in the case of imported instruments the price should be quoted on FOB basis.

2.32 The foreign bidders must indicate the following information in their proforma invoice.

- a) Country of Origin
- b) Post of shipment
- c) Name & address of beneficiaries Bank with Account No.
- d) Minimum delivery period
- e) Whether transshipment/part shipment is required or not
- f) Agency commission, if any, payable to the Indian Agent

2.33 The items have to be supplied in standard packing. The foreign supplier should use the minimum possible packets and should reduce the size of the packing in volume to avoid extra demurrage in the bonded warehouse in India, if any.

2.34 In case of Foreign suppliers, they will have to ensure shipment of the consignment as per the validity of the Letter of Credit established in this regard. In case of extension of supply date is sought, the bank charges towards the amendment of L.C. will be borne by the beneficiary/supplier.

2.35 If the instrument supplied is found defective/unsatisfactory condition/short supply/other than specifications in the Purchase order(s), the same will have to be replaced at the suppliers risk & cost. No freight & other charges for export & reshipment will be paid by the Institute.

2.36 Foreign principals/their authorized Indian agent shall intimate the buyer regarding the shipment well in advance.

2.37 At any time prior to the deadline for submission of bids the buyer may for any reason whether at its own initiative or in response to a clarification requested by a prospective bidder modify the bidding document by an amendment.

2.38 The amendment if any, will be brought to the notice in writing or by fax or cable to all concerned bidders who have received the bidding documents and will be binding on them.

2.39 In order to afford prospective bidder reasonable time in which to take the amendment into account in preparing their bids, the buyer may at its discretion, extend the deadline for the submission of bids.

2.40 The prices must be quoted item wise *i.e.*, basic price, taxes, packing, forwarding, handling and transportation charges, insurance, installation charges, *etc.* The charges must be quoted clearly and not in vague terms like “As Actual,” “Approx,” *etc.*

2.41 If according to the bidder, the tendered documents contain certain unclear points which could influence price calculations, the bidder has to inform the authority who is issuing the call of tenders before submission of his tender, either in writing or by fax/cable, even if he has pointed out this earlier in any other form/reference.

2.42 The packing, forwarding, insurance and transportation charges must be quoted according to the place of delivery as mentioned in the schedule at Annexure - V. The supplier will be held liable for any damage, theft or loss during transit. The instruments are to be dispatched to the respective places directly and to be installed there by the supplier under intimation to the G. B. Pant Institute of Himalayan Environment and Development at Kosi-Katarmal, Almora.

2.43 The delivery of stores in case of foreign supply shall be taken at New Delhi. The price indicated should be on FOB basis. Please note that proforma invoice must be separate for each instrument/item.

2.44 Customs duty exemption certificate will be provided by the Institute on the request of supplier.

2.45 **MOST IMPORTANT**

PLEASE NOTE THAT ANNEXURE - I OF THIS DOCUMENT MUST BE ENCLOSED WITH THE FIRST PART OF BID *i.e.*, “TECHNICAL BID” AND ANNEXURE – II, III AND IV WILL BE KEPT IN THE SECOND PART OF BID *i.e.*, “PRICE BID”

2.46 PLEASE NOTE THAT THERE IS NO NEED TO ENCLOSE THE ENTIRE TENDER DOCUMENT (SUPPLIED BY THE INSTITUTE) WITH YOUR BID. ONLY ANNEXURE - I, II AND III NEED TO BE ENCLOSED AS PER INSTRUCTION STIPULATED IN PARA 2.45 AND OTHER RELEVANT PARAGRAPHS OF THIS BID.

3. PAYMENT CONDITIONS

3.1 Payment, 100% shall be released only after satisfactory installation of equipment. No advance payment shall be allowed in any case. The defective, substandard and contrary to the specifications of instruments/furnitures/items supplied have to be replaced by the supplier at their cost and responsibility. In the case of International Competitive Bidding, payment will be made by opening a Letter of Credit.

3.2 In case several bills are presented, against one order, the reference of supply order and other details should be mentioned in each and every bill.

4.0 SETTLEMENT OF DISPUTE, ARBITRATION

4.1 All disputes or difference arising out of or in connection with the contract and supply of any item/equipment assigned under the same (whether during the progress of the works or after their completion, determination, abandonment or breach of the contract) shall be referred to a team of three member arbitrators appointed by the Director, G. B. Pant Institute of Himalayan Environment and Development. The arbitrators shall elect an umpire among them. In case of conflicting findings by the arbitrators the decision of the umpire shall be final and binding. It will not be an objection to any such appointment that the arbitrators are the Government servants and had any interest in the Institute or the contract entered into directly or indirectly. In all cases, the arbitrator shall state their decision in writing if, amount of claim in dispute is Rs. 50, 000/- and above, subject as aforesaid the provision of the Arbitration Act, 1940 or any statutory modification or reenactment thereof and the rules made the tender and for the time being in force shall apply to the arbitration proceedings under this clause.

4.2 It is a term of the contract that the party invoking the arbitration shall specify the dispute or disputes to be referred to the arbitration under this clause together with the amount or amount claimed in respect of each such dispute.

4.3 It is also a term of the contract that if the supplier(s) do not make any demand for arbitration in respect of any claim(s) or dispute in writing within 90 days of submission of the final bill for payment, the claim of the supplier will be deemed to have been waived and absolutely barred and the Institute will be discharged and released of all liabilities under the contract in respect of these claims.

4.4 The courts at Almora shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.

5.0 FORCE MAJEURE

5.1 Vendor shall not be considered in default if delay in delivery occurs due to causes beyond his control such as acts of God, natural calamities, civil wars, strikes, fire, frost, floods, riots and acts of usurped power. Only those causes which have a duration of more than 7 calendar days shall be considered cause of force majeure. A notification to this effect duly certified by the local chamber of commerce/statutory authorities shall be given by the vendor to the Institute by registered letter. In the event of delay due to such cases a length of time equal to the period of force majeure or at the option of the Institute the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of Institute. In the event of such cancellation the vendor shall refund any amount advanced or period to the vendor by the Institute and deliver back any material issued to him by the Institute and release facilities, if any, provided by the Institute.

ANNEXURE I

APPLICATION FORM

(To be filled by the bidder)

- 1) Name and full address of the bidder including telegraphic address/fax no.
- 2) Name and designation of the head of the Firm/supplier and his telephone/fax no.
- 3) (i) In case the supplier is located out of the country his contact address/authorized distributor's or agent's address in the Country, if any

(ii) Name, designation, address, telephone numbers of the authorized person who may be contacted during the process of the purchase concerned under this document (applicable for all suppliers)
- 4) Whether earnest money deposited Yes/No
- 5) If yes, demand draft no., date and name of issuing bank
- 6) Validity of tender
- 7) If the tender conditions are accepted in full (reply in yes or no)
- 8) Income tax clearance certificate attached (latest) (reply in yes or no)

Place
Date

Legally binding
Signatures with stamp

Annexure - II

**Details showing quantity, specification and other details of the items offered
(to be filled by the bidder and must be kept in “price bid” part of the tender)**

Item code. as per our documents	Name of the item	Specification offered by the bidder	Difference in specification of tender document and that of bid, if any	Quantity required	Unit rate	Terms and other expenditure & insurance and freight (in case of foreign bid)	Total amount
1	2	3	4	5	6	7	8

Note: If this sheet is not sufficient to accommodate the bid additional sheets containing the same proforma may be used. But all such sheets, including this one must be signed by the bidder along with the seal. In case of foreign bidder this Annexure must be enclosed in the proforma invoice, instrument/item-wise.

ANNEXURE III

UNDERTAKING

To
The Director
G.B. Pant Institute of Himalayan Environment and Development
(Ministry of Environment, Forests and Climate Change, Government of India)
Kosi-Katarmal, Almora 263 643, Uttarakhand, India.

Date:

Sir,

Having examined the conditions of tender document and specifications of the various items, the receipt of which is hereby acknowledged. We the undersigned offer to supply, delivery and install the following:

- 1.
- 2.
- 3.

(Please add additional pages, if required)

The above supply, installation shall be in conformity with the specifications and conditions of supply of a sum of Rs. (US \$)

We undertake if our bid is accepted to deliver the items quoted by us, we shall deliver and install within a period indicated by us in our offer.

We agree to abide by this bid for a period of 90 days from the date fixed for bid opening and it shall remain binding upon us and may be accepted at any time before expiration of that period.

We are submitting a demand draft for Rs. /US \$
in favour of G.B. Pant Institute of Himalayan Environment and Development payable at Almora towards earnest money.

This bid, together with your written acceptance thereof in your notification of award shall constitute a bidding contract between us.

We understood that you are not bound to accept the lowest or any bid you may receive.

Dated this , day of 2015

Signature of authorized person
Name with stamp and full address

ANNEXURE IV

SCHEDULE OF EARNEST MONEY

Sl. No.	Name of the Instrument/ equipment	Qty	Amount of Earnest money in Indian Rupees
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TECHNICAL SPECIFICATION OF ADVANCED CO₂ & H₂O FLUX MONITORING STATION WITH DATA LOGGER AND OTHER METEOROLOGICAL INSTRUMENT

The CO₂ and H₂O flux monitoring system will consist of (i) Data Logger with possible remote connectivity, (ii) Fast Sensor: Infrared gas analyzer, 3D sonic anemometer and (ii) "Slow Meteorological Sensors". Detail specifications are as follows:

SPECIFICATION DATA COLLECTION PLATFORM (CR1000)

1. **Analog Channel:** Analog Data Inputs: 16 and Input range: The data logger should this input range: +5000mV, +2500mV, +250mV, +25mV, +7.5 mV, + 2.5 mV: 0 to 5 V DC.
2. **Digital Channel:** Frequency Type: 04 Channel, Counter Type: 02 Channel and the facility to convert counter channels to frequency channels & vice versa should be provided.
3. **SDI-12 Input:** 04 Channel
4. **Analog to Digital Conversion :** Resolution (13 Bit) or more
5. **Watchdog Timer:** The DCP should have watchdog timer to reset the system and restore the previous set-up in case of microprocessor resets and power glitch.
6. **Real Time Clock:** The normal time clock of the system should be derived from TCXO with accuracy of 1.0 ppm/yr. In addition, the system should also have battery even during power failure. The accuracy of this clock should be better than 10 seconds in six months period.
7. **RS 232 C- Port:** The DCP should have a free RS232-C port capable of having communication with external devices. Also, it should be possible to access the data logger through this port.
8. **Data Storage:** The system should have in-built facility to store about 20 lakh data records for minimum duration of one year in at least 4 MB memory. Vendors should provide 16 GB SD card for onsite data storage
9. **Ethernet/LAN port:** The system should have a facility to plug in Ethernet cable on data logger and to enable access of data logger over internet, using software for complete system control.
10. **Power Requirements:** 12 V switched DC with maximum current supplying capacity of 1.0A during measurement period for powering up the sensors. Short circuit and over load protection.

BATTERY & CHARGING SYSTEM

1. Vendors will provide Maintenance Free Lead Acid (VRLA) Battery of 12V/100 Amp-Hour. The solar powered battery should support uninterrupted power supply to all the instruments on a 24 hour basis.
2. The capacity of the Solar panel should be such that the battery can be charged within 2 days of proper sunlight.

ENVIRONMENTAL SPECIFICATIONS

1. The DCP, Antenna, Sensors, Cable, Connectors, Battery, Solar panel etc. should be able to operate at optimal efficiency and should withstand harsh environmental conditions (Temperature: -20°C to 50°C and rainfall > 100 mm/day)
2. The System should be sufficiently sealed to avoid ingress of dust, rain and moisture.

ENCLOSURE and MOUNTING

- 16" x 18" Enclosure suitable for data logger with a power supply and one or more peripherals.
- Non corrosive, white made of UV stabilized fiberglass.
- A 10 meter height of triangular tower with the self-supporting guy wired structure should be provided with the system.
- Individual mountings as required for each sensor should be provided with the system.

SUPPORT FROM THE VENDOR

1. Vendor should carry out complete integration, installation & commissioning of the Flux monitoring system including necessary civil work required for the system.
2. Demonstration and training on data downloading and other necessary functionalities of the system should be provided by the supplier for two people.
3. Vendor should ensure after sales support for the minimum period of 5 year from the date of commissioning of the system.

SPECIFICATION FOR FAST SENSORS (Infrared gas analyzer & 3D sonic anemometer) IRGASON:

General Specifications:

- Operating Temperature Range: -30° to +50°C
- Calibrated Pressure Range: 70 to 106 kPa
- Measurement Rate: 100 Hz
- Output Options: SDM, RS-485, USB, analog
- Auxiliary Inputs: air temperature and pressure

Infrared Gas Analyzer specifications:

CO₂:

- Precision RMS (maximum): 0.2 mg/m³ (0.15 mol/mol)
- Calibrated Range: 0 to 1000 mol/mol
- Zero Drift with Temperature (maximum): ±0.55 mg/m³/°C (±0.3 mol/mol/°C)
- Gain Drift with Temperature (maximum): ±0.1% of reading/°C
- Cross Sensitivity (maximum): ±1.1 x 10⁻⁴ mol CO₂ /mol H₂O

H₂O

- Precision RMS (maximum): 0.004 g/m³ (0.006 mmol/mol).
- Calibrated Range: 0 mmol/mol to 37°C dew point
- Zero Drift with Temperature (maximum): ±0.037 g/m³/°C (±0.05 mmol/mol/°C)
- Gain Drift with Temperature (maximum): ±0.3% of reading/°C
- Cross Sensitivity (maximum): ±0.1 mol H₂O/mol CO₂

Sonic Anemometer Specifications:

- Measurement Path; Vertical: 10.0 cm (3.9 in.); Horizontal: 5.8 cm (2.3 in.)
- Transducer Diameter: 0.64 cm (0.25 in.)
- Accuracy; Offset Error: ux, uy: <±8.0 cm s⁻¹; uz: <±4.0 cm s⁻¹
- Gain Error: Wind Vector within ±5° of horizontal: <±2% of reading o Wind Vector within ±10° of horizontal: <±3% of reading; Wind Vector within ±20° of horizontal: <±6% of reading
- Measurement Precision RMS Ux, Uy: 1 mm s⁻¹; Uz: 0.5 mm s⁻¹; Sonic Temperature: 0.025°C

Barometer Specifications:

- Total Accuracy: ±1.5 kPa (-30° to + 50°C)
- Measurement rate: 1-10 Hz

Ambient Temperature Specifications

- Total Accuracy: ±0.15°C (-30° to +50°C)

SPECIFICATIONS FOR OTHER METEOROLOGICAL SLOW SENSORS:

1. Air Temperature Sensor and Relative Humidity Sensor with Radiation shield: HC2S3

Air Temperature Sensor Details

- Type; PT100 RTD, IEC 751 1/3 Class B
- Range: -40°C to + 60°C
- Input Power Supply: 5 to 24 Vdc
- Output: 0 to 1 V (or compatible with data logger)

Relative Humidity Sensor Details

- Sensor Element: ROTRONIC® Hygromer IN-1
- Range: 0 to 100% RH
- Output Voltage; 0 to 1 Vdc
- Input Power Supply: 5 to 24 Vdc,
- Operating Temp Range: -40°C to +60°C

- An aspirated radiation shield should be provided with the system.

2. Net Radiation Sensor: NR-LITE2

- Sensor: Blackened thermopile
- Output Range: ± 25 mV
- Measurement Range: ± 2000 W m⁻²

3. Rain Guage Specifications: TE525-L

- Sensor Type: Tipping bucket/magnetic reed switch
- Material: Anodized aluminium
- Temperature: 0° to +50°C
- Resolution: 1 tip
- Funnel Collector Diameter: 15.4 cm (6.06 in)
- Height: 24.1 cm (9.5 in)
- Cable: 2-conductor shielded

CHECK LIST FOR THE BIDDER

- 1) Bid on original tender form only.
- 2) Earnest money or necessary documentary proof for exemption of earnest money with the part I of the bid.
- 3) Price bid must be Part II of the bid in the form provided at Annexure II of the tender document
- 4) The basic price, taxes, packing, forwarding, handling, transportation, insurance, installation charges, *etc.* must be quoted clearly. Do not use vague terms like “as actual, approximately, *etc.*”
- 5) Do not use the terms “as per specification of tender documents” in respect of instruments. There should be proper write up of product(s) quoted for supported with printed leaflets, literature, *etc.*