

REQUEST FOR QUOTATIONS

FOR

**Procurement of Weighing Type 3 Digital Lysimeter for
Determination of Crop Coefficient**

Ref No: IN-MAHAPOCRA-281996-GO-RFQ

**NANAJI DESHMUKH KRISHI SANJIVANI PRAKALP
(PROJECT ON CLIMATE RESILIENT AGRICULTURE)
GOVERNMENT OF MAHARASHTRA, MUMBAI**

Country: India

Issued on: 15/12/2022

Request for quotation for Procurement of Weighing Type 3 Digital Lysimeter for Determination of Crop Coefficient

Ref No: IN-MAHAPOCRA-281996-GO-RFQ

Dated:15/12/2022

Dear Sirs,

Maharashtra Project on Climate Resilient Agriculture (PoCRA) invites Request for Quotations (RFQ) for Procurement of Weighing Type Digital Lysimeter for Determination of Crop Coefficient as per the specifications given in the Table A.

The details are as follows;

Sr. No.	Brief Description Of the Goods	Speci-fications*	Quantity	Place of Delivery	Delivery Period	Installation Requirement if any
1	Weighing Type 3 Digital Lysimeter	As per attached table A	1	Department of Irrigation and Drainage Engineering, College of Agricultural Engineering and Technology, VNMKV, Parbhani 431402.	30 Days	Yes <i>Installation and Commissioning of digital lysimeters and Comprehensive AMC till June 2024 or 12 quarters whichever is earlier from installation & commissioning</i>
			1	Department of Irrigation and Drainage Engineering, College of Agricultural Engineering and Technology, Dr. PDKV, Akola 444104	30 Days	
			1	Center for Advanced Agriculture Science and Technology (CAAST) on Climate Smart Agriculture and Water Management (CSAWM), MPKV, Rahuri 413722.	30 Days	

1. Agriculture is the primary source of livelihood in the State. The state has 22.6 million ha of land under cultivation (gross cropped area) and area under forest is 5.21 million ha. About 84% of the total area under agriculture is rainfed and dependent only on the monsoon. One of the biggest challenges for the state is to pull farmers out of the current crises of high production cost and low profitability due to price fluctuation and lack of agri-business opportunities. The issues related to growing water scarcity, degrading land resources, high cost of cultivation, stagnant farm productivity, and the impacts of climate change need to be systematically addressed in order to achieve food and nutritional security. It is under this backdrop that the Government of Maharashtra, in partnership with the World Bank, has conceptualized the Project on Climate Resilient Agriculture (PoCRA) for selected villages in 15 districts of Maharashtra.
2. The Government of Maharashtra has received financing from the World Bank towards the cost of the Project on Climate Resilience Agriculture in Maharashtra (PoCRA), and intends to apply part of the proceeds for the eligible payments under the contract for which this RFQ is invited.
3. Project Director, PoCRA (Client) invites quotations from eligible bidders for supply, installation, commissioning and comprehensive maintenance contract of Weighing Type 3 Digital Lysimeters for Determination of Crop Coefficient, at locations as mentioned below:
 - a) Department of Irrigation and Drainage Engineering, College of Agricultural Engineering and Technology, VNMKV, Parbhani 431402.
 - b) Department of Irrigation and Drainage Engineering, College of Agricultural Engineering and Technology, Dr. PDKV, Akola 444104
 - c) Center for Advanced Agriculture Science and Technology (CAAST) on Climate Smart Agriculture and Water Management (CSAWM), MPKV, Rahuri 413722

4. Manufacturers / authorized dealers fulfilling the eligibility criteria are invited to submit most competitive quotation through e-procurement portal.
5. The duration of the contract is for the **remaining project period (i.e. 30 June 2024)** from the date of award which may be renewed on the basis of requirement, availability of fund, performance of the Supplier with mutual agreement between the client and the Supplier.
6. The RFQ document is available online and bids are to be submitted online through the e-tendering portal www.mahatenders.gov.in only. Bids submitted manually will not be accepted. The information is also available on project website mahapocra.gov.in
7. The bidders would be required to register in the web-site www.mahatenders.gov.in which is free of cost. For submission of the RFQ, the bidders are required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities. The bidders are requested to visit the “Bidders Manual Kit” and “Download” section of the portal for further assistance.
8. The bidders would be responsible for ensuring that any addenda available on the website is also downloaded and incorporated.

9. **Schedule of RFQ**

The schedule of submission of RFQ is as below:

- | | |
|---|--|
| (a) Price of bidding document (non-refundable) | : Rs. 4800/- (Net Banking through www.mahatenders.gov.in) |
| (b) Bid Security | : Rs. 80,000/- (Net Banking through www.mahatenders.gov.in) |
| (c) Date of commencement of sale of bidding document: | 15-12-2022 from 11.00 hours |
| (d) Last date and time for Submission of bids | : 04-01-2023; up to 15.00 hours |
| (e) Time and date of opening of bids - tech. part | : 04-01-2023 up to 16.00 hours |
| (g) Time and date of opening of bids - fin. part | : will be intimated online through e-procurement platform |

Note:

The ‘Technical Part’ of bids will be publicly opened online in the presence of the Bidders’ designated representatives and anyone who chooses to attend at the address Project on Climate Resilient Agriculture, 30 B, Arcade, World Trade Center, Cuffe Parade, Mumbai-400005 at the specified time and date for opening of bids, as given above, as mentioned in e-tender document and this could also be viewed by the bidders online. In the event of the date specified for bid opening being declared as a closed holiday for the purchaser’s office, the due date for opening of bids will be the following working day at the same time and venue.

The “Financial Part” shall remain unopened in the e-procurement system until the second public Bid opening for the financial part. Any bid or modifications to bid (including discount) received outside e-procurement system will not be considered. If the office happens to be closed on the date of opening of the bids as specified, the bids will be opened on the next working day at the same time. The electronic bidding system would not allow any late submission of bids.

10. **Submission of Bid:**

10.1a. **Technical Bid**

The bidder has to submit the following documents in the technical envelope through the online portal. Documents mentioned in 10.1b Sr. No 1 to 7 are mandatory. The details to be provided in Annexure II, II A, III & IV along with supporting documents. Failure to provide the above information will lead to bid being declared as non-responsiveness and will not be considered for evaluation.

10.1b. **Documents to be attached with the Tender:**

1. Copy of the valid registration of the agency (company/partnership/shop act etc.) as manufacturer
2. Copy of valid registration as authorized dealer if applicable. Must submit company’s authorization letter and company details as above on agency’s name.
3. Copy of the valid GST no. of the agency
4. Copy of the audited balance sheet for last three years along with ITRs
5. Copy of filed GST returns
6. Declaration by the Bidder

7. Attested Copies of supply / work orders from last three years in Government or Semi-government institutes / offices. Attested copies of in the last 5 years.
8. Annexure II, II A, III & IV along with supporting documents

10.1.2 The qualification criteria for technical bid:

1. The agency should be in existence and in operation of business from last 5 years.
2. The average turnover of the agency should be more than Rs. 25 lakhs in previous 3 financial years i.e. 2018-19 to 2020-21. The supplier should submit Financial Turnover Certificate in prescribed format attached by the Chartered Accountant or competent Authority.
3. The agency should have supplied, installed and satisfactorily commissioned at least 3 Digital Lysimeters in the last 5 years which must be in satisfactory operation for at least one year on the date of bid opening. The bidder, has provided after sales service for at least one Digital Lysimeters in any one of last 5 years.
4. The agency manufactures / supplies digital lysimeters as par or better than technical specifications given in Annexure II.

10.2. Financial Bid:

1. The bidder shall quote for all the items as mentioned in the Financial Quote format (Annexure 1) of tender otherwise it will be rejected.
2. All duties, taxes and other levies payable on the raw materials and components shall be included in the total price.
3. The quoted price should be exclusive of GST and other taxes. Those can be shown separately in price schedule.
4. GST and other applicable taxes in connection with the sale and or service as applicable shall be shown separately.
5. Rates mentioned in the schedule of price are fixed for the period of the contract. No revision in quoted rates on account of increase in spare costs, taxes etc. will be entertained.
6. The Prices shall be quoted in Indian Rupees only, in the prescribed format Annexure I enclosed.
7. Each Bidder shall submit only one quotation. Bidder shall not contact other Bidders in matters relating to this RFQ.

10.2.1 Evaluation criteria

The client will evaluate and compare the quotations determined to be substantially responsive i.e. which

- a. Are properly signed
- b. Confirm to the terms and conditions, and specifications.
- c. The Quotations would be evaluated for all the item together.
GST in connection with sale of goods shall not be taken into account in evaluation.

11. Validity of Quotation:

The Quotation shall remain valid for a period not less than **60 days** from the last date specified for submission of the tender.

12. TERMS & CONDITIONS:

12.1 Award of contract

- 12.1.1 The Purchase Order will be placed on the selected bidder(s) whose bid has been determined to be substantially responsive and who has offered the lowest evaluated bid price.
- 12.1.2 Any efforts by a bidder to influence the purchaser in its decision on bid evaluation or placement of purchase order may result in rejection of the bidder's offer.
- 12.1.3 The bids are liable to be rejected if any of the above conditions are not complied with.
- 12.1.4 The bidder whose bid is accepted will be notified of the award of contract by the purchaser prior to expiration of the validity period. The terms of the accepted offer shall be incorporated in the purchase order.
- 12.1.5 Notwithstanding the above, the purchaser reserves the right to accept or reject any tender and to cancel the bidding process and reject all tender at any time prior to award of purchase order without assigning any reason.
- 12.1.6 Any legal disputes arising out of this are subject to Mumbai jurisdiction.

12.1.7 Delivery Period: 30 days from the date of issue of this supply order for Installation and Commissioning of digital lysimeters.

12.2. Payment Terms and conditions.

Payment of goods:

12.2.1 Payment for Goods and Services supplied shall be made in INR within 15 days after delivery and successful installation and commissioning of the digital lysimeters (goods) and after submission of bills as mentioned below

a) On Delivery: Eighty (80) percent of the Goods cost out of Contract Price shall be paid on receipt of the Goods along with successful installation and acceptance certificate of concerned official at SAUs within minimum 30 days after submission of the documents.

b) On Acceptance: The remaining twenty (20) percent of the Goods cost out of Contract Price shall be paid to the Supplier within fifteen (15) days after the date of the acceptance certificate of successful calibration within 90 days from installation.

Payment of Related Services – Comprehensive Annual Maintenance (AMC)

Payment of Related Services – Comprehensive Annual Maintenance (AMC) for **remaining project period (* i.e. 30 June 2024)** after successful installation of goods will be on “quarterly payment” of comprehensive maintenance cost equally divided in 6 parts with final payment adjusted in the last quarter as defined in the contract price after the successful completion of each quarter period within 15 days after acceptance of satisfactory maintenance/repairs certificate. (the normal commercial warranty/guarantee of 12 months or as applicable shall also be subsumed while quoting Comprehensive maintenance cost till June 2024)

13.3. Other Conditions of the tender:

- The supplier has to provide services on call basis promptly and within 5 days if there is any requirement related calibration, error, repair or replacement of any part as may be required so as to ensure smooth working of the digital lysimeters supplied.
- Supplier has to provide technical information such as user manual, drawing and error message and its meaning etc.
- The supplier has to provide name, contact number and e-mail of authorized service provider / technician who is to be called in case of difficulty / service required. The call is to be attended in scheduled time limit otherwise delay if any will result in deduction of CMC charges @ 0.5% per day.
- Applicable taxes would be deducted at source.
- The client reserves the right to cancel the agreement at any time without assigning any reasons whatsoever, by serving seven days written notice. The client shall also be entitled to appoint any other person, firm or company at its discretion to perform the job entrusted to the Supplier after termination of the agreement.
- No advance will be provided.
- Supplier will be responsible for technicians lodging, boarding and any other expenses during the duty.
- The client will not be responsible or liable in case of any dispute arising between the Supplier and the technician(s) employed by the Supplier and no relationship of Employer and Employee shall come into existence between the Client and technician(s) for which all responsibilities shall vest with the Supplier alone.
- In case of any dispute arising out / relating to interpretation of terms and conditions or functioning of the Supplier vis-à-vis the client, the client shall be the sole authority to decide the arbitrator. The Supplier agrees to execute all documents, which may be required by the client in this regard.
- GST and other applicable taxes / charges if any will be paid at actual prevailing on the date of supply.
- There may be changes in quantities of Goods to be supplied within the range specified herewith. i.e. “The maximum percentage by which quantities may be decreased is: 25%

14. Performance Security: The Supplier shall, within 15 days of the notification of contract award, provide a performance security for the performance of the Contract. The proceeds of the

Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

The amount of the Performance Security shall be: **3% of Contract Price**, denominated in the currency (ies) of the Contract i.e. in INR. The Performance Security shall be in the form of the attached Demand Guarantee.

The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than Twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless specified otherwise.

You are requested to provide your offer latest by time and date specified above.

We look forward to receiving your quotations and thank you for your interest in this project.

Sd/-

Name: Parimal Singh, Project Director (PoCRA)

Address: Project on Climate Resilient Agriculture (PoCRA)

30 B, Arcade, World Trade Center, Cuffe Parade, Mumbai-400005

Telephone no: 022-22163351/2

Email-Id: procurement.pmu@mahapocra.gov.in

Table A: Detailed Technical Specifications and Standards**Lysimeter Size: 1.5 m X 1.5 m X 1.0 m.**

(Technical parameters should be at par or better than the specifications)

Item No.	Name of Goods or related service	Technical Specifications and Standards
A	Goods: Weighing Type Digital Lysimeter	
1	Inner Box	<ul style="list-style-type: none"> ➤ Size: 1.5 X 1.5 X 1.0 m ➤ Inner box should be made out of 2 mm thick corrosion resistant steel plates (grading 304 s.s.) with sufficient reinforcement. ➤ Inner box should be provided with the corrosion resistance steel screen of 2 mm thickness (grading 304 s.s.) of chicken type s.s mesh at about 10 cm from the bottom so as to have drain outlet below the screen bottom.
	Outer Box	<ul style="list-style-type: none"> ➤ The outer box should be made out of corrosion resistance steel plates (grading 304 s.s.). ➤ The outer box should be of sufficient size and capacity to mount overall weigh scale, load cell and other required things including the inner box. ➤ The spacing between inner and outer box should be in the range of 5 to 15 cm. ➤ The inner and outer boxes should be installed and made in such a way that the side walls of the boxes should not touch each other
2.	Weighing Indicator for Inner Tank	<ul style="list-style-type: none"> ➤ This weighing scale indicator should be of high precision type class II indicator. ➤ Weighing indicator of inner weighing scale should be of capacity up to 1000 kg with least count of 10 gm. ➤ This weighing indicator should be approved by Legal Department of Weights and Measure of Govt. of Maharashtra/ India with calibration certificate of this Department; stamping and verification done by Department of Weights and Measure of Maharashtra/ India.
3.	Collection of Drain Water	<ul style="list-style-type: none"> ➤ Drain water to be collected separately in a mild steel tank of sufficient size (minimum 500ltrs of capacity) and installed appropriately to collect drain water from lysimeter below ground surface. ➤ Drain water tank should be provided approximately at a depth of 1 to 2 m. There should be a provision to pump drained water out by providing the pump of 0.5hp capacity. ➤ Four load cells, each with minimum capacity of 1.5tones (however the load cells should be able to of sufficient minimum capacity to handle the maximum weight of fully saturated soil along with the weight of tank itself)
4.	Weighing Indicator for Drain Water	<ul style="list-style-type: none"> ➤ Outer type weighing scale capacity should be minimum 500 kg with least count of 10 gm for drain water.
5.	Weighing Scale Platform	<ul style="list-style-type: none"> ➤ The weighing scale platform should be with S.S. type (grade 202 s.s.) and heavy duty material. ➤ Platform scale size should be 1500 mm long x 1500 mm wide i.e. to accommodate the inner tank for its weighing ➤ Platform design should be single ended shear beam 4 number load cell type heavy duty model. ➤ All platforms should be corrosion free. ➤ This weighing scale platform should be with performance of lysimeter.
6.	Load Cell	Load cell should be of IP 67 grade and should be sealed against moisture ingress and electroless nickel plated for corrosion

Item No.	Name of Goods or related service	Technical Specifications and Standards																																										
		<p>resistance.</p> <p>Performance Specifications of Load Cell</p> <table border="1" data-bbox="584 286 1399 1227"> <tr> <td>Standard Capacities (Tf)</td> <td>1,1.5,2,2.5,3.5,7.5,10</td> </tr> <tr> <td>Excitation Voltage</td> <td>10 VDC, Maximum 15 VDC</td> </tr> <tr> <td>Nominal Output</td> <td>3.0mV/V</td> </tr> <tr> <td>Non-linearity</td> <td><±0.025% FSO (Full Scale Output)</td> </tr> <tr> <td>Hysteresis</td> <td>< ± 0.02% FSO</td> </tr> <tr> <td>Non-Repeatability</td> <td>< ± 0.01% FSO</td> </tr> <tr> <td>Creep (30 minutes)</td> <td>< ± .03% FSO</td> </tr> <tr> <td>Zero Balance</td> <td>± 1.0% FSO</td> </tr> <tr> <td>Input Resistance</td> <td>390 ± 3.5 Ohms</td> </tr> <tr> <td>Bridge Resistance</td> <td>350 ± 3.5 Ohms</td> </tr> <tr> <td>Insulation Resistance</td> <td>>1000 Mega Ohms at 50 VDC</td> </tr> <tr> <td>Safe Overload</td> <td>150% of rated capacity</td> </tr> <tr> <td>Ultimate Overload</td> <td>300% of rated capacity</td> </tr> <tr> <td>Allowable Side Load</td> <td>50% of rated capacity</td> </tr> <tr> <td>Side Load Discrimination</td> <td>500:1</td> </tr> <tr> <td>Temperature Compensated Range</td> <td>0-60⁰C</td> </tr> <tr> <td>Temperature Effect on Output</td> <td>< 0.0015 % FSO/⁰C</td> </tr> <tr> <td>Temperature Effect on Zero</td> <td>< 0.0020 % FSO/⁰C</td> </tr> <tr> <td>Deflection</td> <td>< 0.5 mm at FSO</td> </tr> <tr> <td>Finish and Construction</td> <td>30310: Electroless Nickel Plated Tool Steel 30310-SS: Hardenable Stainless Steel 17-4 PH</td> </tr> <tr> <td>Environmental Protection Class</td> <td>IP67</td> </tr> </table>	Standard Capacities (Tf)	1,1.5,2,2.5,3.5,7.5,10	Excitation Voltage	10 VDC, Maximum 15 VDC	Nominal Output	3.0mV/V	Non-linearity	<±0.025% FSO (Full Scale Output)	Hysteresis	< ± 0.02% FSO	Non-Repeatability	< ± 0.01% FSO	Creep (30 minutes)	< ± .03% FSO	Zero Balance	± 1.0% FSO	Input Resistance	390 ± 3.5 Ohms	Bridge Resistance	350 ± 3.5 Ohms	Insulation Resistance	>1000 Mega Ohms at 50 VDC	Safe Overload	150% of rated capacity	Ultimate Overload	300% of rated capacity	Allowable Side Load	50% of rated capacity	Side Load Discrimination	500:1	Temperature Compensated Range	0-60 ⁰ C	Temperature Effect on Output	< 0.0015 % FSO/ ⁰ C	Temperature Effect on Zero	< 0.0020 % FSO/ ⁰ C	Deflection	< 0.5 mm at FSO	Finish and Construction	30310: Electroless Nickel Plated Tool Steel 30310-SS: Hardenable Stainless Steel 17-4 PH	Environmental Protection Class	IP67
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7.	Transfer of Data/Communication	<ul style="list-style-type: none"> ➤ All weighing scale data of inner scale and drain scale should be able to be transferred via cloud server directly to desktop computer and android tabs. ➤ Sensors: Moisture sensors at different depths with an interval of 15 to 20 cm with data logger ➤ Temperature sensors at different depths with an interval of 15 to 20 cm with data logger ➤ Sensor data to be communicated and transferred via cloud server directly to desktop computer/android tab with a provision to set desired time interval (minimum time interval: 5 minute) 																																										
8	Control panel box.	<ul style="list-style-type: none"> ➤ S.S. Control panel box with I.P.-65 Grade and corrosion free material (S.S.202) size:- suitable as per other dimensions. ➤ 400 mm x 380 mm x 260 mm. 																																										
9	Installation	<ul style="list-style-type: none"> ➤ The lysimeter should be installed complete on site with successful testing of lysimeter and all the components of lysimeter with calibration. ➤ The pit of appropriate size should be taken ➤ While taking the pits for lysimeter, the soils should be removed/dug out from each 20 cm depth for inner tank (i.e. for the area of 1.5x1.5 m) and should be filled in to lysimeter at the same depth to maintain as for as possible the original soil profile. 																																										
10	Other	The lysimeter after installation should satisfy all other principles and requirements of the periodic measurement of the crop																																										

Item No.	Name of Goods or related service	Technical Specifications and Standards
		evapotranspiration
11	Transfer of data	Transfer of data from individual lysimeter by LORA device to LORA Gateway and from LORA Gateway to specified server (will be specified) by GPRS module or other standard means of communications/transfer.

Table (B) Comprehensive Annual Maintenance -Related Services and Completion Schedule

Service	Description of Service	Quantity Required	Physical Unit	Place where Services shall be performed	Completion Period of Services
1	<i>Installation and Commissioning of digital lysimeters</i>	1	No	Department of Irrigation and Drainage Engineering, College of Agricultural Engineering and Technology, VNMKV, Parbhani 431402.	7 days
		1	No	Department of Irrigation and Drainage Engineering, College of Agricultural Engineering and Technology, PDKV, Akola 444104.	7 days
		1	No	Center for Advanced Agriculture Science and Technology (CAAST) on Climate Smart Agriculture and Water Management (CSAWM), MPKV, Rahuri 413722	7 days
2	<i>Performance or supervision of the on-site assembly and/or start-up of the supplied Goods</i>	1	No	(as above)	7 days
3	<i>Furnishing of tools required for assembly and/or maintenance of the supplied Goods</i>	1	No	(as above)	7 days
4	<i>Furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods</i>	1	No	(as above)	7 days
5	<i>Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract</i>	1	No	(as above)	Comprehensive AMC till June 2024 or 12 quarters whichever is earlier from signing of contract (Inclusive of cost of all parts to be replaced/repared)

Service	Description of Service	Quantity Required	Physical Unit	Place where Services shall be performed	Completion Period of Services
6	<i>Training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance and/or repair of the supplied Goods</i>	1+1+1	No	Training of at least 2 persons per location on site in <i>assembly, start-up, operation, data capture & interpretation, maintenance and/or repair of the supplied Goods along with training manual at suppliers cost</i>	At the time of installation & operations on or before 10 days from installation

Annexure -I
FORMAT OF FINANCIAL QUOTE * (BoQ)

Sr. No.	Item Description of Goods	Quantity	Unit	Quoted Unit Rate (INR)	GST	Total Goods Price (Specifications as per Table A) (INR) (in Figures)	
						(without GST)	(with GST)
A	Weighing Type Digital Lysimeters as per Specifications in Table A, number and destinations specified in RFQ	3	No.				
	Total A						
B	Related Services – Comprehensive Annual Maintenance for remaining project period (i.e. 30 June 2024) from signing of contract of above mentioned digital lysimeters as specified in Table B	3	No.				
	Total B						
	Total Bid Price (A + B)						

Total Bid price (A + B) (without GST) in words:

GST at%: INR.....

Total Bid price (A + B) (with GST) in words:

Note: The evaluation will be done based on basis of Total Bid price (A + B) (without GST)

Annexure II

Details of Supply, Installation of Digital lysimeter or similar type of equipments in last 5 years

Year	Name of the Project and Address	Digital lysimeter				Work Order attached (Yes / No)
		Type of equipment (Digital lysimeter)	Number of equipment supplied & Installation (Number)	operational status as on Feb 2021 (Yes / No)	Is after sales service (AMC / CMC) provided (Yes / No)	
2017-18 to 2021-22						

Note: Please attach supporting documents

The bidder, if as authorized representative, has supplied, installed and satisfactorily commissioned and provided after sales service for at least 1 Digital Lysimeters in any one of the last 5 years which must be in satisfactory operation for at least one year on the date of bid opening. Must submit company's authorization letter and his as well as company's details as above.

Annexure II A

Technical Specifications and Standards of proposed supply of Digital Lysimeter Lysimeter Size: 1.5 m X 1.5 m X 1.0 m.

(Technical parameters should be at par or better than the specifications)

To be provided in Envelope 1 (Technical specifications)

“Do not mention financial quote here, else it will be rejected”

Item No.	Name of Goods or related service	Technical Specifications and Standards	Technical Specification and Standards of Proposed supply
A	Goods: Weighing Type Digital Lysimeter		
1	Inner Box	<ul style="list-style-type: none"> ➤ Size: 1.5 X 1.5 X 1.0 m ➤ Inner box should be made out of 2 mm thick corrosion resistant steel plates (grading 304 s.s.) with sufficient reinforcement. ➤ Inner box should be provided with the corrosion resistance steel screen of 2 mm thickness (grading 304 s.s.) of chicken type s.s mesh at about 10 cm from the bottom so as to have drain outlet below the screen bottom. 	
	Outer Box	<ul style="list-style-type: none"> ➤ The outer box should be made out of corrosion resistance steel plates (grading 304 s.s.). ➤ The outer box should be of sufficient size and capacity to mount overall weigh scale, load cell and other required things including the inner box. ➤ The spacing between inner and outer box should be in the range of 5 to 15 cm. ➤ The inner and outer boxes should be installed and made in such a way that the side walls of the boxes should not touch each other 	
2.	Weighing Indicator for Inner Tank	<ul style="list-style-type: none"> ➤ This weighing scale indicator should be of high precision type class II indicator. ➤ Weighing indicator of inner weighing scale should be of capacity up to 1000 kg with least count of 10 gm. ➤ This weighing indicator should be approved by Legal Department of Weights and Measure of Govt. of Maharashtra/ India with calibration certificate of this Department; stamping and verification done by Department of Weights and Measure of Maharashtra/ India. 	
3.	Collection of Drain Water	<ul style="list-style-type: none"> ➤ Drain water to be collected separately in a mild steel tank of sufficient size (minimum 500ltrs of capacity) and installed appropriately to collect drain water from lysimeter below ground surface. ➤ Drain water tank should be provided approximately at a depth of 1 to 2 m. There should be a provision to pump drained water out by providing the pump of 0.5hp capacity. ➤ Four load cells, each with minimum capacity of 1.5tones (however the load cells should be able to of sufficient minimum capacity to handle the maximum weight of fully saturated soil along with the weight of tank itself) 	

Item No.	Name of Goods or related service	Technical Specifications and Standards	Technical Specification and Standards of Proposed supply																																										
4.	Weighing Indicator for Drain Water	➤ Outer type weighing scale capacity should be minimum 500 kg with least count of 10 gm for drain water.																																											
5.	Weighing Scale Platform	<ul style="list-style-type: none"> ➤ The weighing scale platform should be with S.S. type (grade 202 s.s.) and heavy duty material. ➤ Platform scale size should be 1500 mm long x 1500 mm wide i.e. to accommodate the inner tank for its weighing ➤ Platform design should be single ended shear beam 4 number load cell type heavy duty model. ➤ All platforms should be corrosion free. ➤ This weighing scale platform should be with performance of lysimeter. 																																											
6.	Load Cell	<p>Load cell should be of IP 67 grade and should be sealed against moisture ingress and electroless nickel plated for corrosion resistance.</p> <p>Performance Specifications of Load Cell</p> <table border="1" data-bbox="496 860 1161 1800"> <tr> <td>Rated Capacities (Tf)</td> <td>1,1.5,2,2.5,3.5,7.5,10</td> </tr> <tr> <td>Excitation Voltage</td> <td>10 VDC, Maximum 15 VDC</td> </tr> <tr> <td>Rated Output</td> <td>3.0mV/V</td> </tr> <tr> <td>Linearity</td> <td><±0.025% FSO (Full Scale Output)</td> </tr> <tr> <td>Hysteresis</td> <td>< ± 0.02% FSO</td> </tr> <tr> <td>Repeatability</td> <td>< ± 0.01% FSO</td> </tr> <tr> <td>Stability (30 minutes)</td> <td>< ± .03% FSO</td> </tr> <tr> <td>Balance</td> <td>± 1.0% FSO</td> </tr> <tr> <td>Resistance</td> <td>390 ± 3.5 Ohms</td> </tr> <tr> <td>Excitation Resistance</td> <td>350 ± 3.5 Ohms</td> </tr> <tr> <td>Insulation Resistance</td> <td>>1000 Mega Ohms at 50 VDC</td> </tr> <tr> <td>Overload</td> <td>150% of rated capacity</td> </tr> <tr> <td>Shock Overload</td> <td>300% of rated capacity</td> </tr> <tr> <td>Variable Side Load</td> <td>50% of rated capacity</td> </tr> <tr> <td>Load Discrimination</td> <td>500:1</td> </tr> <tr> <td>Temperature Compensated</td> <td>0-60⁰C</td> </tr> <tr> <td>Temperature Effect on Output</td> <td>< 0.0015 % FSO/⁰C</td> </tr> <tr> <td>Temperature Effect on Zero</td> <td>< 0.0020 % FSO/⁰C</td> </tr> <tr> <td>Creep</td> <td>< 0.5 mm at FSO</td> </tr> <tr> <td>Material and Construction</td> <td>30310: Electroless Nickel Plated Tool Steel 30310-SS: Hardenable Stainless Steel 17-4 PH</td> </tr> <tr> <td>Environmental Protection</td> <td>IP67</td> </tr> </table>	Rated Capacities (Tf)	1,1.5,2,2.5,3.5,7.5,10	Excitation Voltage	10 VDC, Maximum 15 VDC	Rated Output	3.0mV/V	Linearity	<±0.025% FSO (Full Scale Output)	Hysteresis	< ± 0.02% FSO	Repeatability	< ± 0.01% FSO	Stability (30 minutes)	< ± .03% FSO	Balance	± 1.0% FSO	Resistance	390 ± 3.5 Ohms	Excitation Resistance	350 ± 3.5 Ohms	Insulation Resistance	>1000 Mega Ohms at 50 VDC	Overload	150% of rated capacity	Shock Overload	300% of rated capacity	Variable Side Load	50% of rated capacity	Load Discrimination	500:1	Temperature Compensated	0-60 ⁰ C	Temperature Effect on Output	< 0.0015 % FSO/ ⁰ C	Temperature Effect on Zero	< 0.0020 % FSO/ ⁰ C	Creep	< 0.5 mm at FSO	Material and Construction	30310: Electroless Nickel Plated Tool Steel 30310-SS: Hardenable Stainless Steel 17-4 PH	Environmental Protection	IP67	
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7.	Transfer of Data/Communication	<ul style="list-style-type: none"> ➤ All weighing scale data of inner scale and drain scale should be able to be transferred via cloud server directly to desktop computer and android tabs. ➤ Sensors: Moisture sensors at different depths with an interval of 15 to 20 cm with data logger ➤ Temperature sensors at different depths with an 																																											

Item No.	Name of Goods or related service	Technical Specifications and Standards	Technical Specification and Standards of Proposed supply
		interval of 15 to 20 cm with data logger ➤ Sensor data to be communicated and transferred via cloud server directly to desktop computer/android tab with a provision to set desired time interval (minimum time interval: 5 minute)	
8	Control panel box.	➤ S.S. Control panel box with I.P.-65 Grade and corrosion free material (S.S.202) size:- suitable as per other dimensions. ➤ 400 mm x 380 mm x 260 mm.	
9	Installation	➤ The lysimeter should be installed complete on site with successful testing of lysimeter and all the components of lysimeter with calibration. ➤ The pit of appropriate size should be taken ➤ While taking the pits for lysimeter, the soils should be removed/dug out from each 20 cm depth for inner tank (i.e. for the area of 1.5x1.5 m) and should be filled in to lysimeter at the same depth to maintain as far as possible the original soil profile.	
10	Other	The lysimeter after installation should satisfy all other principles and requirements of the periodic measurement of the crop evapotranspiration	
11	Transfer of data	Transfer of data from individual lysimeter by LORA device to LORA Gateway and from LORA Gateway to specified server (will be specified) by GPRS module or other standard means of communications/transfer.	

ANNEXURE – III
DETAILS of Supplier (Manufacturer / Authorized Agency)

Sr.	Particulars	Details
1	Name of the Supplier (Manufacturer / Authorized Agency)	
2	valid registration number and Date of incorporation / formation of the agency (company/ partnership/ shop act etc.) as manufacturer	
3	Valid registration number and date as authorized dealer if applicable. (Must submit company's authorization letter and company details as above on agency's name)	
4	Address (incl. Tel Phone)	
5	PAN of the Firm	
6	i) GST registration No. & ii) filed copies GST returns for last 3 years	
7	e-mail	
8	Whether there any court cases/arbitration/any other legal case against the Firm (If yes, please provide details separately)	
9	Number of Service provider / technicians to provide after sales services (In Maharashtra)	

Note: Please attach supporting documents

Annexure IV – Format of Turnover Certificate

(To be issued in the Letter Head of CA Firm)

This is to certify that the following particular of M/s _____ are true and correct as per the information and explanation provided to us and to the best of our knowledge and belief.

Year	Annual Turnover (Rs. In lac) (at least 25 lac in last 3 years)	Business Annual Turnover (Rs. In lac)
2019-20		
2020-21		
2021-22		
Total		
Average		

Place:
Date:

Signature
Name and Regn No. of CA Firm

Annexure-V
Declaration by the Bidder:

Ref.: RFQ No. Dated: / /2022

R/Sir,

It is hereby declared that I the undersigned, have read and examined all the terms and condition etc. of the RFQ document for which I have signed and submitted the bid under proper lawful Power of Attorney. It is also certified that all terms and conditions of the RFQ document are fully acceptable to me and I will abide by the conditions of the terms and conditions and I will be liable to technician's credibility.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery or collusive agreements with competitors.

Authorized Signature

Stamp and Seal

Name of the Manufacturer/Authorized Agency:

If Agency (Name of the Manufacturer) :

Address:

Tel No :

Designation:

(to be supplied on Award of Contract)
Performance Security
(Bank Guarantee)

[The bank, as requested by the Supplier, shall fill in this form in accordance with the instructions indicated]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Purchaser]*

Date: *[Insert date of issue]*

Performance Guarantee No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

Contract No.: *[insert Purchaser's reference for the specific Contract]*

We have been informed that _ *[insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into a Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the supply of _ *[insert name of contract and brief description of Goods and Related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (____) *[insert amount in words]*,¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2..., and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

[signature(s)]