



**Indian Institute of Technology Kanpur**  
**National Aerosol Facility**

# **TENDER DOCUMENT FOR**

**Deployment and maintenance of Sensor  
Ambient Air Quality Monitors (SAAQM) at  
designated locations in Uttar Pradesh and  
Bihar  
'To support the Rural AQ Monitoring project'**

*Reference No.: IITK/NAF/TENDER/2022-23/01*

*Opening Date: 09/12/2022*

*Closing Date: 20/12/2022*



## TENDERDOCUMENT

Sealed quotations are invited for **Installation and maintenance of Sensor Ambient Air Quality Monitors (SAAQM) at designated locations of Uttar Pradesh and Bihar, India ‘To support the rural AQM project of IIT-Kanpur’,** in two bid system i.e. Technical bid & Financial bid.

Both Technical bid and Financial bid in separate envelopes must be kept in a big envelope which must be superscribed by **Name of Tender, Tender Reference number and bid submission end date**. Only Technically qualified bidders will be eligible for opening of financial bid.

The detailed specifications and address for bid submission is given below:

Name of Work	Installation and maintenance of SAAQM at designated locations of Uttar Pradesh and Bihar, India under the project run by IIT Kanpur to support rural AQM
<b>Date of Publishing</b>	09/12/2022 (3:00 PM)
Clarification Start Date and Time	09/12/2022 (3:00 PM)
Clarification End Date and Time	19/12/2022 (5:00 PM)
Pre submission Meeting Date and Time	16/12/2022 (upto 5:00 PM)
Queries (if any)	No queries will be entertained after clarification end date and time
<b>Tender Submission Start Date</b>	09/12/2022 (3:00 PM)
Last Date and time of <b>submitting</b> , EMD (Earnest money deposit).	NA
<b>Tender submission End Date</b>	20/12/2022 (5:00 PM)
Date and time of opening of tender	21/12/2022 (3:00 PM)

### 1. General statement of objectives and brief description of the project:

The criteria for identifying the non-attainment cities under National Clean Air Programme (NCAP) was based on the PM<sub>10</sub> levels monitored using manual monitoring technology. One of the limitations of the criteria set was that this ended up excluding the rural districts of India which did not have continuous PM<sub>2.5</sub> and PM<sub>10</sub> air quality monitoring. The project "To Support the Rural Air Quality Monitoring" is to set up 1380 scientifically validated real-time air quality monitoring network devices which will provide unprecedented insights into the air quality conditions of rural India.

### 2. Purpose and service outcomes of the assignment:

1. Evaluate the difference between rural and urban air quality at scale.
2. Understand if the rural air quality trend is improving, constant or deteriorating in 2 years of operation across the network.
3. Help demarcate rural regions to understand how much rural pollution can be attributed to local sources vs nearby urban clusters. Identify patches which are not fully urban or fully



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rural. Differences between local and urban/nearby sources can be separated using temporal data as local sources will have greater variances vs than from urban sources.

4. Enable awareness and education programs for rural areas. Giving information to citizens to sensitize them to local air quality sources and the effect on their health.
5. Policy development for rural air quality management and interventions: This information will be made available to respective state governments as well as local panchayats for policy development and action.

The complete Instrumentation System will be installed as per the design provided by IIT Kanpur. The sensors data will be acquired by dedicated data acquisition systems of internationally reputed make and hosted in fast reliable server (connected to internet) at site.

**3. Scope of work:**

The prospective service providers shall comply with the requirements specified/provided in the various sections of this tender document and as per specifications needed by IIT Kanpur.

<b>Tentative Timeline</b>	<b>Bihar &amp; UP</b>
Start: April 2023	contract for 25 months

S. No.	Activity	Time (Months)
1	Installation of Sensors	5 (1 <sup>st</sup> April- 31 <sup>st</sup> August, 2023)
2	Maintenance of the Sensors	24 ( 1 <sup>st</sup> May 2023- 31 <sup>th</sup> May 2025)

**The scope of this assignment will thus be as follows:**

**a. Deployment & payment schedule:**

List of locations for installation will be provided by IIT-Kanpur, 10 days prior to handover of each batch. The agency has to collect all SAAQM from IIT Kanpur in batches.

Timeline	Sensor Deployed (Number of sensors)	Payment schedule
1 <sup>st</sup> April to 30 <sup>th</sup> April 2023	270	10 %
1 <sup>st</sup> May to 31 <sup>st</sup> May 2023	270	10 %
1 <sup>st</sup> June to 30 <sup>th</sup> June 2023	270	10%
1 <sup>st</sup> July to 31 <sup>st</sup> July 2023	270	10%
1 <sup>st</sup> Aug to 31 <sup>st</sup> August 2023	300	15%
<b>Total Sensors to be deployed</b>	<b>1380</b>	

\*Incase there are delays at the start, the entire calendar will shift laterally.

An installation report in IIT-Kanpur prescribed format should be submitted by the service provider post-installation of each device.



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Example deployment strategy:

<b>Timeline</b>	<b>Deployment (Sensors)</b>	<b>Man Months</b>	<b>Per State</b>
Apr, 2023	200	4	3
May, 2023	200	4	3
Jun, 2023	300	6	4
Jul, 2023	300	6	4
Aug, 2023	380	7.6	4.8
	1380	27.6	18.8

**b. Maintenance & payment schedule:** The total number of visits, post deployment as part of maintenance work, should not be less than 3 for the whole project period. This will entail work such as replacement of any damaged or missing sensors/ equipment, wires and cables.

<b>Maintenance</b>	<b>Total</b>
Number of visits per year	<b>3</b>
No of devices	<b>1380</b>
total visits/year	<b>4140</b>

Payment schedule:

- (i) End of year-1 (30 April 2024): 20%
- (ii) End of year-2 (30 April 2025): 25%

A service report in IIT-Kanpur prescribed format should be submitted by the service provider after every site visit.

**4. Expected minimum requirement of expertise with the agency:**

a. The agency should have expertise in dealing with technical and scientific instrumentation for Government and other reputed organizations.

b. The agency is required to submit a consolidated list and supporting project completion certificates/work orders issued from the Government and other reputed organizations they have worked with on similar assignments.

c. The agency is also required to submit a resource (manpower) mobilisation plan per terms under sections 3 and 5.

**5. Details of technical work involved:**

- Installation of IoT-sensor based Air Quality Monitors in Outdoor locations
- Ensuring Electrical power supply is available at site of installation
- Installation of Solar Panels which are included with the IoT-based Air Quality Monitors
- Maintenance and replacement of internal device components like battery & sensor
- Verifying cellular network connectivity (Airtel/Jio signal strength) at installation site
- Assisting remote technical support team to debug device issues – by taking device videos & log files and sending over WhatsApp, Email, etc.
- Shipping devices requiring repair to relevant vendor and receiving and installing replacement device.



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Service Level Agreement

- Turn around time for any online email/phone message is 3hrs.
- Any site which is not sending data to server must be visited within 3 days of reporting loss of data and necessary action to be taken in partnership with vendor.
- Replacement device must be installed within 3 days of being received.

**6. Schedule of deliverables and period of performance:**

Same as 3

**7. Institutional and organisational arrangement:**

The agency should be an established one with at least 5 years of experience in equipment installation and servicing, having local presence in the specified states for at least 5years.

**8. Procedure for review of the work of the agency after award of contract:**

The agency should update the work progress every week during the installation, or as required by IITK.

**9. Contact Information:**

Prof. S. N. Tripathi  
Coordinator  
National Aerosol Facility (NAF)  
Engineering Science Building 1 (ESB-1)  
Indian Institute of Technology Kanpur,  
Kanpur – 208016, Uttar Pradesh, India  
Tel: 0512-2597274; email: tsaud@iitk.ac.in

**No telephonic queries will be entertained. Only written or email queries will be entertained.**

Applicants will submit their applications with all relevant enclosures in sealed cover clearly marked "**Tender for Installation and Maintenance of Sensor Ambient Air Quality Monitors**", so as to reach **Prof. S. N. Tripathi, National Aerosol Facility, IIT Kanpur, UP – 208016**, on or before **5:00 PM on December 20, 2022**; at the above address. Both Technical bid and Financial bid in separate envelopes must be kept in a big envelope. Any delay on account of courier/post etc. shall not be entertained by the Institute.

**10. HOW TO APPLY**

The documents as listed below (but not limited to) should be submitted in two respective sealed envelopes, clearly marked on the envelope its contents, as given below.

**Enclosures**

- a) Covering letter as well as Authority letter
- b) Affidavit for registration of firm/company a
- c) An undertaking of not being black listed
- d) Organization structure
- e) Details of In-house services
- f) Details of Associates/ Consultants
- g) Brief bio-Data of Key professionals



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- h) The copies of valid registration/incorporation certificate of the firm(s) along with the copies of relevant documents.
- i) The document establishing that the applicant has a work experience of at least **five (5)** years in the related field.
- j) The applicant should attach a consolidated list and work experience certificates/work orders as per the requirement of minimum qualification criteria.
- k) The applicant should attach resource (manpower) mobilisation plan.
- l) Copy of the audited balance sheet for the last three (3) financial years starting 2020– 2022.
- m) Income tax returns of last three (3) financial years i.e. 2020 – 2022 certified by a chartered accountant.

### **10. Please note:**

10.1 Incorrect, incomplete, inadequate information may lead to rejection of the application. Canvassing in any form may lead to summary rejection of application.

10.2 Applicants shall submit self-attested copies of certificates, work orders, appointment letters, agreements, references etc. as proof of eligibility.

10.3 IIT Kanpur reserves the right to reject any application without disclosing the reasons.

10.4 IIT Kanpur also will not provide any explanation to the applicants related to the short listing and selection process. The decision of IIT Kanpur in this respect shall be final and binding on all applicants.

### **11. Validity of Tender**

The Tender shall be valid for 60 days from the date of submission.

**12 Pre-Bid Meeting:** A pre-bid meeting shall be held on **16 December, 2022; upto 5:00 PM** in the Conference Room, National Aerosol Facility, IIT Kanpur.

### **13 Opening of Tender**

The tender document will be opened on **December 21, 2022 at 3:00 PM** in the presence of the representatives of the applicant, carrying authorization letter for the purpose. A maximum of two representatives will be allowed to attend.

## **14 ELIGIBILITY CRITERIA**

### **14.1 Technical criteria**

(a) The applicant should be an organization engaged in the related field of work. A minimum of **5 years** of experience is mandatory.

(b) The applicant must have completed a similar nature work as per the defined scope of work mentioned during the last 5 years ending March 2022.

(c) Experience in Handling Sophisticated Equipment/Sensors

(d) Experience in installing solar panels.

(e) The agency is able to submit project completion certificates issued from the Government and other reputed organizations they have worked with for projects involving deployment and maintenance of sensors/solar panels/similar equipment. They must also be able to share references of 2 personnel they worked with.



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(f) The vendors should submit the resume and certificates of the people they will be assigning in the project and they should be 12<sup>th</sup> pass.

#### **14.2 Financial criteria**

(a) The applicant must be a profit-making organisation continuously for last three years ending March 2022.

(b) The applicant must have an average annual turnover of Rs 50 Lakh in the previous 3 years ending March 2022.

(c) The Financial Proposal should be inclusive of all applicable taxes, duties, fees, levies, and other charges imposed under the applicable laws.

(d) The applicant must have done prior work more than or equal to 30 Lakh

**14.3** The applicant who is barred or black listed by any Central/State Government in India will not be eligible for qualification.

**14.4** Even though an applicant may satisfy the above requirements, he/she would be liable to disqualification if he/she has:

i. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the prequalification document.

ii. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.

**14.5** **The institute reserves the right to shortlisting of the agencies, subject to thorough verification of their credential and inspection of similar nature works carried out / in progress by them, through a Technical Committee of experts to be constituted by IIT Kanpur. Weightage will be given for 50% for technical and 50 % for financial criteria.** Each point in the technical as well as financial criteria will carry 10 marks each.

14.6 Persons who are individually or institutionally, in any manner, involved with the selection/ screening process of the tender and employees of IIT Kanpur, are ineligible for applying.

14.7 Joint venture will not be permitted in this tender.

14.8 In case of partnership firm, the work experience, turn over and solvency shall be in the name of partnership firm only.

#### **15 Special terms & conditions**

**1.** For expression of interest, Acceptance letter and Annexures shall be duly filled by the BIDDER(s).



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2. Bidder should note that this is Techno Commercial Tender to enlist interested parties and prepare them for future tendering process. Bidder should be sure that it is not the tender/request for proposal invitation.
3. All the pages of the Documents submitted by bidder shall be signed by the permanent Employee/executives/Directors/managers etc., with name, Designation & seal of the Bidder Company on each page.
4. The intending bidder must read the Techno Commercial Tender and conditions carefully.
5. Bidders should only submit his expression of interest, if they consider themselves eligible in possession of all the documents required in Techno Commercial Tender.
6. Successful contractor must provide future maintenance and services & support with annual maintenance for a period of minimum 2 years. Bidder should point out all the relevant critical issues that they will be addressing while establishing this facility.
7. A scoring system for selected parameters will be used for comparative technical evaluation. The bidders will have to achieve a minimum score determined by IIT Kanpur.
8. Bidder will get all benefits under Rule 153 GFR-2017.
9. As per the Ministry of Commerce and Industry Order No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 preference shall be given to Make in India products for which it is mandatory for bidders to declare Country of Origin of goods and percentage of Local contents in the product.

### **Definitions:**

“Local Content” means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

“Class-I local supplier” means a supplier or service provider, whose goods, services or works offered for procurement, has local content to or more than 50%, as defined under this order.

“Class-II local supplier” means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this order.

“Margin of purchase preference” means the maximum extent to which the price quoted by a Class-I local supplier may be above the L1 for the purpose of purchase preference. (shall be 20%)

### **Purchase Preference:**





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- (a) Subject to the provisions of this Order and to any specific instructions issued by the Nodal Ministry or in pursuance of this Order, purchase preference shall be given to 'Class-I local supplier' in procurements undertaken by procuring entities in the manner specified here under.
- (b) In the procurements of goods or works, which are covered by para 3(b) above and which are divisible in nature, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:
- i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class local supplier', the contract for full quantity will be awarded to L1.
  - ii. If L1 bid is not a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such 'Class-I local supplier' subject to matching the L1 price. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L1 bidder.
- (c) In the procurements of goods or works, which are covered by para 3(b) above and which are not divisible in nature, and in procurement of services where the bid is evaluated on price alone, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:
- i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract will be awarded to L1.
  - ii. If L1 is not 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier', will be invited to match the L1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price.
  - iii. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the 'Class-I local supplier' within the margin of purchase preference matches the L1 price, the contract may be awarded to the L1 bidder.
- (d) "Class-II local supplier" will not get purchase preference in any procurement, undertaken by procuring entities.



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**ACCEPTANCE LETTER AND ANNEXURES**



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**TENDER ACCEPTANCE LETTER**

*(To be submitted on APPLICANT's Letter Head but letter head is not required if applying as individual.)*

**Tender No.**

**Date:**

To,  
Prof. S.N. Tripathi  
National Aerosol Facility  
Indian Institute of Technology Kanpur,  
Kanpur – 208016, Uttar Pradesh, India

Dear Sir,

**Sub:** Tender is invited from the parties for 'Installation and Maintenance of Sensor Ambient Air Quality Monitors at designated locations of Uttar Pradesh and Bihar, India, 'To support rural AQM project' of IIT-Kanpur.

We, the undersigned, express our interest for the subject tender and declare the following:

- (a) We are duly authorized to represent and act on behalf of \_\_\_\_\_ (name of the firm).
- (b) We have examined and have no reservations to the Tender document including Amendment No(s) & Clarification No(s) \_\_\_\_\_ (if any).
- (c) With reference to your invitation for Tender dated \_\_\_\_\_ required details as per the prescribed Annexures.
- (d) We hereby express our willingness to participate in RFP/ forthcoming tender as and when IIT Kanpur invite the same.
- (e) IIT Kanpur and /or its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents and information submitted in connection with this application and to seek clarifications from our bankers and clients.
- (f) This application will also serve as authorization to seek/request information as deemed necessary from any individual or authorized representative of any institution referred in the supporting document provided by Bidder.
- (g) IIT Kanpur and /or its authorized representatives may contact the following nodal persons for further information on any aspects of the application.

<b>Name and designation of contact Person</b>	<b>Address for Communication</b>	<b>Telephone No</b>	<b>Email ID</b>

(h) This application is made in the full understanding that:

**1.** Through this tender, IIT Kanpur intends to identify interested and capable parties to Installation and maintenance of atmospheric pollutant measurement sensors at various locations of Uttar Pradesh and Bihar, India by IIT Kanpur to support rural AQM'. This tender is not intended for empanelment of BIDDER or pre-qualification of BIDDER.



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2. Tender process will be subject to verification of all information submitted at the discretion of IIT Kanpur.
3. IIT Kanpur reserves the right to reject or accept any or all applications, cancel/withdraw the Tender process without assigning any reason whatsoever and in such case, BIDDER shall not have any claim arising out of such action and security deposit shall be refunded.
  - (i) We declare that we have read and abide by the provisions of Fraud Prevention Policy of IIT Kanpur and submit the form of Acceptance of Fraud Prevention Policy duly filled as per IIT Kanpur's format.
  - (j) The undersigned declare that the statements made and the information provided in the duly completed application are complete, true and correct in every detail.

SIGNATURE (AUTHORISED SIGNATORY)  
(OFFICE STAMP)



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**ANNEXURE-1**

(FORM FOR ACCEPTANCE OF FRAUD PREVENTION POLICY)

We have read the contents of Fraud Prevention Policy of IIT Kanpur displayed for the Techno Commercial Tender published on website and undertake that we shall strictly abide by the provisions of Fraud Prevention Policy of Indian Institute of Technology Kanpur.

SIGNATURE (AUTHORISED SIGNATORY)

(OFFICE STAMP)

DATE: \_\_\_\_\_ NAME: \_\_\_\_\_ DESIGNATION: \_\_\_\_\_

PLACE \_\_\_\_\_



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**ANNEXURE-2**  
**(ANY OTHER INFORMATION)**

If BIDDER desires to share any other additional Information relevant to the work / assignment like brochure, future plan or any suggestion, it may be given in this Annexure.



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### ANNEXURE-3

#### FAQs

**1. Who will provide AQ meters, solar panels and other accessories which required for installation?**

Ans: Indian Institute of Technology Kanpur will provide all devices as well as accessories.

**2. What is the supply voltage of AQ meters?**

Airveda: Supply Voltage - 110-240V.

Respirer Living Sciences: Atmos devices use a power adaptor with rating 5VDC @2Amp

**3. Who will provide the batteries?**

Ans: Usually all the accessories including batteries, wire/cables are pre-installed within the device.

**4. Who will provide the wires/cables required?**

Ans: These are provided with the device

**5. Who will provide the shelter for AQ meters?**

Ans: Airveda: The devices will be located in Government offices like Panchayats, schools etc.. They will be wall mounted. These are water proof devices so shelter not needed.

Respirer Living Sciences: The devices use an IP65 enclosure but to provide additional protection to airvents it must be prevented from exposure to direct impact of environmental factors like rain.

**6. Where to install AQ meters/solar panels?**

Ans: They will be wall mounted. Solar panels require direct sunlight. Devices are weather proof.

**7. Is AMC includes battery services and solar panel?**

Ans: Yes the suppliers will give AMC till end of project on all parts.

**8. Is AMC include shelter maintenance?**

Ans: Not required

**9. Is it required to include Cost of travel, food and lodging in this part of package?**

Ans: Yes

**10. Before bidding we need Location of each devices.**

Ans: Locations will be provided 10days prior to supply of each batch. Tentatively there will be 1 device per intermediate Panchayat of each State. They will be installed in Government buildings. Proper permissions and name of field contacts will be given to you.

**11. At what height devices are planned to mount.**

Ans. Generally 3 meters above the ground

**12. Please share design and specifications of shelter and AQ device.**

Ans: Pics of recent deployment of a device

