

Request for Proposal (RFP)

From

***Software Developing Organizations for
Design, Development & Implementation
of***

**National Data Acquisition and Management System (NDAMS)
for OCEMS Direct Data Transfer
*for***

the Control of Pollution from Industries in India

Tender Notice No. : IT-11/2/2021-IT-HO-CPCB-HO/



CENTRAL POLLUTION CONTROL BOARD

Under Ministry of Environment, Forest and Climate Change

Parivesh Bhawan, East Arjun Nagar

Delhi -110032

April 2022 (v2.1)

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SECTION 1: IMPORTANT DATES

Request for Proposal (RFP) from Software Developing Organizations for Design, Development & Implementation of National Data Acquisition and Management System (NDAMS) for OCEMS Direct Data Transfer for the Control of Pollution from Industries in India		
1	Uploading of RFP in Central e-Procurement Portal	02.05.2022 at 14:00 hrs.
2	Last date for submission of queries(via email) for pre bid meeting	13.05.2022 at 18:00 hrs.
3	Pre Bid Meeting	19.05.2022 at 12:00 hrs.
4	Amendments to RFP document (if any)	26.05.2022 at 16:00 hrs.
5	Bid Submission Start Date	27.05.2022 at 10:00 hrs.
6	Last Date of Submission of Bids	14.06.2022 on or before 16:00 hrs.
7	Date of opening of Technical Bids	15.06.2022 at 16:00 hrs.
	Venue	Through VC/Central Pollution Control Board, Head Office
8	Date of Technical Presentations	22.06.2022 (10.00am)
9	Release of list of Technically qualified firms and opening of financial proposals	29.06.2022 at 16:00 hrs.
10	EMD Value	*Rs. 15,00,000/- (Rs. Fifteen Lakhs only) IN FAVOUR OF "CENTRAL POLLUTION CONTROL BOARD" payable at DELHI

*EMD may be exempted as per Government of India norms. For exemptions, submit relevant documents and orders.

Note: Word file format copy of this RFP document can be requested by sending email to bvbabu.cpcb@nic.in and aditya.cpcb@nic.in.

SECTION 2: INTRODUCTION

Central Pollution Control Board (CPCB) is a statutory organisation constituted under the Water (Prevention and Control of Pollution) Act, 1974, and also entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

CPCB provides technical services to the Ministry of Environment, Forest, and Climate Change (MoEF&CC) under provisions of the Environment (Protection) Act, 1986. Principal Functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981 are:

- (1) To promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution.
- (2) To improve the quality of air and to prevent, control or abate air pollution in the country.

SECTION 3: GLOSSARY & ACRONYMS

1. **Authority:** Competent Authority, CPCB.
2. **OCEMS Devices /Analyzers:** Instruments used for monitoring emission/effluent parameters such as SO₂, NO_x, PM, CO, pH, COD, BOD, TSS, Flow, Oxygen, CO₂, Temperature, Pressure, PTZ Camera etc. These devices are installed by industries and the online data is sent to CPCB.
3. **Bidder/Agency:** Entity participating in the bidding process to provide services to CPCB.
4. **Competent Authority:** Chairman/Member Secretary, CPCB, as per extent of the case.
5. **CPCB:** Central Pollution Control Board
6. **CPPP:** Central Public Procurement Portal (<https://eprocure.gov.in/eprocure/app>)
7. **Data loggers:** Devices used by TPDS to collect real time data from analysers in the field
8. **EEC:** RFP Evaluation Committee
9. **HMI:** Human Machine Interface
10. **IoT:** Internet of Things
11. **Official Website of CPCB:** <https://cpcb.nic.in/>
12. **OCEMS:** Online Continuous Emission & Effluent Monitoring System
13. **Protocol:** Data communication protocol such as MODBUS, PROFIBUS, DNP etc.
14. **SCADA:** Supervisory Control and Data Acquisition
15. **TPDS:** Technology Provider cum Data Submitter. These are third party service providers engaged by industries to install OCEMS devices and submit data to CPCB through their own cloud servers.

SECTION 4: BACKGROUND

CPCB Central Portal (<http://rtdms.cpcb.gov.in/>) collects real time data from Online Continuous Emission & Effluent Monitoring System (OCEMS) installed at industry premises through TPDS as on date. At present, around 6100 industries are submitting effluent and emission parameter's data to CPCB. There are more than 30,000 devices across 14,000 stations in more than 17 categories of industries, which are considered highly polluting categories of industries. These environmental parameters are continuously monitored on real time basis. The actual parameter's data is augmented with instrument's physical conditions, environmental conditions and operating conditions. These augmented parameters strengthen regulators in considering actual data for further action.

As per survey of CPCB, there are more than 114 type of analysers/OCEMS instruments in field. These analysers use Internationally recognised methods for monitoring of environmental parameters, which are available internationally and are recognised standard methodologies prescribed for monitoring critical parameters on continuous basis.

Each analyser/OCEMS has its own HMI (Human Machine Interface) through which it gets configured, calibrated and maintained. The analysers/OCEMS use various kinds of protocols for data acquisition and transfer. Each manufacturer manages its instrument's data communication through different industry standard protocols like PROFIBUS, MODBUS, DNP etc. and also use these protocols to control their devices.

Presently, data from OCEMS is collected indirectly through more than 50 TPDS, which are providing their technical services, and working as an interface between industry and CPCB. These TPDS use more than twenty different types of data loggers (models) in the automation process listed in Appendix-1. Data acquisition from analyser, installed in an industry is done through data loggers and then collected data is transmitted to a cloud. The complexities of data interfacing with different protocols used for OCEMS operations are dealt by the interfaces developed by TPDS. From cloud the data is pushed to CPCB Central Servers through a REST based API (Application Programming Interface) in bulk mode available at CPCB website <https://www.cpcb.nic.in/ocems4/>.

Based on data received, different types of reports, SMS and email alerts are generated and communicated to concerned stakeholders. More than 1000 users concurrently use the system to visualize data and generate the reports on regular basis for self-monitoring by industries and regulators like SPCBs and CPCB.

Additionally, different types of dashboards (Ganga Basin, Delhi NCR etc.) are developed for displaying data at PMO, MoEF&CC, NMCG etc.

CURRENT SCENARIO

1. Current Size of the OCEMS Network

- (a) More than 6100 (Six thousand & one hundred) industries are on board and submitting real time data every 15 minutes to CPCB Central Portal at <http://rtdms.cpcb.gov.in/>.
- (b) Around 31000 (thirty one thousand) OCEMS devices/analyzer devices are operational through more than 14000 monitoring stations all over the country in different types of industries.
- (c) More than 50 TPDS are collecting data from OCEMS devices/analyzers installed in industries and pushing it to CPCB Server through API.

2. Technologies used for communication with OCEMS devices/analyzers

- (a) Various type of data loggers are being used in the field like ENVEA e-SAM, Nimbus DL-35W, Ascent Intellimation DATCon, M2M LogPRO, CAS dataloggers etc. Data loggers have been installed by TPDS in the industries and transmitting data over data transfer protocols
- (b) Various protocols deployed are industry standard MODBUS RTU protocol via RS-485 or USB interface, MODBUS TCP via Ethernet interface, Wireless network, DIN Measurement BUS, SDI 12, PROFIBUS, DNP over RS232 / RS 422 / RS 485 balanced data transmission schemes for transmitting data over long distances and noisy environments (physical layer specifications) etc.

3. Data Acquisition and Transfer Mechanism in the existing OCEMS Network

- (a) There are 114 types of analysers (OCEMS Devices) (Listed in Appendix-2) as per information available with CPCB (there may be more analyzers), using various protocols for their data acquisition, control and transfer. Each OCEMS device has its own protocol through which, it's HMI (like DAHS) operates to control the analyser. The HMI provides commands through which the system gets configured, calibrated and maintained. Many manufacturers have been using different versions of their control software in different devices.
- (b) For data transfer, each OCEMS device/analyzer use data transfer protocols like PROFIBUS, MODBUS, DNP, over RS232 or 485. The data transfer protocol transfers data from the analyser to the Data logger/DAHS.
- (c) TPDS place their data logger in between to capture the data generated from OCEMS devices/analyzers. Data logger capture data from OCEMS devices/analyzers and transfer to cloud server of TPDS on real time. From TPDS cloud server this data is transmitted to CPCB Central Portal for which an API has been published and available at https://www.cpcb.nic.in/upload/thrust-area/RTDMS_Restful_APIv1.0.pdf



Acquisition and Transfer Mechanism

- (d) The TPDS Portal facilitate remote calibration, remote configuration and remote auditing of OCEMS devices/analyzers installed in the industry.

- (e) TPDS Portal caters to need of industries as well as to CPCB/SPCB/PCCs and any other government organisation involved, for data access and other functions.

4. Capabilities of the existing OCEMS Network

- (a) Data Collection: Continuous data collection of environmental parameters (SO₂, NO₂, CO, pH, BOD, COD, TSS etc.) from industries at an interval of 15-minute through TPDS cloud servers, round the clock, and storing data at CPCB Central Server & SPCB/PCC Servers.
- (b) Data Validation: Diagnostics parameters monitored for verification of failures/errors in the system.
- (c) Remote Calibration: Remote calibrations done through TPDS Portal wherever installed technologies allows to do so. It is performed to ascertain the accuracy, reliability, authenticity of OCEMS devices/analyzers, and to ensure transparency in the system. This facility is available round the clock for CPCB/SPCB as well as for industries.
- (d) Video Streaming: PTZ cameras installed at the outlets of industries to monitor the discharges round the clock. The data is streamed to TPDS portal continuously. There are more than ten types of such PTZ cameras and DVR installed. The streamed data can be visualised at any point of time by CPCB/SPCB officials without any separate plugins. Cameras are controlled online through the TPDS portals, where automated system for facilities like PAN, Tilt, and Zoom have been provided.
- (e) Video Recording: The DVR/NVR installed in the industry is being used for data recording (min 60 days). The recorded video data can be accessed from TPDS portal at any point of time without plugins.
- (f) Data Visualisation and Reporting: More than 1000 users are concurrently using the system to visualize data and generate the reports on regular basis.
- (g) Alert Generation: Based on data from OCEMS devices/analyzers, different types of SMS and Email alerts are generated and communicated to CPCB/SPCB/State Govt. officials, industry officers etc. involved in the pollution control process.
- (h) Dashboards & Sliders: Dashboards for different categories (Ganga Basin, Delhi NCR, Red Category etc.) developed to display data at PMO, MoEF&CC, NMCG etc. on 24x7x365 basis.
- (i) Hosting: Entire CPCB RTDMS Portal is hosted in the NIC domain.
- (j) Backup & Security: Entire data is backed up on daily basis in the NIC domain itself (in tape drives).
- (k) User Management: Different category of users created with variable level and category of access. Controlled user access is provided to various type of users with user activity log and alert system to maintain security of the system against unauthorised access.
- (l) Industry Management: Addition of new industry; modification of details of existing industry; merger of different industries into one industrial unit or bifurcation of an industrial unit into multiple industries.
- (m) Public Access: Selected category of data (eg. biomedical waste incinerator temperature data) accessible to public without any login credential requirement.

- (n) Big Data Analytics: Analysis of data of more than 31,000 devices concurrently in real-time to identify pollution trends, generate alerts, prepare reports etc.

5. Expectations from the New System

- Direct data transfer from industry without any dependency on any middle entity
- Data transfer using API
- Data transfer from any of the device installed in the field
- Seamless data transfer for environmental parameter as well as for other parameters required for data verification, validation like diagnostics, calibration etc.
- Data sharing with SPCB/PCCs/any other stake holder on real time basis from the industry location directly.
- Remote facilities for Instrument configuration, auditing, diagnostics data collection and calibration management, through CPCB/SPCB/PCC etc.
- No recurring expenses on industries
- Surety of a secure & tamper proof system
- Operational mathematical data analytics tools to implement on available data for generation of results.
- Software operation tools deployment required for smooth operation.
- Data sharing in various forms at different locations like industry, SPCB, MoEF&CC, Websites etc.

In order to accomplish the task of developing standard tool:

- a. Integration of different protocol based instruments is envisaged.
- b. Integration of IoT Device, & Data Loggers based installation is envisaged.
- c. OPC UA technology based client and server model implementation is envisaged
- d. 100% Protocol integration is envisaged through which remote control management could be done.
- e. All the existing Industries data migration from old portal to new through mirroring
- f. Data communication integration from presently connected industries on to the new portal is envisaged.

This system will be built from scratch and will replace the existing system.

SECTION 5: SCOPE OF WORK

A) Overview

The world has changed, activities performed at the work place are being governed through remote management using latest technological developments through IoT or similar advanced technological devices. Similar remote management and data analysis is desired in case of environmental monitoring technologies to directly collect the real time data of sophisticated instruments and to ensure data correctness.

In the present system, there are lots of dependencies of industries on TPDS. CPCB needs direct control over entire process of data acquisition, transfer, quality control and management.

- a. The aim of the project is to develop new system for data acquisition capable to acquire data from any of the followings:
 1. data loggers (already installed at various locations across India)
 2. through API-Application Programming Interfacing mechanism
 3. directly from instruments operating in industry
 4. through new technique of OPC –UA
- b. To develop system of analysis of Online Continuous Emission & Effluent Data (OCEMS)
- c. To manage the system with all functionalities of calibration, audits and diagnostics.
- d. the data loggers protocol (100%) have to be implemented for front end integration with CPCB servers and back end configurations with analysers accessible to data logger. Remote control/management facility for data loggers is to be developed.
- e. The proposed system shall collect the real time data, analyze data, trigger alerts, generate various type of reports. The system should also manage registration of industries, devices installed in industries, data visualization using GIS, view and record camera feeds, with controlled system access.
- f. This system has to be built from scratch and will replace the existing system.
- g. For industries which are not connected with CPCB/SPCB but have OCEMS instruments operational, will have to install IoT device/data logger in consultation with CPCB and will have to provide Internet connectivity. Thereafter the bidder has to take over, configure, and manage the data transmission through this project.
- h. For industries where compatible data loggers with internet are already available, the interface for data logger shall be developed by the firm/bidder and also to be taken over for configuration of front end and back end through remote management.
- i. 100% protocol integration (HMI & data transfer) is desired to remotely control the datalogger for all of its functionalities. 100% protocol integration means control of all the features provided in the system by the manufacturer, which are having external controls or access.

- j. Implementation of industry standard OPC-UA Client-Server based architecture is required to be developed as common protocol for data communication from devices/modem in the field.
- k. Industries procuring new system may procure OPC-UA compatible systems, so that these get easily integrated with the software proposed and data transmission takes place easily.
- l. Industries can use existing data loggers or can replace with IoT devices provided their instruments are compatible for it.
 - a. If the industry use it's existing data logger then it will have to provide datalogger protocols details and bidder will develop the interface. Data logger manufacturer will have to provide technical support to CPCB to integrate the device with the system for 100% protocol integration with remote management capabilities.
 - b. If industry instruments have compatibility for connectivity such as LAN etc. (compatibility issues will be checked case by case basis), it may procure IoT devices, internet connection with static IP, etc. then bidder will have to provide interfaces to connect instruments of the industry directly to CPCB.
- m. Daily backup and storage of data to be done automatically.
- n. SMS Gateway Integration.
- o. Mobile APP development in two platforms i.e. iOS & Android
- p. CPCB RTDMS existing System/Central Portals are at <https://rtdms.cpcb.gov.in>, <https://rtdms.cpcb.gov.in/cpcbIndustryRegistration> & <http://orp.cpcbcr.com>
- q. To maintain the existing system as mentioned above operating in three portals, till the time new system is developed.
 - a. Migration of connectivity of all existing industries' on to new portal.
 - b. Data migration from old portal to new one.
 - c. All the reports generation procedures migration and all other utilities available.

B) Activities are required to be undertaken:

- (1) Development of core software modules of NDAMS.
- (2) Data acquisition through API mechanism
- (3) Direct data acquisition from data loggers.
- (4) Direct data acquisition from IoT devices through interface development.
- (5) Integration of existing industries to newly developed NDAMS.
- (6) Development of ML&AI tools for data analysis.

C) NDAMS Core Modules to be developed (Indicative List)

- 1. Registration Module
- 2. OCEMS Operational Information Management Module
- 3. Data Acquisition Module
- 4. Data Processing Module
- 5. Automated Connectivity Status Monitoring Module
- 6. Industry Management Module

7. Data Analysis (inclu. Data Analytics & Data Mining) Module.
8. Reporting Module
9. User Management Module
10. Camera & DVR Module
11. Messaging Module
12. Security and Access Control Module
13. E-Inspection Module
14. APP Development
15. Work allotment and Milestone tracking Module

1. Registration Module

Usage: Self-registration by industry in the system; updating of basic information by industry; automatic forwarding of approval request to dashboard of concerned officer etc.

Present industry registration portal for industries, available at <http://rtdms.cpcb.gov.in/cpcbIndustryRegistration/> to be redesigned and developed either using the existing software code or with a new one.

Indicative list of features	<p>(1) Online form for industry to enter basic details such as name, address, category, contact details, device id, and upload relevant documents like CTO, device manual etc.</p> <p>(2) Auto-assignment of approval requests to relevant CPCB Divisions based on industry category and criteria (user assignment to be admin configurable). Provision like approve request, reject request, or send a query back to industry etc.</p>
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2. OCEMS Operational Information Management Module

Usage: Collecting periodic information from industries regarding calibration details, performance check details, lab reports etc.

OCEMS Protocol information portal for industries, available at <https://orp.cpcbccc.com/> to be redesigned and developed either using the existing software code or with a new one. New utilities will also be added.

Some new utilities have to be developed for the collection of information of agencies to be involved in OCEMS verification process for which details will be provided later upon finalization of the activity.

Indicative list of features	<p>(1) Online form for industry to information of OCEMS devices installed, process details of industry, pollution control systems installed, discharge methodology adopted etc.</p> <p>(2) Regular submission of operational details of OCEMS by industry for a quarter like calibration details, performance check details, lab reports (PDF upload) etc. for the entire period of operation of an industry.</p>
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3. Data Acquisition Module (data acquisition through existing data loggers/IoT Devices/Directly from instruments or through OPC UA).

Data loggers software interfaces have to be developed through which the acquisition of data will be done from various data loggers installed in the country. This system will consist of functions required to acquire the data for environmental parameters on 15-minute basis (configurable), calibration parameters, diagnostic parameters, audit parameters, device status parameters, system alerts and remote calibration facilities as per data logger capability etc.

Industry standard OPC-UA Client-Server based common protocol based system has to be developed through which the acquisition of data will be done from various OPC-UA compliant Instruments (without any intermediately Data Acquisition system like Data logger, IoT etc.). The protocol must consist all the functionality as mentioned in document.

<p>Indicative list of features</p>	<p>(1) Create/modify stations in the industry; assign Data Logger/IoT devices to those stations; assign analyzers to those Data Logger/IoT. Provision to connect multiple stations to single Data Logger/IoT.</p> <p>(2) Accessing these Data Logger/IoT and performing remote operations like auditing of analysers, checking the connectivity status of analyzers, changing login credentials for Data Logger/IoT.</p> <p>(3) Upon selecting an industry, presenting device schematic of entire industry, showing stations, Data Logger/IoT, analyzers, and their relationship in pictorial format. Upon clicking any device, showing real time connectivity status and data of that device, with an option to download/view historical connectivity status and data.</p> <div data-bbox="456 1283 1101 1566" data-label="Diagram"> </div> <p><i>Figure 1 : Representational Image for Industry Schema</i></p> <p>(4) Recording incidences of Data Logger/IoT /Analyzer going offline and triggering alerts based on criteria specified by admin.</p>
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	(5) Maintaining log of changes made in device configuration, with timestamp and user id.
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4. Data Processing Module

Usage: Identify usable data based on diagnostic parameters, performing remote calibration of devices etc.

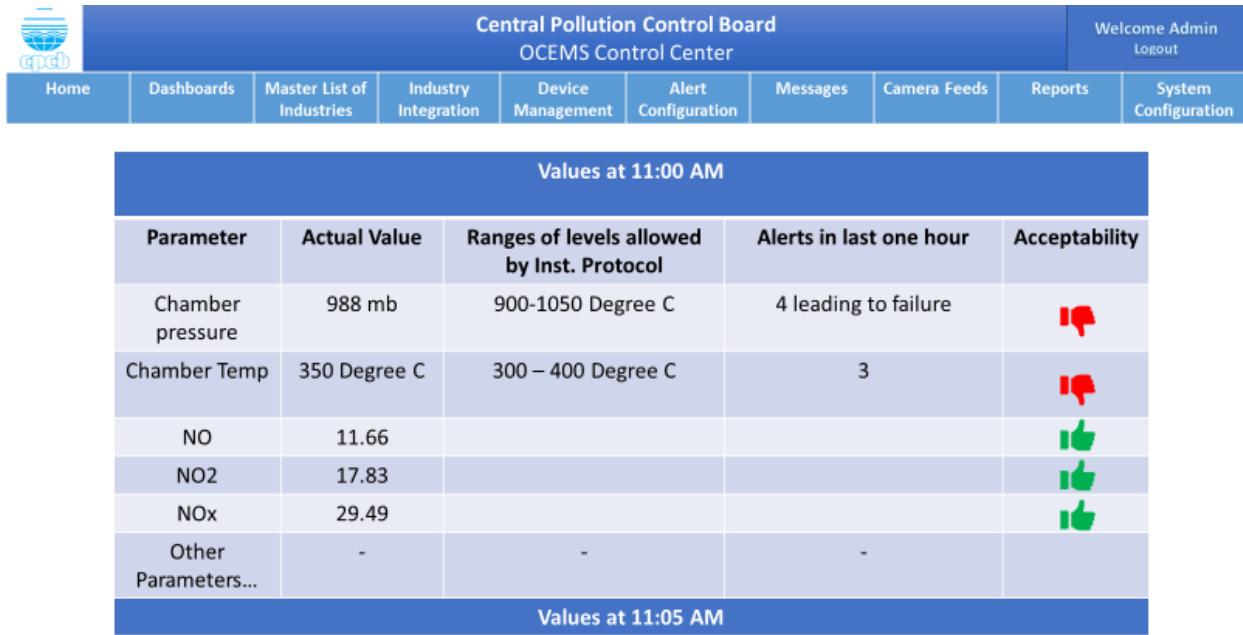


Figure 2 : Representational Screen for Device Diagnostics Dashboard

Data Processing Module	<ol style="list-style-type: none"> 1. Diagnostic Parameters <ol style="list-style-type: none"> a) Dashboard creation displaying current levels of the instruments through selection. b) Database creation for storing diagnostic parameters. c) Alerts generation based on limits (temperature, pressure etc.) mentioned by supplier of instruments. d) Data verification mechanism 2. Calibration Parameters <ol style="list-style-type: none"> a) Dashboard creation for remote calibration statistics
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	<p>b) Database for recording the events of calibration and instrumental performance stats</p> <p>3. Data Validation through Instrument Protocol & Instrumentation model based comparisons</p> <p>a) Data continuity levels, missing data</p> <p>b) Various environmental data charts implementation</p>
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5. Automated Connectivity Status Monitoring Module

Continuously monitor the connectivity status of data loggers and keep record of offline status of data loggers. Automated alerts to be generated once the offline duration crosses specified criteria.

Indicative list of features	<ol style="list-style-type: none"> (1) Display real-time connectivity status of data loggers – state-wise, district-wise, industry category wise. (2) Dashboard displaying real time connectivity as done in SCADA modules with identification of industries offline, online, closed etc. (3) Dashboard for emails, SMS Alerts, Notices issued, responses received. (4) Industries compliances as per categories prescribed norms (5) Industries compliances as per SMS protocols of CPCB (6) Industries compliances for data submission procedures prescribed (7) Industries compliances for verification procedures, data analytics, data mining procedures (8) Sector wise compliance lists based on logics applied (Logics to be incorporated which will keep on increasing in numbers based on directions issued etc.) (9) Generate reports related to historical connectivity status of data loggers. (10) Trigger SMS/Internal Inbox/Email/Notices based alerts in case of offline period exceeding certain criteria (configurable). (11) Statistics based on no. of parameters, no. of stations, no. of devices and many more functionalities.
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6. Industry Management Module

View the details of industry, modify details, addition of section, merge industries, bifurcate industries, send message to industries etc.

<p>Industry Management Module</p>	<ol style="list-style-type: none"> (1) View and modify details of existing industry such as name, address, city, district, state, category, industry code, contact person, SPCB Regional Office, CPCB RD, river basin (Ganga, Yamuna etc.), CTO copy. (2) Addition and modify of section like Main river basin, Tributary river basin, Industrial Clusters, Attainment/Non-Attainment city etc. (3) View devices installed in industry – their make, model, serial number, technology used, device manual, live status, status data (historical). (4) View entire industry device configuration in interactive graphical format i.e. schema of stations, IoT/Data Logger installed for those stations, and analyzers connected to those IoT/Data Logger. Clicking any IoT/Data Logger or analyzer will show details as well as live status of the device, along with link to historical data. (5) Merge two or more industry; bifurcate existing industry. (6) Export entire information and emission/effluent data in CSV, XLSX, PDF format. (7) Track all the changes made to industry along with timestamp and user details. (8) Send message to industry using Messaging Module. (9) View live data of the industry. Download data from industry based on customizable input parameters (Using Data Analysis Module). (10) View live camera feed from industry using DVR Module.
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	(11) Other as per requirement to be clarified during SRS preparation.
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7. Data Analysis & Analytics Module

Analyze the data for parameter exceedances, abnormal values, repeated patterns, deviations etc., and generate various kind of report for regulators. The module will also generate SMS/Messaging Module/Email/Notices based alerts based on criteria specified by CPCB.

The module for data analytics has to be developed through which collected data shall be analysed through various IT tools to arrive at conclusions through procedures such as R Programming (open tool available), tableau (01 license for project life time), Power BI (01 license for project life time), Panda (open tool).

It will require analysis/operations to enable IT Team to draw conclusions from the data. CPCB IT team in consultation with various institutions will develop the methodology for data analysis, data display and the same has to be implemented by the firm.

The bidder team should have the capability to deploy latest ML&AI tools. The team will be provided with voluminous emission/effluent/noise/water quality data of specific categories of industries, air quality data of air quality stations etc. The bidder has to setup a system of ML&AI functions such as Panda profiling to provide kendall’s correlations, cardinality etc. to draw out meaningful scientific conclusions in the environment field. One of the logics envisaged is to analyse the location of an industry based on EC/CPCB/SPCB conditions in the coastal area/forest area/bird sanctuary/monitoring stations etc.

To accomplish the task of data analytics including ML&AI, with respect to different sectors of industries and their specific technologies, relevant data repositories have to be created. The system proposed should have the capability to acquire data from different platforms for a specific segment analysis. Data acquisition procedure development and API creation for data sharing is well within the scope of the project. All data to be ported on GIS platform through open source based systems and automated data publishing procedures have to be created by the bidder. Any software requirement for the same is to be dealt by the bidder. Total Ten (10) such logics need to be developed and deployed every year.

Indicative list of features	<ul style="list-style-type: none"> (1) Find effect of industrial emission on air quality in spatial domain. (2) Find the effect of effluent discharges on river quality in a specific river stretch. (3) Compare data of two or more industries across specified date range.
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	<ul style="list-style-type: none"> (4) Compare data of same industry across various months. (5) Compare data of same industry across different processes (Stacks/Emission) upto parameter level. (6) Generate automatic SMS/Email/Inbox/notices alerts based on parameter exceedance/offline devices. (7) ML&AI tool deployment for each sector of industry. (8) Dynamic portal development/dashboard development using GIS tools to daily analyse the quantities and to provide performance in quantitative terms. (9) Zero Liquid Discharge list of industries with total discharge allowed so far on green belt in each state in Critically Polluted Areas. (10) Query based response mechanism to be developed on GIS portal.
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8. Reporting Module

Generate various kind of reports (automated as well manual); automatic dispatch of report to concerned officers; generate report based on different type of data i.e. raw data, validated data, calibration data, audited data etc.

<p>Indicative list of features</p>	<ul style="list-style-type: none"> (1) Generating reports having huge volume of data without affecting system performance. For eg. 15 minutes data of 5 parameters for 100 industries for an entire year in excel format. (2) Customizable query builder based on user selectable parameters. (3) Exporting reports in Excel, CSV, PDF format. (4) Ability to digitally sign the report. (5) Provision to directly E-mail the report from the system itself. (6) Automatic generation of report in periodic intervals and mailing it to users configured.
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	<p>(7) Generate reports based on various kinds of data – raw data, validated data, calibration data etc.</p> <p>(8) Different dashboards for different categories of users.</p> <p>(9) Admin privileges to enable/disable specific dashboard features.</p> <p>(10) Data visualization through graphs, heat Maps, pie-charts etc. This include information about :</p> <ul style="list-style-type: none">a. Industries connected – city-wise, category-wise, state-wise etc.b. Industries offline for 24 hour, 48 hours, 7 days, 1 month etc. (user-selectable).c. IoT device related statistics – device connected, device offline etc.d. Alerts generated – industry-wise, city-wise, state-wise, category-wise etc.e. Zones with repeatedly high alerts displayed in form of heatmap. <p>(11) IoT Status reports on daily, weekly, monthly and yearly basis</p> <p>(12) Dashboard for display of configurations of analysers operating in an industry, industry-wise and comparative configurations with similar or dissimilar technology based instruments, camera, DVR, etc.</p>
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Dashboards for all the new activities developed have to be created with real time data, calibration mechanism, diagnostics. These records have to be displayed with last one year/one month/one week variations for a channels.

9. User Management Module

Configure users in the system and grant various level of privileges to them.

<p>Indicative list of features</p>	<p>(1) Define different categories of users and their level of access such as :</p> <ul style="list-style-type: none"> a. Specific industry/multiple industry access. b. Specific category/multiple category of industry access. c. Specific city/ multiple city access. d. Specific state/ multiple state access. e. Specific river basin/ multiple river basin access. f. Main river basin, Tributary river basin, Industrial Clusters, Attainment/Non-Attainment city. g. Also combination of criteria such as river basin with city, category with river basin etc. h. Access to live data only or access to live data as well as historical data. <p>(2) Create, update, delete users belonging to different categories.</p> <p>(3) Send message to users via E-Mail, SMS, or inbuilt messaging tool.</p>
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10. Camera & DVR/NVR Data Acquisition & Display Module

There are PTZ Control based cameras installed in the industries which are connected to cloud portals of various TPDS as on date. The system has to be developed to collect the data from these cameras directly at the central server of CPCB without any intermediate server on plugins free manner.

The connected cameras have different protocols. The industries will be responsible to provide the API to integrate these cameras in central portal. The firm working for integration shall have the capability to acquire the data from these cameras. The controls of these cameras such as zoom, pan, tilt have to be acquired by the software and functions have to be operated remotely.

Two months (time may be increased as per requirement) data collected is to be recorded at a suitable rate, so that the display at any point of time in future is of standard quality of minimum 720p on FIFO basis. Data playing facility, data downloading facility with given date and time is to be developed. Procedure to take out the clips and distribute to regulators should also be available.

Similarly, the DVR/NVR installed at various locations are of different makes. These have to be integrated into the system and data should be viewable through plug-in free mechanism. A provision of visualizing previous two months' data which will be recorded at DVR/NVR has to be made.

<p>Indicative list of features of Camera Module</p>	<ul style="list-style-type: none"> (1) Dashboard development to directly visualize the live feed without any plug-in requirement; to view recording status, storage available, pause recording etc.. (2) Data distributing procedure (3) Remotely operable PTZ controls. (4) Offline status record. (5) 100% protocol integration. (6) Recording facility for each camera (minimum two months, extendible as per admin).
<p>Indicative list of features of DVR/NVR Module</p>	<ul style="list-style-type: none"> (1) Dashboard development to directly visualize the data fetched (without plug-in) from the DVR/NVR for last two months. (2) Facility to download the recording. (3) Comparisons of an industry with its own camera records (4) Automated violation reporting module (5) Module to allow data fetching from DVR/NVR on the basis of selection of date and time in a bundle form and then its playing mechanism in user friendly manner.

11. Automated Notice & Messaging Module

Internal messaging facility to send message to single user/group of users; sending customized SMS and Email from the system.

Automated Notice	<ul style="list-style-type: none"> (1) Development of automated notice module to be triggered as per defined rules of triggering notices directly to the industry, SPCB/PCC, Local Authority etc. (2) Development of dashboard for notices issued with date, time, name of industry, count etc. for tracking Notices. (3) Procedure to collect responses online. (4) Reports preparation and dashboard display.
Messaging Module (Customizable)	<ul style="list-style-type: none"> (1) Development of dashboard similar to notices. (2) Development of internal messaging functionality with dedicated inbox for each user. (3) Provision for CPCB/SPCB officials to send messages (SMS/Email/Internal Inbox) to industry or group of industries selected on the basis of category or district or state etc.

12. Security and Access Control Module

Usage: Security of system against unauthorized changes; generation of activity reports.

Indicative list of features	<ul style="list-style-type: none"> (1) OTP based user logins. (2) Keeping track of changes made by user in the system, as well as industries searched in the system. (3) Daily and weekly report about user activities to emails of higher officials. (4) Ability to undo any changes made by specific users (admin control only).
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13. E-Inspection Module

Remote inspection of industry through App based live streaming of video from industry. The App will also capture the location coordinates of the user to ensure that the video being streamed belong to that particular industrial location.

Indicative list of features	<ol style="list-style-type: none"> (1) Scheduled inspection as well as instant inspection. (2) Recording of entire feed as well as selected parts of the feed. (3) Recording of location coordinates and their projection on the map. (4) Allowing multiple CPCB/SPCB officials to join single inspection. (5) Ability to conduct multiple concurrent inspections. (6) Android and iOS (7) Having history data storage for industry inspection available through dashboards (8) Details of repeat inspections on dashboard
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The list of modules and features is indicative in nature. Actual number of modules and type of features may vary depending on requirements of CPCB, and successful bidder will have to implement all the features and modules requested by CPCB time to time.

14. AMC of Existing Software

CPCB RTDMS existing System/Central Portals are at <https://rtdms.cpcb.gov.in>, <https://rtdms.cpcb.gov.in/cpcbIndustryRegistration> & <http://orp.cpcbcr.com>

Efforts are being made to award AMC of the above mentioned existing RTDMS portals to a firm through a separate tender. If that remains successful, then AMC of the present software will be managed by other party for a period of two years.

And if, that tender process does not go through, then the AMC of existing software will be the responsibility of the firm under selection process, for which rates are being taken in the price bid sheet separately.

Efforts should be made to shift entire system into new one so that the old system could be closed as early as possible.

The firm is required to maintain the existing system as mentioned above operating in three portals, till the time new system is developed. It includes, take over, of all the activities operational with all its capabilities as mentioned earlier in the document, as on date including but not limited to following few important capabilities, such as below:

- a. Migration of connectivity of all existing industries' on to new portal.
- b. Data migration from old portal to new one.
- c. All the reports generation procedures migration and all other utilities available.

The firm will be responsible for the operation of existing capabilities available in the existing software. In case, if some of the utilities are not possible to maintain, in such case, the firm will be required to create that utility, suitable for the desired output.

Presently there are dashboards operational through which the data is being shared with Ministry, SPCBs, PCCs, PMO, Secretaries etc. The firm will be responsible for maintaining all available utilities, including Mobile App, dashboards, connectivity with industry, data acquisition, reports already operational, etc.

The old systems should continue to operate and acquire data from TPDS portals, till the time all existing industries are shifted on to the new portal. In this duration, old system has to be mirrored with new one for current data collection.

D) Supporting Activities

(1) Web Hosting Services: The firm shall provide web hosting services for the system initially. The application under development shall be hosted on public cloud and all the activities like auditing, UJT and others shall be performed. In the mean-time the firm shall provide the hardware and software requirement details for shifting entire system in NIC domain/CPCB provided cloud. CPCB team shall approach the NIC to obtain the cloud services and domain name, and whenever it is provided the firm shall shift the software in NIC domain. Work related to shifting will be the responsibility of the firm.

Any activity like Server Migration (NIC to NIC, NIC to Public Cloud, NIC to in-house hosting etc.)/Server Updates/Software Patch/Security Fixes/System Optimization, Database Optimization etc., required in project duration will be the responsibility of the firm, without additional cost requirement.

(2) Migration of existing OCEMS Data: The firm/bidder will be responsible for migrating the existing OCEMS data from CPCB RTDMS Central Portal/Registration Portal/ORP Portal to the new system. Or a suitable mechanism shall be devised for ready to use data visualization and downloading as per requirements.

- (3) Replica of operating system at CPCB Mini Data Center with previous datasets:** A replica of NEW SYSTEM has to be established in CPCB Minidata center. This portal will be used as data repository. The bidder has to keep this system in sync with the main program would be operating at NIC VM. The internal CPCB team shall use this location for industrial data verification. The bidder firm shall make a mechanism of updating data in the mini data center at CPCB on daily basis. The repository has to be kept out here while repository at NIC Data center hall also be kept to keep the copy of the data. The software shall also remain fully operational in CPCB Premise, also as operating on VMs with different functionalities.
- (4) Data Sharing:** Data needs to be shared with various SPCBs/PCCs, MoEF&CC, and other various organizations. Formats of data visualizations shall be developed during SRS development.
- (5) Development of Mobile Apps:** The firm/bidder will have to develop Android and iOS based Mobile Application to provide access to all the functionalities of Central System through a mobile device for OCEMS Data, E-Inspection etc.

(6) Maintenance:

Warranty period of 01 Year from the Go Live!

- a. 06 Years AMC after warranty period
- b. CPCB shall renew AMC every year and bidder has to submit its proposal for continuation of AMC.
- c. The rates for AMC shall be governed as below:
 1. If bidder has quoted an increment in AMC rates per year, the same will continue after 6 years of service as per actual increment sought every year.
 2. if AMC quoted rates are fixed then bidder is bound to provide services at the quoted fixed AMC rates.
- d. The Bidder is bound to provide AMC services, till the software is used by CPCB or a new system is developed or new AMC firm is given the assignment by CPCB.
- e. AMC shall include all functionalities for practical purposes as performed in the project duration including new web page, reports development as per requirements, fixing any issues (within given time frame), penalties applicable during project duration, as well as making necessary modification/upgrades/new feature/migration/API Development/Interconnectivity/New AI&ML tool implementation/GIS tool implementation as per the requirements of the CPCB. No separate charges shall be payable by CPCB for such modification/upgrades/new features and will be covered under AMC Charges payable by CPCB for the project.
- f. The full stack developer placed in the CPCB HO will continue to work for the project during AMC period also.

- g. Back end support with software team of the bidder shall continue to be provided as per requirements.
- h. Maintaining all services like auditing, patch management, changes in code, security requirements operations will remain the responsibility of the firm during AMC period also.

(7) Training: The firm shall impart complete training on all aspects of the system including database handling, system architecture front end & Back end development etc. to CPCB officials and other stakeholders nominated by CPCB as per the Training Annexure -6 attached. The training shall be provided either on premise or through virtual means as per the requirements of the CPCB.

(8) Security: The firm shall be responsible for – (i) security audit of the system as per government regulations (ii) fixing of all security vulnerabilities as and when discovered (iii) timely backup of data (iv) disaster planning and mitigation strategy for the system.

(9) Ticket raising Tool

- a. The firm has to deploy a ticket raising tool for CPCB and SPCB or any stake holder/ users for raising request of changes desired in the system.
- b. These requirement management is to be done professionally.
- c. The bidder may deploy its own ready made tool or may develop in the given time frame.
- d. A ticketing tool is to be made available in NIC domain for placing the complaints/ requirements during project duration including AMC duration.
- e. Through this tool team should define the time required to resolve the incident & communicate the same to the contact person of CPCB/stake holder through email.
- f. Once the incident is resolved a statement through email should be initiated by the service provider & the incident be considered closed after acknowledged by CPCB/stake holder.
- g. In case of new functionality requirement, it should be communicated in ticketing tool or through writing mail and the firm shall respond within eight hours along with the roadmap of time estimate.

SECTION 6: REQUEST FOR PROPOSAL (RFP)

Through this RFP, CPCB is interested in short listing qualified Information Technology based Organizations for providing the software development services for Design, Development & Implementation of software for Control of Pollution from Industries in India.

The selected organization shall also be responsible for the complete turnkey operation of the IT systems to ensure 24 x 7 operations.

CPCB invites bids from organizations/firms with experience in successfully executing similar projects. The bidder may interact with CPCB to study and submit a detailed technical and financial proposal for the objectives set forth in this RFP document.

The selection of the successful firm shall be based on technical and financial criteria. CPCB reserves the right to accept or reject any or all the offers at any stage of the process without assigning any reasons thereof and no claim/dispute on this aspect shall be entertained.

The firm may please visit CPCB website at <https://www.cpcb.nic.in> or e-mail for technical details at bvbabu.cpcb@nic.in or aditya.cpcb@nic.in.

SECTION 7: SELECTION METHOD

Selection Method: Request for Proposal (RFP) CPCB invites bids from experienced Software Developing Organizations with expertise in Software Development, Customization, and User support for Machine to Machine (M2M) Data Acquisition. Financial bids will be opened only for those firms which are technically qualified.

Submission of documents means:

- a. copy of the relevant document in electronic form, with seal and signed by the authorized representative of the firm with page numbers on each page.*
- b. Each document should be referenced at the relevant location as requested in such a way that the verification of the document could be done.*
- c. Each document submitted, is considered to be checked and verified by the authorized signatory and*
- d. Information, if at any stage is found to be wrong, CPCB is free to take action against the firm as deemed fit, including the cancellation and legal action.*

SECTION 8: TECHNICAL EVALUATION CRITERIA (TEC)

(to be filled in by the firm and to be submitted)

This bidding process is open to all software solution providers, who fulfil the eligibility criteria, as set out below and is in agreement with CPCB as per terms & conditions of this RFP document. The solution providers should furnish documentary evidence supporting the information

provided by them as part of the bidding process. Bids not satisfying the technical eligibility criteria shall be rejected.

The bidder should obtain at least 60 Marks in Technical Evaluation Criteria (TEC) to be eligible for financial bid opening.

TABLE 1.0
Technical Evaluation Criteria (TEC)
(TO BECOME ELIGIBLE, THIS TABLE IS TO BE MANDATORILY FILLED AND MENTIONED DOCUMENTS HAVE TO BE NECESSARILY SUBMITTED BY THE BIDDER WHILE SUBMITTING THE BID, ELSE THE BID WILL BE CONSIDERED AS NON-RESPONSIVE)

S. No. (Column A)	Eligibility Criteria of firm (Column B)	Supporting documents required (Column C)	Bidder's Response (Column D) (Response and supporting documents, as per mentioned page numbers by the bidder in this column, will only be considered for RFP evaluation)	Marks								
01	Shall be a single entity, registered as a Company, Firm or Society under respective acts in India & should have been in existence in India for a minimum period of five years at the time of submission of bid.	i. Company Incorporation Certificate OR ii. Registration Certification from Registrar of Companies Any one of these documents to be submitted.	(1) Eligibility Claimed by Bidder: [Yes/No] (2) Supporting Document(s) Details: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Name of Supporting Document(s) Submitted by the Bidder (As referred in Column C)</th> <th style="width: 50%;">Reference Page Number (Page number in the documents submitted by the bidder)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table> (3) Reason for deviation, if any: _____ _____	Name of Supporting Document(s) Submitted by the Bidder (As referred in Column C)	Reference Page Number (Page number in the documents submitted by the bidder)							Less than five years : 0 Marks. 5-10 Years: 5 Marks. More than 10 Years: 10 Marks.
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Tender Notice No. : IT-11/2/2021-IT-HO-CPCB-HO/

02	<p>Must be registered in India with appropriate tax and other administrative authorities prior to submitting application.</p>	<p>i. GST certificate ii. CIN Registration iii. PAN Card</p>	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Supporting Document(s) Details:</p> <table border="1" data-bbox="928 373 1295 823"> <thead> <tr> <th>Name of Supporting Document(s) Submitted by the Bidder (As referred in Column C)</th> <th>Reference Page Number (Page number in the documents submitted by the bidder for RFP)</th> </tr> </thead> <tbody> <tr> <td>GST Certificate</td> <td></td> </tr> <tr> <td>CIN Registration</td> <td></td> </tr> <tr> <td>PAN Card</td> <td></td> </tr> </tbody> </table> <p>(3) Reason for deviation, if any: _____ _____</p>	Name of Supporting Document(s) Submitted by the Bidder (As referred in Column C)	Reference Page Number (Page number in the documents submitted by the bidder for RFP)	GST Certificate		CIN Registration		PAN Card		<p>Essential.</p> <p>No marks to be given.</p> <p>Bid will not be considered without these documents.</p>								
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03	<p>Should have developed at least five softwares projects for any organisation starting during last seven (7) years ending last day of month previous to the one in which applications are invited for bid.</p>	<p>i. Any Five work award letters from during last seven (7) years ending last day of month previous to the one in which applications are invited to till date for software development issued by any department/company.</p> <p>ii. Satisfactory work completion letters (<u>for the same five works</u>) issued by the same department/company.</p>	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Supporting Document(s) Details:</p> <table border="1" data-bbox="928 1247 1295 1873"> <thead> <tr> <th>Name of organization for which software has been developed (As referred in Column C)</th> <th>Reference Page Number (Page number in the documents submitted by the bidder for RFP)</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;">Work Award Letters</td> </tr> <tr> <td>1. Name of organization:</td> <td>Page</td> </tr> <tr> <td>2.</td> <td>Page</td> </tr> <tr> <td>3.</td> <td>Page</td> </tr> <tr> <td>4.</td> <td>Page</td> </tr> <tr> <td>5.</td> <td>Page</td> </tr> <tr> <td colspan="2" style="text-align: center;">Work Completion Letters</td> </tr> </tbody> </table>	Name of organization for which software has been developed (As referred in Column C)	Reference Page Number (Page number in the documents submitted by the bidder for RFP)	Work Award Letters		1. Name of organization:	Page	2.	Page	3.	Page	4.	Page	5.	Page	Work Completion Letters		<p>Less than five software projects: 0 Marks.</p> <p>5-10 software projects: 5 Marks.</p> <p>More than 10 software projects: 10 Marks.</p>
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2.	Page															
3.	Page															
4.	Page															
5.	Page															
04	Average Annual financial turnover during the last 3 Financial Years, i.e. FY 2018-19, FY 2019-20, FY 2020-21, should be at least Rs. 1.50 Crore (Rs. One Crore Fifty Lakhs).	<p>A) Certificate from the Chartered Accountant of the Organization for confirming that the firm's annual average turnover was more than 1.50 crores during the last 3 financial years, i.e. FY 2018-19, FY 2019-20, FY 2020-21</p> <p>B) Income Tax returns of last 3 financial years, i.e. FY 2018-19, FY 2019-20, FY 2020-21.</p>	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Supporting Document(s) Details:</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 60%;">Name of Supporting Document(s) Submitted by the Bidder (As referred in Column C)</th> <th style="width: 40%;">Reference Page Number (Page number in the documents submitted by the bidder for RFP)</th> </tr> </thead> <tbody> <tr> <td>CA Certificate confirming turnover for FY 2018-19, FY 2019-20, FY 2020-21</td> <td>Page</td> </tr> <tr> <td colspan="2" style="text-align: center;">Income Tax returns for FY 2018-19, FY 2019-20, FY 2020-21</td> </tr> <tr> <td>FY 2018-19</td> <td>Page</td> </tr> <tr> <td>FY 2019-20</td> <td>Page</td> </tr> <tr> <td>FY 2020-21</td> <td>Page</td> </tr> </tbody> </table>	Name of Supporting Document(s) Submitted by the Bidder (As referred in Column C)	Reference Page Number (Page number in the documents submitted by the bidder for RFP)	CA Certificate confirming turnover for FY 2018-19, FY 2019-20, FY 2020-21	Page	Income Tax returns for FY 2018-19, FY 2019-20, FY 2020-21		FY 2018-19	Page	FY 2019-20	Page	FY 2020-21	Page	<p>Less than Rs. 1.50 Crore: 0 Marks.</p> <p>1.5 Crores <= <u>Turnover</u> < 10 Crores: 5 Marks.</p> <p>10.0 Crores <= <u>Turnover</u> < 30.0 Crores: 10 Marks.</p> <p>30.0 Crores <= <u>Turnover</u> < 100.0 Crores: 15 Marks.</p> <p>More than or equal to Rs. 100.0 Crores: 20 Marks.</p>
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			(Note: Please submit one certificate and three ITRs only) (3) Reason for deviation, if any: _____ _____														
05	<p>Experience of having successfully completed similar work(s) during last seven (7) years ending last day of month previous to the one in which applications are invited should be either of the following: -</p> <p>a) Three similar completed works costing not less than Rs. 2 Crores (Rs. Two Crores) each</p> <p style="text-align: center;">OR</p> <p>b) Two similar completed works costing not less than Rs. 2.60 Crore (Rs. 2 Crore 60 Lakhs) each</p> <p style="text-align: center;">OR</p> <p>c) One similar completed work costing not less than Rs. 4.10 Crore (Rs. 4 Crore 10 Lakhs)</p> <p>Note: Here, similar work means, project in any one of the fields mentioned below: i) M2M data acquisition ii) Hadoop iii) Big Data Analytics iv) PLC applications v) SCADA</p>	<p>a. Letter(s) of work awarded mentioning the cost of work(s) to be executed by the firm.</p> <p>b. Letter(s) of successful completion from the department/company/client for the all work(s) awarded above.</p> <p>c. URL of the project if in public domain.</p>	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Mention option selected for eligibility (as per S. No. 5, Column A of table):</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Selected Option (a/b/c)</td> </tr> <tr> <td style="text-align: center;">.....</td> </tr> </table> <p>(Note: Only one of the option is to be selected)</p> <p>(3) Supporting Document(s) Details:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Project 1</td> </tr> <tr> <td>Name of Firm:</td> </tr> <tr> <td>Cost of Project:</td> </tr> <tr> <td>*Technology:</td> </tr> <tr> <td>Reference Page Number in submitted bid documents for Work Award Letter:</td> </tr> <tr> <td>Reference Page Number in submitted bid documents for Letter of Completion:</td> </tr> <tr> <td>URL of the Project:</td> </tr> <tr> <td style="text-align: center;">Project 2-</td> </tr> <tr> <td style="text-align: center;">Project 3-</td> </tr> <tr> <td style="text-align: center;">Note:</td> </tr> <tr> <td>A. Number of projects to be mentioned shall be as per option a/b/c as selected by the bidder for evaluation under S. No. 5, Column B of this table.</td> </tr> </table>	Selected Option (a/b/c)	Project 1	Name of Firm:	Cost of Project:	*Technology:	Reference Page Number in submitted bid documents for Work Award Letter:	Reference Page Number in submitted bid documents for Letter of Completion:	URL of the Project:	Project 2-	Project 3-	Note:	A. Number of projects to be mentioned shall be as per option a/b/c as selected by the bidder for evaluation under S. No. 5, Column B of this table.	<p>Total value of projects (where each project is of value more than or equal to Rs. 2.0 Crore each)</p> <p>Total value less than 4.10 Crores: 0 Marks.</p> <p>4.10 <= Total value < 10.0 Crores : 5 Marks.</p> <p>10.0 <= Total value < 20.0 Crores : 10 Marks.</p> <p>20.0 <= Total value < 50.0 Crores : 15 Marks.</p> <p>Total value greater than or equal to Rs. 50.0 Crores : 20 Marks.</p> <p>Note: Total value above will be counted on the basis of only those projects where each project is of value more than or equal to Rs. 2.0 Crore each.</p>
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A. Number of projects to be mentioned shall be as per option a/b/c as selected by the bidder for evaluation under S. No. 5, Column B of this table.																	

				<p>B. *Technology to be mentioned above should be among one of the five technologies mentioned under S. No. 5 Column A only. Experience of technologies other than these five will not be considered.</p> <p>(4) Reason for deviation, if any: _____ _____</p>			
<p>06. Customer References related to M2M, Hadoop, Big Data Analytics, PLC Analytics, SCADA that the applicant has been engaged during last seven (7) years ending last day of month previous to the one in which applications are invited for bid (mention all similar projects in aforementioned technologies that has been undertaken).</p> <p>(Copies of documents relating to mentioned works to be submitted along with the bid)</p>				<p>Essential.</p> <p>No marks to be given.</p>			
S No	Name &Address of The client	Date of start of the work	Date of Completion	Website Address	Value of the Project	Nature of Work	Name of software developed & Technology used
1.							
2.							
3.							

07. Customer References related to Projects (fields other than those in point 06 above) that the applicant has been engaged during last seven (7) years ending last day of month previous to the one in which applications are invited for bid.

(Copies of documents relating to mentioned works to be submitted along with the bid)

S.No	Name &Address of The client	Date of start of the work	Date of Completion	Website Address	Value of the Project	Nature of Work	Name of software developed & Technology used
1.							
2.							
3.							

08	The bidder/firm has to showcase necessary client referrals for projects mentioned in point 6 and 7 above	List of clients	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Has the bidder enclosed the list of clients in the format provided below: [Yes/No].</p> <p>If yes, kindly mention the reference page number in documents submitted for RFP by the bidder, where this list of clients (in format provided below) is enclosed by the bidder: _____.</p>
----	--	-----------------	---

			(3) Reason for deviation, if any: _____ _____
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Format for list of clients

S.No	Name & Address of The client	Name of software developed	Email id	Phone number
1.				
2.				
3.				
4.				

09	The bidder/firm should furnish an undertaking as mentioned below.	Letter of undertaking to be submitted as below:	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Has the bidder enclosed the Affidavit or Self Declaration on company letterhead in the format provided below: [Yes/No].</p> <p>If yes, kindly mention the reference page number in documents submitted for RFP by the bidder, where Affidavit or Self Declaration on company letterhead is enclosed by the bidder: _____.</p> <p>(3) Reason for deviation, if any: _____ _____</p>	Essential.
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Format for Affidavit or Self Declaration

Ref: Call for Request for Proposal for short listing of Software Development Organizations by CPCB for Design, Development & Implementation of National Data Acquisition and Management System (NDAMS) for OCEMS Direct Data Transfer for the Control of Pollution from Industries in India

Bidders/firms/vendors shall be excluded from participation in the selection procedure if:

1. They are bankrupt or being wound up, are having their affairs administered by the courts, have entered into an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matter, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations;
2. Bidder/firm has been blacklisted in India by any Govt./Semi Government/PSU etc.
3. They have been guilty of grave professional misconduct proven by any means, which the contracting authority can justify;
4. They have not fulfilled obligations in respect of payment of social security contribution or the payment of taxes in accordance with the legal provisions of the country in which they are established or with those of the country of the contracting authority or those of the country where the contract is performed;
5. They have been the subject of a judgment, which has the force of res judicata for fraud, corruption, and involvement in a criminal organization or any other illegal activity detrimental to the communities' financial interests;
6. Following another procurement procedure or grant award procedure financed by the community budget, they have been declared to be in serious breach of contract for failure to comply with their contractual obligations.

In response to your call for RFP, I/We hereby declare that I/we:

1. Am/are not in any of the situations excluding me/us from participation in the contracts.
2. Agree to abide by the highest ethical standards in the profession and in particular, have no potential conflict of interest;
3. Will inform CPCB immediately if there is any change in the above circumstances at any stage during the procedure or during the implementation of the project;
4. Fully recognize and accept that any inaccurate or incomplete information deliberately provided in this document may result in my/our exclusion from this or other contracts funded by the CPCB;

(Signature of the applicant or of authorized signatory with company seal)

10	The bidder/firm should have CMMI Level 3 Certification for Software development field	Copy of valid Certificate as on RFP submission date. (Certificate in software development field is required)	(1) Eligibility Claimed by Bidder: [Yes/No] (2) Supporting Document(s) Details: <table border="1" data-bbox="930 1818 1295 1881"> <tr> <td>Whether the CMMI Level 3</td> <td>Yes/No</td> </tr> </table>	Whether the CMMI Level 3	Yes/No	Essential. No marks will be provided.
Whether the CMMI Level 3	Yes/No					

			<p>or above certificate submitted with the bid document</p> <p>Date of validity of the CMMI Certificate</p> <p>Whether the CMMI Certificate issued is in software development field?</p> <p>Reference page number in submitted bid documents where CMMI Certificate is enclosed</p>	<p>.....</p> <p>Yes/No</p> <p>.....</p>	
11	Should have technically qualified and well-experienced strong in-house resource base of at least 50 (Fifty) software developers on company payroll.	List of manpower available with the firm and their fields of expertise and details of software developed in last five years.	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Has the bidder filled the format for software expertise provided below: [Yes/No].</p> <p>If yes, kindly mention the reference page number in documents submitted by the bidder, where the format is enclosed by the bidder: _____.</p> <p>(3) Has the bidder enclosed the Latest EPFO Certificate or ESIC Certificate which can verify number of employee: [Yes/No].</p> <p>If yes, kindly mention the reference page number in documents submitted for RFP by the bidder, where these documents are enclosed: _____.</p>	<p>Less than 50 software developers: 0 Marks.</p> <p>50 to 100 software developers: 5 Marks.</p> <p>100 to 200 software developers: 10 Marks.</p> <p>200 to 500 software developers: 15 Marks.</p> <p>More than 500 software developers: 20 Marks.</p>	

			<p>(4) Has the bidder enclosed the latest certificate issued by HR of the firm, confirming number of software developers on payroll of company/firm, and not as outsource employees.: [Yes/No].</p> <p>If yes, kindly mention the reference page number in documents submitted for RFP by the bidder, where this document is enclosed: _____.</p> <p>Note: These key resources must be on company's payroll, and not outsource personnel.</p> <p>(5) Reason for deviation, if any: _____ _____</p>
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Format for Software Expertise

Sr. No.	Core Fields of expertise in software development (Tentative list of technologies is mentioned below; if bidder feel that any other technology can be deployed for the project, they may mention it)	Number of Software Developers available for an expertise	Cumulative Years of experience in this field	Names of the Software handled, which were developed by the firm in previous five years in this field
1				1. 2. 3.
2				
3				
4				
5				
6				
7...				
Total				

Essential.

Field of Expertise	Subfield	Tools/Technology/Experience (One or more of the technologies listed in each row/list)
Application Development	Programming Languages/Style Languages	(1) C/C++/Java or similar
		(2) Python/PHP or similar

Tender Notice No. : IT-11/2/2021-IT-HO-CPCB-HO/

		(3) JavaScript or similar																
		(4) HTML/CSS																
		(5) Shell Scripting																
		(6) PLC/SCADA & HMI																
	Web Application Frameworks	Django/jQuery/Angular/ReactJS /Express/Bootstrap or similar																
	Relational DBMS	Oracle/MySQL/Microsoft SQL Server/PostgreSQL/SAP HANA or similar																
	Non-Relational DBMS	Cassandra/Hbase/MongoDB or similar																
	Web Server Software	Apache/Nginx or similar																
	Big Data Management	Hadoop/Spark or similar																
	Software Testing	Selenium/UFT/QC/Jmeter or similar																
	GIS Applications	QGIS/GeoServer/PostGIS/ArcGIS/WMS/WFS or similar																
	Mobile App Development	Mobile App Development for Android/iOS.																
	Protocols	Software Development of communication protocols like MODBUS, PROFIBUS, DNP, OPC-UA or similar																
12	Resumes of key resources available on company payroll,	<p>Please enclose resumes of at least 10 (Ten) most important software developers available with their technology experiences, software handled etc.</p> <p>(In case bidder is selected for the project, at least five of these resources or similar qualification resources will have to be deployed for the project, in addition to other resources)</p>	<p>(1) Eligibility Claimed by Bidder: [Yes/No]</p> <p>(2) Supporting Document(s) Details:</p> <table border="1"> <thead> <tr> <th>S. No.</th> <th>Name of Person</th> <th>Reference Page Number</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>(Page number of attached resume in the documents submitted by the bidder for RFP)</td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> <tr> <td>..</td> <td></td> <td></td> </tr> <tr> <td>10</td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: (1) Please submit 10 (ten) resumes only, (2) These key resources must be on company's payroll, and not outsource personnel.</p>	S. No.	Name of Person	Reference Page Number	1		(Page number of attached resume in the documents submitted by the bidder for RFP)	2			..			10		
S. No.	Name of Person	Reference Page Number																
1		(Page number of attached resume in the documents submitted by the bidder for RFP)																
2																		
..																		
10																		
			<p>Essential.</p> <p>No marks will be provided.</p> <p>If 10 resume not submitted, bid will be considered as non-responsive and may be rejected.</p>															

			(3) Reason for deviation, if any: _____ _____	
13	Presentation by the bidder	The bidders have to make technical presentation before the CPCB technical committee w.r.t. (1) Understanding of the project. (2) Experience of the firm. (3) Technical competence. (4) Quality of manpower available. (5) Size of similar projects delivered. (6) Any other relevant expertise.		Maximum Marks: 20.

Note:-Within each clause, wherever “years” are mentioned, exact year has been mentioned. Hence, firms are requested to strictly follow the written statement and submit details/documents for mentioned years. Presumptions or assumptions will not be considered. For any clarity, may contact CPCB through given email ids.

Financial Evaluation

1. Financial bids will be opened of the firms securing at least 60 marks in Technical Evaluation.
2. Final Evaluation will be done on QCBS basis.

SECTION 9: RFP SUBMISSION PROCESS

- 1. Raising of queries/clarifications on RFP document:** The Bidders requiring any clarification on this document should submit their written queries to Shri B. Vinod Babu, Scientist 'E' and DH-IT, IT Division bvbabu.cpcb@nic.in Tel: 011-43102296 & Shri Aditya Sharma, Sc.'D', IT Division, aditya.cpcb@nic.in Tel: 011-43102300 Any suggestions/feedback may also be sent to the above email id.
- 2. Modification in RFP document:** At any time prior to the deadline for submission of RFPs, CPCB may modify any part of this document. Such change(s), if any, may be in the form of an addendum/corrigendum and will be uploaded on CPCB's Website/Central Public Procurement Portal. All such change(s) will automatically become part of this RFP and will be binding on all bidders. Interested bidders are advised to regularly refer to website of CPCB/CPPP for any updates.
- 3.** Request for extension of date for submission of RFPs will not be entertained. However, to give prospective bidders reasonable time to take the amendment into account in preparing their RFPs, CPCB may, at its discretion, extend the last date for the receipt of RFPs. No RFP may be modified subsequent to the last date for receipt of RFPs. No RFP may be withdrawn in the interval between the last date for receipt of RFPs and the expiry of the RFP validity period specified by Bidder in the RFP.
- 4.** Bidders are advised to study the RFP document carefully. Submission of the RFP will be deemed to have been done after careful study and examination of all instructions, eligibility norms, terms and requirement specifications in the RFP document with full understanding of its implications. RFPs not complying with all the given clauses in this RFP document are liable to be rejected. Failure to furnish all information required in the RFP Document or submission of an RFP not substantially responsive to the RFP document in all respects will be at the bidder's risk and may result in the rejection of the RFP.
- 5.** RFP as per TEC format Section 8 is to be filled up by the firm alongwith Annexure I and II have to be filled-up and submitted through CPP Portal. The proof of documents as desired to be submitted with seal and signature in the prescribed formats.
(word format copy, if required, of the bid document may be requested through email id aditya.cpcb@nic.in)

6. Any interlineation, erasures, or overwriting shall be valid only if the person signing the RFP signs there.

SECTION 10: EVALUATION OF RFP

1. The RFPs received by the designated date and time will be examined by CPCB to determine if the bidder meet the terms and conditions mentioned in this document including its subsequent amendment(s), if any, and whether RFPs are complete in all respects.
2. On scrutiny, the RFPs found NOT in desired format/illegible/incomplete/not containing clear information, may be rejected and not considered for further evaluation process.
3. If deemed necessary, CPCB may seek clarifications on any aspect of RFP from the applicant. If a written response is requested, it must be provided within 3 days. Response received beyond 3 days, if any, will not be considered. Response received, if any, would not entitle the applicant to change or cause any change in the substances of their RFP document already submitted. CPCB will also make enquiries to establish the past performance of the applicants in respect of similar work.
4. CPCB reserves the right to contact the reference clients to ascertain the submission made by the bidders, during the evaluation process.

SECTION 11: ALLOCATION AND AWARD OF WORK

1. For technical inputs, pre-bid shall be organised. Technical inputs obtained may be considered and revised RFP, if required shall be issued.
2. Technical evaluation of the submitted bids with respect to the RFP will then be evaluated. Financial bids will be evaluated only for the technically qualified bidders. Technically & Financially qualified bidders will be selected under QCBS criteria 70:30.
3. Criteria for Evaluation of Financial bid: The Financial Bids of the technically qualified bidders will be evaluated as per the evaluation criteria explained below.

The lowest evaluated Financial bid (Fm) will be given the maximum financial score of 100 points. The financial scores(F) of the other Financial bids will be computed as per the formula for determining the financial scores given below:

$$F = 100 \times (Fm / Fb)$$

Where,

Fb =Evaluated amount of financial quote by the particular bidder.

Fm = Lowest evaluated amount of financial quote by the bidder.

4. Total Score Calculation:

In deciding the final selection of the Agency, the technically qualified bid will be given a weightage of 70% on the basis of criteria for evaluation. The price bids of only those Agencies which qualify technically will be opened. The bid with the lowest cost will be given a financial score of 100 and the other bid given financial scores that are inversely proportional to their prices. The financial bid shall be allocated a weightage of 30%. For working out the combined score, the CPCB will use the following formula:

$$\text{Total points: } (0.7 \times \text{Technical Score}) + (0.3 \times \text{Financial Score})$$

The bids will be ranked in terms of total points scored. The bid with the highest total points (H1) will be considered for award of contract.

The Evaluation Committee will correct any computation errors, in case of discrepancy.

Negotiations:

Normally there will be no post tender opening negotiations and it would be only on exceptional circumstances, if considered necessary. This shall be held only with the Agency which is evaluated as H1 bidder after combined evaluation of the Technical and Financial bids, as indicated above. Under no circumstance, the financial negotiation shall result into an increase in the price originally quoted by the Agency.

5. Bidders with the highest score may be awarded the project by issuance of a work order. CPCB, however reserves the right to reject any or all bids or not to award the work or to award work to more than one bidder.
6. The terms and conditions of the work will be according to this document or any later amendment to it.
7. CPCB may modify the scope of work in the RFP which will be issued as amendment.
8. In case of any dispute, the decision of the Competent Authority, CPCB shall be final.

SECTION 12: TERMS & CONDITIONS

1. **Acceptance of Terms and Conditions:** Submission of an RFP is evidence of bidder's consent to comply with the terms and condition of RFP process and subsequent bidding process. If an applicant fails to comply with any of the terms, its bid may be summarily rejected.
2. **Wilful Misrepresentation:** Wilful misrepresentation of any fact in the RFP will lead to the disqualification of the applicant without prejudice to other actions that CPCB may take in future.
3. **Material Changes:** Applicant must inform CPCB immediately in writing of any material change to the information contained in the RFP application, including any substantial change in their ownership or their financial or technical capacity. Copies of relevant documents must be submitted with their advices.
4. **Bid Rejection:** Bids may be rejected on grounds, including but not limited to the following:
 - (i) Wilful misrepresentation of any fact in the submitted RFP.
 - (ii) Non-receipt of RFPs within the specified date and time due to any reason including postal delays or holidays in between.
 - (iii) Any effort on the part of Bidder to influence evaluation process.
 - (iv) Any other term & condition mentioned in this document.CPCB reserves the right to accept or reject any or all RFPs received without assigning any reason thereto whatsoever and CPCB's decision in this regard will be final.
5. **Verification of Claims:** CPCB reserves the right to verify the validity of information provided in the RFP, including the right to inspect the facilities of the bidder, and to reject any bid where the contents appear to be incorrect, inaccurate or inappropriate at any time during the process of RFP.
6. **Intellectual Property Rights :**
 - (i) CPCB shall own the IP Rights over the software solution developed by the bidder, including associated components such as user manuals, source code, designs etc.
 - (ii) The RFP and the accompanying documents will become property of CPCB. The applicant shall be deemed to license, and grant all rights to CPCB, to reproduce the whole or any portion of their product/solution for the purpose of evaluation, to disclose the contents of submission to other applicant and to disclose and/or use the contents of submission as the basis for RFP process.

The bidder shall agree to provide to CPCB the following:

- A. Source code, object code/executable code, designs, unit test cases, unit test code, and compilation procedures (build/make file, build scripts etc.), source code quality report using reputed Code Quality Tools, Test Scripts for CIT/SIT/UAT of the developed application/customizations and subsequent upgrades, if any.

- B.** All necessary functional and technical documentation (Technical Specifications, Integration Specifications, Application Architecture/Design, Integration Architecture/Design, Test Cases Documentation for CIT/SIT/UAT, Deployment Guide on Infrastructure Servers, Release Notes etc.) must also be delivered with every source code delivery for any change.
- 7. Notice:** Any notice, request or consent required or permitted to be given or made pursuant to this shortlisting shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the party to whom the communication is addressed, or when sent to such party at the address specified in the bid-submitting document.
- 8. Standards of Performance :** The Service Provider shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Service Provider shall always act, in respect of any matter relating to this RFP or to the Services, as faithful advisers to the Purchaser, and shall at all times support and safeguard the Purchaser's legitimate interests in any dealings with third Parties.
- 9. General Confidentiality:** Except with the prior written consent of the CPCB, the Service Provider and the Personnel shall not at any time communicate to any person or entity any information acquired, stored and received from CPCB in the course of the Services, nor shall the Service Provider and the Personnel make public the recommendations formulated in the course of, or as a result of, the Services.
- 10. Software Fixes:** The application development/customization work carried by the shortlisted bidder(s) will be subject to Unit Testing, Stress/Performance Testing, System Integration Testing & User Acceptance Testing and Security Audit etc. as applicable. However, no additional fees/charges would be payable by CPCB for the rectification of errors detected during the testing/audit process.
- 11. Safety and Security of Data :**
- (i) The data, information, documents provided by the CPCB to service provider is the property of the CPCB. The service provider shall display due diligence in the handling of the said data and be responsible for the data thus provided.
 - (ii) The service provider shall not use the information, name or logo of CPCB and/or Government of India without authorization of CPCB.
 - (iii) The service provider shall not use and/or transmit any information, data, layouts, designs, diagrams, storage media (hard disk/tapes) or any other goods/material in physical or electronic form, which are proprietary to or owned by the CPCB, without prior written permission from CPCB.
 - (iv) CPCB reserves the right to carry out third party audits of the service provider to ensure compliance with stated and implicit requirements.

- 12. Sub-Contracting:** The service provider shall not be permitted to subcontract any part of its obligations, duties, or responsibilities under this shortlisting without the prior written approval of CPCB.
- 13. Good Faith:** The Parties undertake to act in good faith with respect to each other's rights under this shortlisting and to adopt all reasonable measures to ensure realization of objectives of this RFP.
- 14. Cancellation of Entire Process:** CPCB shall have right to cancel entire tendering process, including the RFP etc., at any time, without thereby incurring any liabilities to the affected Bidders. Reasons for cancellation, as determined by CPCB in its sole discretion include but are not limited to, the following :
 - a. Services contemplated are no longer required.
 - b. Scope of work not adequately or clearly defined due to unforeseen circumstance and/or factors and/or new developments.
 - c. The project is not in the best interest of CPCB.
 - d. Any other reason.
- 15. Project Handover on Closure:** Upon completion of the contract or termination of contract, firm shall handover entire source code, documentation, designs, configurations, complete installation procedure, and all the related information, tools, code, scripts, modules, designs etc. which are part of project shall be handed over to CPCB within seven days of closure.
- 16. Termination/Suspension of Contract :** CPCB may at any time terminate/suspend contract of bidder for the following reasons:
 - a. If the service provider becomes insolvent or go into liquidation or receivership whether compulsory or voluntary.
 - b. If the service provider, in the judgment of CPCB has engaged in corrupt or fraudulent practices.
 - c. If the Service Provider submits to the CPCB a false statement which has material effect on rights, obligations, reputation or interests of CPCB.
 - d. If the Service Provider places itself in position of conflict of interest or fails to disclose promptly any conflict of interest to CPCB.
 - e. If the Service Provider fails to meet expected obligations.
 - f. If the Service Provider has been blacklisted or disqualified for any reason by any government department in last three years from the date of making this document public.
 - g. If the Service Provider fails to comply with directions given by the Competent Authority, CPCB.
 - h. In the event of sub-contracting of work/services without the prior written approval of CPCB.

- i. In the event of non-cooperation during audits conducted by CPCB or auditing agencies appointed for this purpose.
- j. Any other reasons, as deemed fit by the Competent Authority, CPCB.
- k. The detailed Service Level Agreement (SLA) will be signed with successful bidder. Any breach in SLA will lead to penalty and later termination of the contract.

17. Non-Disclosure Agreement and Integrity Pact: The bidder is in agreement with CPCB to execute the contract, Non-Disclosure Agreement (NDA) and Integrity Pact as per format of CPCB. The contract format along with NDA and Integrity Pact will be shared with bidders.

18. Technical Terms and Condition:

- a. First Prototype should be developed and to be made operational first.
- b. Software with all functionalities should be developed with three iterations.
- c. The server of system has to be placed at location like Software Technology Parks of India, NICSI Shastri Park Data Centre, or NDC Bhubneshwar etc. firm shall be responsible to provide software support on remote.
- d. Efforts have to be made by the firm to get the continuous data in the system.
- e. Responsibility lies with the firm for data availability from OCEMS monitoring stations to Central Server of CPCB and necessary co-ordination has to be made by the firm through service desk operations.
- f. Bidder is required to conduct two audits as scheduled in 8th and before 24 months for which no separate payment shall be made. However, for third audit onwards bidder is required to quote the rates which shall remain applicable in AMC period also.
- g. If there is no running bill is pending the firm is liable to pay the penalty amount levied by CPCB on the firm as per penalty clauses of this document within 15 days time after the issue of the letter by CPCB to the firm, else the CPCB shall have the right to take legal action against the firm.

19. General Term and conditions:

- i. 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 irresponsive to the bidding document in every respect will be at the bidder's risk and may result in the rejection of its bid.
- ii. In case the bidder fails to develop software as per technical expectations of data acquisition from industries as mentioned in document/data display/data analysis using AI&ML tool/ data depiction in GIS formats, and the development may be at any stage and is not acceptable due to technical glitch or software does not pass

- any of the CPCB technical requirements as expected from the deliverables, the contract may be cancelled by CPCB and no payment shall be made to the bidder.
- iii. This call of tenders does not bind the Central Board to place order. The Tenders submitted in response to this invitation can be rejected without assigning any reason.
 - iv. The final authority for acceptance of a bid will rest with the Chairman, Central Pollution Control Board who does not bind himself to accept the lowest bid and is vested with the authority to reject any or all of the bids received without assigning any reason.
 - v. The bid shall contain no interlineations, erasures or overwriting words except as necessary to correct errors made by the bidder, in that case such correction shall be initialled by the person or persons signing the bid.
 - vi. Canvassing in any form will disqualify the Bid
 - vii. **Adherence to timeline** – The vendor agrees to adhere to the timeline for the software development and delivery within stipulated time lines.
 - viii. Subletting of the work is not allowed without prior written permission from CPCB.
 - ix. **Costs and Expenses** – Any and all costs (and expenses) incurred by the vendor in responding to the RFP, Pre Bid engaging in any other activity required in connection to this bid are to be solely borne by the bidder; these will not be reimbursed by CPCB.
 - x. **Right to modify the list of functionalities and scenarios** – The list of scenarios /functionalities / requirements detailed in SRS document is not exhaustive. CPCB, at its sole discretion, may modify or delete any of the existing scenarios, or provide additional scenarios. Any such modification / addition shall be duly communicated to the bidders.
 - xi. **Right to interview** – As a part of the evaluation process, CPCB may interview the vendors who participated in the Bid. The interviews may be conducted over telephone, video conference, or face to face. CPCB reserves the right to reject any vendor.
 - xii. **Right to Share Proposal with designated personnel** – The response to the RFP submitted by the authorised representative of the vendor, along with all the supporting documents / materials shall become the property of CPCB and shall not be returned to the Bidder. CPCB does not undertake to hold the content of the responses to this RFP and any subsequent information or contractual documents related thereto (“Bidder Information”) in confidence. Further, CPCB reserves the right to disclose any and all Bidder Information on a need to know basis to its employees, agents and subcontractors.
 - xiii. **Right of Refusal** – The vendor understands and agrees that CPCB reserves in its absolute discretion the right to select or reject any bidder any time during or after the RFP process or any subsequent evaluation or contractual process. The vendor

further understands and agrees that any such selection or rejection may be based on the vendor's responses to this Bid, on any subsequent information or contractual documents related thereto, or for any other reason whatsoever.

- xiv. **Transfer of ownership** – The bidder shall grant the purchaser a perpetual license to use the software without any additional payment or obligations to enter into a contract for maintenance or support. There is no limit on the number of users for Software and for the Central Server Software. Concurrent number of servers may be used if required. All study documents, data and specification prepared by the Bidder shall be the property of CPCB.
- xv. **Compatible with NIC and NICS** – Firm should not be using any 3rd party tool which is not allowed by NIC or NICS while hosting in their domain. It's the responsibility of the Bidder to provide documentation and engage in the coordination activities for setting a part of the software or full at the NIC server.
- xvi. In case of disintegration or dissolution of Bidder due to any reason what so ever it is, the individual members will be accountable for deliverable to CPCB. If Bidder' firm is purchased by another firm or agency, that new owner or agency shall be responsible for deliverables to CPCB.
- xvii. **Force majeure**
Firm 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 owner 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 owner the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of owner. In the event of such cancellation the vendor shall refund any amount advanced to the vendor by the Board and delivery back any material issued to him by the Board and release facilities, if any, provided by the Board.
- xviii. If there are any queries, clarifications required on above document may please be forwarded to Sh. B.Vinod Babu, Director and Head IT Division bvbabu.cpcb@nic.in and Sh. Aditya Sharma, Scientist 'E' aditya.cpcb@nic.in.

20. Performance Security:

- i. Performance Security is to be provided by the successful bidder awarded the contract. Performance Security should be for an amount of **5% of Project total cost except taxes or as per prevailing rules**. Performance Security may be furnished in the form of an Account payee Demand Draft, Fixed Deposit Receipt from a Commercial bank, Bank Guarantee from a Commercial bank. The

Performance Security should remain valid for a period of **Eighty Six (86) months** from the date of letter of intent issued by the Board and should be submitted within 15 days of issue of letter of intent. If Performance security is not submitted within 15 days of issue of letter of intent, bid will be considered as non-responsive and EMD shall be forfeited.

- ii. Performance security of the agency may also be forfeited if the performance of the agency is not satisfactory. In case there is no running bill and there stand penalty etc., the same shall be deducted from PBG

21. Miscellaneous:

- a. No contractual obligation whatsoever shall arise from this RFP process.
- b. The bidder and their employees shall pay all such direct and indirect taxes, duties, fees, and other impositions levied under the Applicable Laws of India.
- c. Any action required or permitted to be taken, and any document required or permitted to be executed under this RFP by the Purchaser or the Bidder may be taken or executed by the officials specified in the bid submission document.
- d. The applicant shall bear all costs associated with submission of RFP, Presentation/POC desired by CPCB. CPCB shall not be responsible or liable for any cost thereof, regardless of the conduct or outcome of the process.
- e. Shortlisted applicant must not advertise/publicize in any form (without prior written permission from CPCB) about their unit having been shortlisted by CPCB.
- f. The software development shall be carried out as per best practices followed worldwide.
- g. CPCB may re-visit any of the conditions of this RFP.

SECTION 13 SCHEDULE OF DEVELOPMENT

Starting from Zero Date (Date of final work award)

No.	Milestones/Activities to be carried out	1 M	2 M	3 M	4 M	5 M	6 M	7 M	8 M	9 M	10 M	11 M	12 M	13 M	14 M	..18 M	..24 M	28 M	29 M	...30 M	...42 M	..90 M		
1.	Final Work Award																							
2.	Creation of project teams at Bidder's side and CPCB side																							
3.	AMC of existing system having 6000 industries operation continued.																							
4.	SRS Development																							
5.	Development of Basic Software (1 st Prototype) with direct data transmission from industries																							
6.	Development of Data Acquisition (DAS) Modules for 25 dataloggers most of these are on MODBUS but diff. nomenclature & mapping																							
7.	Development of DAS for OPC – UA architecture & API																							
8.	Development of DAS for individual instruments Protocols based systems																							
9.	Development of Data Processing Module																							
10.	Automated Connectivity Status Monitoring Module																							
11.	HMI Module																							
12.	Data Analytics Module																							
13.	Data ML&AI Module initial development and further development in 10 & 11 months when data is available.																							
14.	Reports Generation Module																							
15.	User Management Module & updation																							
16.	GIS Module & updation																							

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17.	Remote management module (auditing, Calibration etc.) & updation																							
18.	Alerts and Notices (SMS, email etc.) Management Module & updation																							
19.	E-Inspection APP Module & desktop module as dashboard and its updation																							
20.	Go Live! (within given timeframe)																							
21.	Integration of industries available/requesting for connectivity either through Datalogger or OPC UA or directly with analyser																							
22.	Development of OCEMS Data Mobile APP Modules & Dashboards (iOS & Android) and & updation																							
23.	Two Audits by CERT-IN empanelled firms, Obtaining VM at-NIC (audit 3 or more if required by NIC periodically)																							
24.	Procurement of Hardware & Software																							
25.	Trainings on software development, operation and ML & AI functions as per details attached																							
26.	Fully functional and operational system after Three iterations of feedbacks																							
27.	Hosting for initial two years by the bidder.																							
28.	2yrs Operation of Service Desk to integrate instruments of industries (5 lines & 5 Engineers)																							
29.	Development & deployment of Software performance monitoring tool																							
30.	Deployment/development of ticket raising tool																							
31.	Warranty																							
32.	AMC																							

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33.	AMC.... 1st Year to Vith year																						Ilyr to Vith Year AMC
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SECTION 14: PENALTIES

1. Timeline for Delivery and Penalty for Delay

Sl. No.	Milestones	Time for Completion (T1* Final work award letter issue date T2**Date of GO LIVE!)	Penalty for Delay
1.	System fully functional with all utilities (however, initial module should be ready within three months)	T1* + 36 Weeks	System should be fully functional with all modules in 09 months. Subsequent to that a penalty @1% of the project cost per week (sealable at maximum of 15% of the project cost) will be levied.
2.	Integration and Connecting industries' data channels available & requesting connection	T2** + 250 Channels/parameter per Week	₹ 100/- per channel per week for connectivity delay
3.	Integration and Connecting industries' Camera channel available & requesting connection	T2** + 5 camera channels per Week	₹ 100/- per camera channel per week for connectivity delay
4.	Service Desk operation	T2**+2Yrs	₹ 5000/- per day of delay/discontinuation/ non operation due to any reason
5.	Development of OCEMS Data Mobile APPs (Two) (iOS + Android)	T1* + 32 Weeks	₹ 4000/- per week of delay per APP/Dashboard
6.	Development of E-Inspection Mobile APPs & Desktop module (Two iOS + Android)	T1* + 28 Weeks	₹ 4000/- per week of delay per APP/Dashboard
7.	Establishment of Central Server including	T1* + 28 Weeks	₹ 10000/- per week of delay

	networking with VM at NIC and CPCB Datacenter in Sync with VM on cloud with Data Display Systems, Dashboards, APIs, rss_feeds, Backups, etc.		
8.	Testing and Certification of software solution (internal by the firm)	T1* + 28 Weeks	₹ 1000/- per week of delay per module
9.	Bugs observed after Testing Certification by Teams	At any point of time during project duration of 7 years. Bug to be fixed within two days -no penalty.	₹ 100/- per bug if corrections delayed by more than two days Penalty will be Cumulative for number of bugs reported by CPCB with documentary evidences.
10.	Software system non-operational	At any point of time in project duration of 7 years. System to be set live within 4 hours, no penalty.	If non operational, for more than 4 hours than penalty to be imposed. ₹ 5,000/- per day
11.	Trainings as per annexure attached	T1* + 36 Weeks	₹ 5,000/- per week of delay
12.	Auditing by CERT-In empanelled agency	First audit T2**+10 Weeks Other audits as scheduled	₹ 2,000/- per week of delay
13	AMC	Every year	If firm does not provide AMC services, project closure milestone payment of 5% of project cost (excluding AMC)

2. Breakdown of system

- I. In case the system breaks down and software has stopped functioning (i.e. no output available on web site marked for the system) the same should be made functional within maximum 4 (four) hours of time (for which no separate communication will be made from CPCB side) else penalty of Rs. 5000/- every day (number of working days)

will be levied on the firm and the Board shall have the right to deduct the same from the running bills of the firm.

- II. In case the system throws error messages on website and data is not displayed or wrong data are displayed on web site marked for the system, the same should be corrected within four hours' time (04 hrs.) (for which separate communication shall be made by CPCB with error message's snapshots) else penalty of Rs. 500/- (five hundred rupees only) per error message shall be imposed on per day basis.

3. Development of New pages and inclusion of New Industry/Station/Parameter: Work assigned for new pages development or inclusion of New Industry/Station/Parameter into the software will also attract penalty of Rs. 2000/- per day separately, if not completed in time frame mutually agreed in writing in between CPCB and the firm.

4. Late services / No services / In-complete service: In case of late services / no services / in-complete service on a specific activity, in which the firm fails to deliver the services thereof within the period fixed for such delivery in the schedule or at any time repudiates the contract, the firm shall be liable to pay a Liquidated Damages (LD). LD will be imposed @ 0.01% per week delay or part thereof on the firm. The timeline/schedule of deliverables will be decided as and when the requirement/ tasks /activities arise.

5. Uptime Service: The service of the application should be available with at least 95% availability. The percentage uptime is calculated on monthly basis as follows:

$$\frac{(\text{Total hours in a month} - \text{Downtime hours within the month}) * 100}{\text{Total hours in a month}}$$

If the service provider fails to maintain guaranteed uptime of 95% on quarterly basis, CPCB shall impose penalty as mentioned below on slab basis.

Sl. No.	Availability in a quarter	Penalty (In Rs.)
1.	>= 95.0%	No Penalty
2.	>=93.0% And < 95.0%	₹ 25,000/-
3.	>=91.0% And < 93.0%	₹ 50,000/-
4.	< 91.0%	₹ 1,00,000/- This penalty will be cumulative with other conditions also. If it continues for more than 3 quarters, the project may be cancelled.

If there is no running bill which is pending, the firm is liable to pay the penalty amount levied by CPCB on the firm as per penalty clauses of this document within 15 days' time after the

issue of the letter by CPCB to the firm, else the CPCB shall have the right to take legal action against the firm.

Whoever contravenes the above clauses of penalties, shall be penalized by the Competent Authority, CPCB, by the prescribed penalty in these clause.

SECTION 15: METHODOLOGY OF IMPLEMENTATION OF SYSTEM

- i. CPCB shall also declare a common IoT/data logger specification, allowing any of the industry to procure it and get it integrated with CPCB software under proposal, if an industry wishes to purchase a new.
- ii. Data transmission will be directly made to CPCB Central portal using currently operating data loggers/API, or through a new data logger.
- iii. Under this methodology, the industry would not require any item if it has already operating data logger or similar device.
- iv. If industry does not have any data logger type of device, then may require to purchase IoT device /OPC UA enabled device which could be easily connected with the system. In such case, industry must have operating instrument's data communication related information with it like data Protocol used in the instruments.
- v. If industry does not have data communication protocols details, then it has to procure data OPC UA Compliant data logger (having inbuilt protocol converter i.e. MODBUS to OPC UA Compliant converter) as per it's data channel requirements which can be connected to CPCB central software.
- vi. The data collected from an individual industry through IoT/datalogger will have to be shared with all SPCBs/PCCs and Govt. organization.

SECTION 16: MODE OF PAYMENTS

Payment Procedure: With respect to Total Project cost including 6 Yrs AMC

Milestone 1: SRS preparation and acceptance by DH-IT	: 10% Payment
Milestone 2: Software GO Live! & Ready for launch	: 10% Payment
Milestone 3: System fully functional with all utilities Including 25 Reports and 25 Web pages	: 10% Payment
Milestone 4: Integration and Connecting industries' 15000 data channels & 1000 Camera channel	: 20% Payment
Milestone 5: First Audit completion & Training completion	: 10% Payment

& Deployment in NIC domain

Milestone 6: Integration and Connecting industries' all existing data channels & Camera channels	: 10% Payment
Milestone 7: ML & AI Tools deployment & GIS integration	: 20% Payment
Milestone 8: Successful completion of Warranty and Six Years Of Operation	: 5% Payment
Milestone 9: Closure of the project	: 5% Payment

Payment will be made on quarterly basis. Any payment to be released under the project will be subject to following conditions:

- i. Submission of final bill in triplicate,
- ii. Submission of source code in soft copies.
- iii. Submission of two hard copies of software manual required for all its functionalities.
- iv. Certification from IT Division verifying that system is functional.
- v. Penalty if any shall be deducted from the payments without notice.

No advance payment of any nature will be paid. Cost of the project work should be clearly mentioned by the firm. The Cost should be excluding all taxes etc. However, taxes should be clearly mentioned in the financial proposal submitted by the firm to CPCB. Taxes would be payable as per Government of India rules applicable from time to time.

SECTION 17: PROJECT DURATION

- a. Initial development 06 Months including testing etc.
- b. System Go Live! within 06 Months.
- c. System should be fully functional with all modules in 09 months.
- d. Warranty and upgradation period of 01 year from Go Live! Date.
- e. Integration of industries within 18 Months from Go Live!, while it is the responsibility of CPCB to get industry agree for connectivity.
- f. Total project duration 07 (seven) years after GO Live! (one year warranty after GO Live! + Six years AMC including new development and modifications)
- g. During this project duration, the bidder is responsible for development of old utilities or new utilities, improvement, maintenance or any other activity like maintaining the system in NIC or any audit if required to be done on the requirement of NIC etc.
- h. Service desk operation for two years from the date of Go Live!
- i. AMC till the software is used by CPCB.

SECTION 18: BID VALIDITY

Bid validity for a period of 180 days will be applicable from the date of submission of Bid on CPP Portal.

SECTION 19: EXCLUSION

- i. Up-gradation of the infrastructure like hardware required for the operation of software, for which firm will provide proper justification with logical support.
- ii. Failures and consequent data loss arise due to natural calamities etc.

SECTION 20: REFERENCE PRICE BID FORMAT

Development of “National Data Acquisition and Management System (NDAMS) for OCEMS Direct Data Transfer”

Tender Notice No. : IT-11/2/2021-IT-HO-CPCB-HO/

Details showing quantity, specification and other details of the system offered (To be filled mandatorily by the bidder while submitting the bid)

Name of items	Quantity	Unit Price (in Rupees excluding taxes at col. No. 4)	Taxes (GST etc.)	Total Amount in Rupees for CPCB.(Price x Qty + Taxes)
1	2	3	4	5
<p>I. Development of Basic Software “National Data Acquisition and Management System (NDAMS) for OCEMS Direct Data Transfer” and its continuous up gradation as per requirement during project duration of seven years. Various modules to be developed are:</p> <ul style="list-style-type: none"> a. Industry Registration Module– customisation of existing or development of new. b. OCEMS Operational Information Management Module –ORP Module – customisation of existing or development of new. c. Development of Data Acquisition Modules for Interface development for New technology OPC UA Client-Server Architecture, for data connectivity. d. Existing API based data interfacing module for data acquisition from existing systems e. Data Processing Module f. Automated Connectivity Status Monitoring Module g. Industry Management Module h. Data visualization with location specific Information Module & user Specific Module i. HMI Graphic Module j. Data Analysis (incl. Data Analytics & Data Mining, AI/ML, GIS) Module. k. Development of 100 web pages 	01(Set)			Price x 01=

<ul style="list-style-type: none"> I. Reporting Module with 100 reports m. User Management Module n. Camera & DVR data acquisition and display Module including history with plugin free mechanism o. Messaging Module p. Security and Access Control Module q. E-Inspection Module r. Two audits through CERT in Empanelled firms s. Testing and Certifications of each module (Internal team shall issue certification to the effect that all the software facilities are properly functioning without bugs). 				
II. Development, configuration, and operation of Universal module for remote calibration and diagnostics of various type of analyzers.	01			01 x Price=
III. AMC to maintain the existing system as operating in three portals, till the time new system is developed and integrates all the existing industries. <small>(As soon as the New Software comes into full fledged operation and all the industries get shifted onto it for continuous data acquisition, the old portal will be closed expected duration is 2yrs, may be reduced as per requirements)</small>	01			01x02Years=
IV. Development of Data Acquisition Modules for <ul style="list-style-type: none"> i. Interface development of 40 Interfaces (25 existing 25 + 15 others) different types of data loggers listed, for data connectivity. 	01 Interface			Price x40 =
<ul style="list-style-type: none"> ii. Interface development for Direct data acquisition from 150 (115 listed + 35 Others) Analyzer/Instruments of various makes, for data connectivity. 	01 Interface			Price x 150 =
V. Service desk <ul style="list-style-type: none"> a. at Bidder's Premise for two years from Go Live! b. Minimum 5 telephone with whatsapp lines operational from 9:00 am to 6:00pm c. Operational with specialised manpower of FIVE Engineers d. having B.Tech Degree in Computer Science/IT and 	01			Price x 01 =

e. having minimum three years experience in real time data acquisition through embedded systems and data communication protocols like MODBUS, M2M, Hadoop etc. f. Selection through interview with CPCB and Bidder team.				
VI. Full stack developers – Two Nos a. To be posted at CPCB HO during office hours for entire 07 years project duration b. Should possess an experience of atleast five years before taking up the assignment in software development as full stack developer. c. Selection through interview with CPCB and Bidder team.	02			Price x 02 =
VII. Deployment of ticket raising tool for various users of CPCB/SPCB/Industry and other agencies requiring modifications/issues/bugs and their follow-ups.	01			Price x 01 =
VIII. Development of Mobile APP on iOS & its continuous upgradation in coming 7 years	01			Price x 01 =
IX. Development of Mobile APP on Android and it's continuous upgradation in coming 7years	01			Price x 01 =
X. Testing and Certifications of all the modules by Internal team every year once in January.	01			Price x 01=
XI. Submission of Software code in physical forms (like CDs or SSDs every year in January) with all the modifications alongwith Manual of installation procedure and code procedures documented during the year for the development.	01			Price x 01 =
XII. Software Audit through CERT-In Empanelled vendors. (audit if to be done as per NIC requirement)	01			Price x 01=
XIII. Hosting of software per year	02 years	Per year price		Price x 02=
XIV. Training (As per Annexure attached) Trainings to Four (4) IT staff members for each technology used in software development as per Annexure	01 Set (Covering all technologies used)			Price x 01 =
XV. AMC First Year (after warranty) With two resident full stack developers at CPCB & following other conditions	AMC per year			Price x 01 =
XVI. AMC second Year (after warranty) With two resident full stack developers at CPCB & following other conditions	AMC per year			Price x 01 =

XVII. AMC third Year (after warranty) With two resident full stack developers at CPCB & following other conditions	AMC per year			Price x 01 =
XVIII. AMC fourth Year (after warranty) With two resident full stack developers at CPCB & following other conditions	AMC per year			Price x 01 =
XIX. AMC fifth Year (after warranty) With two resident full stack developers at CPCB & following other conditions	AMC per year			Price x 01 =
XX. AMC sixth Year (after warranty) With two resident full stack developers at CPCB & following other conditions	AMC per year			Price x 01 =
XXI. Total value of the bid				

Note: a. The rates for AMC shall be governed as below:

1. If bidder has quoted an increment in AMC rates per year, the same will continue after 6 years of service as per actual increment sought every year.
2. if AMC quoted rates are fixed then bidder is bound to provide services at the quoted fixed AMC rates.
3. The Bidder is bound to provide AMC services, till the software is used by CPCB or a new system is developed or new AMC firm is given the assignment by CPCB.
4. Audit rates as quoted above, shall remain valid and applicable, as and when audit will be required by NIC in the project duration and AMC duration.

NOTE: - Sheet must be signed by the Bidder along with the seal.

Final cost of bid will be calculated on the basis of total sum of column 5.

Signature with date & stamp of the bidder

ANNEXURE 1: RFP SUBMISSION FORM

(To be submitted on official letterhead of the bidder)

Date: _____

To,

The Divisional Head – IT Division,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi – 110032

Subject: Request for Proposal for Development of “National Data Acquisition and Management System (NDAMS) for OCEMS Direct Data Transfer”.

Sir,

We, the undersigned, offer to provide services to CPCB in accordance with your Request for Proposal (RFP) dated _____ for Development of National Data Acquisition and Management System (NDAMS) for OCEMS Direct Data Transfer. We are hereby submitting our Request for Proposal (RFP).

We hereby declare that all the information and statements made in this Request for Proposal (RFP) are true, and accept that any misinterpretation contained in it may lead to our disqualification.

We agree to abide by all the terms and conditions of the RFP document. We understand you are not bound to accept any proposal you receive.

We have enclosed the following documents

1. Letter of Authorization.
2. Technical Evaluation Criteria (TEC) as per Table 1.0. Kindly fill up complete Table 1.0 and attach all supporting documents (self attested copies) as per filled information and required information.
3. Sealed and signed affidavit or Self Declaration as mentioned TEC as per Table 1.0.
4. Duly filled Price Bid Sheet as per Section 20.
4. Duly filled Annexure-II.

I/ We hereby declare that my/ our RFP is made in good faith and the information contained is true and correct to the best of my/ our knowledge and belief.

Thanking you,

Yours sincerely,

Signature of Authorized Signature [In full and initials]: _____

Name and Designation of Authorized Signatory: _____

Email _____ Mobile No. _____

Telephone of firm _____

Name of Bidder: _____

Address: _____

Location: _____ Date: _____

ANNEXURE 2: APPLICANT'S DETAILS

S. No.	Items	Bidder's Response
1	Basic Information	
	Name of the Bidder	
	Registered Office Address	
	Name of the Contact Person	
	Telephone Number of the Contact Person	
	Official Email ID of the Contact Person	
	Website of the Bidder	
	Year of Incorporation	
2	Locations of Development Centres and Number of Professionals	(1) (2) ...
5	Average relevant experience of Project Managers (to be deployed for this project) handling software development projects	

6	Average relevant experience of software developers/testers/designers etc. (to be deployed for this project)	
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Signature of the Authorized Signatory:

Name of the Authorized Signatory:

Date:

Place:

Seal:

ANNEXURE 3: TRAINING

The firm has to provide complete know-how of software development for the project right from the development stage to IT Team of CPCB keeping it in loop and associating the team at software development site or through remote management. The firm's IT Team shall develop a parallel platform/Infrastructure in CPCB through which modules development work and modules testing work will have to be done.

Technical training to be provided by the bidder to IT Technical Team of CPCB on coding for any new module development as may be required in future, database creation, updation, data management, database integration in the system, overall workflow of the application, Application Architecture, Build & Deployment of Application, Knowledge sharing on third party tools (if used), and Technology Awareness (Used in building the application) which also includes data preparation including preventive maintenance, benchmarking and generating reports as mentioned in the tender document.

Firm has to associate IT Technical Team of CPCB right from the scratch of Software development which includes front-end and back-end development i.e. from the point of data collection to data visualization for operation of developed software.

Training must include following modules

Core Modules IT Training

1. Front end development for the technology used (Page development, forms development, reports development etc).
2. System installation on VMs
3. Back end development for the technology used (interface, Infrastructure, speed management, load balancing, logic development, Database query etc.).
4. Server Management, Services Handling etc.
5. Database Administration (Designing, Capacity planning, installation, configuration, migration, performance monitoring, security, audit, query resolution, patch management, troubleshooting, data backup and data recovery).
6. Mobile App development in both iOS and android.

Modules User Training

1. Administrative modules (configuration management, report management, user management, data management).
2. Uploading & downloading of industry data in database through interface.

3. Training must include other than mentioned points which are necessary for day to day debugging of issues for smooth operation, upgradation and development of deployed software and infrastructure.
4. Firm will be responsible for providing User Training, User Manuals for all types of users (including Administrator role) and Technical Documents. (Softcopy should be digitally signed by the project manager of the firm).
5. Payment of milestone training will be released only after 100% complete training of developed modules /software till date on the basis of participants reviews on training.
6. Training to IT staff of CPCB for operation of the software as well as for the creation of any new module/utilities/reports of the software in future.

Table no. 1

Sl. No	Training* Modules (To be filled, as per Technology used by the bidder)	No. of CPCB officials (four for each technology) #	Name of the Institute of repute through which the training will be provided by the bidder including the certification to the official trained.	Duration*** Part time
1	Kafka	04	xxxx	...weeks
2	iOS	04	Xxxx	... weeks
3	Android	04	Xxx	... weeks
4	Apache	04	Xxx	... weeks
5	TSDB	04	XXX	..Weeks
6	04	Xx	..weeks

*Each technology used in development of the software to be mentioned here. Technologies mentioned here are for reference only. If any technology introduced at any stage of the project operation, similar details of training and training of CPCB officials will be the responsibility of the firm.

**Training should be planned on part time basis in the evening.

***Duration of the training should be such that the trained officials get trained starting from scratch of the technology used, code development, code deployment, new module development etc. These officials should be able to handle the software operation on their own.

#No of officials may vary. Payment will be released as per number of officials get trained.

ANNEXURE 4: INTEGRITY PACT

INTEGRITY PACT

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on day of the month of 2022, between, CPCB, An autonomous body acting through Shri, {Designation of the officer, Ministry/Department, Government of India) hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns of the First Part and M/s represented by Shri.. .., Chief Executive Officer (hereinafter called the "BIDDER / SELLER" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to procure (Name of the Stores/Equipment/Item) and the BIDDER/Seller is willing to offer/has offered the stores and WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER CPCB work under the ageis of Environment & Forests, performing its functions as per the provisions of Water Act 1974, Air Act ,1981 and EPA Act, 1986.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to :-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Commitments of the BUYER

1.1. The BUYER undertakes that no official of the BUYER, connected directly or indi.rectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an

advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

- 1.2. The BUYER will, during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
 - 1.3. All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case of any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

Commitments of BIDDERS

3. The BIDDER commits himself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commits himself to the following:-
 - 1.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the Contract.
 - 1.2 The BIDDER further undertakes that he has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the Contract or any other Contract with the Government for showing or forbearing to show

favour or disfavour to any person in relation to the Contract or any other Contract with the Government.

- 1.3 * The BIDDER shall disclose the name and the address of the agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- 1.4 The BIDDER shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 1.5 The BIDDER further confirms and declare to the BUYER that the BIDDER is the original manufacturer/integrator/authorized dealer and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individuals, firms or company in respect of any such intercession, facilitation or recommendation.
- 1.6 The BIDDER, either while presenting the bid or during pre-contact negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 1.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 1.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 1.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 1.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 1.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 1.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officers of BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filling the tender.

1.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

4. Previous Transgression

1.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India, that could justify BIDDER's exclusion from the tender process.

1.2 If the BIDDER makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Sanctions for Violation

1.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by him or acting on his behalf (whether with or without the knowledge of the BIDDER shall entitle the BUYER to take all or any one of the following actions, wherever required:-

- I. To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
- II. The Earnest Money/Security Deposit/Performance Bond shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore
- III. To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- IV. To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India , while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest
- V. To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.
- VI. To cancel all other contact with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such

cancelation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to BIDDER.

- VII. To debar the BIDDER from entering into any bid from the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- VIII. To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.
- IX. The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER, and if he does so, the BUYER shall be entitled forthwith to rescind the contract and all other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.
- X. In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- XI. Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

1.2 The Buyer will be entitled to take all or any actions mentioned at para 4.1(i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), or any offence as defined in Chapter IX of the Indian Penal Code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

1.3 The decision of the Buyer to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder shall be final and binding on the Bidder, however, the Bidder can approach the monitor(s) appointed for the purposes of this Pact.

6. Fall Clause

1.1 The Bidder undertakes that he has not supplied/is not supplying the similar systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India and if it is found at any stage that the similar system or sub-system was supplied by the Bidder to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price will be applicable to the present case and the difference in the cost would be refunded by the Bidder to the Buyer, if the contract has already been concluded.

7. Independent Monitors

- 7.1. The Buyer has appoint Independent Monitors (hereinafter referred to as Monitors) for this Pact, in consultation with the Central Vigilance Commission (Sh Jagdish Rai Garg, C/o Member Secretary, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032, Mobile No. 8008516763, email : jr.garg@yahoo.com.)
- 7.2. The task of the Monitors shall be reviewed independently and objectively , whether and to what extent the parties comply with the obligations under this Pact.
- 7.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 7.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 7.5. As soon as the Monitor notices, or believes to notice, a violation of this Pact, he will so inform the authority designated by the BUYER.
- 7.6. The BIDDER's accept that the Monitors has the right to access without restriction to ala Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to the sub contractors. The Monitor shall be under contractual obligation to treat the information and documents of all the BIDDER's / subcontractors with confidentially.
- 7.7. The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 7.8. The Monitors will submit a written report to the designated Authority of BUYER within 8 to 10 weeks from the date of reference or intimation to him by the BUYER/BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

8. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Integrity Pact or payment of commission, the Buyer or its agencies shall be entitled to examine the Books of Accounts of the Bidder and the Bidder shall provide necessary information of the relevant financial documents in English and shall extend all possible help for the purpose of such examination.

9. Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat/place of the BUYER.

10. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

11. Validity

11.1 The validity of this Integrity Pact shall be from date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the Buyer and the Bidder/Seller, including warranty period whichever is later. In case BIDDER is unsuccessful, this integrity Pact shall expire after six months from the date of the signing of the contract.

11.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

12. The Parties hereby sign this Integrity Pact at _____ on _____.

BUYER
Name of The Officer.
Designation
Deptt./MINISTRY/PSU

BIDDER
CHIEF EXECUTIVE OFFICER

Witness
1.....
2.....

Witness
1.....
2.....

ANNEXURE 5: CHECKLIST

S. No.	Enclosure	Response
1.	Table 1.0 Filled in TEC for RFP	Yes/No
2.	Attached Annexure 1	Yes/No
3.	Attached Annexure 2	Yes/No
4.	Attached Annexure 3	Yes/No

APPENDIX 1: INDICATIVE LIST OF DATA LOGGERS

S. No.	Device Make	Device Model
1	Make	Model
2	OP SIS	WT256STD
3	Shreetec	DL
4	AICPL	Optiplex Series
5	Surveykshan	EDS/01
6	UNITECH	UT-RTU
7	Logicladder	TD-V2.00.00.0 and STD-LTE-ADV-V2.04.02.1
8	Nimbus Technology	DL-35W
9	PRIMA	DAMS-M
10	iseo	eSAM Windows
11	M2M Logger	LogPRO env1.1
12	SCAN	con::cube
13	SCAN	con::lyte
14	Maestro	E315
15	SCAN	moni::tool
16	Knowledge Lens	Ilens 3.2
17	Knowledge lens	Envion
19	Vasthi Instruments	VE - PC-200
20	Phoenix Robotix Pvt Ltd	Trade Omni
21	MCOM TECHNOLOGY.	MCOM 300
22	Ascent Intellimation Pvt. Ltd.	EnviroConnect
23	Forbes Marshall Pvt. Ltd	EnviroSense
24	Ascent Intellimation Pvt. Ltd.	DatConn Its Linux based System
25	Forbes Marshall Pvt. Ltd	FMBlackBox, Its Linux based System

APPENDIX 2: INDICATIVE LIST OF ANALYZERS

S. No.	Device Make	Device Model	Parameters Monitored	Data communication Protocol	Type of Port
1.	ABB	FEP311080A1D2A1B1A1 AOA1B1C1T3	Flow	Modbus	RS-485
2.	ABB	Fep.311.050.AIDIAIBIAO AICIHITM3M	Flow	Modbus	RS-485
3.	ABB	FEP311040A	Flow	Modbus	RS-485
4.	ABB	FET3211AOA1B1C1H1	Flow	Modbus	RS-485
5.	ABB	EL3020	SO ₂ ,NOX	Modbus	RS-485
6.	ABB	ACFNT	SOX,NOX	Modbus	RS-485
7.	ABB	Uras 26	SOX,NOX	Modbus	RS-485
8.	ABB INDIA LIMITED	FEP311050A1D2A1B1A1 AOA1B1C1T3H1	Flow	Modbus	RS-485
9.	ABB LTD	FEP321025A1S1A1B1A1 A1A1BOY1AYF5	Flow	Modbus	RS-485
10.	BHA	CPM5003	PM	Analog	4-20mA
11.	BHA/GE Group	CPM 750	PM	Modbus	RS-485
12.	BHOOMI	BI7000A	HCL ,HF	Modbus	RS-485
13.	BHOOMI ANALYZERS	BI7000	PM, O ₂ ,CO,CO ₂ ,SO 2,NO,HCL,HF,C L ₂ , NH ₃ ,H ₂ S, TEMP, PRESSURE	MODBUS	RS485
14.	BHOOMI ANALYZERS	BI2100	O ₂	MODBUS	RS485
15.	Chemtrols (Sick Maihak)	SB 300	PM	Modbus	RS-485
16.	Codel	GCEM40AO	SO ₂ ,NOX	Modbus	RS-485
17.	CODEL	GCEM40	SOX,NOX	Modbus	RS-485
18.	CODEL	DCEM 2100	PM	Analog / Modbus	RS-485
19.	Durag	D-R 216 OD	PM	Analog	RS-485
20.	DURAG INDIA LIMITED	DR-220	PM	Analog	4-20mA
21.	Dynoptics	DSL 340	PM	Modbus	RS-485
22.	Dynoptics	DSL 330	PM	Modbus	RS-485
23.	E &H	A402C620000	Flow	Analog	4-20mA
24.	Ecotech	Serinus 50	SO ₂	Modbus	RS232, Ethernet

25.	Ecotech	Serinus 40	Nox	Modbus	RS232, Ethernet
26.	ENDEE ENGINEERS	CA-2000 SO2	SO2	Modbus	RS-232
27.	Endress & Hausar	Electro magnatic	Flow	Analog	4-20 mA
28.	Endress & Hausar	Promag-50	Flow	Analog	4-20mA
29.	Endress + Hauser	PROMAG L 10L50- QL0A1AA0B4AA	Flow	Modbus	RS-485
30.	Endress + Hauser	Promag 10	Flow	Modbus	RS-485
31.	Endress + Hauser	PROMAG 10	Flow	Analog	4-20mA
32.	Endress+Hau ser	Promag L	Flow	Analog	4-20mA
33.	ENDRESS+HA USER	PROGRAM P	Flow	Analog	4-20mA
34.	ENDRESS+HA USER	CUS51D	TSS	Analog	4-20mA
35.	ESA	MIR 9000	SO2,NOX	Analog	RS-232
36.	ESA	PCME 210	PM	Modbus	RS-232
37.	EUREKA / RADIX	SSVF/RADIX FLT601	Flow	Analog	4-20mA
38.	Fedrel	FM 15	Flow	Analog	4-20 mA
39.	Fives pillard	Opastop	PM	Modbus	RS485
40.	Flowgen Technologies	FG Controles	Flow	Modbus	RS-485
41.	FORBES MARSHALL	OPTIFLUX/4000-IFC100	Flow	Analog	4-20mA
42.	Forbes Marshall	FM TCS 1000	TSS	Analog	4-20mA
43.	FPI	BPM - 200	PM10,PM2.5	Analog	RS-232
44.	FPI	OMA-2000	SO2,NOX	Analog	RS-232
45.	Fuji Electric	ZRE	SOx, Nox Co, CO2, O2	Modbus	RS 485
46.	HORIBA	HP-480	pH	Modbus	RS-485
47.	HORIBA	OPSA-150	COD,BOD,TSS	Modbus	RS-485
48.	IFI	EM 921	PM	Analog	RS-232
49.	IFI	EM 922	PM	Analog	RS-232
50.	IFI	EM 923	PM	Analog	RS-232
51.	IFI	EM 924	PM	Analog	RS-232
52.	IFI	EM 925	PM	Analog	RS-232
53.	IFI	EM 926	PM	Analog	RS-232
54.	IFI Pune	EM919	PM	Analog	4-20mA
55.	JAYCEE	JAYCEEMAG	Flow	Analog	4-20mA

56.	Khrone Marshall	IFC100	Flow	Modbus	RS-485
57.	KHUSHAL	VEI015	Flow	Analog	4-20mA
58.	Krohne Marshal	IFM4021K	Flow	Modbus	RS-485
59.	Krohne Marshall	IFC 050	Flow	Analog	4-20mA
60.	Krohne Marshall	ECOMAG	Flow	Modbus	RS-485
61.	Krone Marshall	OPTIFLUX 4000	Flow	Analog	4-20mA
62.	LKS	GA-LK-1000F-SP	NO,NO2, NOx, SO2	Modbus	RS-485
63.	LKS	D-10	PM	Modbus	RS-485
64.	LKS	D-11	PM	Modbus	RS-485
65.	METONE	BAM-1020	PM10,PM2.5	Analog	RS-232
66.	MIP ELECTRONICS OY	LM3188	PM	Analog	4-20mA
67.	MIP-OY	LM-3188	PM	Analog	4-20mA
68.	Opsis	AR 602z	NO, NO2, NOx, SO2, NH3	Modbus	RS-232
69.	Opsis	AR 650	CO, HCL, HF	Modbus	RS-232
70.	Opsis	LD 500	CO, CO2, HF, NH3, O2, HCL, H2S	Modbus	RS-232
71.	PRIMA	PSGM-1-D-AGS	SO2	Modbus	RS-232
72.	RLT	RLM50-IP35DCNCOAF3780	Flow	Modbus	RS-485
73.	RLT	RLM25-1P3SDCNNCOAF3780	Flow	Modbus	RS-485
74.	Rosemount	8712E	Flow	Analog	4-20mA
75.	SAITECH	Micro Mag	Flow	Analog	4-20 mA
76.	SHIMADZU	NSA-3080	CO,CO2,O2	Analog	4-20 mA
77.	SHREE TECS PVT LTD.	CEMS	PM	Modbus	RS-232
78.	SICK	SB-30	PM	Modbus	RS-485
79.	SICK	S-710	SOX,NOX	Analog	RS-232
80.	Sick	DT50	PM	Modbus	RS-485
81.	Sick	SB30	PM	Modbus	RS-485
82.	SICK MAIHAIK	RM210	PM	Modbus	RS-485
83.	Sick Maihak	FW-300	PM	Modbus	RS-485
84.	SIEMENS	ULTRAMAT23	SOX,NOX	Modbus	RS-232/RS-485
85.	Sintrol	S305	PM	Modbus	RS-485

86.	Tethys Instruments	UV500	COD, BOD, pH, TSS, NH4, Temp, PO4, COLOUR,	MODBUS	RS232
87.	Tethys Instruments	UV400	COD, BOD, pH TSS, NH4	MODBUS	RS232
88.	Tethys Instruments	UV300	COD, BOD, pH TSS	MODBUS	RS232
89.	Tethys Instruments	EL200	pH,TSS, Temp, Cl2	MODBUS	RS232
90.	The Temnpect Instruments Udaipur(Raj)	SPM01	PM	Modbus	RS-232
91.	Thermo Fisher Scientific	5014i	PM 10, PM2.5	C-link / Modbus	RS-232/ETHER NET
92.	Thermo Fisher Scientific	5028I	PM 10 / PM 2.5	C-link / Modbus	RS-232/ETHER NET
93.	Thermo Fisher Scientific	43i	SO2	C-link / Modbus	RS-232/ETHER NET
94.	Thermo Fisher Scientific	42i	NO / NO2 / Nox	C-link / Modbus	RS-232/ETHER NET
95.	Thermo Fisher Scientific	48i	CO	C-link / Modbus	RS-232/ETHER NET
96.	Thermo Fisher Scientific	410i	CO2	C-link / Modbus	RS-232/ETHER NET
97.	Thermo Fisher Scientific	49i	O3	C-link / Modbus	RS-232/ETHER NET
98.	Tribo	Tribo dsp U3600	PM	Analog	4-20mA
99.	Unitech	Umag-110	Flow	Modbus	RS-485
100.	Vasthi Engineers PVt Ltd	OMGA-1000/2000/4000/7000	SO2,NO,NO2,O2,CO,CO2,SOX,NOX,HCL,HF,T OC	Modbus	Rs-485
101.	Vasthi Engineers PVt Ltd	VDMS-1000	PM	Modbus	Rs-485
102.	Vasthi Engineers PVt Ltd	W Det-5000 UVI	COD,BOD,TSS,P h	Modbus	Rs-485

103.	WTW	MIQ/TC2020XT	Ph,TSS,Tempar ature	Analog	4-20mA
104.	WTW	Sensolyt 700IQ	Ph	Analog	4-20mA
105.	WTW	CarboVis 705 IQ	COD,BOD,TSS	Analog	4- 20mA/RS- 485
106.	WTW	Sensolyt 700 IQ	pH, Temperature	Modbus	RS-485
107.	WTW	AmmoLyt plus 700 IQ	NH4-N	Modbus	RS-485
108.	WTW	FDO 700 IQ	Dissolved Oxygen	Modbus	RS-485
109.	WTW	Tetracon 700 IQ	Conductivity, TDS	Modbus	RS-485
110.	WTW	VisoTurb 700 IQ	Turbidity	Modbus	RS-485
111.	WTW	Varion Plus 700 IQ	NH4-N	Modbus	RS-485
112.	WTW	VISOLID 700IQ	TSS	Modbus	RS-485
113.	WTW	NitraLyt Plus 700 IQ	NO3-N	Modbus	RS-485
114.	YOKOGAWA	IR200	SOX,NOX	Modbus	RS-485

APPENDIX 3: TYPES OF REPORTS

Single Industry Single Station (Effluent)



Single Industry Single Station (Emission)



Single Industry Multi station (Effluent)



Report Type: Single Industry Multi Station (Effluent)

State: West Bengal

State: Oil Refinery

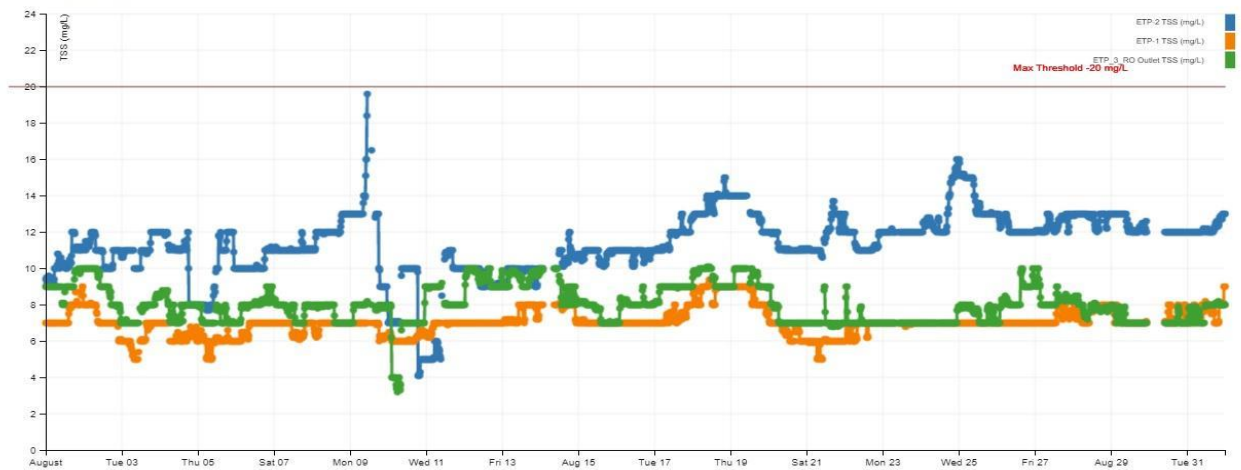
Industry Name	Address	Monitoring Station	Parameters	Period From	Period To	Time Duration	Aggregation
		ETP-1, ETP-2, ETP_3_RO Outlet	pH, TSS, COD, BOD	01-Aug-2021 00:00	31-Aug-2021 23:59	15 minutes	Average/Mean

Alert Thresholds

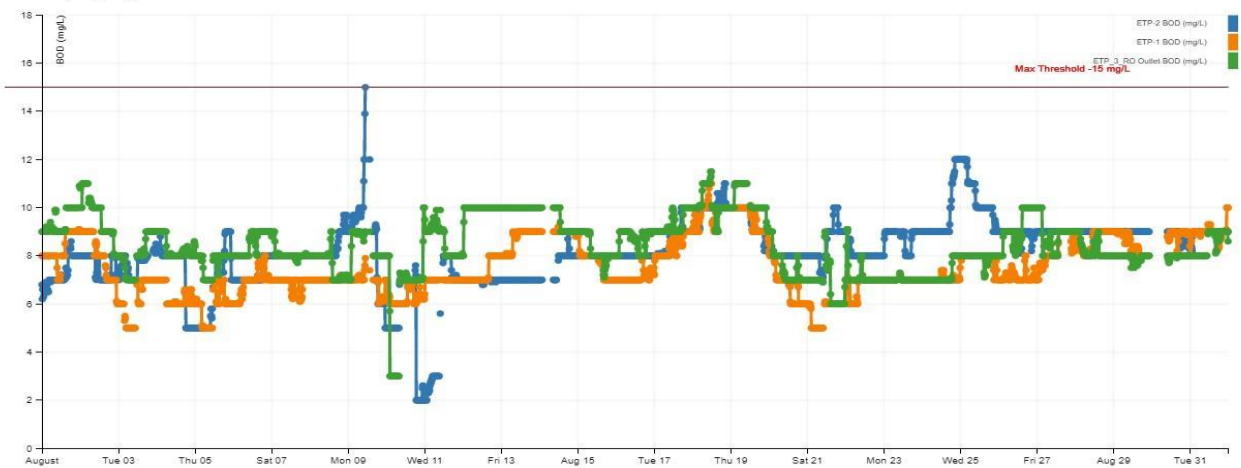
Parameter	Min	Max
COD	N/A	125
BOD	N/A	15
TSS	N/A	20
pH	6	8.5
COD	N/A	125
BOD	N/A	15
TSS	N/A	20
pH	6	8.5
COD	N/A	125
BOD	N/A	15
TSS	N/A	20
pH	6	8.5

Parameter Readings

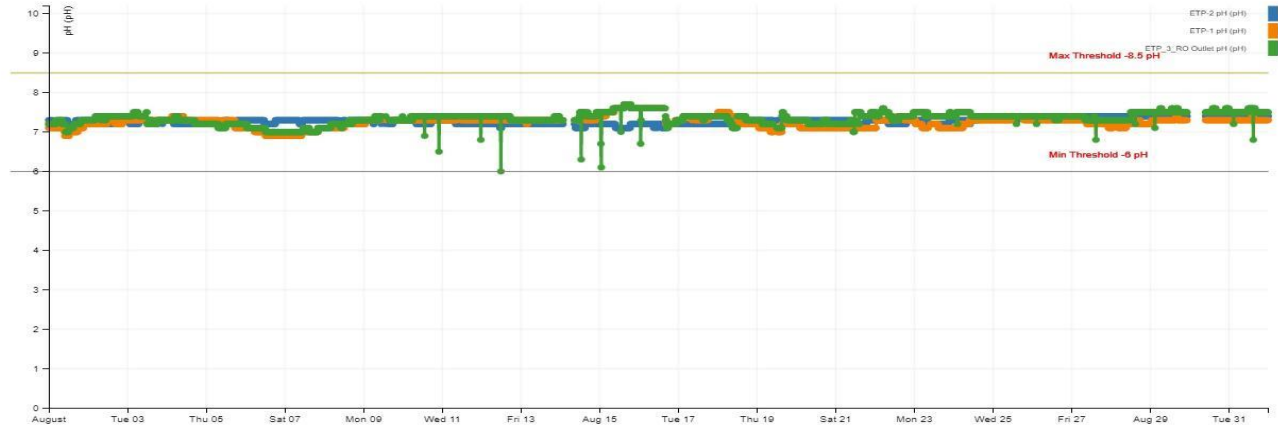
TSS (mg/L)



BOD (mg/L)



pH (pH)



COD (mg/L)



Single Industry Multi station (Emission)

Central Pollution Control Board
Online Emission and Effluent Monitoring System



Report Type: Single Industry Single Station (Emission)

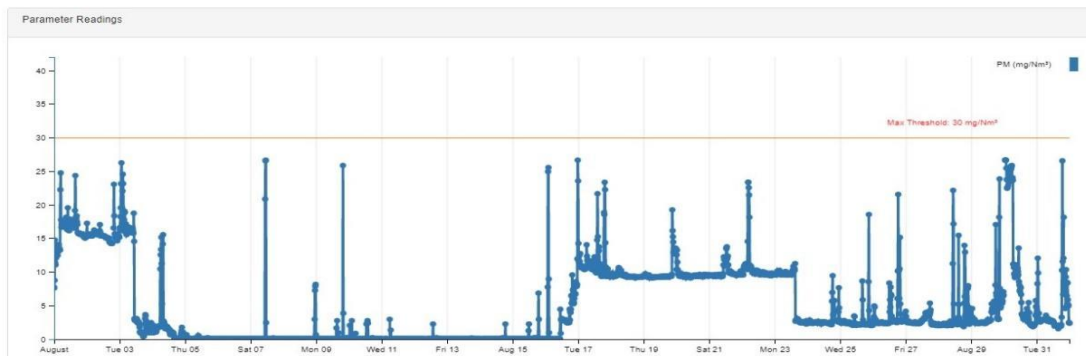
State: Rajasthan

State: Cement

Industry Name	Industry Location	Station Name	Period From	Period To	Time Duration	Aggregation	Parameters
		Unit 2 Cement mill stack	01-Aug-2021 00:00	31-Aug-2021 23:59	15 minutes	Average/Mean	PM

Alert Thresholds

Parameter	Min	Max
PM	N/A	30 mg/Nm ³



Multi Industry (Effluent)

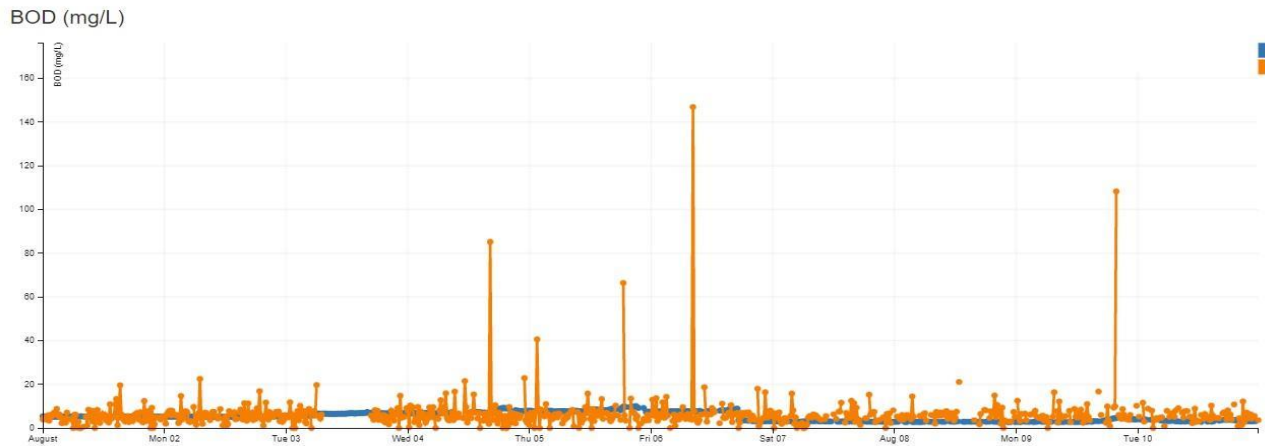
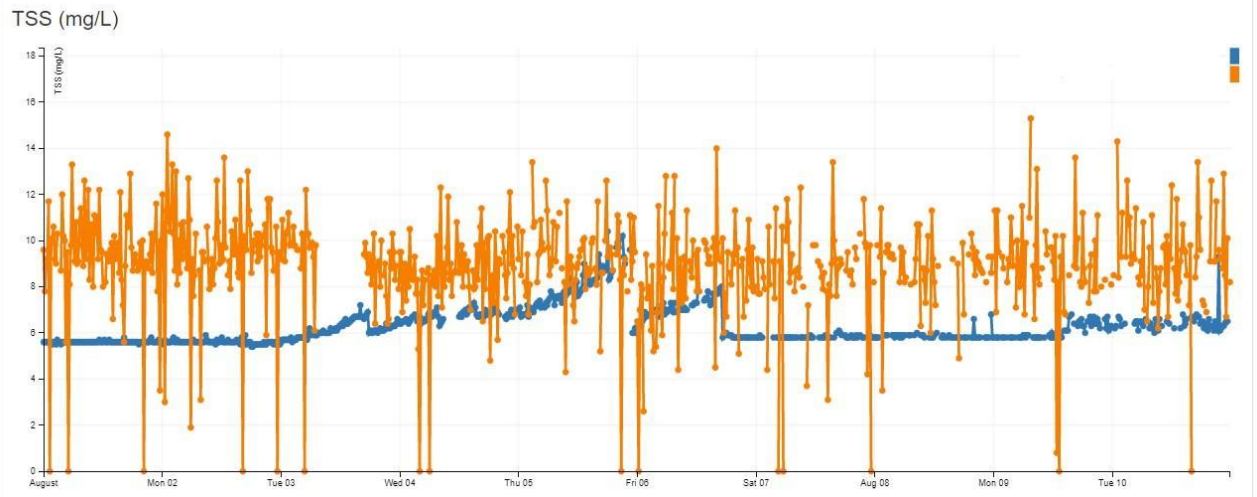
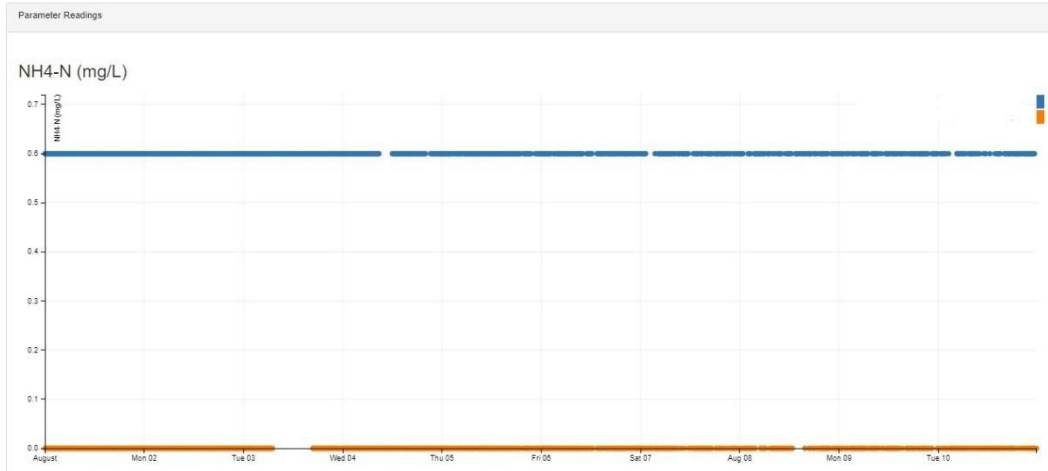


Report Type: Multiple Industry (Effluent)

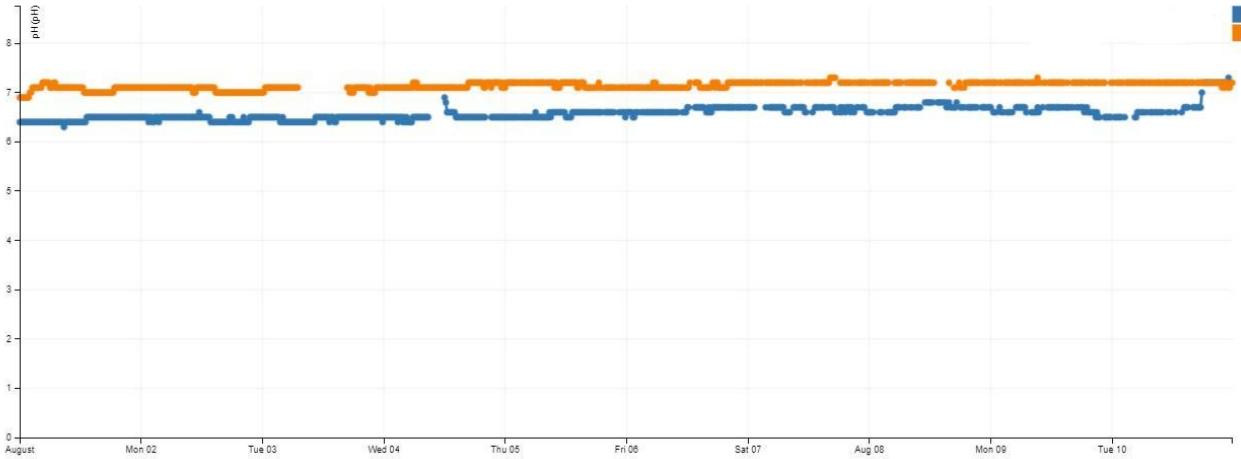
State: Delhi

State: Sewage Treatment Plant

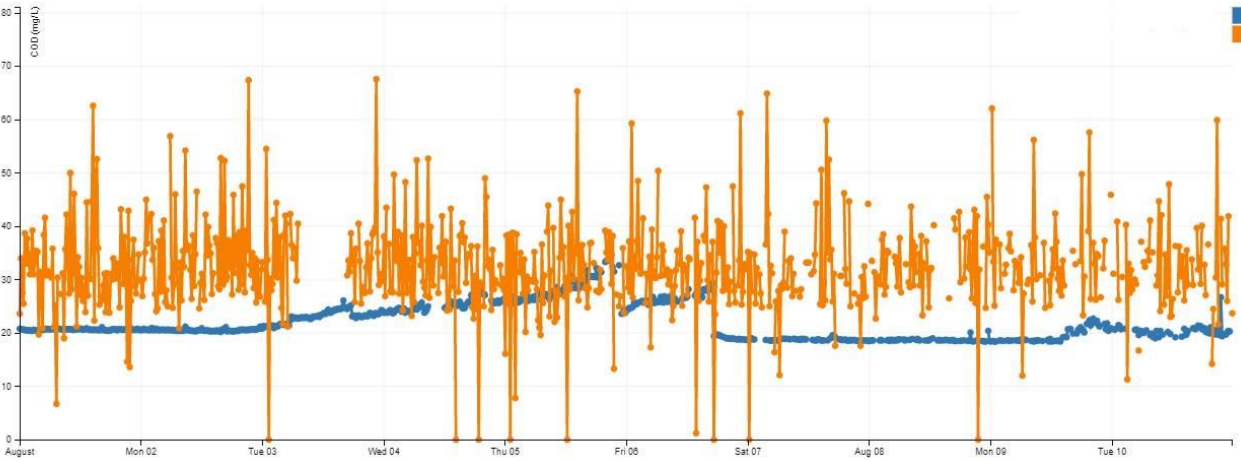
Industry Name	Station Name	Period From	Period To	Time Duration	Aggregation	Parameters
		01-Aug-2021 00:00	10-Aug-2021 23:59	15 minutes	Average/Mean	pH, BOD, COD, Env Temp, NH4-N, TSS



pH (pH)



COD (mg/L)



Multi Industry (Emission)

Central Pollution Control Board
Online Emission and Effluent Monitoring System

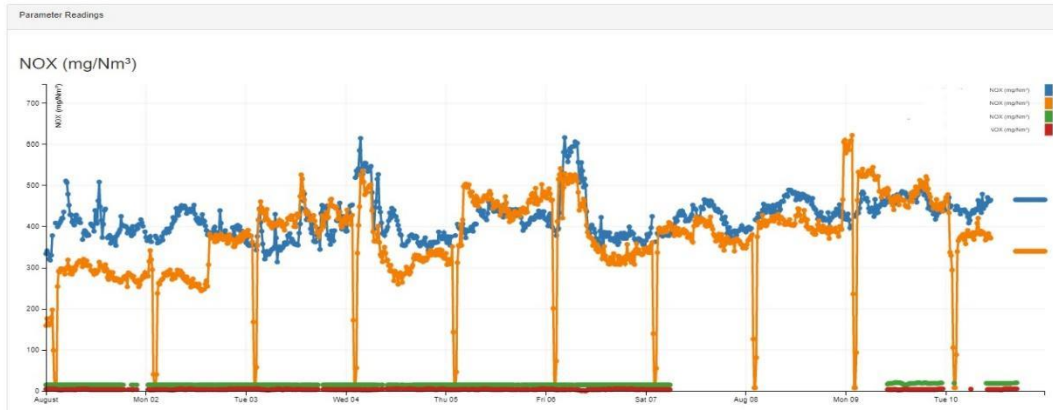


Report Type: Multiple Industry (Emission)

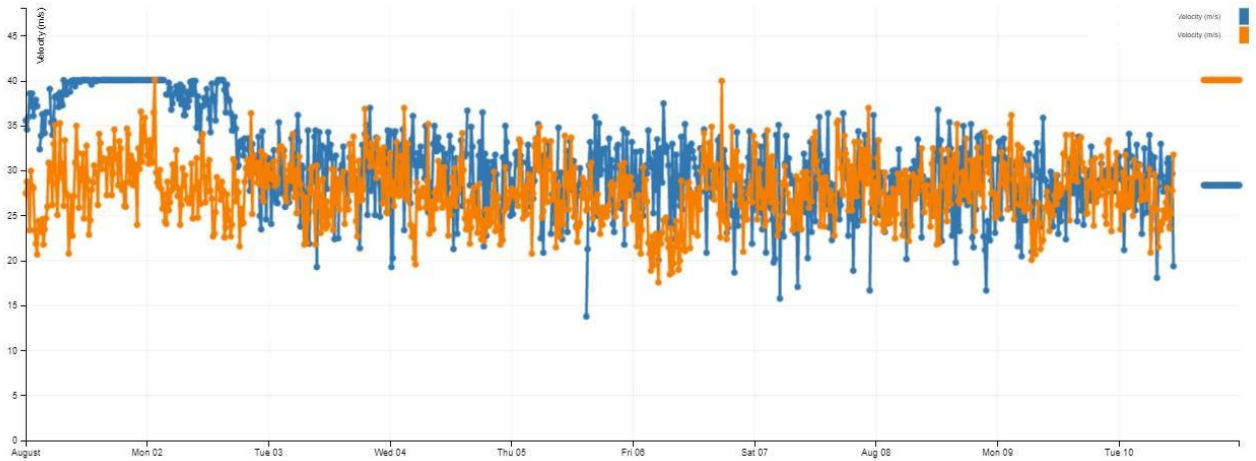
State: Punjab

State: Power Plant

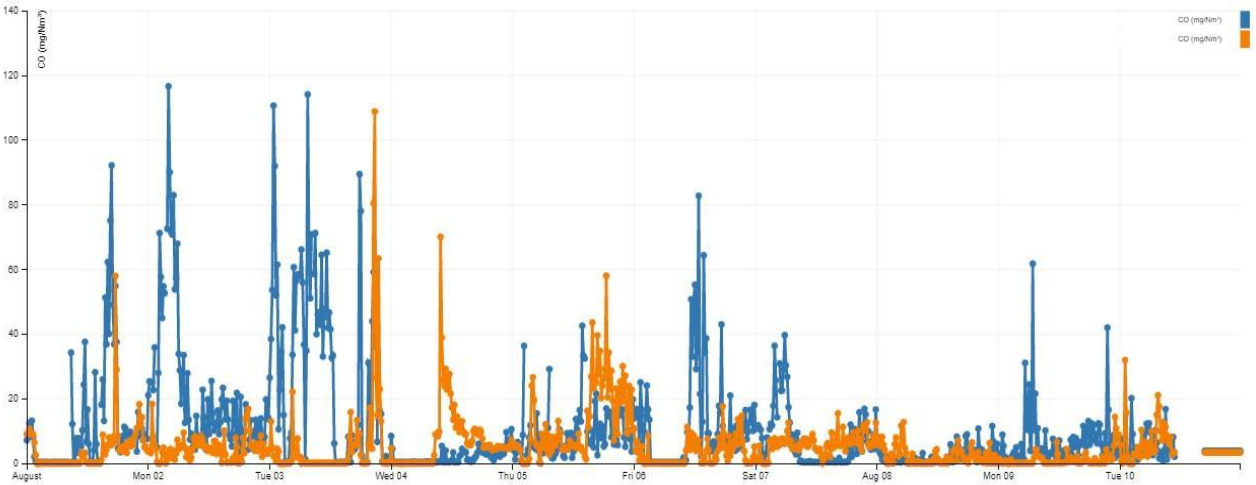
Industry Name	Station Name	Period From	Period To	Time Duration	Aggregation	Parameters
	Unit 1, Unit 2, STACK3, STACK2	01-Aug-2021 00:00	10-Aug-2021 23:59	15 minutes	Average/Mean	SOX, NOX, Opacity, CO, Velocity, PM



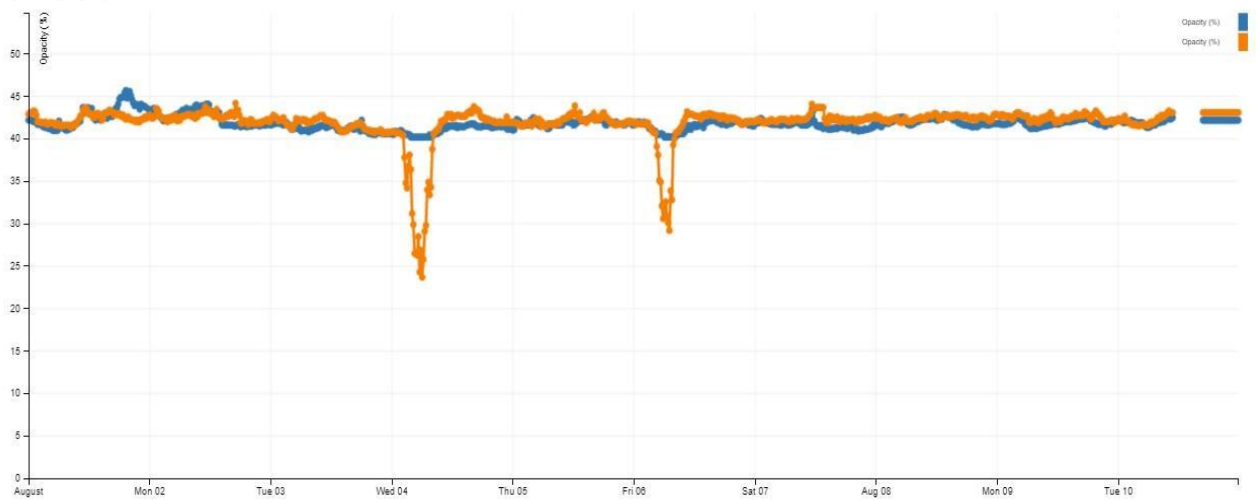
Velocity (m/s)



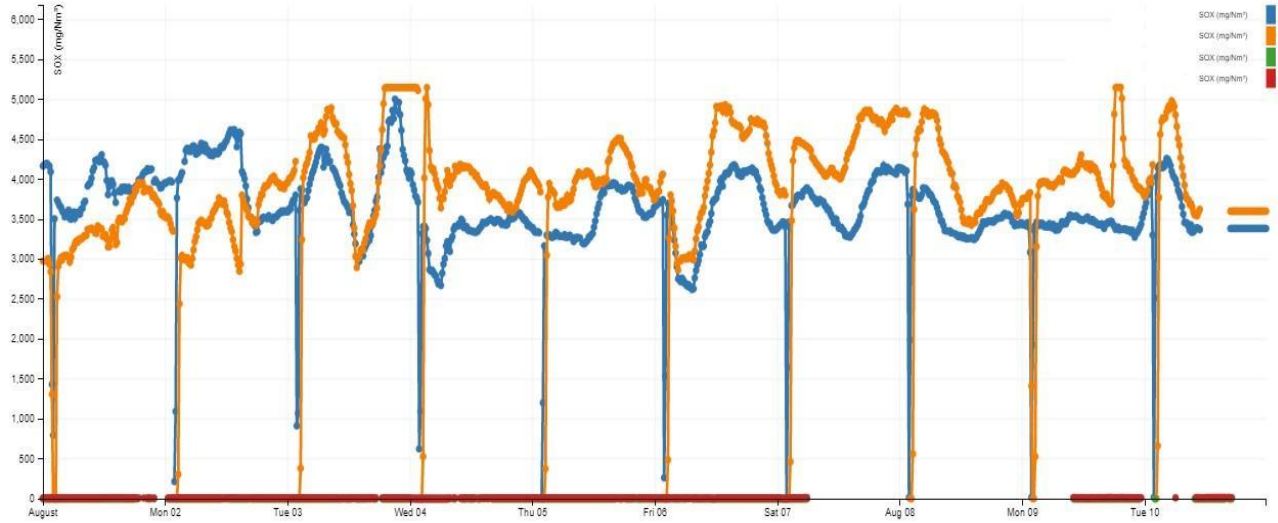
CO (mg/Nm³)



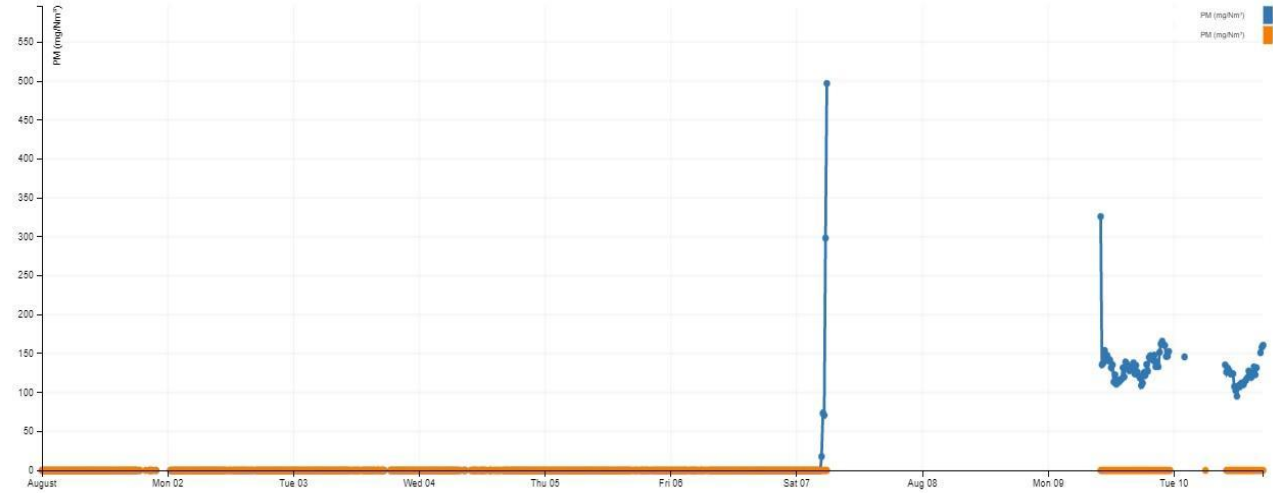
Opacity (%)



SOX (mg/Nm³)



PM (mg/Nm³)



Alert Generation Category wise

Report Type: Alert Generation Category Report
Online Emission and Effluent Monitoring System



Start Date	End Date
01-Aug-2021	10-Aug-2021

State	Count
Dye and Dye Intermediate	4944
Fertilizer	16234
Iron and Steel	58496
Pulp and Paper	7229
Pesticides	10600
Pharma	12964
Cement	13353
Chemical	6573
Aluminium	14
Chlor Alkali	1128

Alert Generation State wise

Report Type: Alert Generation State Report
Online Emission and Effluent Monitoring System



Start Date	End Date
01-Aug-2021	10-Aug-2021

State	Count
Andhra Pradesh	17725
Assam	1505
Bihar	4898
Chandigarh	312
Chhattisgarh	7667
Delhi	25604
Goa	161
Gujarat	45189
Haryana	50689
Himachal Pradesh	1446

Alert Generation Ganga Basin

Report Type: Alert Generation Ganga Basin Report
Online Emission and Effluent Monitoring System



Start Date	End Date
01-Aug-2021	10-Aug-2021

State	Count
Chhattisgarh	7667
Jharkhand	20561
UP	31117
Bihar	4898
Haryana	50689
Madhya Pradesh	14489
West Bengal	14765
Uttarakhand	10716
Delhi	25604

Alert Generation Effluent

Report Type: Alert Generation Effluent Report
Online Emission and Effluent Monitoring System



Start Date	End Date
01-Aug-2021	10-Aug-2021

Effluent Treatment Plant	Count
Effluent Treatment Plant	1
.ETP OUTLET_1_Ammonia Plant	42
/ETP	9
/ETP-2	6
/ETP Plant	4
/ETP_1	2
/ETP Monitor	3
/ETP Analyzer	273
D/ETP_1	11
/ETP	1

Alert Generation Emission

Report Type: Alert Generation Emission Report
Online Emission and Effluent Monitoring System



Start Date	End Date
01-Aug-2021	10-Aug-2021

Source	Count
Cement Mill-2	4
/Stack_2_Cement_Clinker_Cooler	3
/Stack_1_CPP_Stack-15 MW	5
Stack_3_Cooler_Unit1_35mtr-PM	301
Stack_5_Boller # 5	2077
/Unit2 opacity	225
ACL_AmbujaNagar_Line3_Klin	30
/ACL_GajAmbuja_Line2_Cooler_ESP	178
/Stack_10_CPP_Boller_2	13
/Stack_3_Coal Mill	2

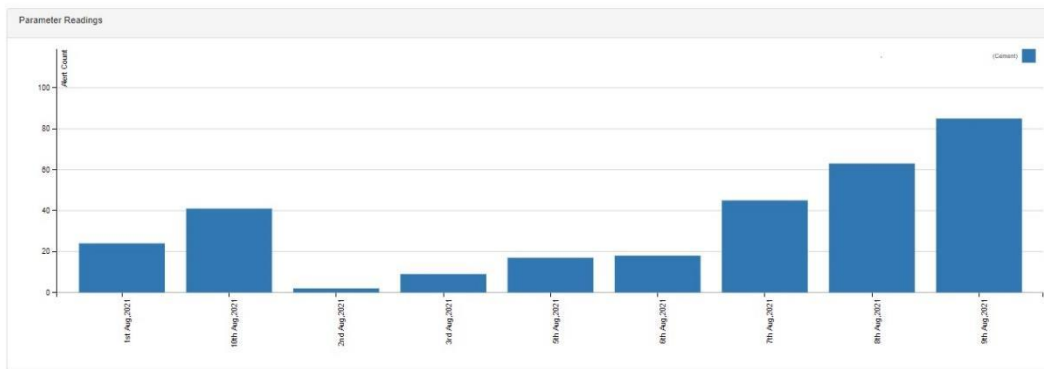
Industry Alert Generation

Chart Grid

Report Type: Industry Alert Generation
Online Emission and Effluent Monitoring System



Period From	Period To
01-Aug-2021	10-Aug-2021



Industrial Data Feed Low Level

Report Type: Industrial Data Feed Low Level
Online Emission and Effluent Monitoring System

PRINT



Start Date	End Date
01-Aug-2021	10-Aug-2021

Date	Industry Category	Industry Name	Location	Live	Delayed	Offline
2021-08-10 04:25:01:288	Sewage Treatment Plant		New Delhi, Delhi - 110091	1	0	0
2021-08-10 08:25:00:019	Sewage Treatment Plant		New Delhi, Delhi - 110091	1	0	0
2021-08-10 12:25:00:015	Sewage Treatment Plant		New Delhi, Delhi - 110091	1	0	0
2021-08-10 16:25:00:019	Sewage Treatment Plant		New Delhi, Delhi - 110091	1	0	0
2021-08-10 20:25:00:015	Sewage Treatment Plant		New Delhi, Delhi - 110091	1	0	0
2021-08-01 00:25:00:016	Sewage Treatment Plant		New Delhi, Delhi - 110091	0	1	0
2021-08-01 04:25:00:018	Sewage Treatment Plant		New Delhi, Delhi - 110091	0	1	0
2021-08-01 08:25:00:016	Sewage Treatment Plant		New Delhi, Delhi - 110091	0	1	0
2021-08-04 04:25:00:022	Sewage Treatment Plant		New Delhi, Delhi - 110091	0	1	0
2021-08-04 08:25:00:035	Sewage Treatment Plant		New Delhi, Delhi - 110091	0	1	0

Offline Industry Response Report

Report Type: Offline Industry Response Report
Online Emission and Effluent Monitoring System



S.No	Industry Name	Industry Code	Category	Address	State	City	Station Name	Parameter	Date from	Date to	Reason	Comments	Attachment Link	User Name
1			Cement	Muchtandi Road Bagalkot	Karnataka	Bagalkot	Stack_1_Kiln Exhaust	nox.so2.pm	11 Mar 2021	31 Dec 2021	Others	We have stopped our Kiln permanently and removed instrument & fixed this instrument in Cement Mill-4. So the in the nomenclature Cement Mill-4 should appear instead of Kiln		
							Stack_2_Cooler Exhaust	nox.co.pm	11 Mar 2021	31 Dec 2021	Others	We have stopped our Kiln permanently and removed instrument & fixed this instrument in Cement Mill-4. So the in the nomenclature Cement Mill-4 should appear instead of Kiln		
2			Cement	Aditya Nagar, Malkhed Road, Tal-Sedam, Pincode-585292	Karnataka	Sedam	Stack_18_CTPP-1	nox.so2.pm	14 Jun 2021 08:16	31 Dec 2021 23:59	Seasonal Shutdown	Plant Shut down.		
3			Cement	SURVEY NO 251/1 YADVAD VILLAGE GOKAK TALUKA	Karnataka	BELGAUM	RCL_STACK	nox.so2.pm	19 Jul 2021	31 Dec 2021	Shutdown	Clinkerisation section long shutdown continued for up-gradation work.		
							Stack4_Cooler_Mill_Stack	pm	19 Jul 2021	31 Dec 2021	Shutdown	Clinkerisation section long shutdown continued for up-gradation work.		
							Stack5_Coal_Mill_Stack	pm	19 Jul 2021	31 Dec 2021	Shutdown	Clinkerisation section long shutdown continued for up-gradation work.		
4			Cement	Post-Wadi, Taluk-Chittapur, Dist-Kalaburagi, Karnataka-585225	Karnataka	wadi	Stack_8_Cement Mill-1	pm	31 Jul 2021	31 Dec 2021	Others			
							Stack_6_Cement Mill-Separator-1	pm	31 Jul 2021	31 Dec 2021	Others			
							Stack_2_Cement Mill-2	pm	31 Jul 2021	31 Dec 2021	Others			

APPENDIX 4: HMI REPRESENTATION OF INDUSTRIAL PROCESS WITH OCEMS DATA VISUALIZATION

