

Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi 110032

Project: Development of National Hazardous Waste Tracking System (NHWTS) Software for CPCB, Tender Notice No. : C-12015/05/2018/IT/NHWTS-Tech/

1. Important Information and Dates

S. No.	Description of activities	Date & Time
1.	Date of publishing of tender	18.04.2019 at 16.00 hrs.
2.	Download of Bid Documents start	18.04.2019 at 16.00 hrs.
3.	Queries submission Last Date (eMail)	25.04.2019
4.	Bid Submission Start Date	29.04.2019 at 14:00 hrs.
5.	Bid Submission Closing Date (End Date)	20.05.2019 at 14:00 hrs.
6.	Technical Bid Opening	21.05.2019 at 15:00 hrs.

Firms who did not participate in earlier cancelled tender C-12015/05/2018/IT/NHWTS-Tech/Sr No 1 dated 10.01.2019, may also participate and place their queries through e-mail at hwmd.cpcb@nic.in . These queries shall be answered and if required necessary modification in the RFP shall be done. Any firm interested in the Project can participate and submit its bids as detailed in the document. Selection procedure has been revised based on the feed back received in earlier Tender.

Earnest Money Amount to be deposited : Rs. 4,00,000/- (Rupees Four Lakhs Only) in favour of Central Pollution Control Board, payable at Delhi

Request for Proposal

for

**Project: Development of National Hazardous Waste Tracking System (NHWTS) Software for
CPCB**

Tender Notice No. : C-12015/05/2018/IT/NHWTS-Tech/

18.04.2019



CENTRAL POLLUTION CONTROL BOARD

Parivesh Bhawan, East Arjun Nagar

Delhi -110032

April'2019 (Ver-3.0)

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National Hazardous Waste Tracking System (NHWTS)

1.0 INTRODUCTION

The Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (hereinafter referred as HOWM Rule, 2016) suppressing the earlier Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008, under the Environment (Protection) Act, 1986 for safe treatment, storage and disposal of hazardous waste in an environmentally sound manner without causing adverse affect to environment and human health. The HOWM Rules, 2016, lays down provisions w.r. to generation, packaging, storage, transportation, recycling/reprocessing, utilization, setting up and monitoring of Treatment, Storage and Disposal facility for hazardous wastes, authorization and reporting mechanism, import and export of hazardous wastes, etc. State Pollution Control Board (SPCB)/ Pollution Control Committee (PCC) of the concerned State/UT has been envisaged with the responsibility of granting authorisation for generation, handling, storage, packaging, transportation, recycling, utilization, disposal, etc. of the hazardous waste.

The hazardous waste generators may recycle, utilize or dispose the same at facility authorized by the concerned SPCBs/PCCs under the HOWM Rules, 2016. In order to impart the said recycling, utilization or disposal at facility other than the generation facility. manifest system (Movement Document) has been prescribed for movement of hazardous wastes under Rule 19 of the HOWM Rules, 2016. The manifest system requires filling various information by sender in the prescribed form and forwarding the same to receiver/SPCBs/recyclers/utilizers/disposal facility operators.

Rule 20(1) of the said Rules also lays down provisions of maintaining date wise records of hazardous wastes generated or received by the generator/recycler/utilizer/disposal facility operator/etc., as the case may be. There are also provisions under Rule 20(2) to prepare and submit annual returns by the generator/recycler/utilizer/disposal facility operator/etc. Based on the said returns, SPCBs/PCCs are required to prepare annual inventory of the waste generated, recycled, utilized, disposed, etc. for the respective State/UT and submit the same to CPCB. CPCB is required to prepare consolidated report and submit the same to the MoEF&CC.

The hierarchy in the management of hazardous waste is to reduce, reuse, recycle, recovery, utilization and finally disposal of wastes in disposal facilities in an environmentally sound manner. The disposal facilities may be having only a secured land fill (SLF) or may be having incinerator alone or combination of secured landfill & incinerator. There are 42 Common Hazardous Waste Treatment, Storage and Disposal Facilities (TSDFs) in 18 States/UT, of which 18 facilities are integrated TSDFs having both Secured Landfills and Incinerators; 10 facilities have only common hazardous waste incinerators and; 14 facilities have Common Secured Landfills. Besides, there are recyclers, utilizers and co-processors (in cement plant) authorized by respective SPCB/PCC.

In order to have on-line web portal system for filling daily records by the waste handlers, manifest document, etc. and generation of reports such as annual returns with regard to state-wise generation and management of hazardous waste, list of violators, list of disposal facilities, etc.; defaulters reports, etc., it is proposed to develop a unified web based system for the same named as National Hazardous Waste Tracking System.

The system envisages waste exchange among its various stake holders depending upon the finger prints of the waste. Waste generated at one occupier may be useful for another. With a vision of exchange of waste among its stake holders the system designing is expected as presently the information of waste with its constituents is not available centrally. Once this waste availability information alongwith its geolocation, fingerprints, quantity etc. is made available at a central location, the waste will get converted into wealth. This approach will not only facilitate various occupiers but also reduce the requirements of common facilities of dumping or incineration.

The system will comprise various stake holders (as mentioned above) including NIC which has developed some of the information collection module operating as on date. These modules are operating as Online Consent Management Systems operated and Maintained by NIC itself.

There are few (~5) SPCBs which are operating their own Online Consent Management Software also from where information collection is required to be done to get consolidated continuously on the Hazardous waste. These modules of NIC & SPCB/PCCs have to be integrated into the new system. Beside integration of these modules a system of obtaining information through this system itself by designing new forms for data entries.

The above said rules also provide the data formats based on which work flow system is to be developed and data entry to be managed. The requirements may vary as the development progress as per need during the software development. Copy of the HOWM Rules,, 2016, is available at website i.e. <http://cpcb.nic.in/rules/> for ready reference and formats for data flow/inputs is given at Annexure.

2.0 OBJECTIVE

2.1 Current Practices

Presently nearly 200000 number of Industries(IND) will be sending waste atleast once 3 months. Transportation trucks will be hired by either sender or receiver of the waste who is authorized for transportation. Trucks collectes waste from one or more Industries/facilities from different locations or and drop it at, a Disposal Facility (TSDF) or Recycling Facility (RF) or Utilization Facility (UF) or Pre-Processing Facility (PPF) or Co-Processing Facility or Collection Centre (CC). Here IND/TSDF/RF/UF/PPF/CPF/CC would play the role of sender or receiver. There nearly ~40 waste disposal facilities are also operating transportation network. Waste is transported within States and sometime interstate also. TSDF is a major player in handling of hazardous waste who provides door to door collection facility for disposal purpose. CPCB has been mandated to maintain national inventory as per Hazardous and Other Waste Management & Transboundary Movement Rules, 2016, therefore intends to develop National Hazardous Waste Tracking System.

2.2 Tracking Portals at SPCB/PCCs

There are few SPCBs/PCCs which have a smaller system for hazardous waste tracking with limited functionality. Number of transporters are operating their GPS based devices through which waste/

vehicle tracking is being managed. Some TSDFs are also operating small network limiting to their facility through GPS tracking devices.

2.3 Aim of the Project

To provide a unified web based access controlled **Central Server Software for Hazardous Waste (CSSHW)** accessible by its various stake holders, regulators, system contributors, to manage the Hazardous Waste movement in the country through at a single point in most reliable, transparent and secure manner. It should act as a central system available for all to access the critical systems available for monitoring, verification of movement of hazardous waste in streamlined manner. It will also provide window to the public to be part of the system by providing critical information about leakages to ensure proper handling and disposal of hazardous waste.

All SPCBs/PCCs will be requested to join this National network, so that hazardous waste could be easily managed. Records of different types of waste could be maintained centrally.

3.0 SCOPE OF WORK

1. CENTRAL SYSTEM CREATION: To provide a unified web based access controlled **Central Server Software for Hazardous Waste (CSSHW)** accessible to
 - I. Central Pollution Control Board (including Regional Offices 07 Regional Directorates & Project Offices),
 - II. Ministry of Environment, Forests & Climate Change (including Regional Offices (~06)),
 - III. State Pollution Control Boards (Headquarters (~30) and Regional Offices (~30 each)),
 - IV. Pollution Control Committees
 - V. NIC (Delhi & Vadodara etc.)
 - VI. Custom & Port Authority, and it's offices
 - VII. OCCUPIERS (anyone involved in handling of Hazardous waste)
 - i. Waste Generators (IND/RF/UF/PPF/CC ~200000nos)
 - ii. Transporters(TRPR) (~5000),
 - iii. TSDF (~40),
 - iv. RF / UF (~20000),
 - v. PPF (500)
 - vi. Collection Centre(CC),
 - vii. Importers(IMP),
 - viii. Exporters(EXP),
 - ix. Traders (TRDR ~ 1000)
 - x. Co-Processing Facility (CPF)
2. REGISTRATION: To provide mechanism of direct registration and data entries by **occupiers** who have no registration with any of the SPCB/PCCs with **CSSHW**. These **occupiers** will get authorized and validated through SPCBs first and thereafter entries made by these occupiers/users shall have to be validated through SPCBs/PCCs. Mechanism to carry out such tasks a system is to be developed.

Occupiers already having registered in Online Consent Management Systems (OCMS) of State Pollution Control Boards (SPCBs) will get registered automatically with CSSHW. They should be able to login with same user ID and pw with that of OCMS of SPCBs

3. DATA ENTRIES BY OCCUPIERS:

- I. Filling of daily/weekly/monthly records of Hazardous Waste generation and management of the same by the validated stakeholders. The system should accept daily entries to be filled by occupiers/users w.r.t production, generation and management of hazardous waste.
 - II. To provide document attachment/form entry facility for uploading/submission of characteristics of the wastes i.e. Finger Print Analysis (FPA) in case of disposal and characteristics of wastes in case of recycling in the system with each hazardous waste either in storage or in movement or placed in the landfill site at a particular location.
 - III. TYPE OF DATA FORMATS: Appendable formats shall be developed in all the forms as the requirements keep varying.
4. DEVELOPMENT OF FIVE INTERFACES FOR AUTOMATED DATA ENTRIES (TOTAL 05:04 for Consent Management Software and 01 for Mobile APP Interface): The occupiers already registered with OCMMS have provided their HW data beside to be made part of CSSHW. Hence, interfaces are required to fetch the information from operational softwares like a. OCMMS, b. X-GEN, c. Two numbers of Softwares operational at other SPCBs

to CSSHW (to be developed) through API on real time basis continuously.

- I. INTERFACE (01): NIC Delhi is operating OCMMS under which nearly 20 SPCB/PCCs are operating their consent Management system at <http://tnocmms.nic.in/OCMMS/>.
- II. INTERFACE (02): Similarly NIC Vadodara is operating its online Consent Management software (X-GEN, a software different than the NIC Delhi OCMMS) in nearly 05 SPCBs/PCCs.
- III. INTERFACES (03,04): Similarly some of other SPCBs (Kolkatta, Maharashtra etc.) are operating their inhouse developed software for online Consent Management, Interfaces to integrate their data into this centralized system is also envisaged.
- IV. DEVELOPMENT OF COMPLAINT MANAGEMENT SYSTEM AND ITS INTERFACING: CPCB is already operating Complaint Management System through Mobile Application SAMEER. The data collection and updation is done over the Mobile App as well as on webapplication developed for it. Similar to it, a Public Interface Mobile APP is envisioned for Hazardous Waste Management. The complaint received through public on HZWAPP shall be redressed through various SPCBs and the updation shall be updated back to complainant through HZWAPP. The details of complaints received and redressal done for Hazardous waste related complaints shall be displayed in the portal on Dashboard and Mobile App. The system similar to SAMEER has to be followed for this mobile app with an objective to provide an opportunity to public to inform CPCB/SPCB about hazardous waste illegal disposal through out the country with video tagging(02minutes) and photo tagging. It shall help in strengthening of the system management. Once the system gets ready, its APIs provisioning to other applications is also envisaged. The single APP will be operated for Hazardous waste

management wherein depending upon the type of sign in, a user will see the information. Like public will get the access to complaint management, Occupiers will access their respective portals, regulators will have option to choose the type of portal (complaint, occupiers etc.) else land up on Home page displaying access to various stake holders portal with important information live available. This home page shall be used by authorities in understanding the progress on hourly basis. The interface to the main pages may be required for other authorities for their role to play like import/export departments etc. public display (like RSS feed, pages display specific to specific SPCBs/PCCs, Associations etc.) of this information is also envisioned in the project. The system should operate with SMS alerts mechanism.

5. SINGLE SIGN ON:CSSHW should act as a Single Sign On (SSO) for various Industries for Hazardous Waste Generation and Disposal Management with the use of interfaces developed above. The user ID and PW used in different portals are required to be fetched automatically, as these are changed by user, on consent management portals. The user feels at comform with same user id and password. Automated data fetching is to be developed at an interval of every 30 minutes or upon alerts of change as these occur. The firm will have to depute its engineer at these offices of NIC and SPCBs mentioned above to prepare the data fetching interface from their software. For first integration from SPCBs/NIC all charges have to be borne by the firm. Thereafter if some issues are observed, firm's engineer may visit after due approval from CPCB as per CPCB T&C i.e. Transportation, lodging and boarding charges will be provided as given to Group 'A' level officers in CPCB. The user if desire may transfer himself to respective consent management portal from home page of CSSHW.
6. WASTE DISPOSAL MANAGEMENT: To develop a waste dispoal management system through which tracking of waste transportation for disposal/ recycling/ utilization/ co-processing/ Pre-Processing / Utilization / storage/ import/ export could be done.
 - I. SCENARIO GENERATION FOR TRANSPORTATION: To create a many to one waste pick up possible scenarios, the moment one of the transporters is on the move to carry the waste from one place to another, effectively facilitating all its stakeholders with one defined destination and amount of waste (of specific category) to be picked up as per scenarios generated and selected. One of such scenarios then will be finalized, to be locked and to be used as template for on the fly audit/alerts generation.
 - II. DEFINING ROUTE THROUGH SELECTION: To facilitate occupiers for defnining route of their trip to have effective movement and management of entire collection and disposal system. In turn, to provide the records on real time basis of amount of hazardous waste in movement, in storage facilities etc. to quantify the actual waste generation, disposal.
7. HAZARDOUS WASTE TRACKING SYSTEM:
 - I. REAL TIME NETWORK CREATION: To establish a real-time monitoring of Hazardous Waste Tracking System for monitoring the movement of hazardous waste from **occupier** to TSDF or other occupiers CC/RCF/UF/CPF/PPF. This will require setting up two way communication verifiable with the users/transporters/occupier and regulators.

- II. TRACKING ROUTE THROUGH SYSTEM: Tracking the movement of Hazardous Waste from sender to receiver along with live Vehicle Tracking system (VTS). For this purpose a registry system for trucks used for transportation by occupiers to be developed and maintained.
- III. CSSHW should have common features like tracking, playback, and geofencing.
- IV. CSSHW should have the common communication protocol to communicate with truck-mounted hardware. The control software would require VTS module protocol for connection, configuration, data request, alarm notification, acknowledgement etc.
- V. CSSHW should also have Video Surveillance Sub system (VSS) communication protocol having commands for live video streaming request, configuration change etc.
- VI. Vehicle tracking module should periodically send GPS position of vehicles and other status parameters to the CSSHW via the common wireless modem. This will serve as 'keep alive' message to the CSSHW.
- VII. VTS will serve as central controller of the VSS and will connect with the CSSHW. In case vehicle ignition is off, it should periodically send status commands. To reduce power consumption, VTS module can switch to low power sleep mode in between transmissions. During this period, VTS module can switch off power to cameras also, to save over all power consumption.
- VIII. VTS should have in built battery to send out information to CSSHW in the absence of vehicle battery connection.
- IX. Location of the user should be identified using GPS. If GPS signal is not available, the application should use the technique of Triangulation to fetch the location with the help of mobile towers. In case the system fails to get the location by GPS and Triangulation, it should allow the user to provide the address explicitly by entering the same manually through Mobile App or by calling the helpline number.
- X. SMS based alert mechanism to be developed, the alert should be sent directly to SMS receiver platform and that should trigger the alert to control room interface from where SMSs to be transmitted to concerned regulators and stake holders. Mobile notifications and SMS should also be used as mode of communication by the server applications to communicate with the mobile platform. If GPS signal is not available, the application should use technique of triangulation to fetch the location with the help of mobile towers. In case system fails to get location from both, then it should allow user to provide address explicitly by entering the same manually or via mobile app. Target is to get the information about location positively and in case a failure is acceptable.
- XI. Efforts have to be made to develop a common protocol for integration of GPS cum Camera devices. However, for specific cases integration of devices into the system has been envisaged.

- XII. Devices incorporation is the responsibility of firm, which will collect the protocol from the firms manufacturing such devices and integrate. CPCB shall help in obtaining these specifications/manual/Protocol. Expenses incurred in obtaining such details from manufacturers to be mentioned in the price bid.
 - XIII. DASHBOARDS DEVELOPMENT: To provide real-time view through DASHBOARDS of the transportation of hazardous waste from the generator/storage facility till recycling/utilizing/disposal facility of the recycler/utilizer/operator through a dynamic Dashboard viewable through any of the stake holders with a facility to write its input/remarks for effective use of system in control of movement of hazardous waste.
 - XIV. To provide a central dashboard for calculating daily status and efficiency of each stake holder for waste management.
 - XV. Creation of dashboards for visualization of live streaming data of waste movement, video streaming, alert generation, email records etc.
 - XVI. To provide Dashboards for each stake holder separately with a common facility of search of specific type of waste, category, quantity, finger prints, location, city, district, distance etc. The actual designs will be decided during SRS preparation.
 - XVII. To provide a Main Dashboard which can be shared with MoEF&CC and other top officials responsible for the action.
 - XVIII. To implement different IT logics for tracking the waste by way of route management, transport vehicle tracking through video and SMS alerts data.
8. AUTOMATED AUDITING AND TWO WAY COMMUNICATION FOR PASSING INSTRUCTIONS ON THE FLY:
- I. CHECK AND BALANCE OF WASTE THROUGH QR CODING (based MANIFEST): QR Code (Two dimensional bar code) generation is required to facilitate quick scanning of the code providing easy access through code matching at both ends. The occupiers shall be sent QR code through mobile & Web application and prints of the same could be handed over to the truck operators for cross matching of serial number of the waste linked to the specific type and other details available in the system.
 - II. QR CODE OPERATION: To have a hassle free transaction of QR code matching, the utility should have the facility to dump the information at the terminal through which the QR code matching is required at all the collection points and final destinations. This will avoid delay in case of internet connectivity glitch at any at any point of time. A seamless operation is to be designed which can process number of transactions in parallel. terminal
 - III. Alert generation and maintaining records of incidences.
 - IV. LEAKAGE DETECTION: To pinpoint leakages of wastes i.e. quantity mismatch, type mismatch, industry mismatch (as per QR Code validation) with on the fly audit at the time of tracking its guided movement and disposal as per manifest, at the receive end.

Capability to forward the message to the occupier, as a direction recorded (retrievable at the time of taking action against the defaulters) in case of leakages detected.

- V. ROUTE DEVIATION DETECTION: To detect any route deviations or malpractices by the transporters while transporting of the hazardous waste to the designated locations (i.e. disposal/recycling/utilizing/storage) with a capability to forward the message to the occupier as a direction retrievable at the time of taking action against the defaulters. This will require setting up two way communication verifiable with the occupier and regulators.
 - VI. ESTABLISHING TWO WAY COMMUNICATION: This will require setting up two way communication verifiable with the occupier and regulators through their registered mobile phones.
9. DEVELOPMENT OF WASTE EXCHANGE CENTER: To develop a waste exchange center as envisioned above to provide information to the occupiers such as recyclers/utilisers/co-processor for different types, categories, characteristics and quantities availability of the hazardous waste (forms details provided in the document) alongwith generator details and locations. It has to provide mechanism of uploading the finger prints reports, quantity, quality and other important information to a specific waste being generated by any one of the occupier.

The occupier should have facility to upload One minute (extendable to 10 minutes) video of hazardous waste available with him which can be displayed to any other user while considering the exchange. This requires verification by SPCBs, as quantity/quality mentioned may differ etc. for which some check points and double entries restrictions have to be implemented in the system at the initial stages. Waste exchange center shall facilitate quantity, quality, location, video, occupier details alongwith finger prints of waste available for exchange. Demand and availability of waste is to be regulated through this module. The generator and consumer of specific waste may put their details which has to be made available along with the stock position alongwith future possibilities subject to confirmation. This way it will cater to present needs and future possibilities. Provisioning to support the demand and supply is to be made available besides the current status and facilitation to block for some time and release if not matured. It is a kind of trading system except the financial transactions, which shall be governed by the stake holders themselves. The Role of CPCB would be to assist in making the information available publically about various wastes availability and their demand position for others to make full use of the system with a vision to minimize the dumping of waste if it can be consumed/recycled. The module shall prepare the inventory list and demand list of various types of wastes every day. To develop a format of indicative requirements/demands in future. Upon finalization of specific type of waste (waste may be useful material for other type of industry) procurement from the occupier, the recycler or other user shall place the request for movement of waste through manifest. Under this manifest the waste movement will be allowed for disposal.

10. SCENARIO GENERATION FOR WASTE EXCHANGE: To generate system specific inputs like availability of waste in different locations, to display possible locations enroute, to calculate requirement of specific waste at a particular occupier, to calculate waste already available at an

occupier enroute which has to be disposed off in the land fill facility/incinerated at facility and to determine capacity of transport, to calculate capacity of facility to process specific waste. Based on these inputs a Scenario of transportation optimized for quality, quantity, requirement, and optimized transporter route ensuring minimum movement and maximum output while managing waste handling.

11. DEPICTION OF INFORMATION ON GOOGLE MAPS:

- I. Depiction of all stake holders and their hazardous waste's data on the Google map. The initial development is required to be done on Google maps.
- II. Sceneraio generation from Maps.
- III. Locations depicted with all attributes of wastes available.
- IV. Layers of information like differnet types, quantity, quality, route combining possibility, state wise, category-wise, will have to be generated on maps to meet targets of project.
- V. To provide facility of identifying the distance between two locations as per selection criteria to manage waste movement/routes.
- VI. Reports created shall be integrated and shall be available for the user on GIS .

12. DEPICTION OF INFORMATION ON GEOGRAPHICAL INFORMATION SYSTEM (GIS):

- I. Depiction of all stake holders and their hazardous waste data over spatial domain using spatial (GIS based) software. Information like occupier name, Lat, Long, waste type, category, quantity, quality, finger prints, video etc, have to be depicted on the fly over the GIS software.
- II. CPCB already has a ArcGIS software, which shall be upgraded by CPCB. In case ArcGIS could not mature, implementation of MIS on open platform based software is envisaged in the project.
- III. Layers of different categories like road network, industries network, river network etc. shall be procured by CPCB, while implementation of MIS over GIS is envisaged in the project.
- IV. Information layers developed on Google maps to be made operational on ArcGIS/other open source software.

13. SMS/ Email to the respective stakeholders. Alert and Alarm Module for alerting on non-compliances in handling hazardous waste.

14. REPORTS GENERATION:

- I. Reports Generation on daily/weekly/monthly quantities available/disposed for a specific type(s) of waste(s) through selelction by the user on specific route/transporter/occupier.
- II. REPORTING THROUGH DATA MINING: Analysis and Reporting Module for the hazardous waste recycled/utilized/treated/disposed by the respective recycler/utilizer/disposal facility operator.
- III. Module prepared has to facilitate hazardous waste occupiers (like generators, transporters, recyclers, utilisers, operator, co-processors, collector, importer, exporter, etc.) in knowing real time availability of hazardous waste and total quantity and quality of waste had been handled by them till date, with complete records end to end connectivity, audit trails carried out for verification.

- IV. Reports category wise, city wise, district wise and State/UT wise about generation and management of hazardous wastes.
- V. Tabular Reports/graphical reports generation as per requirement alongwith framing or changing of the same in the future.
- VI. To generate various reports on district wise and State/UT wise about generation and management of hazardous wastes.
- VII. Tracking records of each truck indicating type of waste transported, vehicle used, facilities where delivered through exchange center directions and finally transported the material till waste disposal facility and the details of location where it has been dumped/incinerated etc.
- VIII. Similarly, records of facilities used the services of the system and occupiers like recyclers, industry, were provided the kind of waste. The decisions and logics implemented as on date have to be recorded, retrievable at the time of auditing requirements.
- IX. Innovative reports fulfilling the objective of hazardous waste management are also envisioned within the project.
- X. Module through which selection by user can be done for various parameters and scenario could be generated by himself

15. VIDEO STREAMING FROM GPS CUM VIDEO CAMERAS TO BE INSTALLED INSIDE THE CABIN OF TRUCKS FOCUSING THE WASTE ON BACKSIDE:

- I. The devices having GPS cum video cameras (or separate two devices having combination to perform) will be required to be installed or have already been installed by the transporters in their trucks carrying hazardous wastes. The camera should be fitted in the middle of the rear wall of the cabin with safety and focusing the HW material. The Camera should provide clear rear view while loading and unloading.
- II. Trucks have to be regulated for defined route movement within a given period of time which shall be scheduled through generated scenarios with time duration.
- III. Once a trip has finalized the route, time shall be fixed and based on the template the movement of the truck has to be checked.
- IV. The system installed should support remote video/picture streaming as and when required by CPCB/SPCB if done should be automatically recorded.
- V. The Software firm needs to integrate the device in such a way that at any given point of time when network connectivity is available CPCB/SPCB should be able to visualize live video of truck movement from anywhere in India to track the transport.
- VI. The GPS locations will have to be continuously tracked and routes have to be recorded at central server.
- VII. Similarly, provisioning of video recording is required to be done to visualize the leakage if any from the truck.
- VIII. Project envisages development of Interfaces as mentioned in price bid by the firm, for predominant systems.
- IX. A common protocol has to be developed to get all these devices integrated, as far as possible. In case of failure to do so, integration of protocols will be the responsibility of firm, which will collect the protocol from the firms manufacturing such devices and integrate. CPCB shall help in obtaining these specifications/manual/Protocol/SDK.
- X. If essential, @visits of firm's engineer will have to be done to accomplish the integration.

16. VIDEO STREAMING FROM DISPOSAL FACILITIES:

- I. TSDFs are either having installed or will have to install CC TV Cameras, IP cameras or PTZ Cameras at entry points and at important process points. Nearly 2 to 3 cameras are expected per facility.
- II. The video streaming is required from these cameras(motion detection) to track the movement of waste being transported to the facility and being processed within the premise.
- III. The data streaming should be user selectable from Central Server for a specific camera.
- IV. If streaming is triggered system should store data up to ten minutes at one time or as per user requirement.
- V. There may be specific case when it is required to take videos during any time in 24 hours. A facility to automatically trigger a particular camera at user selected time in a day is required to be made available.
- VI. The streaming preferably should be done at 720 HD resolution with 5fps rate to reduce the storage size. Offcourse it will be dependent on the cameras installed at remote location.
- VII. The system should be capable to connect with medium of 2G/3G/ EDGE/ 4G/Leased line circuit/Broadband/cellular, which may connect and get the data at receiving end.
- VIII. If data is available at DVR end, facility to be developed to integrate DVR output so that a specific camera data may be fetched.
- IX. A mechanism is to be developed for integrating video streaming from these ~40 disposal sites for webcam, IP Camera or PTZ camera, DVR as installed.
- X. A common protocol has to be developed to get all these devices (CCTV Camera, IP Camera, PTZ camera, DVR,) integrated, as far as possible. In case it is not possible then devices integration for both cameras and DVR devices integration will be the responsibility of firm, which will collect the protocol from the firms manufacturing such devices and integrate into CSSHW. CPCB shall help in obtaining these specifications/manual/Protocol/SDK.
- XI. As soon as the truck loaded with waste reaches the facility gate, video streaming should start and shall be continued for nearly 10 minutes. The camera at disposal sites already installed have to be integrated for:
 - i. Getting video feed at any time at a single click from remote location.
 - ii. Video automatically transferred and can be stored for 10 minutes at one time.
- XII. Protocol of the camera supported fully, so that camera could be operated remotely if capable for remote operation initially. In future IP/PTZ/webcam cameras shall be installed in the facilities of disposal sites.
- XIII. Cameras with Night vision to be integrated.
- XIV. If essential, visits of firm's engineer will have to be done to accomplish the integration.

17. INTERFACE DEVELOPMENT WITH WEIGH BRIDGES AT TSDF: The The Hazardous waste carrying trucks, when reach to the destined disposal site, have to pass through weighbridges. The requirement is to record the trucks weight automatically, so that check and balance through software could be done instantly. Once software Okay with +/- variation (to be allowed), the truck shall be allowed in the facility else the flag to be generated informing all the stake holders instantly that there is mismatch. This auditing requires real time collection of data from weighing machines in the disposal facilities and at the end of occupiers. As it is known that the auto measurement facility may or may not be available, the software to be developed should have facility to manually enter the data or collect it automatically from the weigh bridges, where ever data interface is available. The development of interface is

required to be done for all 40 or more waste disposal facilities as and when data interface will be made available for which CPCB shall takeup with the facilities.

For wastes destined for RF/UF/CC/PPF/CP, occupiers have to procure their own digital weighing machine with wired or wireless connection and the data pertaining to the weight of the bags should get transferred automatically. For the purpose, interfacing of the digital machines with common protocol attachable with devices through the Mobile App/web application has to be generated.

18. The balances at these hazardous waste handling facilities may or may not have the same Protocol for integration. Hence two interface development has been envisaged within the project, so that weight and basic details of the utility are fetched through it and recorded in the system. Interaction with hazardous waste handling facilities will be the responsibility of CPCB and development of software shall be done by the firm. If essential, visits of engineer will have to be done to accomplish the integration.

19. MOBILE APPLICATION DEVELOPMENT:

Development of the Mobile Application in Android and iOS based platforms for Live Entry, Tracking of Hazardous Waste, waste exchange center with maximum possible details of the system available in the system for each stake holder. Separate webpages created for each stake holder have to be generated in the Mobile APP with drop downs and user selectable system.

20. DEVELOPMENT OF BLOG:

- I. To provide a Blog for the subject dealing with hazardous waste activities for quick resolution of various issues generating out of day to day activities to enhance the quality of the system.
- II. To provide a link of complaint information in the blog and its redressal network to facilitate all stake holders. This blog may be required to be connected with CPCB website.

21. HELP DESK OPERATION:

- I. Atleast 10 lines (phone lines) based help desk with 10 Nos. of Shift Engineers/software professionals in two shifts i.e. total 20 engineers for **four months** in initial project duration.
- II. To provide 24x7 support through a helpdesk to stakeholders to manage hardware connectivity/software assistance after initial stage (Four Months) is over.
- III. To run helplines (two) with Two helpline customer support executive on 24x7 basis (atleast Two support CSE (comfortable in English conversation) in all three shifts round the clock) continuously for the project duration.
- IV. To provide two Helpline numbers on all india basis starting with 1800 XXX XXX series
- V. The helpline team shall operate from the premise of the software developing firm.
- VI. Helpline officials will perform responsibilities of audit/verification/validation/tracking/video streaming/as directed for the proper operation of the project functionalities.

22. CONTINUOUS DEVELOPMENT: Continuous Development of software for technological improvements, new page developments, new utilities inclusions, new protocols for new devices etc. New Protocols procurement other than already specified, will be taken up as per the approval of competent authority in CPCB and Protocol procurement for new devices shall

be reimbursed by CPCB as per actual in consultation with CPCB, however integration of such new protocols is under the continuous support by the firm. Any utility required to be developed for project execution or a new task but within the context of hazardous waste management, which may or may not be mentioned here, has to be considered within the project execution of five years and for which no additional change request shall be entertained.

23. DEVELOPMENT OF UTILITIES TO MANAGE SOFTWARE:

- I. Best available database which can handle the volume mentioned above with at least 1000 concurrent transactions.
- II. Output of any click in the system must be resulted in 3sec maximally.
- III. Parallel computing should be deployed to make it faster in parallel processing
- IV. Expandable through deployment of additional infrastructure in case of enhanced requirement.
- V. Seamless operation of entire system for its various utilities
- VI. Atleast three months data acquisition and data recording capability of the system
- VII. Well defined deployment procedure.
- VIII. Deployment in NIC domain through remote management.
- IX. Deploy the software with remote backup procedure available to software handler at CPCB through which the data at NIC end could be backed up seamlessly through automated Daily backup and storage of data.
- X. To develop tool for manual backup Procedure.

24. DISASTER RECOVERY (DR)

- I. Create DR data management procedure through which daily DR operations are performed automatically, so that the transactions made in a day are available as backup.
- II. DR backup procedure as per industry standards to be deployed.
- III. DR will also operate in NIC domain but at a different location then the main server location shall be arranged by CPCB through NIC.
- IV. Providing requirement is the responsibility of the firm.

25. TRAINING: Trainings to be conducted to the officials in such a way that users of the system are comfortable in use of it.

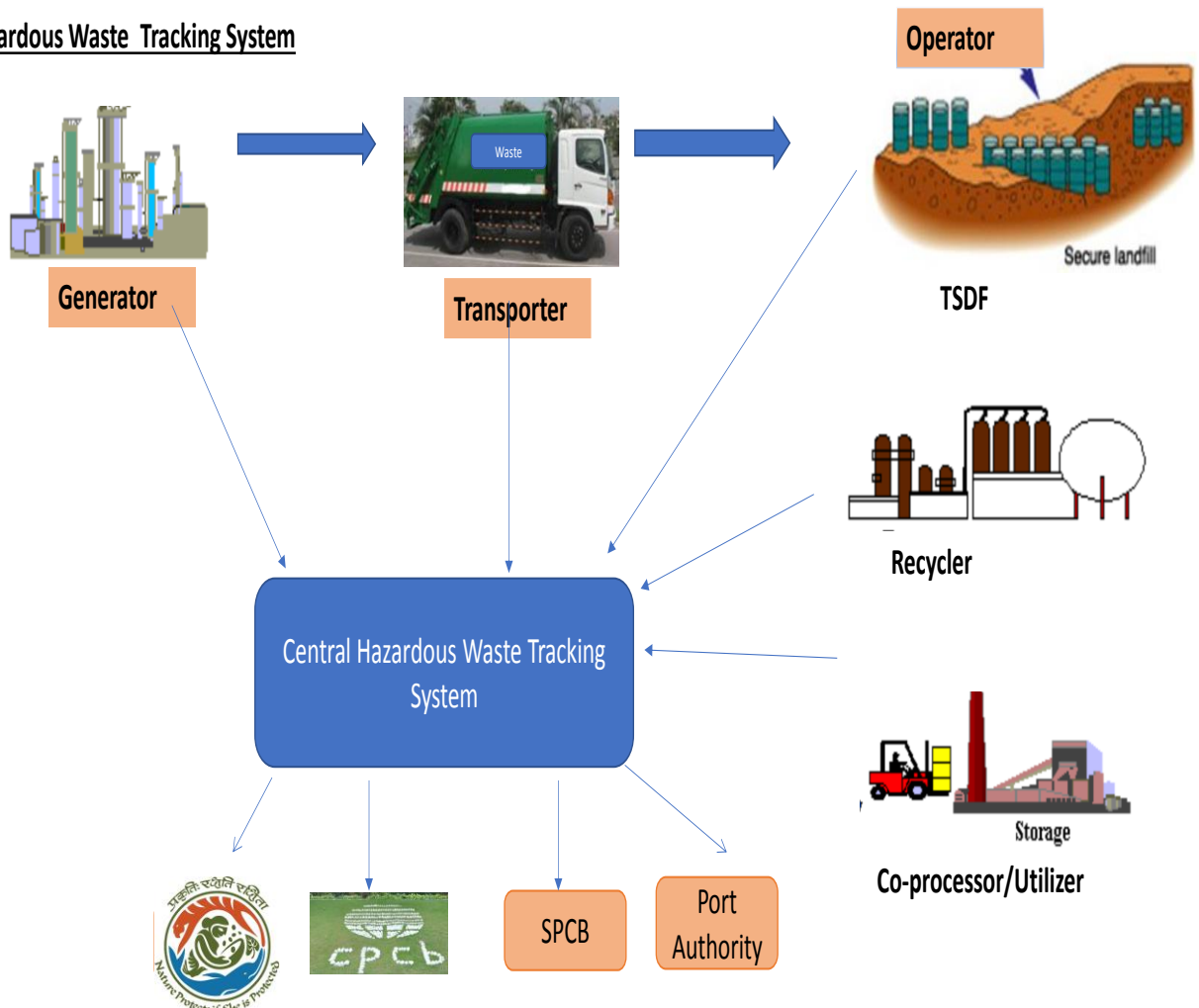
26. WARRANTY & AMC: To maintain the system for five years (01year warranty+ 04 yr Maintenance including development).

27. ONSITE MANPOWER REQUIREMENT: Two Nos.

- I. Deployment of one programmer/IT Engineer with minimum qualification of B.Tech/B.E. in Computer Engineering/IT with minimum three years experience.
- II. Deployment of one Environmental Engineer with minimum qualification of B.E./ B. Tech. in Environmental Engineering with minimum three years experience /M.Sc. in Environmental Sciences with minimum three years experience in Environmental management.

The key components of the Hazardous Waste Tracking System

Hazardous Waste Tracking System



The Key Stakeholders includes

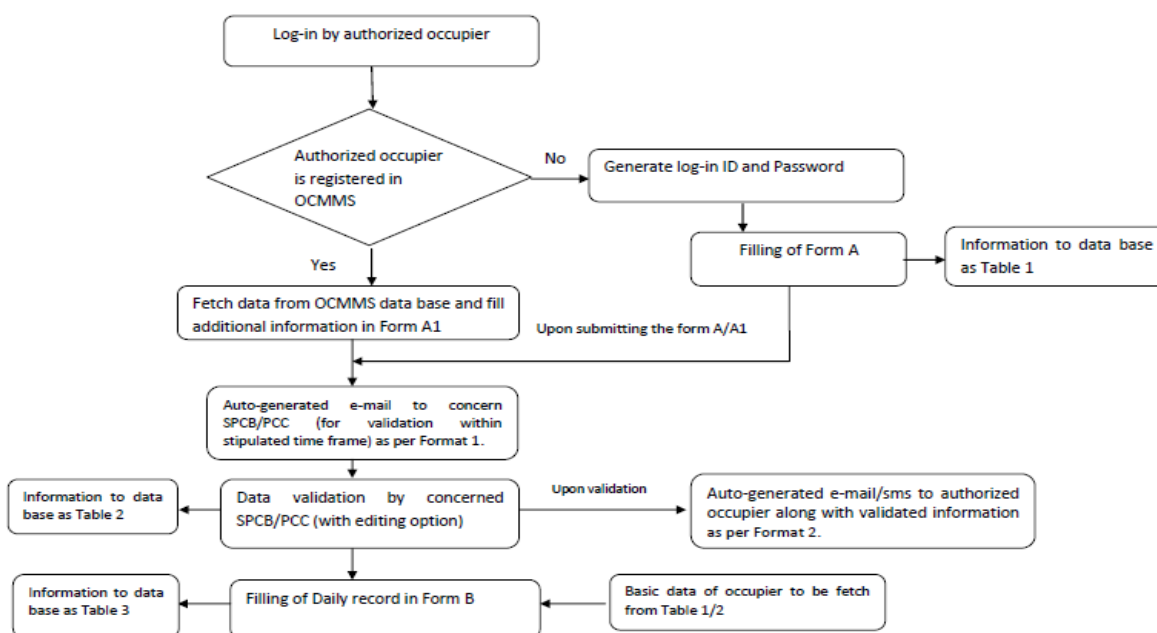
- i. Waste Generators (IND/TSDF/RF/UF/PPF/CC ~200000nos)
- ii. Transporters(TRPR) (~5000),
- iii. TSDF (~40),
- iv. RF / UF (~20000),
- v. PPF (500)
- vi. Collection Centre(CC),
- vii. Importers(IMP),
- viii. Exporters(EXP),
- ix. Traders (TRDR ~ 1000)
- x. Co-Processing Facility (CPF)
- xi. Regulators (MoEF&CC/CPCB/SPCBs/PCCs/ Custom & Port Authority)

4.0 Software Requirements

4.1 Central Software Capabilities

1. Integration of OCMMS data into the central system if available and if not creation of mechanism to create various categories of users and to generate user ID and password generation auto mechanism.
2. The software should be able to accept same User ID and password of the registered OCMMS or other existing system.
3. The Software should be flexible to capture the required fields and also expand the fields as required. In case of the key stakeholders does not exist, registrations of the same.
4. The Central Software should have a web application to view, generate default reports, analyze the collected data, generate custom reports and corroborate with generators, collector, operators, recyclers, utilizers, importers, exporters, SPCB/PCC, CPCB, Port & Custom Authority and MoEF&CC to ensure proper compliance of the application.
5. The developer may have to develop different API to fetch the data from all SPCBs having waste disposal details in different OCMMS software operational at their end.
6. The system should be a highly scalable client server application where the client software resides in the industry site and the central server software resides at the central location hosted in NIC datacenter.
7. The Software should be able to capture the details for each of the entities and the associated limits of operations from the OCMMS & other systems.
8. The Software should provide capability for the above occupiers to enter the daily hazardous waste generated and the amount of waste stored at their premises, utilized, recycled and disposed.
9. The software should be able to capture the details of the operators in-charge of the consignment & vehicle and this details should be used during emergency response.

National Hazardous Waste Tracking System (NHWTS)



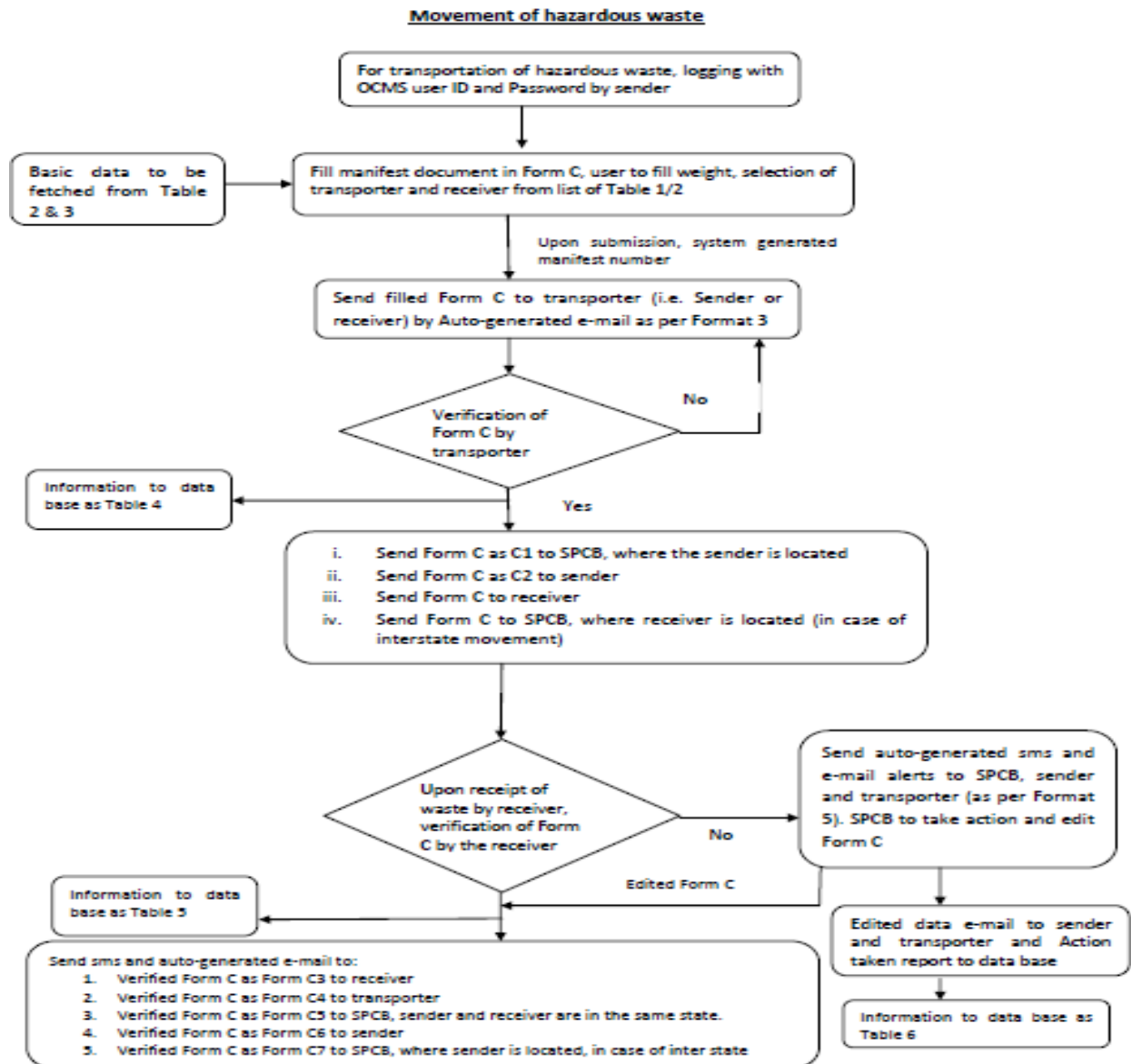
10. The software should be able to capture the details on type, category, characteristics and quantity of the hazardous waste desired by the recyclers/ utiliser as a “Waste Exchange Centre”.
11. The Software should provide a User Interface presented in the browser and should be very user friendly and intuitive following the best practices in web based user interface design.
12. The User Interface should be supported on major browsers like FireFox, Chrome, Safari etc. The user interface should support rendering on a Tablet, smart phones which supports these browsers.
13. Software should have all the features mentioned in the flow diagram and should work in the same manner as described in the flow diagrams

4.2 Manifest System/ Movement of the Hazardous Waste Capabilities

1. The Software should support the Manifest document (Form C of the HOWM Rules available in Annexure attached) used for movement of hazardous waste from the sender to receiver.
2. The Software should be able to support electronic Form C for the capture of the hazardous waste by the sender before dispatching through the transporter.
3. The Software should support mailing and printing of the 7 copies of the Form C once the Form is submitted by the sender to be used as the manifest during the transportation.
4. Before the printing of the Form C, the waste has to be associated to the particular vehicle whose route has to be defined by the transporter. The tracking of route to be defined by the system automatically.
5. At the collection point, transporter should be able to enter the weight of the hazardous waste received at each of the pickup point if automated system is not in place possible through Mobile

APP as well as through web software. This will ensure that that a real-time view of the weights in each of the vehicle can be tracked in real time.

6. The Software should have capabilities for the operator to accept the hazardous waste at the disposal facility as per the finger print analysis report. In case of recycling, the recyclers to accept the hazardous waste as per the specifications laid down for Used Oil/ Waste Oil/Others.
7. The workflow associated with Form C should be possible through the Central Software and the physical Form C process will act as a backup mechanism only. The Software should support transfer of chain of custody from the sender, transporter and receiver. The chain of custody should be irreputable and should be secured using technology like Block Chain.
8. The Software should track the quantity of waste stored at the generator/collection facility/recycler/utiliser/co-processor/Operator premises and the duration of such storage.
9. The Software should have abilities of the Operator to provide inputs on the treatment and actions taken on the individual hazardous waste received from the various key stakeholders.
10. The Software should have capabilities to track the lineage of the waste from the generation/storage facility to the utilization/ recycling/ disposal.



4.3 Transport Route Schedules

1. The Software should provide capabilities to setup the route and route schedules by the various transporters for their collection from the various sender.
2. The Software should be able to capture the details of the vehicles and driver for each of the hazardous vehicle as per the daily schedule and route planning.
3. These route schedules should be setup by the transporter (sender/receiver) before schedule of the collection of the hazardous waste from the sender.
4. The transporter will update the daily schedule of the hazardous waste carrying vehicle routes and pickup points.
5. The Software should be able to handle any specific route exceptions for a particular days or a group of days from the regular schedule.
6. The Software should be able to add the various pickup points on the route schedule.
7. The Software should verify GPS Output transmitted from Vehicle before allowing for route schedules. Vehicle without Live GPS feeds will not be allowed for route scheduling.

8. Vehicles which have evidence of tampering GPS will be blocked permanently from scheduling trips unless over ridden by SPCB/CPCB officials.

4.4 Hazardous Waste Transportation Vehicle Tracking

1. All registered vehicles should be equipped with a tamper proof GPS unit as per the provided specification. These GPS unit should transmit the data to Central Server in real time. The Central Server should be capable of receiving the GPS data in real time.
2. The Software should be capable of receiving data from 02 different transmitters on the same vehicle. This situation will be used when the signal strength of particular carrier is weak in certain areas and this would need support for dual devices or dual SIM models.
3. The Central Server software should be able to visualize the exact location of the various vehicles.
4. The Central Server software should support GPS tracking devices of any make and model as per the specifications given in this document.
5. The Central Server software should provide capability to configure the various devices make and models and the protocols for data communication with the various GPS Tracking devices as per SoW.
6. The Central Server software should be able to handle hazardous waste handing units at the same time with its own route schedules.
7. The Central Server Software should be able to visualize the software on a geographic map.
8. The Software should support annotations and comments on specific vehicle routes based on abnormal events like accidents on the path, route diversions due to road work, road closure etc.
9. The Central Server Software should support multiple trips and multiple schedules for each of the vehicles carrying hazardous material.
10. The Central Server Software should have alerting capabilities based on geofencing rules related to the routes of the vehicle pre-defined path.
11. The Central Server Software should have capabilities to identify un-usual stoppage of the vehicle based on duration, unscheduled stops, unscheduled deviations etc. than its regular authorized route.
12. The Central Server software should have built-in capabilities for identifying anomalies for geospatial and time series anomaly detection using Machine Learning and Deep Learning Techniques.
13. The Software should have capabilities to over-ride exceptions in route deviations due to road accidents, road closure etc.
14. The software should be able to list all the hazardous wastes carried by the vehicle at any given point of time.

4.5 Live Status Tracking

1. Software should support real time view of the data from all the generators, collectors, transporters, operators, recycler, utiliser and co-processor throughout the country in real time with classification of the hazardous waste
2. Software module should support geo-location of the sites, vehicles using specific latitude - longitude or as per cartographic coordinates overlay on a map and present information of site/vehicle, parameters connected and present value either graphically or numerically display.

3. Software should be able to show the status of each of the vehicle in a geographic map and should show alerts and alarms based on route deviation, unusual stoppage in real time.

4.6 Alarms and Alerts Capabilities

1. The Software should have capabilities to provide alert for any excess storage at the operator beyond its stipulated capacity.
2. The Software should be capable of providing alerts if the hazardous waste stored at occupiers beyond the stipulated time frame.
3. The Software should be capable of providing alerts if the occupiers not filing the daily records beyond the time frame i.e. 07 days
4. The Software should be capable of providing alerts if the occupiers/recycler/ utiliser/co-processor/ operator produced/ disposed (as the case may be) beyond the consented/authorized quantity.
5. The Central Server Software should provide an interface to view and list all alarms and alerts. There should be a filter to view only new alerts and alarms.
6. The Central Server Software should provide an interface to acknowledge the alarms and alerts by regulators, occupier, operators, transporters etc. Once acknowledged, the alarms and alerts should disappear from the list.

4.7 Reporting and Analytics Capabilities

1. The Software should be capable for collecting quarterly reports on waste generation and management from each of the occupier (i.e generator/collector/recycler/utiliser/co-processor/operator, etc.).
2. The Software should be able to support various reports required by the CPCB and SPCB officials with respect to the handling of hazardous waste.
3. The Central Server Software should support standard reports for each generator, operator, recycler and utiliser based on the quantity, type, location, transporter etc.
4. The Central Server Software should have both default reports and also reports generatable by the end user as per requirements.
5. The Central Server Software should be able to support different data quality code and report data based on representativeness and data quality. Statistical significance of data should be reportable in respect to data density.
6. The Central Server Software should generate report on approved and validated data. There should also be a capability to see the raw data collected within the reports.
7. The Central Server Software should have capability to compare, group sector wise generators, operators and generate report (text, numeric and graphical).
8. The Central Server Software should support ability to export the reports data to csv, pdf and text file as and when required.
9. The Central Server Software should have provisions to accommodate printers of different model and make.
10. The Central Server Software should support ability to develop custom reports by the regulator based on the data analysis requirements. The report generated should be both graphical and tabular form.
11. The software should be able to select the data quality code, the data representativeness, the time window and the generator specific parameters for generating reports.

12. The Central Server Software should provide daily status of each hazardous waste generated, stored, sent etc. and provide metrics on data quality.
13. The Central Server Software should provide ability to generate custom reports.
14. Report should be able to calculate differential data from two parameter reading and show the trend of differential data.
15. The Central Server Software should provide custom reporting capabilities to support regulator's present and for future requirements.
16. The reports should have the capability to show both raw data and approved/validated data. There should be a provision to create custom charts. There should be a support to add new charts and dashboards as per the requirements.

4.8 Camera and Video Live Streaming Capabilities

1. The Software should support live streaming of camera from the hazardous waste storage area at the occupier/generator premises and also at the operator storage premises.
2. The Software should be able to capture the label/photo of the containers used for storage of hazardous waste.
3. The Software should be capable of viewing of the camera footage of each of the captured video streams.

4.9 Access Control and Security

1. The Software should have a built-in user management and role management modules.
2. The Software should be able to group users based on geographic territory or logical grouping
3. For each group of users, multiple user roles can be assigned and for each roles multiple users should be able to be assigned.
4. The Software should support role based access control for the various roles envisaged as part of the software. The roles includes but not limited to
 - Operator Admin and Staff
 - IND Admin and Staff
 - CCF Admin and Staff
 - TRPR Admin
 - RF Admin and Staff
 - UF Admin and Staff
 - PPF Admin
 - CPF Admin
 - Drivers
 - Waste Exchange Admin
 - IMPR Admin
 - EXPR Admin
 - MoEF&CC Admin and Regional Officers
 - Port Admin and Regional Officers
 - CPCB Admin, IT and Regional Officers
 - SPCB Admin , Regional Officers and Head Quarter Officers
5. Each of the roles will have specific feature access. The Software should be configurable and modular such that for each user roles, a selected group of screen access can be provided.

6. The Software should be fully secured and be safe against vulnerabilities and security threats. All cyber security related threats and vulnerabilities should be addressed using secured coding practices.
7. The Software should support block chain cryptography based lineage tracking of the hazardous waste from the occupier/generator till the collector/recycler/utiliser/co-processor/operator.

4.10 Backend Processing Requirements

1. The Central Server Module should provide a backend processing services for transmitted data and a highly scalable backend database capable of storing time-series geo-spatial data acquired from the various vehicles along with the data collected from various stakeholders (i.e. generators, transporters, collectors, recycler, utiliser, operators, etc).
2. The database should be able to support data storage and query for 10 years of data collected from all the entities with minimum of 30 second interval.
3. The database should be scalable to support 10000+ concurrent connections and should be able to store and process more than 100 Terabyte of data.
4. The Central Server Module should generate automated alarms and alerts based on route deviations, data connectivity failure, instrument failures, etc.
5. The Central Server Module should be able to identify delayed data published from the vehicle due to network connectivity failures and mark those data separately from the live connected data. This should help in reconstruction of the travelled site by the vehicle in-case of any transmission failure.
6. The Central Server Module should be able to send pre-configured template based SMS and Emails for alerts and alarms generated based on the configured rules. This feature should be a built-in capability of the Central Server Module and not external application software.
7. The Central Server Module should have facility to transfer data to other servers at regulator side at periodic interval for data backup and recovery requirements and for the purpose of providing data to any other SPCB/Govt. agency on continuous basis if required or inurgencies.
8. The Central Server Module should be able to generate report on alarms/events and violations/deviations with vehicle tracking and period wise say weekly, monthly, annually etc.
9. The Central Server Module should provide automatic notification to the operator, generator, transporter and regulator inbox for all new notifications and action items like fixing communication issues, route deviations, missing waste etc.
10. The Central Server Module should be able to support data encryption and security at the server side. The data received from generators, collectors, transporters, recyclers, utilisers, co-processors, operator, etc. should be decrypted and data authenticity ensured.
11. The Central Server Module captures the IP address and other device information from which the data was sent for audit purposes.
12. The central server should be available 24/7 for 365 days for live GPS Tracking. The system should provide automated redundancy so that Live data from vehicles, operators, generators, recycler, utilizer/co-processor should be able to continuously send the data.

4.11 Data Export and Archival Requirement

1. The software should be able to export the reports for the various stakeholders and support export to Word or excel or pdf formats.
2. The software should be capable of archiving the collected data at specified intervals based on the data archiving policy. Currently any data after 10 years is archived. A shorter archival window will be specified for the live GPS tracking data from the vehicles.
3. A copy of database is to be periodically updated at CPCB DC.

4.12 Data Acquisition Requirements

1. The Central Server Software for Hazardous waste should also support an open Application Programming Interface (API)/ web services and TCP/Dialup that enables existing systems like Online Consent Management and Monitoring System (OCMMS) and other systems adopted by the SPCBs/PCCs for consent management, to push the data to the central system.
2. The GPS Tracking Vehicle should directly transmit the Live GPS data from the Vehicle Tracking device along with Form C information and weight sensor data directly to the Central Server without any intermediate hop or intermediate servers. All data should be directly received from the GPS Tracking Vehicle.
3. No data shall be accepted as output from GPS Simulator or mobile phone etc. The data from valid IMEI registered with the vehicle only will be accepted by the software except in emergency situations.
4. During internet connectivity failure or a communication issue with the central server, the GPS Vehicle Tracker should store the data locally for at least eight hours and retransmit when the transmission can be restored. Any such delayed transmission should be identifiable at the regulator side using data quality codes.
5. Each measurement should be associated with the data quality code inferred along with the auxiliary data such as battery levels, alarms, signal strength etc.

4.13 Corroboration and Workflow

1. The software should support corroboration between the various stakeholders by providing a built in workflow feature and an inbox feature. This feature should be a built-in functionality of the central server software and not additional software running separately to ensure that there is integration with the reporting module.
2. Whenever there is any route violation or storage days exceedance or incomplete trace of hazardous waste, an alert should be generated in the corresponding inbox. The representatives from the generator, operators, recycler, utiliser and transporters should be able to update with the corrective actions and comments. These comments/reasons should show upon the graphs when the data for that particular period is viewed.
3. Transporters, Collectors, Operators, recycler, utiliser and Generators should be able to inform the regulator of different maintenance events or incidents (vehicle breakdowns, route rerouting, accidents etc.) using workflow feature of the Central Server Software.
4. The system should automatically generate events and inbox messages based on the route violations, anomalies and other incidents or software rules configured.

5. The system should provide the history of correspondence/communication between the various stakeholders (generators, collector, recycler, utiliser, operators, transporters, etc.) and the regulator for specific events/workflows.

4.14 Configuration Management

1. The Central Server Software should provide the user interface to configure the operator, generator, collector, transporter, recycler and utilizer/co-processor. The detail screens for configuration, vehicle configuration, route configuration, hazardous waste category, type etc. should be available.
2. The Central Server Software should have list of device models for Vehicle Tracking, weight sensors and also all the standard hazardous materials transported.
3. The Central Server Software should support grouping of sites, across geographic dimensions like District, City, etc. and other custom attributes (like industry type) selected by the regulator.

4.15 Data Validation

1. The Web Server Interface module should provide user interface for data validation and approval. The regulator should be able to select a particular time range and approve/reject the data with proper comments.
2. The Web Server Interface module should support manual and automated data validation and approval workflow to review the various stakeholders (i.e generator collector, transporter, recycler, utiliser, co-processor, operator, etc.) data and approve by providing appropriate comments based on the data quality.
3. The Web Server Interface module should provide ability to annotate the data with the specific events/comments provided by the various stakeholders (i.e generator collector, transporter, recycler, utiliser, co-processor, operator, etc.) such as maintenance schedules, vehicle breakdowns, accident etc.

4.16 Mobile Application Capabilities

1. Mobile Application should be developed for Android, and IOS Operating system.
2. Mobile Application should be supporting the needs for **occupiers** and Regulator needs for interacting with Central Software along with real time information.
3. For stakeholders/reciver view should show the live status of various vehicles scheduled for reaching the reciver facility (collector/ recycler/utiliser/operator).
4. The Transporter/driver view should show the live status of all vehicles owned by transporter and status of the hazardous waste loaded
5. Regulator should be able to view the individual state wise operations and also consolidated summary of various statistics with respect to hazardous waste
6. Mobile Application should support registration and status of the operators, generators, transporters, recycler, utiliser, etc.
7. Mobile Application should serve the needs of recyclers/ utiser as Waste Exchange Centre w.r.t information on type, category, characteristics and quantity of the desired hazardous waste. Mobile app will act as data entry, video entry at times, geo location entry, and various other entries having issues in emergencies.
8. Similarly, the MobileAPP will act as a visualization to stake holders for their data entered like geo locations of their waste carrying trucks, manifest finalized for a route. Specific search for a specific type of waste, video images downloading etc.

9. To provide mobile application suitable for its various stake holders to enter the daily hazardous waste generated, to search for specific type, category, quantity, Video of wastes, finger prints, location based waste, track the waste till it's disposal.
10. Design shall be finalized on SRS development.

5.0 Manpower Deliverables

1. One programmer and One Environmental Expert has to be deployed at CPCB on five days a week in office hours at CPCB for the entire project duration.
2. Support services will have to be provided, which will cater to the needs and co-ordinate between SPCBs/Stake holders and technical team to accomplish the given tasks in a given time frame.
3. Programmers/experts should be capable to operate and create new pages in the system as per requirements of CPCB from time to time.
4. Transportation, lodging and boarding shall be paid at par with Group'A' officers in CPCB to the Engineers/team members of the firm for which pre-approval of tour will be obtained from the CA, CPCB from time to time as per requirement by the project team at CPCB.
5. Backend team support should be available as and when required.

6.0 Training to CPCB officials and other Stakeholders

1. To conduct ONE DAY professional class room training program atleast 12 days in an year to all its stake holders like CPCB & SPCB/PCC officials and other stakeholders (i.e. generators, recyclers/utilizers/occupiers, etc.) for operating the proposed central waste tracking system.
2. To provide detailed training to two core team members of CPCB in programming of the basic technology used to upgrade the software/operate/modify program for a period of atleast two week either at an Institute or at CPCB through certified professionals and or developers of this software only.
3. To provide training to CPCB officials (Five numbers) for one week for operating the proposed central waste tracking system

7.0 New Pages Development

Since the system is still evolving there are requirements all the time to upgrade/modify input and output in different formats. Hence, development of such twenty webpages per year is anticipated within the project duration.

8.0 Intermediate Software & VM required for data transmission if any

1. Any intermediate software required for data transfer from the SPCBs/NIC/stakeholders etc. to central server at VM has to be provided by the firm.
2. VM for a period of atleast one year to operate the software is to be provided by the firm.
3. Later transfer of the software over VMs of NIC is the firm's responsibility.

9.0 Software Upgradation/ Development Methodology

After the work award the developer will discuss the project requirements with CPCB officials and prepare SRS for the project. The SRS will be accepted by CPCB and firm will start writing code. The firm will provide Proto type and IT Division will analyze and provide its feedback. There will be three iterations for which firm will provide the change in source code without any additional cost. The firm will make final presentation before the CPCB Committee and Competent Authority,

CPCB. Suggestions made by Committee or Authority will have to be incorporated by the firm and the system will be

made LIVE! in NIC domain after auditing. The firm will provide the VM for initial period and operate the system. NIC domain will be procured by CPCB and thereafter the firm will deploy and operate the software in NIC domain. Any further development required in the software till the project duration will have to be done by the firm.

10.0 Eligibility Criteria:

1. The firm should be in existence for over 03 years in the development of on-line system (in support of the claim copy of Registration Certificate should be produced) **Document No. '1'**.
2. Firms must be engaged in atleast 03 Projects (only those project shall be considered which can be demonstrated live) of software development and maintenance during last four years (i.e. financial year 2015-16, 2016-17, 2017-18 & 2018-19) in any three out of five fields mentioned below:
 - (i) Web Developments & Mobile APP development,
 - (ii) M2M with IoT (Internet of Things), and
 - (iii) GPS Tracking & Integration development using open source platforms.
 - (iv) GIS platform software application development
 - (v) SCADA implementation
3. The turnover of firm in the development of on-line system should be more than ₹ 2.0 Crore per annum during the last 3 years (in support of the claim certified balance sheets for last four years i.e. F.Y. 2015-16, 2016-17, 2017-18 and 2018-19 should be produced) **Document No.2** (balance sheets highlighting software development related information).
4. The firm should have undertaken atleast one similar software development contracts (in any five fields mentioned) during last 03 years ending 31/12/2018 with Government Department/PSUs/Semi Govt./Autonomous bodies. A certificate or evidence to this effect is to be provided from the concerned Govt./PSUs/Semi Govt./Autonomous bodies. **Document No.3**

Table 1

S. No. (01)	Name of Project (02)	Type of project (03)					Software development component details Platform/DB /Language etc. (04)	Projects Undertaken			Software development component cost (10)
								Start Date (05)	Expected Delivery date (06)	Actual delivery Date (07)	
01		M2M with IoT	Web & MobApp	GPS with Open Source	GIS Software	SCADA	Any other Similar to these				
02											

03								
04								
05								

Submit a summary sheet as per Table 1 of projects and attach supporting documents for the claims. **Document No. '4'**.

- Firm should not have been blacklisted by any Government Agency. Self-declaration to be provided. **Document No.'5'**.
- Firm should provide the customer list containing at-least (Two) One Organizations in Govt. /PSU /Semi Govt. Sector as per table 2. **Document No.6.**

Table 2

Sl. No.	Name of Organization	Org. Address	Concerned Officer			Name Of Project	Cost of Project	Date of award of Project	Date of Compl Etion Of Project	Softwa Re Compo Nent Modul e name
			Name	Mobile	E-mail					
01										
02										
03										

- Firm should have a valid ISO certification for software development/IT enabled services/ data management of process industries. **Document No.7**
- The firm should have valid PAN and GST registration certificate. (Copy to be produced). **Document No.8**
- Bidder shall submit integrity pact as per the format of 'Integrity pact' given at Annexure-VI along with technical proposal. **Document No.9**

11.0 Selection Criteria

The software consultants/firms selection criteria are as below:

11.1 Parameters

The firm has to qualify the eligibility criteria as given below;

S. No.	Parameters	Number of project dealt in the specified area in last three years till date	Max Marks
1	Field of expertise in terms of live projects		20
	1. Software Development with GPS Tracking	>2 =2 >3 =3 >4= 4	4
	2. Web Development with Mobile Apps	>2 =2 >3 =3 >4= 4	4
	3. M2M with IoT	>2 =2 >3 =3 >4= 4	4

	4. GIS Software development (4 points if worked on ArcGIS)	>2 =2 >3 =3 >4= 4	4
	5. SCADA Implementation	>2 =2 >3 =3 >4= 4	4
2	Working expertise over different technologies like open platform softwares for Open DB, Front end tools, parallel programming and other projects of GIS, GPS.	Oracle=2 Open TSDB/ Mongo =3	3
3	Size of the projects handled in same fields only - Detail best ones	>1Cr = 2 >2Cr = 3 >5Cr = 5	5
4	Working Experience with Government Organization and other organizations as mentioned inform about experience in years and size of department catered to	>2=2 >3=3 >5=5	5
	Educational Qualification and working experience of the proposed team leader and members (in any of the fields mentioned under item at S. No. 2 of the eligibility criteria)	M.T.+1Y=1 M.T.+2Y=2 M.T.+3Y=4 B.T./M.Sc +1Y=1 B.T./M.Sc +2Y=2 B.T./M.Sc+3Y=4 B.T./M.Sc.+1Y=1 B.T./M.Sc+2Y=2 B.T./M.Sc+3Y=4	12
5	Edu. Qual.- M.Tech/B. Tech/M.Sc./ and Experience of Team Leader/Member in the field of IT, CS		
6	Projects Completion for number of projects in the above mentioned fields- no. of projects with completion certificates and duration	>01 =2 >3Nos.=3 >5Nos.=5	5
7	Financial stability and turnover of the firm during previous years- age and turnover in Crs.	Age>5yrs=2 >7yrs=4 >10Yrs=5 Turnover >5Cr per year=3 >10Cr per year=4 >20Cr per year=5	10
8	Employee Strength of firm and growth rate over last five years- No. of employees with documentary proof and chart of growth rate of firm	>25 employees=2 >50 employees=3 >100employees=5	5
9	Technical presentation (professional approach and work plan for the NHWTS) to be made before the CPCB committee		20
10	Working experience in no. of years of NIC domain	Age>5yrs=2 >7yrs=4 >10Yrs=5	5

11	Certification levels like ISO, CMM Level 3, CMM level 5 or any other certification levels if achieved in the software development field.	ISO=2 CMM L-3=3 CMM L-5=5	5
12	Under AMC contract for above mentioned field projects for number of years	>03 =2 >5Nos.=3 >7Nos.=5	5

Marks shall be allotted for specific parameters and accordingly calculation will be made.

The firm should submit Document 10 as parameters for eligibility criteria. Additionally submit document for each project mentioned above for any parameter in the calculation to be considered for quality assessment a) Copy of Work award letters *Documents bunch no. 11* & b) Copy of Work Completion Letters as *Documents bunch no. 12*.

11.2 Details of the Proposed Team to be deployed for software development duration at CPCB

Team	Proposed Team Composition	Details of Team Members proposed to be deployed for the project work
Team Leader	Designation	
	Qualification	
	Experience	
	Skill	
	Responsibility	
Member 1	Designation	
	Qualification	
	Experience	
	Skill	
	Responsibility	
Member 2	Designation	
	Qualification	
	Experience	
	Skill	
	Responsibility	
Member 3 (Permanent residence engineer for next four years during AMC)	Designation	
	Qualification	
	Experience	
	Skill	
	Responsibility	

Submit the details as **Document No 12**

Note:

- *Team Leader cannot be engaged for more than one project and he/she shall also be regular employee of the firm.*
- *Team Members to be engaged for this project and he/she shall also be regular employee of the firm.*

12.0 Hardware Requirement for regulator side

Sr. No	Item Details	Quantity			
1	Rack Server 2U Model with the following server specifications <ol style="list-style-type: none"> 1. Hexa Core Intel Processor with minimum 2.4 GHZ or more 2. 64 GB RAM 3. 4* 1.2 TB HDD 4. Antivirus software with 3 years License 5. Preferably Dell / IBM or HP make with RAID 5 configured and a wireless adapter for remote access 	6			
2	RHEL 6.4 or higher OS for the Server	6			
3	Firewall Details as given or better <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Cyberroam UTM Device Model : CR25iNG</td> </tr> <tr> <td style="padding: 2px;">CISCO WAP 121 Wireless N-Access Point Model: WAP121-A-K9-IN Make : Cisco</td> </tr> <tr> <td style="padding: 2px;">CISCO 300 Series Rack mountable Switch Model : SF300-24PP Make : Cisco</td> </tr> </table>	Cyberroam UTM Device Model : CR25iNG	CISCO WAP 121 Wireless N-Access Point Model: WAP121-A-K9-IN Make : Cisco	CISCO 300 Series Rack mountable Switch Model : SF300-24PP Make : Cisco	2
Cyberroam UTM Device Model : CR25iNG					
CISCO WAP 121 Wireless N-Access Point Model: WAP121-A-K9-IN Make : Cisco					
CISCO 300 Series Rack mountable Switch Model : SF300-24PP Make : Cisco					
4	8 TB Disk Drive for Data Backup	4			
5	Additional Servers and security devices shall be proposed by the firms for Video Streaming of a model with 100000 industries recording in the encrypted format alongwith necessary softwares including Video from ~40 disposal facilities operations.	--			

13.0 Hardware specification for occupier / TSDF

Initially the project will start with basic utilities like providing routing and managing movement through GPS, Video data and manual entries of weight data into the system through mobile and web applications developed. Each Transporter will be required to install a GPS cum Video camera device initially for which specifications shall be decided through discussions with technical team of the firma and CPCB IT Team. The generic specifications shall be displayed on CPCB website for all stake holders to procure and install. Upon installation, the data tracking will start gradually on first come first serve basis. The first set of ten protocols have to be developed at one go so that predominant make devices can be onboarded and the devices of generic nature gets connected. Thereafter specific devices if any will be considered for connection.

The development API shall be made public by CPCB for all the stake holders to procure their devices accordingly.

14.0 Data base specification for regulator side software

Sl. No.	Specifications

1.	Software	Highly scalable Open Source database capable of storing time-series geospatial data like Cassandra, Hbase, Mongoddb and compatible with GIS platform
2.	Storage	Minimum 100 TB
3.	Concurrent connections	Support minimum of 10000 concurrent connections
4.	Availability	High availability with 99.95% availability
5.	Latency	<5 seconds for standard site specific query
6.	Limitation	With No user number limitation
7.	Processing capability	Parallel Processing capability
8.	Expandable	Expandable as per requirement

Web-Server Interface Requirement (Apache httpd, nginx)

15.0 Schedule of “Software Development for National Hazardous Waste Tracking System”

S. No.	Activities to be carried out	Apr-19	May-19	Jun-19	July-19	Aug-19	Spe-19	Oct-19	Nov-19
1	Advertisement & Trending & Finalization								
2	SRS Development								
3	Development of Software & Integration of Devices								
4	Development of Mobile APPs								
5	CERT in Certification - Obtaining VM-NIC - Hosting								
6	Training								
7	Procurement of Servers, Software & Other peripheral items								
8	Fully Functional and connected system								

16.0 CPCB Deliverables

- Working space to the Programmers
- Access to IT Division during working hours.
- Procurement of NIC domain for hosting application
- Remote access of database/application.
- Hardware for installation as suggested by the firm and connectivity
- VM at NIC

17.0 Penalties

17.1 Timeline for Delivery and Penalty for Delay:

S. No.	Items/Activity	Penalty for Delay
1.	Signing of agreement with the successful bidder	1. @ 1% on Project Value for delay by 1 week in supply & installation of solution and increase @ of 0.10% of Project Value for every additional week delay. 2. During the O&M phase, the deployed solution shall be running with 99.5% efficiency & uptime. Any deviation shall be liable for penalty of Rs. 1,000/- per day.
2.	Inception report to be submitted	
3.	SRS Development	
4.	Development of Basic Central software	
5.	Development of Mobile APPs (Two iOS + Android)	
6.	Establishment of Central Server including networking with VM other than NIC with DDS & Dashboards	
7.	Testing and Certification of software Solution	
8.	System Ready for launch	
9.	Training	

17.2 Breakdown of system

1. 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 2 (two) hours of time (for which no separate communication will be made from CPCB side) else penalty of Rs. 500/- per hour (number of hours) will be levied on the firm and the Board shall have the right to deduct the same from the running bills of the firm.
2. 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 two hours' time (02 hrs.) (for which separate communication shall be made by CPCB with error message's snapshots) else penalty of Rs. 500/- per hour (Five rupees only) per error message shall be imposed on per hour basis.

17.3 Maximum Penalty applicable:

The total penalties amount inclusive of all penalties shall not be more than 25% of the yearly contract value. If penalties amount happens to be more than 25% of yearly contract value, then CPCB shall have the right to terminate the contract and shall deduct the maximum of 25% amount of yearly contract value and release the balance payment to the firm. During AMC period, the calculation will remain same and the amount shall be deducted from the PBG submitted to CPCB if penalty amount is higher than AMC amount.

18.0 Mode of Payments:

- a) Milestone 1: 10% of Total project cost shall be released after SRS Development (End of 4weeks)

- b) Milestone 2: 25% of total project cost shall be released after 16 weeks i.e. at the time of completion of Development of Central Software with all its utilities.
- c) Milestone 3: Balance 65% Payment after LIVE! i. e. after 06 months from the date of work award after penalty deduction if any.
- d) Milestone 4: AMC of the software on successful operation of the software on six monthly basis after its one year warranty period.

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
- (iv) Functionalities of software operational such as installation of new server, installation of new agency, display at web page etc.
- (v) Certification from IT Division verifying that system is functional.
- (vi) Penalty if any shall be deducted from the payments without notice.

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.

19.0 Technical terms and conditions

1. First Prototype should be submitted as per schedule and thereafter final software should be submitted with three iterations.
2. The developed application software will be initially hosted on the firm's Cloud and thereafter on stabilization and audit, it has to be hosted on VM of NIC and firm shall be responsible to provide software support on remote.
3. Efforts have to be made by the firm to get the continuous data in the system.
4. In case of any bug / error in the existing functionalities the firm will provide resolution.
5. The support Team should define the time required to resolve the incident & communicate the same to the contact person of CPCB through email.
6. Once the incident is resolved an email statement for the same would be initiated by the firm & the incident be considered closed after acknowledged by CPCB.
7. In case of new functionality requirement, it should be communicated in writing through mail and the firm shall respond within two working days.
8. The contract may be terminated any time, if CPCB desires to do so without assigning any reason with 15 days' notice to the firm in writing.
9. The contract can be renewed only upon written request by the firm to continue the contract on mutually agreed terms and conditions in future.
10. The software system / code developed shall become the property of CPCB and CPCB is free to replicate, reproduce, multiply or distribute and deploy the software at any other location. The CPCB will hold all the copyrights and IPR of the written code.
11. It is expected that at least three members team will work on the project. The educational qualification and work experience of team members should essentially be:
 Team Member 1: M. Tech., CS/IT with at least two years of experience in the software development.
 Team Member 2: B. Tech/M.Sc., CS/IT with at least two years experience in software development. Team Member 3: B. Tech./M.Sc., CS/ IT with at least two years experience in networking/Video/GIS. The firm may propose bigger team with higher qualification mentioned

above, as per their work requirement understanding till the project delivery. Once it starts rolling after Live! Only two engineers will be required for the routine works. If any more assistance is required, the firm will provide support from its office. If there is need felt to increase the team size, it may be done by CPCB for which quotes should be provided in the price bid.

12. First time auditing till LIVE! is the responsibility of the firm/bidder and thereafter if required auditing will be borne by CPCB and the responsibilities of closing NCs is of the firm.
13. The contract period will be for five years starting from the date of Live!
14. The quoted rates should be applicable during project duration and quoted rates shall not change for the project duration.
15. CPCB shall award the complete work to the lowest quotee on total value basis.
16. The firm should quote in all works listed in the commercial document, otherwise bid will be disqualified / rejected.
17. There will be a team formed at CPCB to crosscheck the data availability, assessing the performance of the firm. This team will cross verify the data availability, new work assignment progress and any other related issue and shall communicate to the firm in writing. This team will also calculate the penalty as per mentioned clauses and recommend the amount of penalties considering all related issues of the software and other station related issues. The firm shall communicate with the team and should clarify each issue time to time.
18. 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. In order to meet the objective of the National Hazardous Waste Tracking System, there might be changes or upgradation in the data input/output and processing of the data. The same shall be considered as part of the project and no extra cost shall be payable to the awardee firm.

20.0 General Terms and Conditions

To ensure that CPCB is provided with complete and accurate information in response to the attached document, it is requested that each software consultant responding to the document agrees to read the software specifications in detail, quote the time required, and adhere to the following terms and conditions.

1. Firm has to suggest:
 - a) RDBMS and licensing requirements (if any) on which the software is proposed to be developed, so that CPCB can make necessary arrangements for its procurement if required and the cost component will be considered additionally. However, open source based technology is preferred.
 - b) From time to time the up-gradation requirements of technology.
 - c) Hardware and software requirement for Video Streaming application
2. **Performance Security:**
 - Performance Security is to be provided by the successful bidder awarded the contract. Performance Security should be for an amount of 10% of total Project cost except taxes. 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 Sixty two 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.

3. Bid security (EMD) will be refunded to the successful bidder on receipt of Performance Security while EMD of unsuccessful bidders will be returned without interest on the finalization of work award.
4. The bidder is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bidding document. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding document in every respect will be at the bidder's risk and may result in the rejection of its bid.
5. 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.
6. 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.
7. 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 initialed by the person or persons signing the bid.
8. Canvassing in any form will disqualify the Bid
9. **Adherence to timeline** – The bidder agrees to adhere to the timeline for the software development and delivery within stipulated time lines.
10. Subletting of the work is not allowed without prior written permission from CPCB
11. Costs and Expenses – Any costs (and expenses) incurred by the bidder in responding to the tender document, 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.
12. **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.
13. **Right to interview** – As a part of the evaluation process, CPCB may interview the bidders 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 bidder.
14. **Right to Share Proposal with designated personnel** – The response to the tender submitted by the authorised representative of the bidder, 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 tender document 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.
15. **Right of Refusal** - The bidder understands and agrees that CPCB reserves in its absolute discretion the right to select or reject any bidder any time during or after the tender process or any subsequent evaluation or contractual process. The bidder further understands and agrees that any such selection or rejection may be based on the bidder’s responses to this Bid, on any

subsequent information or contractual documents related thereto, or for any other reason whatsoever.

16. **Ownership of documents and copy rights** - Complete Software developed under this project, documentation and other work products will be fully owned by CPCB. CPCB will get unlimited rights to modify, enhance, install and otherwise use the software as it deems fit.
17. **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.
18. **Compatible with NIC and NICS** – Bidder 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 the software documentation and engage in the coordination activities for setting a part of the software or full at the NIC server.
19. 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 in toto.
20. Bidder shall submit integrity pact as per the format of 'Integrity pact' given at Annexure VI along with technical proposal.

20.1 Method of Evaluation and Award of Contract

1. Prior to evaluation of Proposals, CPCB will determine whether each Proposal is responsive to the requirements of the RFP. A Proposal shall be considered responsive only if:
 - a) it is received in the specified format;
 - b) it is received by the due date including any extension thereof;
 - c) it contains all the information (complete in all respects) as requested in the RFP;
 - d) it does not contain any condition or qualification;
 - e) it has deposited requisite amount of EMD as Earnest Money Deposit (EMD)

CPCB reserves the right to reject any Proposal, which is non-responsive and no request for alteration, modification, substitution, or withdrawal shall be entertained by CPCB in respect of such Proposals.

20.2 Evaluation of bids

1. Bidders are requested to submit all requisite documents as per the uploaded RFP along with their bids failing which the bids are liable to be rejected. A duly constituted Evaluation Committee will scrutinize and evaluate the bids for selection of an agency.

2. From the time the bids are opened to the time the contract is awarded, the Agency should not contact the CPCB on any matter related to its Technical and/ or Financial bid.
3. Any effort by the Agency to influence CPCB in verification, evaluation, ranking of bids and recommendation for award of contract may result in the rejection of the agency's bid.

20.3 Criteria for Evaluation of Technical bid:

Evaluation Committee shall evaluate the Technical bids on the basis of their responsiveness to the eligibility criteria mentioned in RFP. The eligible technical bids shall then be evaluated as per defined evaluation criteria *point no. 11.1* of the RFP.

Only Agency obtaining a total score of 70 (on a scale of maximum of 100) or more on the basis of criteria for evaluation given, would be declared technically qualified. Every technical bid shall be awarded an absolute technical score of 'T' marks out of a total of 100 marks.

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.

Financial bids of only those Agencies which are declared technically qualified shall be opened on the specified date and time, in the presence of representatives of bidders who choose to attend. The name of the Agency, their technical score (if required), and their Financial bid shall be read aloud.

20.4 Method of Selection:

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:

Total points: (0.7 x T(s)) + (0.3 x100 x Fm/Fb)

The bids will be ranked in terms of total points scored. The bid with the highest total points (H-1) will be considered for award of contract.

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

20.5 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 H-1 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.

20.6 Competent Authority's Right to Vary to Vary Items/Activities at the time of award

The Competent Authority shall have the right to make any alterations, omissions, additions or subtractions in items/services at the time of award of contract. The Competent Authority will give such intimation to the successful Bidder, and additional cost/deduction in the Bid prices, based on the price schedule submitted by him, will be worked out with the Bidder. In case, the Bidder does not agree for such alterations, the Competent Authority will be free to award the contract to the next eligible Bidder.

20.7 Labour Laws and Safety Measures

- a. Agency shall comply with all the provisions of labour law related legislation/acts as enacted by Government from time to time and in case of any prosecution / penalty, agency shall be liable for the same.
- b. Agency shall be liable for payments of duties viz. P.F., E.S.I. etc. including any compensation payable under Workmen Compensation Act to the professionals employed by the Agency. CPCB shall have no responsibility, financial or other liabilities towards professionals employed by the Agency.
- c. Agency will take all safety measures / precautions during the work. For any accident due to negligence / any other reason during the period of contract period, it shall be sole responsibility of the agency and CPCB shall not be held responsible for the same.

20.8 Applicable Law and Jurisdiction

This RFP, including all matters connected with this RFP, shall be governed by Indian laws, both substantive and procedural, for the time being in force and shall be subject to the exclusive jurisdiction of Delhi Court, if required.

20.9 Insurance and Medical

- a) It shall be the responsibility of the agency to insure their staff and equipment against any exigency that may occur at site. Agency will also take insurance cover for third party liability, which might occur due to damages caused to their manpower, equipment etc. CPCB shall not be responsible for any such damages.
- b) Medical facilities (as per law) for professional including insurance of the professional on site will be provided by the Agency.

20.10 INDEMNIFICATION

1.0 Agency shall at times indemnify and keep CPCB indemnified against all claims/ damages etc. for any infringement of any Intellectual Property Rights (IPR) while providing its services under this contract.

2.0 Agency shall at all times indemnify and keep CPCB indemnified against any claims in respect of any damages or compensation payable in consequences of any accident or injury sustained or suffered by its (Agency) employees or caused by any action, omission or operation conducted by or on behalf of Agencies.

3.0 Agency shall at all times indemnify and keep CPCB indemnified against any and all claims by employees, workman, suppliers, agent(s) employed engaged or otherwise working for Agency, in respect of their wages, salaries, remuneration, compensation or the hike.

4.0 All claims regarding indemnity shall survive the termination or expiry of the contract.

20.11 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 Bidder 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

bidder shall refund any amount advanced to the bidder by the Board and delivery back any material issued to him by the Board and release facilities, if any, provided by the Board.

20.12 Taxes and Duties:

The firm shall be entirely responsible for all taxes, duties, license fees, and other such levies.

21.0 Instructions for Online Bid Submission:

The bidders are required to submit soft copies of their bids electronically on the CPCB portal as well as CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:<https://eprocure.gov.in/eprocure/app>.

21.1 Registration:

1. Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link “**Online bidder Enrollment**” on the CPP Portal which is free of charge.
2. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
4. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
5. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
6. Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

21.2 Searching For Tender Documents:

1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
2. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My

Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.

3. The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

21.3 Preparations Of Bids:

1. Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
3. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
4. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders.

Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

21.4 Submission of Bid:

- i. Bids shall be submitted online only at CPPP website: <https://eprocure.gov.in/eprocure/app> Bidder/Contractor are advised to follow the instructions "Instructions to Bidder for Online Bid Submission" provided in the "**Annexure-I**" for online submission of bids. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- ii. Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- iii. Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- iv. For any clarification regarding tender, contact to Sh. B. Vinod Babu, Head & AD, IT Division at 011-43102296 or Sh. Aditya Sharma, Sc. 'D', IT Division, at 011-43102300 Central Pollution Control Board, Delhi .

- v. Bidder shall submit integrity pact as per the format of 'Integrity pact' given at **Annexure-VI** along with technical proposal.
- vi. Not more than one tender shall be submitted by one bidder or bidders.
- vii. Bidder who has downloaded the tender from the CPCB website <http://www.cpcb.nic.in/tender.php> (for reference only) and Central Public Procurement Portal (CPPP) website <https://eprocure.gov.in/eprocure/app> **shall not tamper/modify the tender form including downloaded financial bid template in any manner**. In case if the same is found to be tempered/ modified in any manner, tender will be completely rejected and EMD would be forfeited and Bidder is liable to be banned from doing business with CPCB.
- viii. Intending Bidder are **advised to visit again** CPCB website <http://www.cpcb.nic.in/tender.php> (for reference only) and **CPPP website** <https://eprocure.gov.in/eprocure/app> **regularly till end date of submission** of tender for any corrigendum / addendum/ amendment.
- ix. At any time, prior to the deadline for submission of Bids, CPCB may, for any reason deemed fit by it, modify the Bid documents by issuing suitable amendment(s) to it. The amendment will be uploaded on CPP & CPCB website only. In order to provide reasonable time to the prospective Bidders to take necessary action in preparing their Bids as per the amendment, CPCB may, at its discretion extend the deadline for the submission of Bids and other allied time frames, which are linked with that deadline. Prospective bidders are advised to visit/see <https://eprocure.gov.in/eprocure/app> & <http://cpcb.nic.in> on regular basis for any change in NIT schedule, amendment/ corrigendum in Bid Document including technical requirement.
- x. Bids will be opened as per date/time as mentioned in the Tender **Important Date Sheet**.
- xi. The Central Pollution Control Board reserves the right to cancel all the tenders without assigning any reasons at any time.
- xii. Canvassing in any form in connection with tender is strictly prohibited and the tenders submitted by the contractor who resort to be canvassing, will liable to be rejected.
- xiii. All rates should be quoted in the prescribed 'Financial Bid' template (Annexure-II) in the tender. No documents may be enclosed with financial bid.
- xiv. For a bidder, who has participated in the tender bids, it will be automatically assumed that he had accepted all the terms and conditions of the tender.
- xv. On acceptance of the tender, the name of the accredited representative (s) of the bidder who would be responsible for taking instructions from CPCB shall be communicated to the CPCB.
- xvi. The tender shall remain open for acceptance for a period of 180 days from the date of opening of tenders.
- xvii. Merely submitting the tender with all the requirements does not bind the CPCB to accept the lowest tender and Competent Authority, CPCB reserves the right to reject any or all of the tenders received without assigning any reason. Tenders not fulfilling any of the prescribed conditions or incomplete in any respect are liable to be rejected.
- xviii. Technical bid of only those contractors will be opened, who submit the earnest money in the prescribed manner.
- xix. Failure of the successful tenderer to comply with the above requirement i.e. deposition of performance security, shall constitute sufficient grounds for cancellation of the letter of award & forfeiture of the earnest money.
- xx. The tender shall be submitted online in two parts, viz., Technical Bid and Financial Bid.

A. TECHNICAL BID: The following documents are to be furnished by the bidder along with Technical Bid as per the tender document:

- a. Scanned copy of all supported documents mentioned at "Eligibility Criteria"
- b. List of Engineers employed in firm along with their CVs.
- c. Preventive maintenance schedule.
- d. A scanned copy of Tender Acceptance Letter (Annexure-III) failing which bidder's bid may be rejected.
- e. A scanned copy of Checklist Section properly filled and signed (as per Annexure-IV).

- f. Scanned copy of Demand Draft / pay order (as applicable) towards EMD should be uploaded on the portal.

The original EMD amount drawn in favour of 'Central Pollution Control Board', payable at Delhi in physical form duly sealed in envelope super scribed with "EMD for the tender no. <Tender No> for **“Project: Development of National Hazardous Waste Tracking System (NHWTS) Software for CPCB” Tender Notice No. : C-12015/05/2018/IT/NHWTS-Tech/”** must be reached at CPCB Office on or before Bid submission end date at the address mentioned below:

**Divisional Head (IT)
Central Pollution Control Board
Parivesh Bhawan, CBD cum Office Complex,
East Arjun Nagar, Delhi 110 032**

by post/speed post/courier/by hand on or before Bid Submission End Date & Time as mentioned in Critical Date Sheet. Otherwise the tender will be summarily rejected without assigning any reason.

B. FINANCIAL BID –

Schedule of Financial bid is provided in the form of BOQ in .xls format, along with this tender document at <https://eprocure.gov.in/eprocure/app> Bidders are advised to download this template as it is and quote their offer/rates in the permitted column and upload the same in the manner. In case if the same is found to be tempered/ modified in any manner, tender will be completely rejected and EMD would be forfeited and bidder is liable to be banned from doing business with CPCB.

The rates to be quoted in Financial Bid should be in Indian Rupees and without Taxes. The rate quoted shall be valid for 180 days from the date of opening of technical bid. The period can be extended with mutual agreement.

Note: Financial bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids given is tentative. Change if any will be uploaded on portal. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

FORFEITURE OF EMD: The EMD will be forfeited under the following conditions:

- a. If the Bidder withdraws or amend, impairs or derogates from the tender in any respect within the 180 days period of validity of the tender.
- b. If the bidder withdraws the bid before the expiry of the validity period of 180 days of the bid or within the time frame of extension given by CPCB in special case communicated before the expiry of the bid.
- c. If the bidder fails to comply with any of the provisions of the terms and conditions of the bid document.
- d. If the selected bidder fails to execute agreement in prescribed format and Furnish the bank guarantee within the prescribed time.

RETURN OF EMD:

- a. The earnest money of all the unsuccessful bidders will be returned as early as possible on finalization of the selection.
- b. The EMD of successful bidder shall be returned after receiving the Bank Guarantee or may be adjusted against the BG
- c. No interest will be paid by CPCB on the Earnest Money Deposit.

21.5 Check list for the Bidder

1. Bid on original format of the tender only
2. Submit all documents as prescribed in Eligibility & Selection Criteria from Documents 1 to 12 duly signed by the authorized representative.
3. EMD as prescribed for software development or documentary evidence for exemption of EMD
4. Price bid must be in the format of .xls format as provided separate BOQ alongwith Bid document.
5. The Taxes, etc. must be quoted clearly separately in the price bid only.
6. Price bid form should not be with any condition.
7. CVs of team members likely to be deployed for the project should be attached with technical bid.
8. Annexure I, III & III-A signed, filled & submitted with technical bid.
9. Bidder shall submit integrity pact as per the format of 'Integrity pact' given at Annexure VI along with technical proposal.

21.6 Assistance To Bidders:

1. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
2. Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

BID FOR - National Hazardous Waste Tracking System (NHWTS)**APPLICATION FORM**

(To be filled by the bidder)

1.	Name and full address of the Bidder including Telegraphic Address/Telex No. and Fax No.	:	
2.	Name and Designation of the Head of the Firm/Supplier and his Telephone No	:	
3.	i) In case the supplier is located out of Delhi; Name of the official responsible in Delhi, if any. ii) Name, Designation, Address Telephone & Fax Numbers of the Authorized Person who may be contacted during the process of the software development concerned under this document (Applicable for all the Bidders)	:	
4.	Whether Earnest Money Deposited (Amount : Rs. 4 lakhs in favour of Central Pollution Control Board, payable at Delhi)	:	
5.	If Yes, Demand Draft No, Date and Name of issuing Bank.	:	
6.	Validity of Proposal	:	180 days
7.	Income Tax Clearance Certificate attached (Latest) (Yes or No) with PAN No.	:	
Place		Signature with stamp	

FINANCIAL BID FORM - National Hazardous Waste Tracking System (NHWTS)

C-12015/05/2018/IT/NHWTS-Tech/

Details showing quantity, specification and other details of the system offered. (to be filled by the bidder and must be kept in "Price Bid" part of the Tender)

Name of items	Quantity (A)	Unit Price (B) in Rs.	Taxes etc. (Sales Tax, G.S.T, etc.) * (C)	Total Amount in Rupees (Price x Qty + Taxes)
1	2	3	4	5
1. Development of the CSSHW including following modules. <ul style="list-style-type: none"> a. Central System Creation b. Consent Management Software Interfaces (04) c. Mobile APP Interface(01) d. SMS System Management for Mobile and Consent Management systems e. SSO for all connected software f. Waste Disposal management module g. Hazardous Waste Tracking System for ~5000 trucks (~1000 expected concurrent users which may be on routes) <ul style="list-style-type: none"> i. Twenty Interfaces development for devices ii. Common protocol development for GPS cum Video devices iii. Two Interfaces development for weigh Bridges iv. Dashboards v. Location identification vi. Video streaming from Trucks as per requirement vii. Video streaming from HW Facilities viii. Route management ix. SMS alert mechanism x. Configuration of video, DVR & GPS devices xi. Initial 5000 Devices configuration and integration (GPS cum Video device shall be considered as one device) xii. Blog creation and operation xiii. Basic project operation 	01			Rs.....

<ul style="list-style-type: none"> h. Device integration to be managed professionally through Help Desk of atleast 10 lines (phone lines) based help desk with 10 Nos. of Shift Engineers in two shifts i.e. total 20 engineers for four months. i. Help desk for 24x7 as mentioned on point 21 in SoW (Help Desk Operation) other than then mentioned above which shall be operational after initial 5000 devices integration for 56 months. j. Automated auditing <ul style="list-style-type: none"> i. QR Code generation and verification ii. Leakage detection iii. Route deviation detection iv. 2way communication setup v. SMS Alert Generation k. Waste Exchange Center Module l. Depiction on Google Maps and open Software like QGIS, ILWIS etc. m. Report Module including all required reports in project duration n. DC & DR Operation in NIC domain for project duration o. Establishing two way communication with devices p. On-site Manpower as per Point 27 of SoW q. Warranty of 01 Year 				
2. Depiction of information on ArcGIS software within basic module	01 Set			Rs.....
3. Mobile Apps on Android & iOS platform within basic module	01 Set			Rs.....
4. Training Component within basic module	01 Set			Rs.....
5. SMS Pack for 5 Lakhs SMS without time limit The item to be purchased by the firm as and when required as consumable for project.	10 Packs			10x..... =
6. One Year software hosting at cloud server	01 Set			Rs.....
7. Audit of software after changes as and when required by NIC	01 audit			Rs.....x1=
8. Additional Dashboards (atleast 10 more) in project duration	01			Rs. X 10 =
9. AMC every year renewable on performance verification including integration of remaining devices required to be integrated into system and other day to day configuration work, GIS layers Integration and depiction, additional report development.	01 year			Rs.....X04=

10.	Number of additional industries onboarding in a batch of 10,000 (ten thousand industries) increase in subsequent module.	01 Set			Rs.....
11.	Additional 01 Day Training Program (Organizer CPCB; Expert Manpower to be provided by firm (atleast two) at Delhi)@ in other SPCBs/PCCs if required with program distribution kits (Minimum).				Rs.....x10=
12.	Additional Interface software (Protocol) development of Video Device if required				Rs.....
13.	Additional Interface of GPS device software (Protocol) development if required				Rs.....
14.	Additional interface of GPS cum Video Device software (Protocol) development if required				Rs.....
15.	Additional Consent Management Interface if requd in future				Rs.....
16.	Additional Mobile APP Interface if requd. In future				Rs.....
17.	Additional Manpower, if required at CPCB for preparing reports/ managing day to day activities or to integrate and configure video devices, GPS devices, DVRs etc. and may require visit@ to occupiers for any device configuration in the system. Separate order shall be placed in such case.	01 B.Tech Engineer+ 1Yr experience	Rate per month		Rs.....X12=
		01 M.Sc. Environmental Engineer+ 1Yr experience	Rate per month		Rs.....X12=
18.	Additional Manpower, if required will be hired to be deputed at different SPCB/PCC Office to integrate and configure video devices, GPS devices, DVRs/ Handholding SPCBs in HW Tracking/ Management etc. and may require visit@ to occupiers for any device configuration in the system. Separate order shall be placed in such case.	01 B.Tech Engineer+ 1Yr experience.	Rate per month		Rs.....x12=
		01 M.Sc. Environmental Engineer+ 1Yr experience	Rate per month		Rs.....x12=
19.	Procurement cost for TWELVE (3 GPS cum Video + 3 Video + 3 GPS + 3 DVR) Predominant devices SDK and Protocol from manufacturers for integration purpose. Firm's may carry out market survey and inform cost. Cost shall be considered for bidding purpose. Please attach the list of devices considered best and their Protocols procurement expected cost) which shall be implemented by the firm for the project.	3GPS devices (G1+G2+G3)	G1		Rs.....
			G2		Rs.....
			G3		Rs.....
		3 Video Devices (V1+V2+V3)	V1		Rs.....
			V2		Rs.....
			V3		Rs.....
		3 GPS cum Video Devices (Gv1+Gv2+Gv3)	Gv1		Rs.....
			Gv2		Rs.....
			Gv3		Rs.....

	3 DVR (Dvr1+Dvr2+ Dvr3)	Dvr1		Rs.....
		Dvr2		Rs.....
		Dvr3		Rs.....
20. Additional helpdesk Manpower, if required to be increased by one Customer Support Executive for One Year. 21.	01 CSE			Rs.....

* Tax Rate will be governed as per govt. rules at the time of payment

@ For out of Delhi/assigned location; Transportation, lodging, & Boarding will be provided by CPCB, as provided to Group 'A', level officials in CPCB, after due approval of CA, CPCB, Each Visit of Engineer(s) shall be dealt with this procedure whenever it is required in the project duration.

TENDER ACCEPTANCE LETTER

(To be given on Company Letter Head)

Date:

To,

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No: _____

Name of Tender / Work: -

Dear Sir,

1. I/ We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely:

as per your advertisement, given in the above mentioned website(s).

2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like annexure(s), schedule(s), etc .,),

which form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organization too have also been taken into consideration, while submitting this acceptance letter.

4. I / We hereby unconditionally accept the tender conditions of above mentioned tender document(s) / corrigendum(s) in its totality / entirety.

5. I / We do hereby declare that our Firm has not been blacklisted/ debarred by any Govt. Department/Public sector undertaking.

6. I / We certify that all information furnished by the our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization

shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract , without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

UNDERTAKING

DATE_____

Development of National Hazardous Waste Tracking System (NHWTS) Software for CPCB,

Tender Notice No. : C-12015/05/2018/IT/NHWTS-Tech/

THE CHAIRMAN

Central Pollution Control Board

(Ministry Of Environment & Forests, Government Of India)

C.B.D. Cum Office Complex

East Arjun Nagar, Delhi - 110 032.

Sir,

Having examined the conditions of Bid Document and requirement of the system, the receipt of which is hereby acknowledged. We, the undersigned, offer to develop, deliver and install the following:

1. Software for the project
2. Maintain the software for the project duration

The above software, installation shall be in conformity with the specifications and conditions of software development.

We undertake, if our bid is accepted to deliver the systems quoted by us, we shall deliver and install within the period indicated by CPCB in the tender document.

We agree to abide by this bid for a period of 180 days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before expiry of that period.

We are submitting a Demand Draft/Pay order no.....datedissued by for Rs.....in favour of "Central Pollution Control Board", Delhi towards the Earnest Money Deposit.

This Bid, together with written acceptance (by the representative of the firm) thereof in notification of award shall constitute a bidding contract between us.

We understood that CPCB is not bound to accept the lowest or any bid may be received by CPCB.

Dated this.....day of.....2019

Signature of authorized Person, Name with Stamp & full Address.

LOCATION OF DELIVERY AND INSTALLATION

Project: Development of National Hazardous Waste Tracking System (NHWTS) Software for CPCB, Tender Notice No. : C-12015/05/2018/IT/NHWTS-Tech/

Location:

1. Central Pollution Control Board	Parivesh Bhawan, East Arjun Nagar, Shahadra, Delhi 110032
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Agreement

Agreement below is to be submitted by the Consultant after issue of letter of Intent by CPCB within 7(seven) day's time.

AGREEMENT

An agreement is made on the _____ day of _____ 2019 between Central Pollution Control Board, 'Parivesh Bhawan', East Arjun Nagar, CBD-cum-Office Complex, Delhi-32 (herein referred to as the 'Board' which expression shall unless repugnant to the context or meaning thereof be deemed to include their successor and /or assignee) of the other part.

WHEREAS the party of the first part is a statutory body, created and established under an act of the parliament known as Water (Prevention & control of pollution) Act, 1974 and the rule framed thereunder. Member Secretary of the Board is authorized person to sign the agreement on behalf of the Board.

AND WHEREAS the main objective of the board is to control the pollution of water and air at the same time take such measures as may be necessary to prevent pollution of water and air. One of the functions of the Board is to Plan and execute a nation-wide program for the prevention, control or abatement of water and air pollution.

AND WHEREAS, the Central Government has notified the Hazardous and Other Wastes Management and Transboundary Movement) Rules, 2016 (herein referred to as HOWM Rules, 2016) in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 and in supersession of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 (herein referred to as HWM Rules, 2008), for safe and environmentally sound management of hazardous and other wastes. In order to have effective implementation, Board has decided the **Project: Development of National Hazardous Waste Tracking System (NHWTS) Software for CPCB, Tender Notice No. : C-12015/05/2018/IT/NHWTS-Tech/**

to be carried out by the firm amounting to Rs. _____
_____(.....Rupees only).

AND WHEREAS the party of the second part is a firm M/s _____

AND WHEREAS, the firm has approached the Board for the execution of the said work and have agreed to conduct and complete the work on the terms and conditions specified and agreed to between the parties hereto and as contained hereinafter.

AND NOW THEREFORE in consideration of the terms and mutual consent hereinafter mentioned, the parties hereby agree as follows:

1. DEFINITIONS

- i. Agreement means this agreement and all appendices, annexure attached, work order, and subsequent amendment, modifications and additions directed by the Board to be carried out, provided that such directions are given by the Board.
- ii. 'Work' means the total work to be conducted and completed by the firm as specified in details in the scope of work.
- iii. The Board means the Central Pollution Control Board includes its Member Secretary and any other officials authorized to act and on behalf of the Board by the Member Secretary.
- iv. The firm means M/s _____

2. OBLIGATIONS OF BOTH THE PARTIES

- i. The firm should carry out the work from the date of issue of the final work order and submit inception report within 15 days time after receipt of final work award letter, as detailed in scope of work and as entrusted to them under the instructions of the Board and the firm further undertakes to give full co-operation to the Board in this regard.
- ii. The Board shall have the right to depute its representative to work with the software developing firm and at all times such representative shall have access to the premises where and whenever the work is in progress. The software developing firm shall provide all facilities to the representative of the Board for inspection and/or assessment of work.
- iii. The software developing firm shall receive fees in the manner prescribed in the payment conditions. Fees for any additional work, not included in the scope of work at the time of issuing the work order and which shall have to be carried out by firm under this agreement being due to amendments, modifications or additions as per clause 1(i) of this agreement, will be decided amicably and will be paid.
- iv. This agreement comprises of detailed and definite enumeration of the rights and duties of the parties to the contract and covers all previous correspondence or negotiations etc., which may be contrary to this agreement in any way.
- v. If one provision of this agreement should prove to be invalid or null, all remaining provisions shall remain effective without change. The contracting parties shall try to replace the invalid and null provisions by an admissible provision aiming of the same economic and legal rights.
- vi. Dimensions/standards and units wherever referred shall conform to the Indian Regulations wherever obligatory and in all other cases the same will be as per prevailing practice. If however, the Board specifies the dimensions and units of the work then same shall be final and the firm undertakes to adopt the same and to carry out the work in accordance with the instructions issued by the Board.
- vii. The software developing firm shall not engage or employ any sub-contractor for the execution of the work under this agreement without the prior consent in writing obtained from the Board. Any possible sub-contracts, which may concluded by the software developing firm in consent with the Board, shall be so concluded on the sole and full responsibility of the software developing firm. The fact of sub-contracting shall not absolve the software developing firm from his/her obligations and responsibilities under this agreement.
- viii. Subject to the provisions of this agreement the software developing firm shall not transfer or assign this agreement without the Board's prior consent in writing. In any case transfer or assignment that may be affected by the software developing firm shall not modify his/her liabilities under this agreement. In the event of assignment for transfer the assignees or transferee shall be responsible for the fulfillment of the conditions of this agreement.

3. SECRECY AND COPYRIGHT

- i. The software developing firm hereby undertakes to treat all the data, information, drawings and details etc., received by the consultants during the execution of the work, directly or indirectly, as exclusive property of the Board.
- ii. No publication shall be effected or caused to be effected by the software developing firm without the consent of the Board in writing. All the information and data received or collected by the software developing firm during the execution of the work or at any other time in pursuance of this agreement shall be strictly treated as confidential and shall not be divulged to no other party, person or organization at any point of time.

4. EXTENSION AND TERMINATION

- i. It is agreed between the parties that the Board may grant extension of time to the software developing firm for the completion of the work under this contract provided the Board is satisfied with the reasons for the extension stated by the consultant in his application in writing made to the Board, such extension stated would not entitle the consultant for any additional payment whatever under clause 2 of this agreement.
- ii. It is agreed by and between the parties that the Board shall have the right to terminate this agreement without assigning any reason thereof subject, however to the condition that it shall give one month's notice of termination in writing to the software developing firm.
- iii. In the event of termination of the agreement as provided herein, the software developing firm shall cease all further work and shall deliver to the Board all data, details, plans, specifications and other documents prepared or information collected upto the date of notice of treatment received thereof.
- iv. In the event of termination of the agreement as provided herein, the Board shall reimburse to the software developing firm a part of fees proportionate to the work carried out pursuant to this agreement upto the date of notice of termination.
- v. The software developing firm hereby undertakes and agrees to handover all the drawings, specifications, plans, sketches and other data and such other documents, alongwith complete information and report to the Board within 15 days of the completion of the work or the notice of termination of the contract as the case may be.
- vi. The Board has the right to terminate the contract with or without assigning any reason at any stage besides reserve its right for the damage or any claim that the Board may have against the software developing firm.
- vii. In case of such termination by the Board, if any payment in excess has been paid to the software developing firm, the software developing firm hereby undertakes and agrees to repay the excess payment within 15 days of the termination of the contract.

5. INDEMINITY

a. The software developing firm hereby undertakes to indemnify the Board against any claim made by any person/persons or by a third party for any reason whatsoever such a claim or damage may arise because of a mistake, negligence and/or any other reason or an act of the consultant during the course of the work being carried out or after the work the work carried out by the consultant under this contract.

b. The parties to this agreement specifically agree that the Board shall have the right to withhold the payment of fees that may be due and payable to the software developing firm in the event of any breach committed by the software developing firm under this agreement and the payment withheld be paid whenever such breach is rectified.

6. ARBITRATION CLAUSE

The parties to the agreement hereby agree and consent that all disputes, claims etc., arising out of and touching upon clause of the agreement and their interpretation shall be submitted to the sole arbitrator to be appointed in the following manner:

“ The Chairman, Central Board shall appoint Director (CP Division), Ministry of Environment & Forests, Government of India, New Delhi, or any other suitable person in the field of Computer Engineering as the sole arbitrator to adjudicate and decide upon the dispute referred to him ”. The arbitrator shall state this decision in writing and if amount of claim in dispute is 50,000/- (fifty thousand rupees) and above, the arbitrator shall give reasons for award.

Subject as aforesaid, the provision of the arbitration & conciliation Act, 1996 or any other statutory modification or reenactment there of and the rules made there under and for the time being in force shall apply to the arbitration proceedings under the clause.

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

It is also a term of contract that if any of the party do not make any demand for arbitration in respect of any claim(s) in writing within 30 days of receiving the information from the Board that final bill is ready for the payment, the claim of the contracting party(s) will be deemed to have been waived and absolutely barred and the Central Pollution Control Board will be discharged of all liabilities under the contract in respect of these claims.

The decision of the arbitrator shall be final and binding upon the parties.

IN WITNESS WHEREOF THE parties of the first and second part of this agreement have subscribed their signatures on this agreement on the day and year herein above mentioned.

For M/s . _____ ()

Member Secretary

For: Central Pollution Control Board

“Parivesh Bhawan”, East Arjun Nagar, Delhi-110 032

SIGNED IN THE PRESENCE OF

1. Witness:

2. Witness:

Form 1 (For Occupier not registered in OCMMS)

1.	Name of the facility
2.	Address of the facility (drop down option for state and district)
3.	Name of the occupier of the facility
4.	Telephone Number
5.	Mobile Number
6.	Fax Number
7.	e-mail ID
8.	Year of commissioning and commencement of production
9.	Whether the facility works on (drop down option-01 shift, 02 shifts, round the clock)
10.	Whether possessing authorization under HOWM/HWM Rules (Yes/No) In case NO – then no user id and password is generated
11.	Authorisation Number (enclose copy of the same)
12.	Type of the facility (drop down option-Hazardous waste generating industries, Operator of the disposal facility , Recycler/Utiliser) Based on the above selected option, separate form for each selected facility shall be open.

Form A (For NHWTS registered Occupier)

1.	Name of the facility (Fetch data from Table 1)
2.	Address of the facility (drop down option for state and district) (Fetch data from Table 1)
3.	Name of the occupier of the facility (Fetch data from Table 1)
4.	Telephone Number (Fetch data from Table 1)
5.	Mobile Number (Fetch data from Table 1)
6.	Fax Number (Fetch data from Table 1)
7.	e-mail ID (Fetch data from Table 1)
8.	Authorisation Number (enclose copy of the same) (Fetch data from Table 1)
9.	Date of issue of authorization (calendar)
10.	Validity of the authorization (calendar)
11.	Year of commissioning and commencement of production (Fetch data from Table 1)
12.	Whether the facility works on (drop down option-01 shift, 02 shifts, round the clock) (Fetch data from Table 1)
13.	Type of the facility (drop down option-Hazardous waste generating industries, Operator of the disposal facility , Recycler/Utiliser) Based on the above selected option, separate form for each selected facility shall be open.
14.	Part A: Generator (for hazardous waste generating industries)
A.	Production details
(i)	Name of the Product (s) manufactured
(ii)	Quantity of Product manufactured (tonnes per month)
(iii)	Name of the By-product generated

(iv)	Quantity of the By-product generated (per tons of product generated)				
(v)	Raw material and Chemicals used (per ton of production)				
(vi)	Process flow sheet (document upload option)				
B.	Details on hazardous waste generation as per table below (options for adding multiple rows):				
	S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Authorized for	Quantity (Tons per annum) Authorized Mode of management of HW
				Select option from drop down menu (multiple selection) <ul style="list-style-type: none"> • Generation • Collection • Storage • Transportation • Reception • Reuse • Recycling • Pre-processing • Co-processing • Utilisation Treatment • Disposal • Incineration 	Select option from drop down (multiple selection) <ul style="list-style-type: none"> • Disposal in captive secured landfilled • Disposed in captive incinerator • Disposed through common TSDF • Captive utilization within the plant • Sent for schedule IV recyclers • Sent for co-processing • Sent to other utilisers
C.	Characteristics of the hazardous waste generated (options for adding multiple rows):				
	S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Physical Properties	Chemical Characteristics
				Select option from drop down (multiple selection option) <ul style="list-style-type: none"> • Solid • Liquid • Semi-solid • Specific Gravity • pH • Moisture content • Calorific value • Ash content • Sediment • Others (text box option) 	Select option from drop down (multiple selection option – as per CPCB defined list) <ul style="list-style-type: none"> • Fluoride • Silica • Iron • Zinc • Aluminum • Copper • Mercury • Vanadium • Molybdenum , • Lead • Arsenic • Chromium • Cadmium • Nickel • Cobalt, • Manganese, • Benzene • Toluene • Xylene • Cyclohexane • Acetone

					<ul style="list-style-type: none"> • Methyl isobutyl ketone • Methanol • Isopropyl alcohol • Methylene Dichloride • Tetra Hydro Furan • Ethyl Acetate, Iso Propyl Ether • Dimethyl formamide, Butyl acetate • Methyl Acetate • Butanol • Ethanol • Methyl Ethyl Ketone • Polyaromatic Hydrogen(PAH) • Polychlorinated biphenyls (PCB) • Total halogens • Sulfur • Carbon • Precious metals • Total Organic Carbon (to add Schedule II constituents mentioned in the HOWM Rules, 2016)
D.	Transportation details				
(i).	Whether, arrangement for transportation is by unit/actual user/TSDf (Yes/No)				
(ii).	If yes, details of the transportation vehicle authorized:				
	(a) Type of the vehicle (drop down option Truck, Tanker/Special Vehicle) -				
	(b) Vehicle registration number:				
15.	Part B: Operator of the disposal facility (for Common TSDf Operator)-				
A.	Type of facility available				
	<ul style="list-style-type: none"> • Integrated facility (Both secured landfill and incinerator) – Yes/No • Exclusive Secured landfill – Yes/No • Exclusive Incinerator – Yes/No • Pre-processing– Yes/No • Others (Text box) 				
B.	Quantity authorized				
	<ul style="list-style-type: none"> • SLF Capacity- (in Tons) • Incinerator Capacity – (in Ton/Hour) • Others (Text Box) 				
C.	Transportation details				
(i).	Whether, arrangement for transportation is by unit/actual user/TSDf (Yes/No)				
(ii).	If yes, details of the transportation vehicle authorized:				
	(a) Type of the vehicle (drop down option Truck, Tanker/Special Vehicle) -				
	(b) Vehicle registration number:				
16.	Part C: Recycler/ Pre-processing/Co-processor/Utilizer (for Schedule IV recyclers/pre-processor/Co-processor/Utilizer)-				
A.	Name and quantity of waste(s) received per annum from domestic sources or imported or both. (table for multiple entry)				
B.	Authorized capacity				
C.	Whether the unit possess permission for Import of Hazardous Waste (Yes/No) Please enclose copy of the same				
D.	Production details				
(i)	Name of the Product (s) manufactured				
(ii)	Quantity of Product manufactured (tonnes per month)				
(iii)	Name of the By-product generated				

(iv)	Quantity of the By-product generated (per tons of product generated)				
(v)	Raw material and Chemicals used (per ton of production)				
(vi)	Process flow sheet (document upload option)				
E.	Details on hazardous waste generation as per table below (options for adding multiple rows):				
	S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Authorized for	Quantity (Tons per annum) Authorized Mode of management of HW
				Select option from drop down menu (multiple selection) <ul style="list-style-type: none"> • Generation • Collection • Storage • Transportation • Reception • Reuse • Recycling • Pre-processing • Co-processing • Utilisation Treatment • Disposal • Incineration 	Select option from drop down (multiple selection) <ul style="list-style-type: none"> • Disposal in captive secured landfilled • Disposed in captive incinerator • Disposed through common TSDF • Captive utilization within the plant • Sent for schedule IV recyclers • Sent for co-processing • Sent to other utilisers
F.	Has the facility been set up as per CPCB guidelines (Yes/No)				
G.	Characteristics of the hazardous waste generated (options for adding multiple rows):				
	S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Physical Properties	Chemical Characteristics
				Select option from drop down (multiple selection option) <ul style="list-style-type: none"> • Solid • Liquid • Semi-solid • Specific Gravity • pH • Moisture content • Calorific value • Ash content • Sediment • Others (text box option) 	Select option from drop down (multiple selection option) <ul style="list-style-type: none"> • Fluoride • Silica • Iron • Zinc • Aluminum • Copper • Mercury • Vanadium • Molybdenum , • Lead • Arsenic • Chromium • Cadmium • Nickel • Cobalt, • Manganese, • Polyaromatic Hydrogen(PAH) • Polychlorinated biphenyls (PCB) • Total halogens • Sulfur • Carbon

					<ul style="list-style-type: none"> Precious metals Total Organic Carbon (to add Schedule II constituents mentioned in the HOWM Rules, 2016)
H.	Transportation details				
(i).	Whether, arrangement for transportation is by unit/actual user/TSDF (Yes/No)				
(ii).	If yes, details of the transportation vehicle authorized: (a) Type of the vehicle (drop down option Truck, Tanker/Special Vehicle) - (b) Vehicle registration number:				

Form A1 (for OCMMS registered occupier)

1.	Name of the facility (<i>fetch from OCMMS data base</i>)
2.	Address of the facility (drop down option for state and district) (<i>fetch from OCMMS data base</i>)
3.	Name of the occupier of the facility (<i>fetch from OCMMS data base</i>)
4.	Telephone Number (<i>fetch from OCMMS data base</i>)
5.	Mobile Number (<i>fetch from OCMMS data base</i>)
6.	Fax Number (<i>fetch from OCMMS data base</i>)
7.	e-mail ID(<i>fetch from OCMMS data base</i>)
8.	Authorisation Number (enclose copy of the same) (<i>fetch from OCMMS data base</i>)
9.	Date of issuance of authorization and its reference number-(enclose copy of the same) (<i>fetch from OCMMS data base</i>)
10.	Validity of the authorization-(calendar)
11.	Year of commissioning and commencement of production (<i>fetch from OCMMS data base</i>)
12.	Whether the facility works on (drop down option-01 shift, 02 shifts, round the clock) (<i>fetch from OCMMS data base</i>)
13.	Type of the facility (drop down option-Hazardous waste generating industries, Operator of the disposal facility , Recycler/Utiliser) Based on the above selected option, separate form for each selected facility shall be open.
14.	Part A: Generator (for hazardous waste generating industries)
A.	Production details
(i)	Name of the Product (s) manufactured (<i>fetch from OCMMS data base</i>)
(ii)	Quantity of Product manufactured (tonnes per month)
(iii)	Name of the By-product generated (<i>fetch from OCMMS data base</i>)
(iv)	Quantity of the By-product generated (per tons of product generated)
(v)	Raw material and Chemicals used (per ton of production)
(vi)	Process flow sheet (document upload option) (<i>fetch from OCMMS data base</i>)
B.	Details on hazardous waste generation as per table below (options for adding multiple rows):

S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Authorized for	Quantity (Tons per annum)	Mode of management of HW
			Select option from drop down menu (multiple selection) <ul style="list-style-type: none"> • Generation • Collection • Storage • Transportation • Reception • Reuse • Recycling • Pre-processing • Co-processing • Utilisation Treatment • Disposal • Incineration 		Select option from drop down (multiple selection) <ul style="list-style-type: none"> • Disposal in captive secured landfilled • Disposed in captive incinerator • Disposed through common TSDF • Captive utilization within the plant • Sent for schedule IV recyclers • Sent for co-processing • Sent to other utilisers

C. Characteristics of the hazardous waste generated (options for adding multiple rows):

S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Physical Properties	Chemical Characteristics
			Select option from drop down (multiple selection option) <ul style="list-style-type: none"> • Solid • Liquid • Semi-solid • Specific Gravity • pH • Moisture content • Calorific value • Ash content • Sediment • Others (text box option) 	Select option from drop down (multiple selection option) <ul style="list-style-type: none"> • Fluoride • Silica • Iron • Zinc • Aluminum • Copper • Mercury • Vanadium • Molybdenum , • Lead • Arsenic • Chromium • Cadmium • Nickel • Cobalt, • Manganese, • Benzene • Toluene • Xylene • Cyclohexane • Acetone • Methyl isobutyl ketone • Methanol • Isopropyl alcohol • Methylene Dichloride • Tetra Hydro Furan

					<ul style="list-style-type: none"> • Ethyl Acetate, Iso Propyl Ether • Dimethyl formamide, Butyl acetate • Methyl Acetate • Butanol • Ethanol • Methyl Ethyl Ketone • Polyaromatic Hydrogen(PAH) • Polychlorinated biphenyls (PCB) • Total halogens • Sulfur • Carbon • Precious metals • Total Organic Carbon (to add Schedule II constituents mentioned in the HOWM Rules, 2016)
D.	Transportation details				
(i).	Whether, arrangement for transportation is by unit/actual user/TSDf (Yes/No)				
(ii).	If yes, details of the transportation vehicle authorized: (a) Type of the vehicle (drop down option Truck, Tanker/Special Vehicle) - (b) Vehicle registration number:				
15.	Part B: Operator of the disposal facility (for Common TSDf Operator)-				
A.	Type of facility available <ul style="list-style-type: none"> • Integrated facility (Both secured landfill and incinerator) – Yes/No • Exclusive Secured landfill – Yes/No • Exclusive Incinerator – Yes/No • Pre-processing– Yes/No • Others (Text box) 				
B.	Quantity authorized <ul style="list-style-type: none"> • SLF Capacity- (in Tons) • Incinerator Capacity – (in Ton/Hour) • Others (Text Box) 				
C.	Transportation details				
(i).	Whether, arrangement for transportation is by unit/actual user/TSDf (Yes/No)				
(ii).	If yes, details of the transportation vehicle authorized: (a) Type of the vehicle (drop down option Truck, Tanker/Special Vehicle) - (b) Vehicle registration number:				
16.	Part C: Recycler/ Pre-processing/Co-processor/Utilizer (for Schedule IV recyclers/pre-processor/Co-processor/Utilizer)-				
A.	Name and quantity of waste(s) received per annum from domestic sources or imported or both. (table for multiple entry)				

B.	Authorized capacity					
C.	Whether the unit possess permission for Import of Hazardous Waste (Yes/No) Please enclose copy of the same					
D.	Production details					
(i)	Name of the Product (s) manufactured					
(ii)	Quantity of Product manufactured (tonnes per month)					
(iii)	Name of the By-product generated					
(iv)	Quantity of the By-product generated (per tons of product generated)					
(v)	Raw material and Chemicals used (per ton of production)					
(vi)	Process flow sheet (document upload option)					
E.	Details on hazardous waste generation as per table below (options for adding multiple rows):					
	S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Authorized for	Quantity (Tons per annum)	Mode of management of HW
				Select option from drop down menu (multiple selection) <ul style="list-style-type: none"> • Generation • Collection • Storage • Transportation • Reception • Reuse • Recycling • Pre-processing • Co-processing • Utilisation Treatment • Disposal • Incineration 		Select option from drop down (multiple selection) <ul style="list-style-type: none"> • Disposal in captive secured landfilled • Disposed in captive incinerator • Disposed through common TSDF • Captive utilization within the plant • Sent for schedule IV recyclers • Sent for co-processing • Sent to other utilisers
F.	Has the facility been set up as per CPCB guidelines (Yes/No)					
G.	Characteristics of the hazardous waste generated (options for adding multiple rows):					
	S. No.	Waste Type	Category of HW as per Schedule I, II and III of the Rule	Physical Properties	Chemical Characteristics	
				Select option from drop down (multiple selection option) <ul style="list-style-type: none"> • Solid 	Select option from drop down (multiple selection option) <ul style="list-style-type: none"> • Fluoride 	

				<ul style="list-style-type: none"> • Liquid • Semi-solid • Specific Gravity • pH • Moisture content • Calorific value • Ash content • Sediment • Others (text box option) 	<ul style="list-style-type: none"> • Silica • Iron • Zinc • Aluminum • Copper • Mercury • Vanadium • Molybdenum , • Lead • Arsenic • Chromium • Cadmium • Nickel • Cobalt, • Manganese, • Polyaromatic Hydrogen(PAH) • Polychlorinated biphenyls (PCB) • Total halogens • Sulfur • Carbon • Precious metals • Total Organic Carbon (to add Schedule II constituents mentioned in the HOWM Rules, 2016)
H.	Transportation details				
(i).	Whether, arrangement for transportation is by unit/actual user/TSDf (Yes/No)				
(ii).	If yes, details of the transportation vehicle authorized: (a) Type of the vehicle (drop down option Truck, Tanker/Special Vehicle) - (b) Vehicle registration number:				

Form B (Daily records filing by all stakeholder (i.e Generator/Operator of TSDF/ Recyclers/Utiliser)

1. Name and address of the facility (fetch from details given in form A/A1 based on the unique ID of the occupier)
2. Date of issuance of authorization and its number (fetch from details given in form A/A1 based on the unique ID of the occupier)

Based on the Unique ID of the occupier, respective daily form for each type of facility will be opened (Hazardous waste generating industries/Operator of the disposal facility/ Recycler/Utiliser)

3. Description of hazardous and other wastes handled (to be filled by hazardous waste generating units only)
(Below table for multiple entry)

Date	Name & category of waste as per schedule I, II and III of HOWM Rules Fetch data from Table 2 & 3	Product & By-product manufactured Fetch data from Table 2 & 3		Quantity stored in Tons in shed (X value for first entry)		Quantity generated			Stored Cumulative quantity (Add quantity of Column 3)	Quantity of hazardous waste disposed (in case of captive facility)				Destined to				
		Name	Quantity	Landfillable	Incinerable	Landfillable	Incinerable	Recyclable/Utilisable		Landfillable	Incinerable	Direct landfillable	Land filled after treatment	Incinerated	Captive Utilization	Date	Quantity (Landfillable & Incinerable)	Name and address
				X		Y			X+Y = Z									
				Z		A			Z+A = B						B			
				0		C			C									

Form C (Manifest System)

1.	Sender's Details- <ul style="list-style-type: none"> • Name • Address • Mobile number • e-mail ID 	<i>(Fetch data)</i>
2.	Sender's authorization number	<i>(Fetch data)</i>
3.	Manifest document number	<i>(System generated)</i>
4.	Enter unique ID of the receiver	
5.	Transporter's details- <ul style="list-style-type: none"> • Name • Address • Mobile number • e-mail ID 	<i>Fetch the data from the sender or receiver unique ID</i>
6.	Type of vehicle (drop down option-truck/tanker/special vehicle), to be retrieve from Unique ID as enter above.	
7.	Transporter's registration number	<i>Drop down options</i>
8.	Vehicle registration number	
9.	Receiver's details- <ul style="list-style-type: none"> • Name • Address • Mobile number • e-mail ID 	<i>Fetch the data from the receiver unique ID</i>
10.	Receiver's authorization number	<i>Fetch the data from the data base</i>
11.	Waste description	
12.	Total quantity (m ³ or MT) Number of containers (nos.)	
13.	Physical form (drop down option-Solid, Semi-Solid, Sludge/Oily/Tarry/Slurry/Liquid)	
14.	Special handling instructions and additional information	
15.	Sender's Certificate Name and Address Date-(calendar) (With option for submission)	I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are categorized, packed, marked, and labeled, and are in all respects in proper conditions for transport by road according to applicable national government regulations.
16.	Transporter Acknowledge receipt of Waste (Repeat data of S. No 11 and 12) – Name and Address Date-(calendar) With option for Acknowledgement (Yes/No)	
17.	Receiver Certification for receipt of hazardous waste (Repeat data of S. No 11 and 12) – with editing option Name and Address Date-(calendar) With option for Acknowledgement (Yes/No)	

INTEGRITY PACT**General**

This pre-bid pre-contract Agreement {hereinafter called the Integrity Pact) is made on day of the month of 2017, 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 proce-ss, 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.

1.4. In case 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 inquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

Commitments of BIDDERS

2. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

2.1 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.

2.2 The BIDDER further undertakes that it 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.

2.3* BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.

2.4* BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.

2.5* The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/integrator/authorized government sponsored export entity of the defence stores 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 individual, firm or company in respect of any such intercession, facilitation or recommendation.

- 2.6 The BIDDER, either while presenting the bid or during pre-contract 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.
- 2.7 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.
- 2.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 2.9 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.
- 2.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 2.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 2.12 If the BIDDER or any employee of the BIDDER or any person action 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 officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filling of tender.
- 2.13 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.

3. Previous Transgression

- 3.1 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.

- 3.2 The BIDDER agrees that if it 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.

4. Sanctions for Violations

- 4.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its 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 Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) 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 or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money (s) due to the BIDDER.
 - (vii) To debar the BIDDER from participating in future bidding processes of 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) 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.
 - (x) 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.
- 4.2 The BUYER will be entitled to take all or any of the actions mentioned at para 6.1 (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), of an 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.
- 4.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor (s) appointed for the purposes of this Pact.

5. **Fall Clause**

- 5.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/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 or PSU and if it is found at any stage that similar product/systems or sub systems 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, with due allowance for elapsed time, 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.

6. **Independent Monitors**

- 6.1 The BUYER has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission (Sh Sunil Krishna, C/o Member Secretary, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032, Phone-+91-120-4286713, email : iem.cpcb@gmail.com).
- 6.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

- 6.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 6.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 6.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 6.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all 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 Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 6.7 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.
- 6.8 The Monitor will submit a written report to the designated Authority of BUYER/Secretary in the Department/ 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.

7. **Facilitation of Investigation**

In case of any allegation of violation of any provisions of this Pact or payment of Commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

8. **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.

9. **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.

10. **Validity**

10.1 The validity of this Integrity Pact shall be from date of its signing and extend upto 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.

10.2 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.

11. The parties hereby sign the Integrity Pact aton.....

BUYER

BIDDER

Name of the Officer.

CHIEF EXECUTIVE OFFICER

Designation

Deptt./MINISTRY/PSU

Witness

Witness

1.....

1.....

2.....

2.....