BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 693/2023

IN RE: NEWS ITEM APPEARING IN DECCAN HERALD DATED 24.10.2023 TITLED "POLLUTION CONTROL BOARDS ARE THE WEAK LINK"

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Dated: 31.01.2024
Place:-Delhi

BEFORE THE NATIONAL GREEN TRIBUNAL

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Original Application No. 693/2023

IN RE: NEWS ITEM APPEARING IN DECCAN HERALD DATED 24.10.2023 TITLED "POLLUTION CONTROL BOARDS ARE THE WEAK LINK"

REPORT OF CENTRAL POLLUTION CONTROL BOARD (CPCB) IN THE SUO MOTU MATTER OF O.A. 693 / 2023, "POLLUTION CONTROL BOARDS ARE THE WEAK LINK" SUBMITTED BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI AS PER ORDER DATED NOVEMBER 23, 2023.

1.0 PREAMBLE

In the Suo Motu Matter of Original Application (O.A) No. 693 of 2023, the Hon'ble National Green Tribunal (NGT), Principal Bench, Faridkot House, Copernicus Marg, New Delhi – 110 001 has issued Notice on November 06, 2023 to Central Pollution Control Board ("CPCB") and Ministry of Environment, Forest & Climate Change ("MoEF&CC") to appear before the Hon'ble NGT either in person or by a pleader duly instructed, with report to provide data with regard to each SPCBs relating to sanctioned staff, actual present staff, laboratories, infrastructure, details of training etc., based on the News Item appeared in Deccan Herald on October 24, 2023 entitled "Pollution Control Boards are the Weak link".

In view of above, CPCB has filed a report before the Hon'ble NGT, Principal Bench, New Delhi on 22.11.2023. On perusal of the report, the Hon'ble NGT in the said matter subsequently issued an order to the respondents i.e. SPCBs/ PCCs and CPCB on November 23, 2023 directing that:

"The respondents are directed to file their reports showing the sanctioned strength and working strength of staff in the concerned SPCBs/PCCs, CPCB the ratio of administrative, Ministerial and Technical staff in the SPCBs/PCCs, CPCB and the regulating and monitoring facilities which are available with the SPCBs/PCCs/CPCB. In respect of laboratories, the report will disclose the sanctioned strength and present working strength of staff, the infrastructure which is available in the labs and further need for equipment and infrastructure in those labs and the provisions made in laboratories for enforcement and monitoring of hotspots in critically polluted areas. The report should also include the availability of budget and its sources and expenditure in last two years (2020-2021 and 2021-2022)"

The respondents (SPCBs/PCCs and CPCB) are directed to file their report thorough Principal Secretary, Department of Environment and Forest. Accordingly, the report of CPCB to be submitted within 08 weeks through the Secretary, MoEF&CC. The case is now listed before the Hon'ble NGT on February 02, 2024. The copy of the Hon'ble NGT order dated 23.11.2023 is given as **(Annexure-16)**.

2.0 CENTRAL POLLUTION CONTROL BOARD

The Central Pollution Control Board (CPCB) is a statutory organization constituted under the Water (Prevention and Control of Pollution) Act, 1974 passed by Parliament in September, 1974. CPCB is entrusted with the powers and functions under Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and various Waste Management Rules (Hazardous Waste, Solid Waste, Bio Medical Waste, E-Waste, etc.) notified under the Environment (Protection) Act, 1986.

The functions of CPCB as per Water Act, 1974 and Air Act, 1981 are as follows:

- Advise the Central Government on any matter concerning prevention and control of water and air pollution and improvement of its quality;
- Plan and cause to be executed a nation-wide programme for the prevention, control or abatement of water and air pollution;
- Co-ordination of activities of the State Board and resolve disputes among them;
- Provide technical assistance and guidance to the State Boards, carry out and sponsor investigation and research relating to problems of water and air pollution, and for their prevention, control or abatement;
- Plan and organize training of persons engaged in programme on the prevention, control or abatement of water and air pollution;
- Organize through mass media, a comprehensive mass awareness programme on the prevention, control or abatement of water and air pollution;
- Collect, compile and publish technical, statistical data relating to water and air pollution and the measures devised for their effective prevention, control or abatement;
- Prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts;
- Disseminate information in respect of matters relating to water and air pollution and their prevention and control;

- Lay down, modify or annual, in consultation with the State Governments concerned, the standards for stream or well, and lay down standards for the quality of air; and
- Perform such other function as may be prescribed by the Government of India.

CPCB serves as a technical wing of MoEF&CC and co-ordinates with the State Pollution Control Boards (SPCBs) / Pollution Control Committees (PCCs) for implementation of plans and programs relating to abatement of pollution. CPCB has its Head office at Delhi, nine Regional Directorates (Bengaluru, Bhopal, Chandigarh, Chennai, Kolkata, Lucknow, Pune, Shillong and Vadodara) and a project office, Agra for better co-ordination with SPCBs/PCCs. The jurisdiction of 09 Regional Directorates and a Project office, Agra of CPCB are as follows:

Details of CPCB – Regional Directorates

Regional Directorates	Established	Jurisdictions (States /UTs)
1. Kolkata	1983	1.Bihar, 2. Jharkhand, 3. Odisha, 4. West Bengal 5. UT of Andaman and Nicobar
2. Vadodara	1988	1.Gujarat 2. UT of Daman, Diu & Dadra Nagar Haveli.
3. Shillong	1988	1.Arunachal Pradesh, 2. Assam, 3. Manipur, 4. Meghalaya, 5. Mizoram, 6. Nagaland, 7. Sikkim, 8. Tripura
4. Lucknow (Kanpur)	2004 (1988)	1. Uttar Pradesh, 2. Uttarakhand
5. Bengaluru	1988	1.Goa, 2. Karnataka, 3. Kerala, 4. UT of Lakshadweep
6. Bhopal	1995	1.Madhya Pradesh, 2. Chhattisgarh, 3. Rajasthan
7. Chandigarh	2019	1.Haryana, 2. Himachal Pradesh, 3. Punjab, 4. UT - Chandigarh, 5. UT-Delhi, 6. UT- Jammu & Kashmir, 7. UT- Ladakh
8. Chennai	2020	1.Andhra Pradesh, 2. Tamil Nadu, 3. Telangana, 4. UT of Puducherry
9. Pune	2020	1.Maharashtra
10. Agra (PO)	2001	1.Agra (Taj Trapezium Zone)

3.0 SANCTIONED AND WORKING STRENGTH OF STAFF IN CPCB

The office of CPCB has only technical and administrative posts with no ministerial staff, as per the Central Pollution Control Board (Method of Recruitment, Terms and Conditions of Service of Officers and other Employees other than Member-Secretary) Regulation, 2021. The total sanctioned staff strength (regular) is 603 comprising Group A: 217, Group B: 180 and Group C: 206. The details of sanctioned, working and vacancy of the staff members as on 31.12.2023 are as follows:

Status of Regular Staff as on 31.12.2023

Staff Strength	Technical			Admin.	Total
	Engineering	Science	Sub-Total		
a) Sanctioned	171	226	397	206	603
b) Working (In place)	152	207	359	145	504*
c) Vacancy	19 (11%)	19 (8%)	38 (10%)	61(30%)	99 (16%)

** Includes the offer of appointment letters issued to the 53 posts (Engineers 14, Scientific 16 and Admin 23) by CPCB as on 31.12.2023.*

Note:

Technical - Engineering	Scientist B, C, D, E and F, Senior Technical Supervisor, Technical Supervisor, Draughting Supervisor, Senior Draughtsman, Data Processing Assistant and Junior Technician.
Technical - Science	Scientist B, C, D, E and F, Senior Scientific Assistant, Junior Scientific Assistant, Senior Laboratory Assistant, Junior Laboratory Assistant, and Field Attendant
Administrative	Senior Law Officer, Law Officer, Assistant Law Officer, Sr. Administrative Officer, Administrative Officer, Assistant Director (OL), Senior Translator Assistant, Junior Translator, Accounts Officer, Assistant Accounts Officer, Accounts Assistant, Section Officer, Private Secretary, Publication Assistant, Upper Division Clerk, Lower Division Clerk, Multi-Tasking Staff Grade-I &II, Driver Special Grade, Driver Grade-I, II & Ordinary Grade, Data Entry Operator Grade-I&II, Stenographer Grade- I & II.

The above table reveals that about 16% of the posts is vacant, out of which about 06 % is technical and about 10% is administrative staff. The ratio of technical and non-technical /

administrative staff as per sanctioned strength is about 1.9 : 1. CPCB is in the process of recruitment for filling up all vacancy during FY 2024-25.

In addition to above, CPCB engages technical and administrative personnel on contractual basis for executing functions of CPCB, the details are as follow:

Status of Contractual Staff as on 31.12.2023

Staff Strength	Technical			Admin.	Total
	Engineering	Science	Sub-Total		
Working (In place)	35	158	193	148	341

4.0 REGULATING AND MONITORING FACILITY AVAILABLE WITH CPCB

4.1 Environmental Laboratories

CPCB has its Head office at Delhi and Nine Regional Directorates (Bengaluru, Bhopal, Chandigarh, Chennai, Kolkata, Lucknow, Pune, Shillong and Vadodara) and one project office – at Agra. These offices (except Chandigarh, Chennai and Pune, which were opened recently during 2019-20) are established with laboratory facility. The details of the Environmental Laboratories and their status of EPA recognition, ISO/ IEC:17025: 2017 (NABL) accreditation and ISO 45001: 2018 (OHSMS) certification are as follows:

Details of Environmental Laboratories of CPCB

S. No.	Laboratory	Recognised / Accredited / Certified under		
		EPA	NABL	OH&SMS
A	**Central Laboratory - Delhi**			
1	Water Laboratory, CPCB, Delhi	Yes	Yes	Yes
2	Instrumentation Laboratory, CPCB, Delhi	Yes	Yes	Yes
3	Air Laboratory, CPCB, Delhi	Yes	Yes	Yes
4	Trace Organics Laboratory, CPCB, Delhi	Yes	Yes	Yes
5	Bio Laboratory, CPCB, Delhi	Yes	Yes	Yes
B.	**Regional Laboratories**			
6	Regional Laboratory, CPCB, Bangalore	Under Process	Yes	Yes

S. No.	Laboratory	Recognised / Accredited / Certified under		
		EPA	NABL	OH&SMS
A	**Central Laboratory - Delhi**			
7	Regional Laboratory, CPCB, Kolkata	Yes	Yes	Yes
8	Regional Laboratory, CPCB, Lucknow	Yes	Yes	Yes
9	Regional Laboratory, CPCB, Shillong	Lab under upgradation		
10	Regional Laboratory, CPCB, Bhopal	Yes	After upgradation	
11	Regional Laboratory, CPCB, Vadodara	Yes	Lab under upgradation	Yes

a) Implementation of Laboratory Information Management System

Laboratory Information Management System (LIMS) is a web-based solution with features that support laboratory's operations workflow, data tracking, and data exchange interfaces. It has been established in all laboratories of CPCB from February 2023 onwards for speedy and transparent function of Laboratories. It has enabled digitisation of laboratory information and reports. Samples receipt and report submission are carried out through online system. The main modules include sample planning, sample requisition, job card generation, inventory of assets and consumables and calibration of instruments. A mobile app has also been developed in order to enable the sampling team to record and submit their observations from field itself. The other benefits of LIMS are real time tracking & time saving, increase productivity / output, management of stores with consumption based inventory alerts and optimization of procurement, effective monitoring through MIS system.

b) Recognition of Environmental Laboratories under EPA, 1986

Besides the in-house facilities, CPCB also recognises other Government / PSU / Academic and Private environmental laboratories to undertake environmental quality monitoring of industries and other hot spot areas, as per the powers delegated by MoEF&CC vide the Notification S.O. 2340(E), dated 16th June, 2021 for recognition of private environmental labs under Section 12 (1) (b) and 13 of Environment (Protection) Act, 1986. The recognised labs should possess accreditation for ISO 17025:2017 from National Accreditation Board for Testing and Calibration Laboratories and license certification for Occupational Health and Safety Management System (ISO 450001: 2018) from Bureau of Indian Standards (BIS). They should have adequate area, instruments, manpower to cover all the mandatory parameters and secondary parameters as per the notified standard parameters.

As per the said notification, CPCB has developed a web based portal for processing of application including disseminating the information on status of application for recognition of environmental laboratories and Govt. Analysts and made operational since May 2023. Accordingly, CPCB / MoEF&CC have recognised / notified 198 private laboratories and 27 Government Laboratories (including 17 CPCB/SPCBs Central / Regional Labs) across the country for undertaking environmental quality monitoring.

The performance of the EPA recognised environmental laboratories are evaluated by conducting Analytical Quality Control (AQC) programme by CPCB either of its own or in collaboration with such research institutes having proven capabilities for undertaking such exercise. Also CPCB made provision for verification of conditions imposed on the environmental laboratories by constituting a joint committee comprising members of MoEF&CC, the CPCB and concerned SPCBs / PCCs and the inspection report are made available in public domain.

4.2 Environmental Monitoring Network Programme

State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) are being funded under "Control of Pollution Scheme" for Environmental Monitoring Network Programme i.e. NAMP, NWMP, NANMN and CAAQMS. The activities are Pollution Assessment, Survey and Monitoring, Operation & Maintenance of Air and Water Quality Monitoring stations, establishment of New Monitoring Stations for Water, Air and Noise.

a. National Ambient Air Quality Monitoring Programme (NAMP)

CPCB along with SPCB and PCC are monitoring ambient air quality at 962 manual stations covering 397 cities / towns in 28 States and 7 Union Territories across the country by monitoring under National Ambient Air Quality Monitoring Programme (NAMP). Under NAMP, three criteria pollutants Particulate Matter (PM_{10}), Sulphur Dioxide (SO_2) and Nitrogen Dioxide (NO_2), along with Carbon Monoxide (CO), Ammonia (NH_3), Ozone (O_3), $PM_{2.5}$, Benzo(a)pyrene {B(a)P}, Lead (Pb) and Nickel (Ni) are being monitored at selected locations.

Major Objectives of National Ambient Air Quality Monitoring Programme:

- To determine the status and trends of ambient air quality;
- To ascertain whether the prescribed ambient air quality standards are violated;

- To identify non-attainment cities with respect to national standards and;
- To obtain the knowledge and understanding necessary for developing preventive and corrective measures.

b. Continuous Ambient Air Quality Monitoring Stations (CAAQMS)

Continuous Ambient Air Quality Monitoring System (CAAQMS) is a specialized system housed in temperature controlled container and is equipped with all necessary analyzers required for ambient air quality monitoring, calibration equipment, data acquisition (hardware and software) system with complete power backup facility. This system generates real time data and can be remotely managed. The network of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) is expanding in the country and at present, as on 31.12.2023, 538 CAAQM stations are existing across the country. CPCB is doing O&M of 15 Stations established in 4 cities namely Delhi, Lucknow, Bangalore and Chennai.

Under CAAQMS the Particulate Matter (PM_{10} & $PM_{2.5}$), Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Ammonia (NH_3), Carbon Monoxide (CO), Ozone (O_3) and Benzene (C_6H_6) are being monitored at all locations. The CAAQMS are also equipped with sensors to measure meteorological parameters such as Wind Speed, Wind Direction, Ambient Temperature, Relative Humidity, Solar Radiation and Rainfall. The data of these CAAQMS are being used for generating the daily National Air Quality Index (NAQI) of the cities.

c. National Ambient Noise Monitoring Network (NANMN)

The CPCB in association with SPCBs has established National Ambient Noise Monitoring Network (NANMN) in 7 Metro-cities (Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Lucknow and Mumbai). A total of 70 Noise Monitoring Stations (NMS) are operational in these Metro-cities (10 Stations in each metro-city). Noise Monitoring System (NMS) is used for measuring real time noise level. NMSs are optimized for outdoor use with small, custom designed enclosure, and also designed for use in all climatic environments. Sound level is measured in Leq dB (A) units.

Data from all remote stations communicated through GPRS/3G/4G media, processes the Noise data and generates different reports. The central station software allows analysis of the noise data for remedial measures to control noise pollution and for research and development. Data generated from the Remote units can be displayed through Internet to the authorized addresses.

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d. National Water Quality Monitoring Programme (NWMP)

This nation-wide programme initiated under Global Environment Monitoring Systems (GEMS) during 1977 - 78 is now called as National Water Quality Monitoring Programme (NWMP). The detail objective of the project is:

- Rational planning of pollution control strategies and their prioritisation
- To assess nature and extent of pollution control needed in different water bodies or their part
- To evaluate effectiveness of pollution control measures already in existence
- To evaluate water quality trend over a period of time
- To assess assimilative capacity of a water body thereby reducing cost on pollution control
- To understand the environmental fate of different pollutants
- To assess the fitness of water for different uses

As on 31.12.2023, Nation-wide network of 4733 monitoring locations has been established in States/Union Territories covering Rivers / Water Bodies and operated by CPCB through its Regional Directorate and SPCBs/PCCs and all are functional for improved water quality monitoring network. Number of identified polluted river stretches has been reduced from 351 (Assessment year 2018) to 311 (Assessment year 2021).

4.3 Information Technology Infrastructure and Systems

Various e-governance tools were developed for supporting the mandate of CPCB, this includes development of IT infrastructure, network support and software applications. Software applications were developed for capturing national air and water quality data from manual as well as automatic monitoring stations. The data is being processed and the output is being disseminated to public through various portals including the CPCB website. Real-time emission and effluent data from industries is being acquired by CPCB through its OCEMS (Online Continuous Emission & Effluent Monitoring System) Portal. CPCB has also developed EPR portals for implanting Extended Producers Responsibility Regulations notified under respective waste management rules. Currently, EPR portals have been developed and operationalised for Plastic Waste, E-Waste, Waste Batteries and Waste Tyres.

The details of major IT applications developed by CPCB in different domain areas are given below:

1. **Environmental Data Collection**

   a. CAAQMS: Ambient air quality data is collected from CAAQMS (Continuous Ambient Air Quality) Stations. The data is transmitted to CPCB in real-time and is available to public through the portal (https://airquality.cpcb.gov.in) as well Sameer App.

   b. EAQDES: Manual monitoring data related to air quality is submitted by SPCBs to the EAQDES (Environmental Air Quality Data Entry System) of CPCB.

   c. OCEMS: Real-time emission and effluent data from industries is being acquired by CPCB through its OCEMS (Online Continuous Emission & Effluent Monitoring System) Portal. OCEMS data is also available in public domain at https://rtdms.cpcb.gov.in/data/ (live data) and https://rtdms.cpcb.gov.in/publicdata/ (old data)

   d. EWQDES: Real-time water quality data is being collected by CPCB through EWQDES (Environmental Water Quality Data Entry System) Portal.

   e. Noise Data: Real-time noise monitoring data is collected by CPCB through a network of stations

2. **Surveillance, Monitoring and Statutory Compliance**

   a. EPR Portals: CPCB has been operating the following portals for Extended Producer Responsibility (EPR) related statutory compliances:

      1. Plastic EPR Portal.
      2. Tyre EPR Portal.
      3. E-Waste EPR Portal.
      4. Battery EPR Portal.

   b. OCEMS Portal: Real-time emission and effluent data pertaining to 17 categories of highly polluting industry and common facilities is being received by OCEMS Portal, the real-time data can be used by industries to take pro-active corrective measures while the regulatory bodies like CPCB and SPCBs are using the date for prioritizing inspection/surveillance of industries for compliance.

3. Public Complaints Redressal

a. Sameer App: CPCB has been operating Sameer App for redressal of air quality related complaints by general public in Delhi-NCR.

b. Social Media: CPCB is operating social media Accounts for redressal of public complaints related to air quality.

c. SUP Public Grievance App: CPCB is operating the Single Use Plastics (SUP) Public Grievance App for redressing complaints related to SUP.

4. Information Dissemination & Awareness Generation

a. CPCB Website: Provides comprehensive information pertaining to Guidelines, Rules, Standards, Directions, Reports being published / issued by CPCB, for access and information of public and concerned stakeholders.

b. Social Media: CPCB is regularly posting informational creatives on its social media accounts for information dissemination and awareness generation. These accounts are created on X / Twitter (CPCB_OFFICIAL), Facebook (CPCBIndia), Koo (CPCB_OFFICIAL), Youtube (CPCB_OFFICIAL) and Instagram (cpcb_official).

c. AQI: CPCB publishes daily Air Quality Index (AQI) of about 234 cities on Sameer App, CPCB Website, as well as its social media handle. Hourly air quality trends at monitoring stations can also be visualised on Sameer App and Air quality portal of CPCB.

5.0 SANCTIONED STRENGTH AND PRESENT WORKING STRENGTH IN LABORATORY

Out of total 603 sanctioned staff strength (regular), 397 posts are technical which comprises 171 engineering and 226 sciences. In general, the science discipline is posted in Laboratories. Accordingly, the posting and present working strength of total staffs in Labs of CPCB are 202 nos., the detailed break up as follows:

Working Strength of Staffs in Labs

S. No.	Name of the Laboratory	Working in Labs
1	Central Water Laboratory, CPCB, Delhi	26
2	Central Instrumentation Laboratory, CPCB, Delhi	17
3	Central Air Laboratory, CPCB, Delhi	33
4	Central Trace Organics Laboratory, CPCB, Delhi	10
5	Central Bio Laboratory, CPCB, Delhi	14
6	Regional Laboratory, CPCB, Bangalore	09
7	Regional Laboratory, CPCB, Kolkata	14
8	Regional Laboratory, CPCB, Lucknow	21
9	Regional Laboratory, CPCB, Shillong	13
10	Regional Laboratory, CPCB, Bhopal	15
11	Regional Laboratory, CPCB, Vadodara	15
12	Project office - Agra	15
Total		**202**

6.0 FURTHER NEED OF EQUIPMENTS AND INFRASTRUCTURES IN LABS

The role of an environmental laboratory is to conduct scientific testing and analysis of various environmental samples, such as air, water, soil, and biological specimens, to assess the quality, composition, and presence of contaminants. The details of infrastructure available in the labs of CPCB are as follows:

Infrastructure available in Laboratories of CPCB

S. No	Name of the Lab / Area	Infrastructure Available
Head Office, Central Laboratories		
1	Water Laboratory, CPCB, Delhi / 610 M^2	Physico-chemical parameters notified under EPA Rules, Fresh water parameters as per BIS, and Parameters of soil, solid waste and hazardous wastes are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 1**.
2	Instrumentation Laboratory, CPCB, Delhi / 345 M^2	Twenty-four heavy metals in water, wastewater, soil and air samples and TOC, AOX etc., in water and solid samples are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 2.**
3	Air Laboratory, CPCB, Delhi / 760 M^2	Parameters with regard to Air such as PM_{10} & $PM_{2.5,}$ SPM, SO_2, NO_2, NH_3, Benzo (a) Pyrene, Benzene, Ambient Noise Level and metals in air, Weather Parameters, Source emission parameters & Ambient Air Quality Parameters are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 3.**

S. No	Name of the Lab / Area	Infrastructure Available
4	Trace Organics Laboratory (TOL), CPCB, Delhi / 340 M^2	Parameters with regard to Organic pollutants such as Pesticides, PAHs, PCBs, Pharmaceutical Compounds etc. are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 4.**
5	Bio Laboratory, CPCB, Delhi / 265 M^2	Parameters with regard to biological parameters in ground water, surface water and wastewater such as TC, FC, FS, E. Coli etc. are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 5.**
Regional Laboratories / Project office		
6	CPCB, Bangalore / 1000 M^2	Physico-chemical and biological parameters notified under EPA Rules, Fresh water parameters as per BIS, and Parameters of soil, solid waste and hazardous wastes are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 6.**
7	CPCB, Kolkata / 1000 M^2	Physico-chemical and biological parameters notified under EPA Rules, Fresh water parameters as per BIS, and Parameters of soil, solid waste and hazardous wastes are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 7**.
8	CPCB, Lucknow / 1360 M^2	Physico-chemical and biological parameters notified under EPA Rules, Fresh water parameters as per BIS, and Parameters of soil, solid waste and hazardous wastes are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 8.**
9	CPCB, Shillong / 240 M^2	Physico-chemical and biological parameters notified under EPA Rules, Fresh water parameters as per BIS, and Parameters of soil, solid waste and hazardous wastes are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 9.**
10	CPCB, Bhopal / 318 M^2	Physico-chemical and biological parameters notified under EPA Rules, Fresh water parameters as per BIS, and Parameters of soil, solid waste and hazardous wastes are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 10.**
11	CPCB, Vadodara/ 344 M^2	Physico-chemical and biological parameters notified under EPA Rules, Fresh water parameters as per BIS, and Parameters of soil, solid waste and hazardous wastes are analysed. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 11.**

S. No	Name of the Lab / Area	Infrastructure Available
12	CPCB Project office –Agra / 75 M^2	Parameters with regard to Air such as PM_{10} & $PM_{2.5,}$ SO_2, $NO_{2,}$ Ambient Noise Level. The list of parameters analysed and the list of instruments / equipment along with manpower details are given at **Annexure 12.**

Further, CPCB has assessed the need of future requirement of instruments and equipment for the Labs of Central Laboratories and Regional Directorates through above said committees. Accordingly, the requirement of number of instruments and equipment, stages of procurement are summarised below:

Requirement of Instruments and Equipment – Stages of Procurement

S. No.	Offices of CCPCB	Items Procured*	Items placed on the GeM portal	Items need to be procured
A.	**Head Office – Central laboratories**			
1	Air Lab	4	20	18
2	Bio Lab	1	9	17
3	Instrument Lab	2	12	13
4	TOL	9	8	7
5	Water lab	7	3	11
B.	**Regional Laboratories**			
6	Lucknow	15	22	66
7	Vadodara	4	5	17
8	Bhopal	17	27	64
9	Shillong	16	7	16
10	Bangalore	-	13	35
11	Chandigarh	-	17	73
12	Chennai	-	11	41
13	Kolkata	-	31	26
14	Pune	-	14	68
Total		**75**	**199**	**472**

* During 2020-21 and 2021-22

The above table reveals that 75 items were procured, 199 items are placed on the Government e Marketplace (GeM) Portal for procurement and 472 items identified for further need and procurement. Accordingly, the details of instruments and equipment procured during 2020 to 2022 for an amount of ₹ 220.85 lakhs for Central and Regional Labs are given as **Annexure 13**. In addition, the details of items (36 Nos) placed on the GeM portal amounting about ₹2012 Lakhs and items (104 Nos) for further need to be procured amounting about ₹ 2327 lakhs by CPCB are given as **Annexure 14 & 15** respectively.

7.0 PROVISIONS MADE FOR ENFORCEMENT AND MONITORING IN CRITICALLY POLLUTED AREAS

The CPCB has developed and revised a Comprehensive Environmental Pollution Index (CEPI) and carried out a nationwide environmental assessment of Industrial Clusters based on CEPI. As per revised CEPI - 2016, 38 such industrial clusters having CEPI greater than 70, on a scale of 0 to 100, has been identified as critically polluted Industrial Clusters and 31 such industrial clusters having CEPI between 60 to 70, on a scale of 0 to 100, has been identified as Severely polluted Industrial Clusters.

The CPCB Laboratories at its Head Office and Regional Directorates are equipped with necessary infrastructure facility to carryout monitoring as per protocol developed for CEPI area monitoring i.e. 24 Hourly Ambient Air Quality Monitoring, Surface Water Quality and Ground Water Quality from prominent surface and ground water bodies located in and around the Critically / Severely Polluted Industrial Clusters. CPCB has engaged third party agencies, which are recognized under E(P)A, 1986, for monitoring and sampling of ambient air quality, surface water quality and ground water quality in and around polluted cluster to assess the CEPI score in a time bound manner. Also, CPCB has carried out parallel sampling involving the technical and scientific staff from the respective Regional Directorate to cross verify the environmental monitoring results on random basis using the respective regional laboratories of CPCB.

Also, SPCBs / PCCs are directed to prepare and implement action plans for restoring environment quality and bring down CEPI score in the respective industrial clusters of State / UT. SPCBs/PCCs shall undertake environmental quality monitoring in the critically and severely polluted areas falling under their jurisdiction through an outside third party agency (laboratory) recognised under EPA, 1986 at existing sampling locations where monitoring was undertaken earlier and additional monitoring locations, if any required, can be included in the monitoring programme in consultation with Regional Directorate of CPCB and Head office, CPCB.

CEPI Portal developed with objective to track the progress of implementation of CEPI action plans by SPCBs/PCCs through online system. The portal has features to upload Action plans (action points with timelines and agency responsible), progress of the Action Plan (monitoring in terms of percentage progress), KML files of the industrial cluster (indicating the area demarcation), exceedance of the timelines (reflects the action where timelines have exceeded), CEPI monitoring reports (to observe the trend of CEPI score), which has been made available to the SPCBs/PCCs on 10.1.2024, and necessary trainings were provided to the officials of concerned SPCBs/PCCs.

8.0 AVAILABILITY OF BUDGET AND ITS SOURCES AND EXPENDITURE IN LAST TWO YEARS (2020-21 & 2021-22)

The budget allocations to the laboratories are made for procurement of Chemicals, Glassware, Plastic-ware, PPEs, CRMs, Standards, Calibration of Instruments, Equipment, Spares / Accessories, Repair & Maintenance of Instruments / Equipment, Insurance premium of Laboratory Infrastructure / Instrument / Manpower (as per OHSMS), Operation & Maintenance, Annual / Comprehensive Maintenance Contract of Instruments & Equipment, expenditures pertaining to NABL & OHSMS renewal audits, Recognition of Laboratory under EPA, AQC & PT participation, contingencies, Auditors fee and other misc. expenditures including salary of outsourced staff.

The details of fund allocation and expenditures from various sources such as Grant-in-Aid from MoEF&CC, Central Sector Scheme (CSS) - Control of Pollution (CoP) – Sub component "Assistance for Abatement of Pollution (AAoP) in lieu of Water Cess to SPCBs/PCCs and CPCB from MoEF&CC, Central Sector Scheme (CSS) – Control of Pollution (CoP) - Environmental Monitoring Programme (EMP) from MoEF&CC, Environmental Protection Charges (EPC) of CPCB, Sample Analysis Charges under NMCG from Ministry of Jal Sakti (MoJ) and Environmental Compensation fund of CPCB are detailed below:

8.1 Grant-in-Aid

CPCB is a 100 % Grand in Aid organization of MoEF&CC, Govt. of India for executing its functions and responsibilities. The monitoring and inspection activities of the CPCB have increased in recent years at many fold. A mechanism to generate its own funds is limited i.e. EPR registrations under various Waste Management Rules, Recognition Labs under EPA, D.G. Sets, etc., against the total budget requirement of CPCB. The budget allocated under Grant-in-Aid under three heads i.e. salary, capital and general by MoEF&CC during 2020 - 21 and 2021-22 are as follow:

Grant-in –Aid to CPCB

Year	Salary (₹in Lakhs)	Capital (₹in Lakhs)	General (₹in Lakhs)	Total (₹ in Lakhs)
2020 - 21	6,600	400	3,000	10,000
2021 - 22	7,000	400	2,600	10,000

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The Budget allocation and expenditure during 2020-21 and 2021-22 from Grant-in-Aid related to laboratory expenditure (sampling & analysis) are as follows:

Budget allocation and expenditure during 2020-21 and 2021-22

S. No.	CPCB Labs	2020-21 (₹ in Lakhs)		2021-22 (₹ in Lakhs)	
		Allocation	Expenditure	Allocation	Expenditure
1	Air Lab	105	35.28	120	13.64
2	Bio Lab	42	02.23	44	07.40
3	Instrument Lab	54	15.19	39	11.09
4	TOL	80	04.36	60	07.09
5	Water lab	56	19.10	56	08.09
6	Lucknow	86	87.57	70	92.85
7	Vadodara	40	12.41	35	21.53
8	Bhopal	70	39.47	60	33.05
9	Shillong	65	61.61	45	15.78
10	Bangalore	40	18.59	50	02.90
11	Kolkata	79	44.96	25	30.57
12	PO –Agra	80	80.00	85	85.00
Total		**797**	**420.77**	**689**	**328.99**

8.2 Central Sector Scheme – Control of Pollution - Assistance for Abatement of Pollution

In addition to the Grant-in-Aid, CPCB gets funding assistance from MoEF&CC under Central Sector Scheme (CSS) - Control of Pollution (CoP) – Sub component "Assistance for Abatement of Pollution (AAoP) in lieu of Water Cess to SPBs/PCCs and CPCB" which was introduced in the year 2018 - 19 to compensate the SPCBs/PCCs/CPCB for the loss of resources / revenue due to the subsuming of the Water Cess in to the Goods and Services Tax w.e.f. 01.07.2017, for the following specific activities permitted under the scheme:

a) Programme and activities related to prevention and control of all facets of pollution including water and air;
b) Laboratory Development;
c) Pollution Assessment;
d) Training & Mass awareness, IT Infrastructure etc.

The budget allocated under CSS-CoP-AAoP by MoEF&CC during 2020 - 21 and 2021-22 to CPCB are as follow:

Fund sanctioned under CSS-CoP-AAoP

All ₹ in Lakhs

S. No.	Activities	2020-21	2021-22
1	Programme and activities related to prevention and control of all facets of pollution	-	-
2	Laboratory Development	-	406
3	Pollution Assessment	-	75
4	Training & Mass awareness, IT Infrastructure etc.	-	34
	Total	**Nil**	**515**

The Laboratory at Regional Directorate, Pune is under development from the fund received under CSS-CoP-AAoP. Similarly, Laboratory at Regional Directorates Chandigarh and Chennai are to be developed. Presently, Regional Directorate of Chandigarh and Chennai have arrangements with other State Boards / Private laboratories for monitoring and analytical activities.

8.3 Central Sector Scheme (CSS) – Control of Pollution (CoP)- Environmental Monitoring Network Programme

MoEF&CC has allocated an amount of ₹595 crores for the period 2021-22 to 2025-26 (5 Years) as per revised Expenditure Finance Committee (EFC) document under the CSS- CoP - sub-component Environmental Monitoring (EMP) Network Programme which includes National Ambient Air Quality Monitoring Programme (NAMP), National Water Quality Monitoring Programme (NWMP), Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and National Ambient Noise Monitoring Network (NANMN). The activities performed are as follow:

S. No.	Components	Activity
1.	NWMP	• Reimbursement of expenses under NWMP for existing 4784 Water Quality Monitoring Stations operated by State Pollution Control Boards (SPCBs) and Pollution Control Boards (PCCs) of States/UTs and establishment of new NWMP stations. • Auditing of NWMP stations by CPCB.
2	NAMP	• Establishment of 561 New Ambient Air Quality Monitoring Stations in 187 cities with four (04) parameters i.e. SO2, NO2, PM10 and PM2.5 under NAMP for the cities > 1 lakhs and above as per census 2011 • O&M cost for existing stations for generation of AAQ data for regular parameters (SO_2, NO_2, PM10) and other notified parameters (PM2.5, O_3, CO, NH_3, Pb, Ni & As) at specific locations including stations at Delhi and Agra City,

		• Auditing of monitoring stations by CPCB
3	CAAQMS	• Operation and Maintenance of 15 CAAQMS Stations in 04 Cities (Bengaluru, Chennai, Delhi and Lucknow).
4	NANMN	• Strengthening of National Ambient noise monitoring network to cover 09 million plus cities & 21 State Capital • O & M of existing 70 old Stations • Auditing of NANMN by CPCB

Accordingly, the budget allocated under CSS-CoP-EMP by MoEF&CC during 2020 - 21 and 2021-22 to CPCB are as follow:

Budget Allocation and Expenditure under CSS- EMP

S. No.	Activities	2020-21 (₹)			2021-22 (₹)		
		Carry forward	Received	Expenditure	Carry forward	Received	Expenditure
1	NWMP	2,96,10,292	14,20,00,000	13,67,73,396	3,63,38,030	15,50,00,000	12,02,55,815
2	NAMP	1,03,42,418	18,00,00,000	19,19,32,671*	-	64,25,00,000	58,17,61,112
3	CAAQMS	89,66,330	-	82,60,996	-	3,85,00,000	2,69,19,010
4	NANMN	8,40,00,000	-	8,40,00,000	-	9,40,00,000	9,52,00,000*
Total		**13,29,19,040**	**32,20,00,000**	**42,09,67,063**	**3,63,38,030**	**93,00,00,000**	**82,41,35,937**

* Residual Fund utilized within sub-components of EMP.

There was no fund allocation during 2020-21 and 2021-22 under CSS-CoP-EMP for lab related expenditure. However, CPCB started receiving fund from the current FY 2023-24 for lab related expenditure such as procurement of Chemicals, Glassware, Plastic-ware, PPE, CRMs, Standards, Calibration of Instruments, Equipment, Spares / Accessories, Repair & Maintenance of etc. The fund available for various Regional Laboratories of CPCB during 2023-24 are as follow:

Fund Available under CSS- EMP for RDs & PO

All ₹ in Lakhs

Regional Laboratories of RDs	NWMP	NAMP	NANMN	CAAQMS	Total (₹)
Bengaluru	35	1.5	1	30	67.5
Bhopal	52	2	0	0	54
Kolkata	5	6	1	0	12
Lucknow	6	4	1	0	11
Shillong	33	2	0	0	35
Vadodara	63	1	0	0	64
Chennai	9	4.5	1	55	69.5
Chandigarh	5	2	0	0	7
Pune	20	2	1	0	23
P.O Agra	0	200	0	0	200
Sub-Total (₹)	**228**	**225**	**5**	**85**	**543**

The above table reveals that a total amount of ₹543 Lakhs is being allocated during current FY 2023-24.

8.4 Sample Analysis Charges (SAC) under NMCG

The PIAS' (Pollution, Inventorization, Assessment & Surveillance on River Ganga) project was sanctioned to CPCB under National Mission for Clean Ganga (NMCG) for extensive monitoring and priority action for pollution control. The activities include inventorization of pollution sources; assess the pollution load being discharged into river Ganga directly or indirectly through tributaries, namely Banganga, Ramganga, Kali-East and Pandu. It also includes identification and assessment of quality and quantity of major drains joining river Ganga and its tributaries like river Banganga, Ramganga, river Kali East, river Pandu & Hindon sub-basin (river Hindon, Kali–West and Krishni). Inventorization and compliance verification of Grossly Polluting Industries (GPIs), performance evaluation of STPs, CETPs and Ground water monitoring to assess the impact of CETPs/STPs on main stem of river Ganga are also carried out. The findings facilitate in taking appropriate regulatory measures by PCBs and in project & program planning by NMCG to prevent, abate and control of pollution in Ganga basin.

Accordingly, NMCG sanctions funds towards sample analysis charges for the testing undertaken for GPIs, STPs, CETPs, Drains, and Ground Water sampling as per the EPA rates for parameters analysed as per the frequency of inspection desired under the project. The Sample Analysis Charge (SAC) received are as follow:

Statement of SAC fund status as on 31.12.2023

Details	2021-22	2022-23	Up to 31.12.2023	Total (₹ in Lakhs)
SAC received	256	146	103	505

SAC fund is being utilised for development of labs at H.O. Delhi and Regional Directorates Lucknow and Kolkata, which are located in the Ganga belt. The expenditure from SAC during 2020-21 and 2021-22 used for procurement of labware, consumables (plastic-ware, DO bottles) are as follows:

Expenditure under SAC fund

S. No.	CPCB Labs	Expenditure (₹ in Lakhs)	
		2020-21	2021-22
1	Water lab	4.01	5.07

₹ 68 Lakhs was utilised till date for purchase of lab items such as glassware, chemicals, refilling of gases and other consumables.

8.5 Environment Protection Charge

In pursuance of the order of the Hon'ble Supreme Court of India dated 12.08.2016, all dealers of Delhi-NCR selling diesel cars with engine Capacity of 2000cc and above have to pay 1% Environment Protection Charge (EPC) i.e. 1% of Ex-Showroom Price of the vehicle to CPCB. CPCB has constituted a Project Appraisal and Approval Committee (PAAC-EPC) under the chairmanship of Chairman, CPCB for the utilization of EPC funds for air pollution control and mitigation in NCR.

The expenditure from EPC fund during 2020-21 and 2021-22 used for procurement instruments are as follows:

Expenditure under EPC fund

S. No.	CPCB Labs	Expenditure (₹ in Lakhs)	
		2020-21	2021-22
1	Air lab*	33	08
2	Instrument Lab#	0	74
	Total	**33**	**82**

* Three set analysers for CAAQM stations including O&M

one Inductively Coupled Plasma - Optical Emission Spectrometry (ICP - OES)

Further, about ₹350 lakhs was utilised for procurement of and two nos. of Energy Dispersive X-ray Fluorescence (*EDXRF*) Spectrometers during 2023-24.

8.6 Environmental Compensation (EC) Fund

Hon’ble NGT, vide its order dated 22-01-2019 in O.A. no 101/2019, has granted approval for utilization of Environmental Compensation (EC) Fund for specified activities which includes upgradation and strengthening of laboratory, development of infrastructure for Water and Air Quality Surveillance, capacity building of CPCBs / SPCBs & PCCs. Accordingly, CPCB is maintaining Environmental Compensation (EC) Fund in a separate dedicated account. The CPCB has re-constituted a committee comprising of officials from CPCB and SPCBs for evaluation and recommendation of projects for financial assistance from EC Fund on 25.07.2022. Proposals submitted by CPCB/SPCBs/PCCs for the activities specified in the said NGT Order shall be evaluated by the Committee for funding.

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The expenditure from EC fund during 2020-21 and 2021-22 used for procuring instrument and equipment are as follows:

Expenditure under EC fund

S. No.	Activity	Expenditure (₹ in Lakhs)	
		2020-21	2021-22
1	Strengthening of Laboratory	2.81	26.31

Further, an amount of about ₹562 lakhs was utilised for laboratory strengthening during 1.4.2022 to 30.11.2023.

8.7 Summary of fund allocation and expenditure during 2020-21 and 2021-22

The total fund allocation and expenditure made from procurement of instruments & equipment, lab consumables etc. various sources such as Grant-in-Aid, from CSS-CoP-AAoP & EMP, SAS, EPC and EC are summarized below:

S. No.	Sources of funding	2020 – 21 (₹ in Lakhs)		2021 – 22 (₹ in Lakhs)	
		Allocation	Expenditure	Allocation	Expenditure
1	Grant in Aid of MoEF&CC	797.00	420.77	689.00	328.99
2	CSS - CoP - AAoP of MoEF&CC	0	0	406.00	406.00
3	CSS – CoP – EMP of MoEF&CC	0	0	0	0
4	SAC of NMCG	256.00	4.01	146.00	5.07
5	Environment Protection Charges (EPC)	33.00	33.00	82.00	82.00
6	Environmental Compensation (EC) funds	2.81	2.81	26.31	26.31
	Total	**1088.81**	**460.59**	**1349.31**	**848.37**

The above Table reveals that the total expenditure made during 2020-21 and 2021-22 was about ₹461 lakhs and ₹848 Lakhs respectively.

9.0 CONCLUSIONS

CPCB is a statutory organisation entrusted with powers and functions under the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986. It has nine Regional Directorates (of which three

Regional Directorates i.e. at Pune, Chennai and Chandigarh have been set up in 2019 -20) and a Project office, Agra. CPCB has only technical and administrative posts with no ministerial staff, as per the Central Pollution Control Board (Method of Recruitment, Terms and Conditions of Service of Officers and other Employees other than Member-Secretary) Regulation, 2021. The total sanctioned staff strength (regular) is 603, wherein technical staff is 397 nos. (171 engineering & 226 science discipline) and non–technical / administrative staff (Accounts, Administration, Legal and Procurement etc.) is 206 nos as on 31.12.2023. The total vacancy is about 16%, out of which about 06% is technical and 10% is administrative. The ratio of technical and administrative staff as per sanctioned strength is about 1.9 : 1. Also, CPCB has engaged 341 contractual staff (193 Technical and 148 Admin.) for executing various activities and projects of CPCB. *(Details are given at section 2.0 and 3.0 of this report)*

CPCB has 5 dedicated Laboratories (Water, Air, Instrument, Trace Organic, and Bio) as a Central Lab at Head Office (H.O), Delhi, and each of its 6 nos of Regional Laboratories at Regional Directorates (Bengaluru, Bhopal, Kolkata, Lucknow, Shillong and Vadodara) and 1 Project office at Agra have also laboratory for monitoring and analysis of environmental parameters while development of laboratory at Regional Directorate at Pune is under progress. The present working strength of staff (science discipline) in Laboratories of CPCB are 202 nos. All Central Environmental Laboratories of CPCB and its Regional Laboratories have obtained recognition under Environment (Protection) Act, 1986, accreditation under ISO/ IEC:17025: 2017 (NABL) and certification under ISO 45001: 2018 (OH&SMS) except Bangalore, Shillong, and Vadodara where fresh / renewal of such recognition / accreditation are under progress. Also, Laboratory Information Management System (LIMS) has been implemented to manage multiple aspects of laboratory informatics in transparent manner such as sample receipt, data tracking, report submission etc. *(Details are given at section 4.1 of this report)*

Further, CPCB recognises other government / PSU / Academic Institute and private environmental laboratories for various environmental monitoring parameters, as per the powers delegated by MoEF&CC. For the same, online system has been put in place for making application by Laboratory and details of such recognised laboratories are also being made available in CPCB Website (https://cpcbepalab.in/epalab/). The performance of the environmental laboratories is also evaluated by conducting Analytical Quality Control. *(Details are given at section 4.1 (b) of this report)*

CPCB in association with SPCBs / PCCs has established an environmental monitoring network for Ambient Air (962 Manual Stations and 538 Continuous stations of which 15 stations are operated & maintained by CPCB), Ambient Noise (70 Continuous stations which are operated by

SPCBs), and Water Quality (at 4733 locations) in various States / UTs. The air, noise, and water quality monitoring networks are operated & maintained by SPCBs/PCCs under National Ambient Air Quality Monitoring Programme (NAMP), National Ambient Noise Monitoring Network (NANMN) and National Water Quality Monitoring Programme (NWMP) which are funded under Central Sector Scheme – Control of Pollution – Sub component Environmental Monitoring Programme (EMP). CPCB has also developed IT applications in different domain areas for environmental data collection, surveillance and information dissemination & awareness. *(Details are given at section 4.2 and 4.3 of this report)*

CPCB laboratories are equipped with facilities to carry out monitoring / sampling and analysis of total 306 parameters pertaining to air (58 Nos), water (197 Nos), soil / solid samples (51 Nos). The Laboratories at H.O. Delhi and Regional Directorates & Project office at Agra together constitutes of 1002 instruments / equipment. The same are equipped for enforcement and monitoring in Critically / Severely Polluted Areas. However, at occasions depending upon laboratory work load, CPCB also engage laboratories recognised under Environment (Protection) Act, 1986 for monitoring / sampling and analysis. *(Details are given at section 6.0 and 7.0 of this report)*

Augmentation / Improvement of Laboratories is a continuous process. 75 instruments / equipment were procured during 2020 – 22, 199 instruments / equipment are placed on the GeM Portal for procurement and 472 instruments / equipment have been identified for procurement so as to strengthen Laboratories. *(Details are given at section 6.0 of this report)*

The budget allocation is being made from various funding sources such as Grant-in-Aid, Central Sector Scheme, Environmental Protection Charges, National Mission Clean Ganga, and Environmental Compensation, as per the sanction / fund availability. Accordingly, the total allocation made for procurement of instruments, equipment and laboratory consumables, salary of the outsourced staff, general expenditures including insurance cover to the staffs etc. during 2020 - 21 and 2021-22 was ₹1089 lakhs and ₹1349 lakhs respectively. Subsequently, the expenditure exclusively for procurement of instruments, equipment and laboratory consumables was ₹461 lakhs and ₹848 lakhs respectively. *(Details are given at section 8.0 of this report)*

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Annexure 1

List of Parameters Analysed in Central Water Laboratory, CPCB, Delhi

S. No.	Waste Water Parameters	Fresh Water Parameters	Soil, Solid Waste & Hazardous Parameters
1.	Acidity	Acidity	Cation Exchange Capacity
2.	Alkalinity	Alkalinity	Electrical Conductivity
3.	Ammonical Nitrogen	Ammonical Nitrogen	Exchangeable Na and K
4.	Biochemical Oxygen Demand (BOD)	Biochemical Oxygen Demand (BOD)	Exchangeable Sodium Percent
5.	Boron	Boron	Nitrogen as N (Total)
6.	Calcium	Calcium	Nitrogen as N (available)
7.	Chemical Oxygen Demand	Chemical Oxygen Demand	Organic Carbon
8.	Chloride	Chloride	Organic Matter
9.	Chlorine Residual	Chlorine Residual	pH
10.	Chromium (Hexavalent)	Chromium(Hexavalent)	Phosphorus as P (Total)
11.	Colour	Colour	Phosphorus as P_2O_5
12.	Conductivity	Conductivity	Potassium as K (Total)
13.	Cyanide	Cyanide	Potassium as K_2O
14.	Dissolved Oxygen	Dissolved Oxygen	Sodium
15.	Fluoride	Fluoride	Soil Moisture
16.	Hardness Total	Hardness Total	Soil Texture
17.	Iron (Ferrous)	Iron (Ferrous)	Total Water Soluble Solids
18.	Magnesium	Magnesium	TCLP Tests
19.	Nitrate Nitrogen (NO_3)	Nitrate Nitrogen (NO_3)	Flash point test
20.	Nitrite Nitrogen (NO_2)	Nitrite Nitrogen (NO_2)	Calorific values
21.	Oil and Grease	Sulphide	Elemental Analysis
22.	pH Value	pH Value	
23.	Phenols – Distillation and Direct	Phenols – Distillation and Direct	
24.	Phosphate	Phosphate	
25.	Potassium	Potassium	
26.	Sulphide	Sodium	
27.	Sludge Volume Index	Sulphate	
28.	Sodium	Suspended Solids	
29.	Sulphate	Temperature	
30.	Total Suspended Solids	Total Dissolved Solids	
31.	Total Dissolved Solids	Total Kjeldahl Nitrogen	
32.	Temperature	Total Solids	
33.	Total Kjeldahl Nitrogen	Turbidity	
34.	Total Solids	Anionic Surfactants	
35.	Turbidity	Fixed Dissolved Solids	
36.	MLSS		
37.	MLVSS		
38.	Anionic Surfactants		

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List of Instruments / Equipment Available at Central Water Laboratory, CPCB, Delhi

S. No.	Waste Water Laboratory		Fresh Water Laboratory		Soil, Solid Waste & Hazardous Laboratory	
	Name of Instrument/ Equipment	**Qty.**	**Name of Instrument /Equipment**	**Qty.**	**Name of Instrument/ Equipment**	**Qty.**
01	pH meter	01	pH meter	01	pH meter	01
02	Conductivity meter	02	Conductivity meter	01	Conductivity meter	01
03	Hot Air Oven	03	Hot Air Oven	02	Hot Air Oven	02
04	BOD Incubator	03	BOD Incubator	02	Flask Shaker	01
05	Analytical Balance	01	Analytical Balance	02	Analytical Balance	01
06	U.V. Spectrometer	01	U.V. Spectrometer	01	Moisture Balance	01
07	Humidity Control Chamber	02	COD Analyser	01	Rotatory Agitator	01
08	Flame Photometer	02	Flame Photometer	01	Flame Photometer	01
09	Magnetic Stirrer	02	Magnetic Stirrer	04	Magnetic Stirrer	02
10	Visicooler	01	Visicooler	01	Visicooler	01
11	Millipore Filtration Assembly	01	Millipore Filtration Assembly	01	Millipore Filtration Assembly	01
12	Ion meter	01	TKN analyzer	01	TKN analyzer	01
13	Hot Plate	01	Visible Spectrophotometer	01	Bomb Calorimeter	01
14	COD Digester	02	COD Digester	02	Flash Point Apparatus	01
15	Water Purification	01	Homogenizer	01	CHNS Analyzer	01
16	Refrigerator	01	IC	01	Ball Mill Grinder	01
17			Soxhelt Apparatus	01	Mixer Grinder	01
18			Turbidity meter	01	Muffle Furnace	01

Note: *All required glassware/ plastic ware/ chemicals UPS power supply are available.

Manpower at Central Water Laboratory, CPCB, Delhi

S. No	Designation of the Official	Number
1.	Scientist E/Additional Director	1
2.	Scientist C	2
3.	Scientist B	5
4.	Senior Scientific Assistant	4
5.	Senior Laboratory Assistant	3
6.	Junior Laboratory Assistant	6
7.	Multi Task Service (MTS)	1 + 2 outsource
8.	Field Asst.	1
9.	Scientific Assistant (Outsource)	1
	Total	**26**

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Annexure 2

List of Parameters Analysed in Central Instrumentation Laboratory, CPCB, Delhi

S. No	Trace metals analysed in water, air, solid and biological samples	Organics analysed in water and solid samples
1.	Aluminium (Al)	Total Carbon
2.	Arsenic (As)	Total inorganic Carbon
3.	Barium (Ba)	Total Organic Carbon
4.	Cadmium (Cd)	Dissolved Organic carbon
5.	Chromium Total (Cr)	Dissolved inorganic carbon
6.	Iron Total (Fe)	Adsorbable Organic Halides (AOX)
7.	Lead (Pb)	
8.	Lithium (Li)	
9.	Manganese (Mn)	
10.	Molybdenum (Mb)	
11.	Nickel (Ni)	
12.	Selenium (Se)	
13.	Tin (Sn)	
14.	Vanadium (V)	
15.	Antimony (Sb)	
16.	Beryllium (Be)	
17.	Boron (B)	
18.	Copper (Cu)	
19.	Mercury (Hg)	
20.	Silver (Ag)	
21.	Strontium (Sr)	
22.	Cobalt (Co)	
23.	Zinc (Zn)	
24.	Thallium (TI)	

List of Instruments/Equipment available at Central Instrumentation Laboratory, CPCB, Delhi

S. No	Name of instrument/equipment	Quantity
1.	Atomic Absorption Spectrophotometer with Flame and Graphite Furnace and Cold Vapour Generation	1
2.	Inductively Coupled Plasma (ICP)- Atomic Emission Spectroscopy (AES)	1
3.	Inductively Coupled Plasma (ICP)- Mass Spectroscopy (MS)	1
4.	Mercury Analyser	1
5.	Direct Mercury Analyser (DMA)	1
6.	ED – XRF	2*
7.	Total Organic Halide (AOX) Analyser	1

8.	Total Organic Carbon Analyser	1
9.	Water Purification System	1
10.	Conductivity meter	1
11.	Muffle furnace	1
12.	Water bath	2
13.	Visicooler / Refrigerator	2
14.	Uninterrupted Power Supply (UPS)	20 + 30 KVA

Note: * - to be installed.

Manpower at Central Instrumentation Laboratory, CPCB, Delhi

Sl. No.	Designation of the Official	Number	Employee Status
1.	Scientist – 'E'	1	Regular*
2.	Scientist – 'D'	2	Regular
3.	Scientist – 'C'	1	Regular
4.	Senior Scientific Assistant	3	Regular
5.	Senior Laboratory Assistant	1	Regular
6.	Technical Supervisor	1	Regular
7.	Junior Laboratory Assistant	2	Regular
8.	Multi-Tasking Staff	2	Regular
8.	Field Assistant	1	Regular
9.	Research Associate – III	1	Project Staff
10.	Research Associate – I	1	Project Staff
11	Scientific Assistant/Consultant	1	Contractual
	Total	**17**	

Note : * Additional Charge along with Water lab

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Annexure 3

List of Parameters Analysed in Central Air Laboratory, CPCB, Delhi

S. No.	Parameter
1	PM_{10} & $PM_{2.5}$
2	SPM for fugitive emission
3	Gaseous Parameters (SO_2, NO_2, NH_3)
4	Anions: Cl^-, SO_4^{2-}, NO_3^-, NO_2^-, PO_4^{3-} Cations: K, Ca, Li, Mg, Na, Sr, NH_4^+ in Particulate Matter (PM2.5)
5	Poly Aromatic Hydrocarbons (PAH)- Benzo (a) Pyrene in Particulate Matter (PM10)
6	Volatile Organic Compounds (VOCs) - Benzene
7	Elemental and Organic Carbon in Particulate matter (PM2.5)
8	Ambient Noise Level Leq dB(A)
9	Metals in Particulate Matter (Pb, As, Cd, Cr, Cu, Ni)
10	Weather Parameters (Wind Speed, Wind Direction, Temperature, Relative Humidity, Mixing Height, Pressure, Solar Radiation)
11	Source Emission Parameter (PM, CO_2, O_2, CO, SO_2, NO_2, Acid Mist as SO_3, HCl, HF, Metals (Pb, As, Cd, Cr, Cu, Ni and Hg)
12	Ambient Air Quality Parameters (PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, O_3, NH_3, Benzene, Benzo (a) Pyrene, Pb, As, Ni)

List of Instruments/Equipment available at Central Air Laboratory, CPCB, Delhi

S. No.	Sampling & analysis Infrastructure	Quantity
1	PM_{10} Sampler (15 nos),	15
2	$PM_{2.5}$ Sampler (10 nos)	10
3	High Volume Samplers (10 nos)	10
4	UV Spectrophotometer (02 nos)	2
5	Ion Chromatograph (01 no)	1
6	GC – MS (01 no)	1
7	EC/OC analyser (01 no)	1
8	HPLC (01 no)	1
9	Noise meter (02 nos)	2
10	Sonic Detection and Ranging (SODAR) System	1
11	Automatic Weather Monitoring System	1
12	Emission Monitoring Equipment (Stack monitoring kit)	1
13	CO/HC Analyser	1

Manpower at Central Air Laboratory, CPCB, Delhi

S. No.	Designation of the Official	Number	Employee Status
1	Scientist 'E'	02	Regular
2	Scientist 'C'	01	Regular
3	Scientist 'B'	02	Regular
4	Senior Scientific Assistant	07	Regular
5	Senior Technical Supervisor	02	Regular

6	Technical Supervisor	03	Regular
7	Senior Laboratory Assistant	02	Regular
8	Junior Laboratory Assistant	05	Regular
9	Junior Technician	01	Regular
10	Senior Research Fellow	01	Project Staff
11	Out Source Staff	04	Contractual
12	Multi-Tasking Staff	03	Contractual
	Total	**33**	

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Annexure 4

List of Parameters Analysed in Trace Organic Laboratory, CPCB, Delhi

Herbicides		
1. Pendimethalin, 2. Alachlor, 3. Butachlor, 4. Atrazine 5. 2,4-D		
Carbamates		
1. Carbaryl, 2. Carbofuran, 3. Aldicarb, 4. Methomyl, 5. Captan, 6. Methiocarb		
Polycyclic Aromatic Hydrocarbons (PAHs)		
1. Naphthalene, 2. Acenaphthene, 3. Acenaphthylene, 4. Fluorene, 5. Phenanthrene, 6. Anthracene, 7. Fluoranthene, 8. Pyrene, 9. Benzo[a]Anthracene,	10. Chrysene, 11. Benzo[b]Fluoranthene, 12. Benzo[k]Fluoranthene, 13. Benzo(a)Pyrene, 14. Dibenzo[a,h]Anthracene, 15. Indeno[1,2,3-Cd]Pyrene, 16. Benzo[g,h,i]Perylene	
Phenols & Phenolic compounds		
1. Phenol, 2. 2-Chlorophenol, 3. 2,4-Dichlorophenol, 4. 2,4,6-Trichlorophenol, 5. Pentachlorophenol, 6. 2-Nitrophenol,	7. 4-Nitrophenol, 8. 2,4-Dinitrophenol, 9. 2-Methyl-4,6-Dinitrophenol, 10. 2,4-Dimethylphenol, 11. 4-Chloro-3- Methylphenol	
Chlorobenzenes (CBs)		
1. 1,4-Dichlorobenzene, 2. 1,3-Dichlorobenzene, 3. 1,2,3-Trichlorobenzene, 4. 1,2,4-Trichlorobenzene, 5. 1,2,3,5-Tetrachlorobenzene, 6. Pentachlorobenzene, 7. Hexachlorobenzene		
Pharmaceuticals		
1. Amoxicillin, 2. Cefixime, 3. Cefadroxile, 4. Fluconazole 5. Diclofenac, 6. Levofloxacin, 7. Ciprofloxacin,	12. Norfloxacin, 13. Ofloxacin, 14. Ampicillin, 15. Nalidixic Acid, 16. Spiramycin, 17. Roxithromycin, 18. Lincomycin,	

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8. Mefenamic Acid, 9. Metronidazole, 10. Azithromycin, 11. Doxycyline	19. Enrofloxacin, 20. Cloxacillin 21. Chloramphenicol	
Organophosphorus Pesticides (OPPs)		
1. Chlorpyriphos, 2. Dimethoate, 3. Ethion, 4. Malathion, 5. Parathion-methyl,		6. Phorate, 7. Quinalphos, 8. Profenophos,
Organochlorine Pesticides (OCPs)		
1. α-HCH, 2. β-HCH, 3. γ-HCH, 4. δ-HCH, 5. Endosulfan-I, 6. Endosulfan-II, 7. *p,p'*-DDE,		8. *p,p'*-DDT, 9. *o,p'*-DDT 10. Aldrin, 11. Dieldrin, 12. Heptachlor,
Polychlorinated Biphenyls (PCBs)		
1. Dl-PCB-11, 2. M-PCB-28 3. M-PCB -52, 4. Dl-PCB-77, 5. Dl-PCB -81, 6. M-PCB-101, 7. Dl-PCB -105, 8. Dl-PCB -114, 9. Dl-PCB -126,		10. Dl-PCB -138 11. Dl-PCB -156 12. Dl-PCB -156 13. Dl-PCB -157, 14. Dl-PCB -167, 15. Dl-PCB -169, 16. Dl-PCB -180. 17. Dl-PCB -189

List of Instruments/Equipment available at Trace Organic Laboratory, CPCB, Delhi

1. Stationary Source Emission (Stacks of TSDFs, CBMWTFs) Sampling Kits (2)
2. Ambient Air Sampler (PUF-HVS) (2)
3. Liquid-Liquid Extraction Glassware
4. Soxhlet Extraction Apparatus Sets (3)
5. Solid Phase Extraction Set (2)
6. Laboratory Fume Hoods (4)
7. Rotary Vacuum Evaporators (4)
8. Recirculating Chiller (9)
9. Visi-coolers (10)
10. Refrigerators (4)
11. Deep Freezer (1)
12. Hot Air Oven (6)
13. Ultrasonic Bath (2)
14. Gas Chromatographs with ECD & FPD (5)
15. Gas Chromatographs with ECD and MSD (2)
16. High Pressure Liquid Chromatograph with UV-DAD (1)
17. Ultra Pressure Liquid Chromatograph with UV-DAD (1)
18. Liquid Chromatograph with MS-MS (1)
19. Gas Chromatographs with High Resolution Mass Spectrometer (under procurement)

Manpower at Trace Organic Laboratory, CPCB, Delhi

S. No.	Designation of the Official	Number
1	Scientist 'E'	2
2	Scientist 'B'	2
3	Senior Scientific Assistant	2
4	Senior Laboratory Assistant	2
5	Field Attendant	1
6	Attendant (Ad hoc)	1
Total		**10**

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Annexure 5

List of Parameters Analysed in Bio Laboratory, CPCB, Delhi

S. No.	Parameters
1.	Total coliform
2	Fecal Coliform
3	Fecal Streptococci
4	E.coli
5	Acute toxicity test in fish
6.	Diversity Score
7.	Saprobic score

List of Instruments/Equipment available at Bio Laboratory, CPCB, Delhi

Sl. No.	Name of instrument / equipment
1.	pH meter
2.	DO meters
3.	Digital Balances
4.	Autoclaves
5.	Hot Air Ovens
6.	Bacteriological Incubators
7.	Laminar Flow systems
8.	Compound Microscopes
9.	Stereo Microscopes
10.	Stereo zoom microscope
11.	Ultra-wide field advance research microscope
12.	Glassware washers
13.	Ultra-pure water system
14.	Water purifier
15.	UV Spectrophotometer
16.	Refrigerators
17.	Pass box
18.	Colony Counter
19.	Vortexer
20.	Water Bath
21.	Auto pipettes
22.	Auto Dispensors
23.	Digital Burettes
24.	Digital thermo hygrometers
25.	Test Sieves

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Manpower at Bio Laboratory, CPCB, Delhi

S. No.	Designation of the Official	Number
1	Scientist 'F'	1
2	Scientist 'C'	1
3	Scientist 'B'	1
4	Senior Scientific Assistant	1
5	Senior Laboratory Assistant	1
6	Research Associate	4
7	Senior Research Fellow	1
8	Data Entry Operator	1
9	Multi-Tasking Staff	3
	Total	**14**

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Annexure 6

List of Parameters Analyzed in Regional Laboratory, CPCB, Bengaluru

A) **Physical Tests:**

S. No.	Parameters	S. No.	Parameters
1.	Conductivity	11.	Flocculation test
2.	Colour	12.	Odour
3.	pH	13.	Salinity
4.	Fixed & volatile solids	14.	Settle able solids
5.	Total solids	15.	Sludge volume index (SVI)
6.	Total dissolved solids		
7.	Total suspended solids		
8.	Turbidity		
9.	Temperature		
10.	Velocity & discharge Measurement of industrial effluent stream		

B) **Inorganic**

(1) General & Non-metallic

S. No.	Parameters	S. No.	Parameters
1.	Acidity	11.	Bromide
2.	Alkalinity	12.	Carbon dioxide
3.	Ammonical nitrogen	13.	Chlorine demand
4.	Chloride	14.	Iodine
5.	Chlorine residual	15.	Sulphite
6.	Dissolved oxygen	16.	Silica
7.	Fluoride	17.	Cyanide
8.	Total hardness	18.	Sulphide
9.	Total Kjeldahl nitrogen (TKN)	19.	Nitrate nitrogen
10.	Nitrite nitrogen	20.	Phosphate
		21.	Sulphate

(2) Trace Metals

S. No.	Parameters	S. No.	Parameters
1.	Boron (B)	15.	Lithium (Li)
2.	Cadmium (Cd)	16.	Manganese (Mn)
3.	Calcium (Ca)	17.	Selenium (Se)
4.	Chromium (Cr) Total	18.	Silver (Ag)
5.	Chromium (Cr) Hexavalent	19.	Strontium (Sr)
6.	Copper (Cu)	20.	Antimony (Sb)
7.	Iron (Fe)	21.	Cobalt (Co)
8.	Lead (Pb)	22.	Vanadium (V)
9.	Magnesium (Mg)	23.	Nickel (Ni)
10.	Mercury (Hg)	24.	Potassium (K)

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11.	Arsenic (As)	25	Sodium (Na)
12.	Aluminium (Al)	26.	Sodium absorption ratio (SAR)
13.	Beryllium (Be)	27.	Zinc (Zn)
14.	Barium (Ba)		

C) **Organics (General) and Trace Organics**

S. No.	Parameters	S. No.	Parameters
1.	Bio-chemical oxygen demand (BOD)	6.	Adsorbable organic halide (AOX)
2.	Chemical oxygen demand (COD)	7.	Surfactants
3.	Oil & Grease	8.	Tannin & lignin
4.	Phenol	9.	Polynuclear aromatic hydrocarbon (PAH) each
5.	Pesticide (each)	10.	Organic Carbon (in solid)
	(i) Organo-chlorine (BHC, DDT, Aldrin, Endosulphan)	11.	Carbon/Nitrogen ratio
	(ii) Organo nitrogen-phosphorous (Malathion, methyl parathion, Chloropyriphos)		

D) Microbiological Tests

S. No.	Parameters	S. No.	Parameters
1.	Total Coliform	5.	Total plate count
2.	Faecal Coliform	6.	Enterococcus
3.	Faecal Streptococci	7.	Airborne microbial count
4.	E. Coli		

E) Toxicological Tests

S. No.	Parameters	S. No.	Parameters
1.	Bioassay method for evaluation of toxicity using fish (90% survival of fish after 96 hrs in 100% effluent)	2.	Measurement of toxicity using Daphnia or other organism
		3.	Measurement of toxicity factor using zebra fish (dimensionless toxicity test)

F) **Biological Tests**

S. No.	Parameters	S. No.	Parameters
1.	Benthic organism identification and count	5.	Saprobity Index
2.	Macrophytic identification	6.	Chlorophyll
3.	Planktonic identification count	7.	Primary productivity
4.	Measurement of various diversity index	8.	P/R Ratio

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G) **Characterization of Hazardous Waste**

S. No.	Parameters
1.	Preparation of Leachate (TCLP extract/water extract)
2.	Flash point analysis
3.	Toxicity
4.	Measurement of heavy metals/pesticides in the waste/leachate
5.	Calorific Value

H) **Soil/Sludge/Sediment and Solid Waste**

S. No.	Parameters	S. No.	Parameters
1.	Boron	16.	Ammonia
2.	Cation Exchange Capacity (CEC)	17.	Bicarbonate
3.	Electrical Conductivity (EC)	18.	Calcium
4.	Nitrogen available	19.	Calcium carbonate
5.	Organic carbon/matter (chemical method)	20.	Chloride
6.	pH	21.	Color
7.	Phosphorous (available)	22.	Exchangeable sodium percentage
8.	Phosphate (ortho)	23.	Heavy metal
9.	Phosphate (total)	24.	Magnesium
10.	Potassium	25.	Nitrate
11.	SAR in soil extract	26.	Nitrite
12.	Sodium	27.	PAH
13.	Soil moisture	28.	Pesticide
14.	TKN	29.	Potash (available)
15.	Calorific value	30.	Sulphate
		31.	Total water soluble salt

I) Ambient Air and Source Emission parameters

S. No.	Group of parameter
(i)	***Mandatory Parameters***
1.	Nitrogen dioxide as NO2
2.	Sulphur dioxide (SO2)
3.	Total suspended particulate matter
4.	Respirable suspended particulate matter (PM10)
5.	Ambient Noise
(ii)	***Secondary Parameters***
1.	Ammonia
3.	Chlorine
4.	Fluoride
5.	Metals on filter paper
6.	Ozone
7.	Benzene Toluene Xylene (BTX)
10.	Polycyclic aromatic hydrocarbon (PAH) Benzo-a-pyrene & others
11.	PM2.5
12.	Volatile Organic Carbon

J) Source Emission

S. No.	Group of parameter
(i)	***Mandatory Parameters***
1.	Particulate matter
2.	Sulphur dioxide
3.	Velocity & flow
4.	Carbon dioxide
5.	Carbon monoxide
6.	Temperature
7.	Oxygen
8.	Oxides of nitrogen
9.	Source noise
(ii)	***Secondary Parameters***
1.	Acid mist
2.	Ammonia
3.	Chlorine
4.	Hydro-chloric acid
5.	Hydrogen Sulphide
6.	Metals on Thimble

List of Instruments/Equipment available at Regional Laboratory, CPCB, Bengaluru

S. No.	Equipment	Nos.
1	Filtration assembly	2
2	Heating Mantle	3
3	Hot air oven	4
4	Hot plate	2
5	Standard weight box E2	1
6	Water bath	6
7	Thermometer/s	4
8	Laboratory Refrigerator	04
9	Autoclave	01
10	BOD Incubator	02
11	Centrifuge	01
12	Aquarium for bioassay test	15
13	COD Digester with aluminum heating blocks	02
14	Digestion chamber/ Fume hood	03
15	Flow meter	01
16	Incubator for bacteriological test	02
17	Biohazard cabinet Type-II	01
18	Laminar flow	01
19	Magnetic Stirrer with hot plate	04
20	Mechanical Shaker	02
21	TKN Analyzer with aluminum block digester	01
22	Ultrasonic water bath	01
23	Vacuum pump	05
24	Water purification system	01
25	Fluoride distillation assembly	02

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S. No.	Equipment	Nos.
26	Cyanide distillation assembly	02
27	Ammonia distillation assembly	02
28	Soxhlet extraction assembly	05
29	Phenol distillation assembly	02
30	Analytical Balance (Semi-micro)	02
31	Micro-analytical balance	01
32	Top load balance (Gram balance)	04
33	Portable pH sensor/ meter	01
34	Portable Nitrate meter	01
35	Conductivity Meter	02
36	pH Meter with combined glass electrode	03
37	Turbidity meter	01
38	Absorbable Organic Halide Analyzer (AOX/TOX)	01
39	Binocular Microscope	01
40	Flame Photometer	01
41	Gas Chromatograph with following detector FID, ECD, and NPD	01
42	Gas Chromatograph with Mass Spectrometer (GC-MS)	01
43	Inductively Coupled Plasma (ICP) Spectrometer-OES	01
44	Rotary Evaporator	02
45	UV Spectrophotometer	02
46	Auto titrator/ digital burette	02
47	Ion meter (multi parameter)	01
48	Digital Thermocouple	03
49	Digital hygrometer	04
50	Bomb colorimeter	01
51	Flash point apparatus	01
52	Analytical Mill	01
53	Toxicity characteristic leaching procedure (TCLP) filter 142 mm	02
54	Zero head space extractor (ZHE) 90 mm	05
55	Rotary agitator for TCLP	02
56	Pocket weather tracker	01
57	Bio aerosol air sampler	01
58	PCR thermocycler	01
59	Gel electrophoresis apparatus	01
60	Walk in cooler/ cold room	01
61	Micro-analytical balance	01
62	Dehumidifier	02
63	Light table for filter paper inspection	01
64	Turbidity meter	01
65	Glass water distillation apparatus	01
66	Flue gas analyzer	02
67	Stack monitoring kit	02
68	Respirable dust sampler (PM 10)	06
69	PM 2.5 sampler	06
70	Gaseous handy sampler	02
71	Puff sampler	01
72	Bottle top dispensers/ digital burette	02
73	Type I Noise / Sound level meters	06

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Manpower at Regional Laboratory, CPCB, Bengaluru

S. No.	Designation of the Official	Number
1	Lab-In charge (Scientist 'D')	1
2	Scientist 'D'	1
3	Scientist 'C'	1
4	Senior Scientific Assistant	2
5	Senior Laboratory Assistant	1
	Junior Laboratory Assistant	2
6	Research Associate	0
7	Senior Research Fellow	1
8	Data Entry Operator	0
9	Multi-Tasking Staff	0
	Total	**9**

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Annexure 7

List of Parameters Analyzed in Regional Laboratory, CPCB, Kolkata

Fresh Water	Wastewater	Source Emission	Ambient Air	Soil /Sediment	Biological	Advance Instrument
Conductivity	Conductivity	PM	RSPM	pH	Total Coliform	Heavy Metals
pH	pH	SO_2	SO_2	Conductivity	Faecal Coliform	PAH
TSS	TSS	NO_2	NO_2	Organic Carbon	Faecal Streptococci	Organic Halides
TDS	TDS	CO_2	$PM_{2.5}$	Moisture Content	Diversity Score of Benthic Organisms	Pesticide
TS	TS	O_2	O_3	Available Nitrogen		VOC
NO_3-N	NO_3-N	HF	CO	Available Phosphorus		
DO	DO	F	NH_3	Ex. Sodium	Saprobic score of Benthic Organism	
BOD	BOD	HCl	Lead	Ex. Potassium		
COD	COD	Acid Mist	Nickel	Ex. Calcium		
NO_2-N	NO_2-N	CO	Arsenic	Ex. Magnesium		
PO_4-P	PO_4-P	CO_2		SAR		
NH_3-N	NH_3-N	O_2		CN Ratio		
Cl	Cl	Arsenic		ESP		
Hardness	Alkalinity	Boron		CEC		
Alkalinity	Calcium	Cadmium		Bulk Density		
Calcium	Magnesium	Chromium		Arsenic		
Magnesium	TKN	Copper		Boron		
TKN	Fluoride	Iron		Cadmium		
Fluoride	Hexavalent Chromium	Lead		Chromium		
Hexavalent Chromium	Sodium	Manganese		Copper		
Sodium	Potassium	Nickel		Iron		
Potassium	Sulfate	Zinc		Lead		
Sulfate	Oil &Grease	Cobalt		Manganese		
Oil &Grease	Cyanide	Mercury		Nickel		
Cyanide	Arsenic	Vanadium		Zinc		
Arsenic	Boron	Selenium		Cobalt		
Boron	Cadmium	Aluminium		Mercury		
Cadmium	Chromium			Vanadium		
Chromium	Copper			Selenium		
Copper	Iron			Aluminium		
Iron	Lead					
Lead	Manganese					
Manganese	Nickel					
Nickel	Zinc					

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Fresh Water	Wastewater	Source Emission	Ambient Air	Soil /Sediment	Biological	Advance Instrument
Zinc	Cobalt					
Cobalt	Mercury					
Mercury	Vanadium					
Vanadium	Selenium					
Selenium	Aluminium					
Aluminium	TFS					
TFS	Color					
Color	MLSS					
Silica	MLVSS					
Color Retention	Total Nitrogen					
Sulfide	Total Phosphorus					
	Phenol					
	Sulfide					

List of Instruments/Equipment available at Regional Laboratory, CPCB, Kolkata

S No	Name	Quantity (nos)	Uses
1	Autoclave Vertical	2	TC, FC, FS
2	Bacteriological Incubator	1	TC, FS
3	COD Digester	2	COD
4	BOD Incubator	2	BOD
5	Water Bath	1	NOx (Source)
6	Hot Plate	2	Trace Metal
7	Hot Air Oven	3	TS, TDS, TSS, TFS, O&G
8	Muffle Furnace	1	TFS
9	Bacteriological Incubator	1	FC
10	Electronic Balance	3	All Parameters
11	Serological Water Bath	1	FC
12	Vacuum gauge	2	NOx (Source)
13	Stack Monitoring Kit	3	Source Emission Parameter
14	RDS	5	PM10, SO2, NO2
15	PUF Sampler	1	Dioxin-Furan of Ambient Air
16	PM2.5 Sampler	4	PM2.5
17	MFC Sampler	4	PM10
18	Flue Gas Analyzer	2	Flue Gas (CO, CO2, O2, NOx)
19	Digital Multimeter	1	Current voltage
20	Weight Box	1	Balance calibration
21	Glass Thermometer	3	Temperature
22	HPLC	1	PAH
23	AOX	1	Organic Halides
24	AAS	1	Heavy Metal

S No	Name	Quantity (nos)	Uses
25	ICPMS	1	Heavy Metal
26	GCMS-ATD	1	Pesticide, VOC
27	GC FID/ECD	1	Pesticide
28	Double door Refrigerator	6	For standard and Reagent
29	Industrial Chiller	1	Sample Preservation
30	Dry & Wet Hygrometer	3	Temperature, Humidity
31	pH meter	2	pH
32	Conductivity meter	2	Conductivity
33	UV Visible Spectrophotometer	2	Colorimetric measurement
34	Flame Photometer	1	Na^+, K^+
35	Water Bath	1	Concentration of sample
36	Ultrasonic Bath	1	Sonnication
37	Chiller	1	Conditioning
38	COD Analyser	1	COD
39	Microwave Digestor	1	Digestion of sample
40	Moisture analyser	1	Moisture content
41	Mechanical Shaker	1	Homogenous mixing of sample
42	Centrifuge machine	1	For Centrifugation
43	Fume Chamber	3	Exhaust of fumes
44	Rotary Evaporator	2	Concentration of Org sample
45	Laminar flow chamber	1	Microbiological parameter
46	Microscope	1	Identification of microbes
47	Bomb Calorimeter	1	Calorific value
48	Noise level meter	4	Noise monitoring
49	Low volume sampler	8	VOC
50	Digital Temp Controller	1	Temperature controller

Manpower at Regional Laboratory, CPCB, Kolkata

S. No.	Designation of the Official	Number
1	Scientist ‘F’	1
2	Scientist ‘C’	1
3	Scientist ‘B’	1
4	Senior Scientific Assistant	1
5	Senior Laboratory Assistant	1
6	Research Associate	4
7	Senior Research Fellow	1
8	Data Entry Operator	1
9	Multi-Tasking Staff	3
Total		**14**

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Annexure 8

List of Parameters Analyzed in Regional Laboratory, CPCB, Lucknow

S. No	Group of products,	Specific tests performed
I	**Atmospheric Pollution**	
1	Ambient Air	PM_{10}
		Sulphur Dioxide (SO_2)
		Oxides of Nitrogen (NO_2)
2	Source / Stack Emission	Particulate Matter
		Sulphur Dioxide (SO_2)
II	**Water**	
1	Water (Fresh Water): Ground/Surface	Temperature
		Colour
		Conductivity
		pH
		Suspended solids
		Total solids
		Total Dissolved Solids
		Volatile Solids
		Turbidity
		Chemical Oxygen Demand (COD)
		Biochemical Oxygen demand (BOD)
		Dissolved Oxygen
		Nitrate Nitrogen
		Nitrite Nitrogen
		Ammonical Nitrogen
		Oil and grease
		Phosphate as P
		Sulphate
		Alkalinity
		Chloride
		Chlorine (Residual)
		Calcium
		Sodium
		Potassium
		Magnesium
		Hardness Total
		Fluoride
		Sulphide
		Phenol
		TKN
		Boron
		Chromium – VI
		Total Coliform
		Fecal Coliform
III	**Pollution and Environment**	
1	Water (Waste Water)	Temperature
		Colour

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S. No	Group of products,	Specific tests performed
		Conductivity
		pH
		Suspended solids
		Total solids
		Total Dissolved Solids
		Volatile Solids
		Turbidity
		Chemical Oxygen Demand (COD)
		Biochemical Oxygen demand (BOD)
		Dissolved Oxygen
		Nitrate Nitrogen
		Nitrite Nitrogen
		Ammonical Nitrogen
		Oil and grease
		Phosphate as P
		Sulphate
		Alkalinity
		Chloride
		Chlorine Residual
		Calcium
		Sodium
		Potassium
		Magnesium
		Fluoride
		Sulphide
		Phenol
		TKN
		Boron
		Chromium – VI
		Total Coliform
		Fecal Coliform

List of Instruments/Equipment available at Regional Laboratory, CPCB, Lucknow

S. No.	Name of Equipment	Quantity
1.	Analytical Balance	05
2.	Autoclave	03
3.	B.O.D. Incubator	04
4.	Bacteriological Incubator	03
5.	Conductivity Meter	01
6.	Centrifuge	01
7.	Colony Counter	01
8.	COD Assembly	04
9.	Deep Freezer	01
10.	De-humidifier	01
11.	Flame Photometer	02

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12.	Filtration Assembly	01
13.	GAS Chromato-graph	01
14.	ION Chromatograph	01
15.	Hot Air Oven	03
16.	Hot Plate	03
17.	Laminar Air Flow Bench	01
18.	Microscope	01
19.	Muffle Furnace	01
20.	Nano- pure water Purification System	02
21.	Noise Level Meter	02
22.	pH meter	03
23.	PM-2.5 Sampler	01
24.	Respirable Dust Sampler	04
25.	Refrigerator	03
26.	UV-Visible Spectrophotometer	03
27.	Ultrasonic water bath	01
28.	Stack Monitoring Kit	02
29.	Standard Thermometer	03
30.	Turbidity meter	01
31.	TKN Assembly	02
28.	Temperature Humidity Control Chamber	01
29.	Water bath	03
30.	Digital Thermo Hygrometer	05

Manpower at Regional Laboratory, CPCB, Lucknow

S. No.	Level	Nos
1	Scientist 'C'	1
2	Senior Scientific Assistant	1
3	Senior Laboratory Assistant	1
4	Junior Laborartory Assistant	1
5	Field Assistant	2
6	Technical Supervisior	1
7	Research Associate	3
8	Senior Research Fellow	2
9	Senior Assistant	4
10	Multi-Tasking Staff	3
11	Cleaning Staff	1
Total		**21**

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Annexure 9

List of Parameters Analyzed in Regional Laboratory, CPCB, Shillong

S.No	Name of the parameters	Matrix	Testing part
1	pH	W.Q.P/W.W.C	Chemical
2	Turbidity	W.Q.P	Chemical
3	Colour	W.Q.P/W.W.C	Chemical
4	Odour	W.Q.P	Chemical
5	Taste	W.Q.P	Chemical
6	Total dissolved Solids	W.Q.P	Chemical
7	Calcium	W.Q.P	Chemical
8	Chloride	W.Q.P	Chemical
9	Fluoride	W.Q.P	Chemical
10	Free Residual Chlorine	W.Q.P	Chemical
11	Iron	W.Q.P	Chemical
12	Magnesium	W.Q.P	Chemical
13	Nitrate	W.Q.P	Chemical
14	Sulphate	W.Q.P	Chemical
15	Total Alkalinity	W.Q.P	Chemical
16	Total Hardness	W.Q.P	Chemical
17	Total Coliform Bacteria	W.Q.P	Biological
18	Total Acidity	W.Q.P	Chemical
19	Sodium	W.Q.P	Chemical
20	Potassium	W.Q.P	Chemical
21	Nitrite	W.Q.P	Chemical
22	Temperature	W.Q.P/W.W.C	Chemical
23	Total Suspended solids	W.W.C	Chemical
24	Oil and Grease	W.W.C	Chemical
25	Ammonical Nitrogen	W.W.C	Chemical
26	Total Kjeldhal Nitrogen (TKN)	W.W.C	Chemical
27	Free Ammonia	W.W.C	Chemical
28	Nitrate- Nitrogen	W.W.C	Chemical
29	Biochemical Oxygen demand	W.W.C	Chemical
30	Chemical oxygen demand	W.W.C	Chemical
31	Total Phosphorus	W.W.C	Chemical
32	Phosphate	W.W.C	Chemical
33	Faecal Coliform Bacteria	W.W.C	Biological
34	Dissolved Oxygen	W.Q.P/W.W.C	Chemical
35	PM10	A.A.Q	Chemical
36	PM2.5	A.A.Q	Chemical
37	Sulphur Dioxide	A.A.Q	Chemical
38	Nitrogen Dioxide	A.A.Q	Chemical
39	Ozone	A.A.Q	Chemical
40	Ammonia	A.A.Q	Chemical
41	PM	S.E.Q	Chemical

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S.No	Name of the parameters	Matrix	Testing part
42	SOx	S.E.Q	Chemical
43	NOx	S.E.Q	Chemical
44	pH	Soil	Physio-Chemical
45	Moisture content	Soil	Physio-Chemical

List of Instruments/Equipment available at Regional Laboratory, CPCB, Shillong

S. No.	Name of Equipment	Quantity
1.	Analytical Balance	09
2.	Autoclave	01
3.	B.O.D. Incubator	01
4.	Bacteriological Incubator	01
5.	Bottom Sampler	01
6.	Conductivity Meter	02
7.	Centrifuge	01
8.	Auto Dispensers	04
9.	COD Digestor	02
10.	Desiccator	03
11.	Water Distillation Assembly	02
12.	Field Calibration Kit (APM 421)	01
13.	Filtration Assembly with Vacuum Pump	01
14.	Flame Photometer	02
15.	Flue Gas Analyzers:	01
16.	Handy Sampler APM B-21,	01
17.	Hot Air Oven	03
18.	Hot Plate	02
19.	Laminar Flow Chamber	01
20.	Magnetic Stirrer	02
21.	Microscope	02
22.	Muffle Furnace	01
23.	pH Meter	05
24.	PM2.5	02
25.	Refrigerator	01
26.	Respirable Dust Sampler	06
27.	Soap Bubble Meter	01
28.	Sound level meter	04
29.	Spectrophotometer	01
30.	Stack Monitoring kit:	03
31.	Turbidity Meter	03
32.	Water Current Meter	01
33.	Water Bath	01
34.	Thermo hygrometer	02
35.	PM10	03
36.	Fume Hood	01
37.	CO/HC Analyzer	01
38.	Atomic Absorption Spectrophotometer	01

Manpower at Regional Laboratory, CPCB, Shillong

S. No.	Designation of the Official	Number
1	Scientist 'F'	1
2	Scientist 'E'	1
3	Scientist 'D'	1
3	Scientist 'B'	1
4	Senior Scientific Assistant	2
5	Senior Laboratory Assistant	3
6	Field Assistant	1
7	Senior Research Fellow	2
8	Office Assistant	1
	Total	**13**

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Annexure 10

List of Parameters analyzed in CPCB- Regional Directorate Laboratory, Bhopal

1. Water Parameters

Physical Test	Inorganic Test	Organics	Trace Materials	Others
pH	Acidity	BOD	Cr	Pesticides
Conductivity	Alkalinity	COD	Cu	Organic Halides
Colour	Amm. Nitrogen	Oil and Grease	Cd	
FDS	Chloride	Phenol	Ni	
TS	Residual Chlorine	AOX	Pb	
TSS	DO		Fe	
TDS	Fluoride		Mn	
Turbidity	TH		Zn	
Temperature	TKN		Hg	
Odour	Nitrite-N		As	
Settelable Solids	Nitrate-N		Sodium	
SVI	Phosphate		Potassium	
Flcculation test	Sulphate		SAR	
	Sulphide		Boron	
	Sulphite		Cr+6	
			Calcium	
			Magnesium	

2. Biological Parameters

Microbiology	Bio-Monitoring
Total Coliform	Benthic Micro –invertebrates identification and count
Faecal Coliform	Diversity index.
Streptococci Coliform	Sa probity Index
E. Coli	

3. Air Parameters

AAQM	Source Emission	Noise
$PM_{10,}$ $PM_{2.5,}$ SPM, $SO_{2.,}$ $NO_{X,}$ Fluoride, Ammonia Cr, Cu, Cd, Ni, Pb, Fe, Mn, Zn	PM, $SO_{2,}$ $NO_{2,}$ HF Acid Mist, Cr, Cu, Cd, Ni, Pb, Fe, Mn, Zn	Lmin, Lmax, Leq

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List of Instruments / Equipment available at CPCB Regional Directorate, Bhopal Laboratory

S. No.	Name of Equipment	Quantity
1.	Hot air oven	03
2.	pH Meter	02
3.	Conductivity Meter	02
4.	Micro-balance	03
5.	COD Digestor	02
6.	BOD Incubator	02
7.	TKN Analyzer	01
8.	Filtration Assembly	01
9.	Hot Plate	02
10.	Heating Mantle	02
11.	Muffle Furnace	02
12.	Turbidity Meter	01
13.	Visible Spectrophotometer	01
14.	Water bath	02
15.	Fume Hood	01
16.	DO Sampler	02
17.	Thermometer	04
18.	Water Testing Kit	02
19.	Refrigerator/Deep freezer	02
20.	Visi-cooler	01
21.	Centrifuge	01
22.	Magnetic Stirrer with hot plate	02
23.	Water distillation assembly	03
24.	O&G sampler, Depth Sampler	01
25.	Digital Burette	02
26.	HVS	02
27.	RDS	04
28.	PM 2.5	06
29.	Noise Meter	02
30.	Stack Kit	05
31.	Metrological Weather Station AWS	01
32.	Autoclave	04
33.	Laminar Flow	01
34.	Bacteriological incubator	04
35.	Micro-pipette	02
36.	Colony counter	01
37.	Compound microscope	01
38.	Handy microscope	01
39.	Bio-monitoring kit	01
40.	Aquarium for bioassay test	04
41.	GC	01
42.	AOX	01
43.	AAS	01
44.	Flame Photometer	01
45.	Bomb Calorimeter	01
46.	Ion analyser	01
47.	Flash point apparatus	01

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Manpower at Regional Laboratory, CPCB, Bhopal

S. No.	Designation of the Official	Number
1	Scientist 'C'	03
2	Scientist 'B'	04
3	Senior Scientific Assistant	02
3	Senior Laboratory Assistant	01
4	Junior Laboratory Assistant	03
5	Senior Research Fellow	01
6	Research Associate	01
	Total	**15**

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Annexure 11

List of Parameters Analyzed in Regional Directorate Laboratory, Vadodara

S. No.	Waste Water Laboratory	Fresh Water Laboratory	Soil, Solid Waste & Hazardous Laboratory	Source Emission & Air
1	Color	Acidity	Exchangeable Na and K	SO_2
2	Odor	Alkalinity	Exchangeable Sodium Percent	NO_2
3	Conductivity	Ammonical Nitrogen	Nitrogen as N (T)	NH_3
4	pH Value	BOD	Nitrogen as N	O_3
5	Total solids	Boron	Organic Carbon	Cl_2
6	Total suspended solids	Calcium	Organic Matter	H_2S
7	Total dissolved solids	Chemical Oxygen Demand (COD)	pH	CS_2
8	Fixed and volatile solids	Chloride	Phosphorus as P (T)	HCl Mist
9	Settleable solids	Chlorine Residual	Phosphorus as P_2O_5	F
10	MLSS	Chromium(Hexavalent)	Potassium as K (T)	PM_{10}
11	MLVSS	Color	Potassium as K_2O	$PM_{2.5}$
12	Sludge volume index (SVI)	Conductivity	Sodium	H_2SO_4 Mist
13	Salinity	Cyanide	Soil Moisture	As. Pb, Ni, Fe, Cd, Cr
14	Settled sludge volume	Dissolved Oxygen	Total Water Soluble Solids	
15	Turbidity	Fluoride		
16	Temperature	Hardness Total		
17	Velocity	Iron (Ferrous)		
18	Acidity	Magnesium		
19	Alkalinity	Nitrate Nitrogen (NO_3)		
20	Ammonical Nitrogen	Nitrite Nitrogen (NO_2)		
21	Bromide	Sulphide		
22	Chloride	pH Value		
23	Chlorine demand	Phenols – Distillation and Direct		
24	Chlorine Residual	Phosphate		
25	Cyanide	Potassium		
26	Dissolved Oxygen	Sodium		
27	Fluoride	Sulphate		
28	Iodine	Suspended Solids		
29	TKN	Temperature		
30	Nitrite nitrogen	Total Dissolved Solids		
31	Nitrate nitrogen	Total Kjeldahl Nitrogen		
32	Phosphate	Total Solids		
33	Sulphate	Turbidity		
34	Sulphide	Fixed Dissolved Solids		
35	Sulphite			
36	Total Hardness			
37	Aluminium (Al)			

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38	Antimony (Sb)			
39	Arsenic (As)			
40	Barium (Ba)			
41	Beryllium (Be)			
42	Boron (B)			
43	Cadmium (Cd)			
44	Calcium (Ca)			
45	Chromium (total)			
46	Chromium VI (Cr^{+6})			
47	Cobalt (Co)			
48	Copper (Cu)			
49	Iron (Fe)			
50	Lead (Pb)			
51	Lithium (Li)			
52	Magnesium (Mg)			
53	Manganese (Mn)			
54	Mercury (Hg)			
55	Nickel (Ni)			
56	Potassium (K)			
57	Selenium (Se)			
58	Silver (Ag)			
59	Sodium (Na)			
60	Sodium Absorption Ratio (SAR)			
61	Strontium (Sr)			
62	Tin (Sn)			
63	Vanadium (V)			
64	Zinc (Zn)			
65	BOD			
66	COD			
67	Oil & Grease			
68	Phenolic compounds			
69	Adsorbable organic halogens			
70	Organic carbon (in solids)			
71	Total organic carbon			
72	Carbon/Nitrogen Ratio			
73	Pesticides-OCP+OPP			
74	Total coliform			
75	Fecal coliform			
76	Fecal streptococci			
77	Enterococcus			
78	Total plate count			
79	E. Coli			
80	Bio-Assay Test			

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List of Instruments / Equipment Available at Regional Laboratory, CPCB, Vadodara

S. No	Water, Wastewater and Microbiological		Soil, Solid & Hazardous Waste		Air / Flue gas	
	Instrument/ Equipment	***Qty.***	***Instrument/ Equipment***	***Qty.***	***Instrument/ Equipment***	***Qty.***
1	Analytical Balance	01	Mechanical Shaker	01	Flue Gas Analsyer	02
2	Conductivity Meter	01	pH Meter	01	Stack Monitoring Kit	02
3	Dissolved oxygen meter	01	Bomb calorimeter	01	Velocity Meter	02
4	pH Meter with combined glass electrode	01	Flash point apparatus	01	Fluorine Kit	01
5	Turbidity meter	01	Flame Photometer	01	PM10 samplers	05
6	Atomic Absorption Spectrophotometer with Graphite Furnace and Hydride Generation System	01	Magnetics Stirrer	02	PM2.5 Sampler	05
7	Organic Halogen Analyzer (AOX/TOX)	01	Hot Plate	01	Handy sampler	04
8	Compound Microscope	01	Refrigerator	01	Personnel sampler	02
9	Flame Photometer	01	Soxhelt Apparatus	01	Noise Meter	03
10	Gas Chromatograph with following detector	01	Muffle Furnace	01	Automatic Weather Station	01
11	Gas Chromatograph with Mass Spectrometer (GC-MS)	01	Hot Air Oven	01	Refrigerator	01
12	Ion Chromatograph	01	Heating Mantle	02	Precision Balance weighing up to 1 mg* (water / air)	01
13	Rotary Evaporator	01	Water Bath	01	Total Organic Carbon Analyzer	01
14	Spectrophotometer (Visible)	01	Microwave Digester	01	Hot Air Oven	01
15	Ammonia & TKN Assembly	01	Digital Burette-50ml	01	Heating Mantle	02
16	Magnetics Stirrer	02	Top Loading Balance	01	Water Bath	01
17	Hot Plate	02			Digital Burette-50ml	01
18	COD Digester	03				
19	Deep Freezer	02				
20	BOD Incubator	02				
21	Soxhlet Apparatus	02				
22	Muffle Furnace	01				
23	Hot Air Oven	01				
24	Bacteriological Incubator	02				
25	Cyanide Distillation Assemble	02				
26	Heating Mantle	02				
27	Ultrasonic Water Bath	01				

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28	Water Bath	01	
29	Auto Clave	02	
30	Laminar Air Flow	01	
31	Colony Counter	01	
32	Loop Sterilizer	01	
33	Digital Burette-50ml	01	

Manpower at Regional Laboratory, CPCB, Vadodra

S. No.	Designation of the Official	Number
1	Scientist 'F'	1
2	Scientist 'E'	2
3	Scientist 'D'	2
4	Scientist "C"	1
5	Scientist 'B'	2
6	Senior Scientific Assistant	2
7	Senior Laboratory Assistant	1
8	Junior Laboratory Assistant	1
9	Technical Supervisor	1
10	Junior Technician	1
11	Driver	1
	Total	**15**

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Annexure 12

List of Parameters Analyzed and Instruments & Equipment in Project Office, CPCB, Agra

Air Laboratory:

Parameters Monitored:

PM2.5, PM10, SO_2 and NO_2

Instruments & Equipment's:

Electronic balance, Electronic Dessicator, Spectrophotometer, pH meter, Conductivity meter, HVS, PM10 and PM2.5 sampler

Manpower status:

S. No.	Designation of the Official	Number
1	Scientist E	01 No.
2	Scientist 'B'	01 No.
3	Senior Scientific Assistant	01 No.
4	Technical Supervisor	01 No.
5	Senior Laboratory Assistant	01 No.
6	Junior Laboratory Assistant	01 No.
7	Field Attendant	01 No.
8	Project staff	04 No.
9	Outsourced staff	04 No.
	Total	**15 Nos**

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Annexure 13

LIST OF INSTRUMENTS AND EQUIPMENT PROCURED FOR LABS

S. No.	CPCB Labs	Items Procured during 2020-22
A.	**Central laboratories**	
1.	Trace Organic Lab	Hydrogen Gas Leak Detector, Pressure gauge, Ultrasonic Water Bath, Hot Air Oven
2.	Water lab	Water Purification System, Flame Photometer, Magnetic Stirrer with Hot Plate, Visi-Cooler, Visible Spectrophotometer, Digital Conductivity Meter,
3	Air Lab	Hydrogen Gas Leak Detectors, Hot Plate, Ultrasonic Water Bath, UV-Visible Spectrophotometer
4.	Instrumentation Lab	Muffle Furnace, Water bath, Visi-cooler, Orbital Shaker, Refrigerators , BOD Incubator, Digital Conductivity Meter, ICP-OES,
5	Bio Lab	Portable DO Meters, Refrigerators, Hot Air Oven
B	**Regional Laboratories**	
6	Lucknow	Vortex Mixture, Autoclave, BOD Incubator, Deep Freezer (Vertical), Hot Plate, Water Bath, Bacteriological Incubator, Micro Analytical Balance, Spectrophotometer (Visible), Flame Photometer, Portable DO Meter, Dissolved Oxygen Meter (Bench Type), Spectrophotometer (UV Visible) * and Humidity Chamber*
7	Vadodara	Flame Photometer, BOD Incubator, Deep Freezer (Vertical) 300L and Deep Freezer (Horizontal) 300L.
8	Bhopal	Conductivity Meter, Hot Air Oven- 3 Nos, Water Bath- 2 Nos, Bacteriological Incubator- 2 Nos, Autoclave (Stainless Steel)- 2 Nos, Visi-Cooler, 300 L, Flame photometer -01, Hot plate -03, Muffle Furnace -01, and Centrifuge -01
9	Shillong	Semi Micro Analytical balance, Spectrophotometer, PM 2.5 Sampler-2 Nos, Sound Level Meter- 2 Nos, Precision Analytical Balance, Conductivity Meter, Flame Photometer, Hot Air Oven, Bacteriological Incubator, PM10 Sampler – 3 Nos, Fume Hood Chamber and Binocular Microscope.

Note: * Installation is pending

Annexure 14

LIST OF INSTRUMENT AND EQUIPMENTS PLACED ON THE GEM PORTAL FOR PROCUREMENT IN 2023-24

S. No.	Name of the Instrument / Equipment	Head Office, Delhi					Regional Directorates of CPCB									Total Units	Cost / Unit (₹. in lakh)	Total Cost (₹ in Lakh)
		Air Lab	Bio Lab	Inst. Lab	TOL	Water Lab	Bangalore	Bhopal	Chandigarh	Chennai	Kolkata	Lucknow	Pune	Shillong	Vadodara			
1	Laboratory Glassware Washer & Dryer	1		1			1			1						4	10.00	40.00
2	Ion Chromatograph with Computer and Printer						1	1								2	40.00	80.00
3	GC-HRMS				1											1	400.00	400.00
4	Portable NDIR Analyzer						1								1	2	15.00	30.00
5	Multi-Channel Aerosol Speciation Sampler	2														2	15.00	30.00
6	Mass Flow Controller	1														1	15.00	15.00
7	Smoke Meter	1														1	10.00	10.00
8	PUF High Volume Sampler				4											4	10.00	40.00
9	SPE Unit				3											3	3.00	9.00
10	Compact Weather Station							1						1		2	2.00	4.00
11	TCLP Extraction System					2		1			1				1	5	3.00	15.00
12	Thermal Desorption Tubes										10					10	1.50	15.00
13	Direct Mercury Analyzer						1									1	30.00	30.00
14	Platinum Crucible			10												10	1.25	12.50
15	Moisture Analyzer			1			1	1								3	2.00	6.00
16	ICP-MS						1								1	2	180.00	360.00
17	Digital Thermo Hygrometer						1	1								2	0.25	0.50
18	ICP-OES							1	1			1	1			4	80.00	320.00
19	Stereo Zoom Microscope		2				1	1			1					5	20.00	100.00
20	Sound Level Meter	8						4	2	2	4	2	4	2		28	7.00	196.00
21	Mercury Analyzer (Conventional)									1	1	1				3	3.00	9.00
22	Compound Microscope DSLR Mounted						1		1			1				3	4.50	13.50
23	Portable FTIR	1														1	50.00	50.00

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S. No.	Name of the Instrument / Equipment	Head Office, Delhi					Regional Directorates of CPCB									Total Units	Cost / Unit (₹. in lakh)	Total Cost (₹ in Lakh)
		Air Lab	Bio Lab	Inst. Lab	TOL	Water Lab	Bangalore	Bhopal	Chandigarh	Chennai	Kolkata	Lucknow	Pune	Shillong	Vadodara			
24	Flue Gas Analyzer	1					2	2	1	1	2	3	1	2		15	6.00	90.00
25	Micro Analytical Balance	1														1	12.00	12.00
26	Semi-Micro Analytical Balace	1														1	6.00	6.00
27	Serological Water Bath		1						1			2				4	0.50	2.00
28	Digital Barometer						1	2	2	1	4	4			2	16	0.66	10.66
29	Handheld GPS								2		4					6	0.15	0.90
30	Isokinetic Stack Sampling Assembly						1	1			1	1		1		5	5.00	25.00
31	Isokinetic Stack Sampling Assembly	1						2	1	1	1	3	1	1		11	5.00	55.00
32	Digital Thermometer		3					4	3	2			3			15	0.06	0.90
33	Digital Thermometer		3					2	1	2		4	3			15	0.06	0.90
34	Portable Flow Meter							2	2		2		1			7	2.00	14.00
35	Sampling Assembly for Carbonyls	2														2	4.50	9.00
36	Heavy Duty Mixer Grinder					1		1								2	0.10	0.20
																	Total	**2012.06**

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Annexure 15

FURTHER NEED OF INSTRUMENTS AND EQUIPMENT FOR LABORATORIES

S. No.	Name of the Instrument / Equipment	H.O. Delhi					Regional Directorates									Total	Cost / Unit\ (in ₹.lakh)	Total Cost (in ₹. Lakh)
		Air Lab	Bio Lab	Inst. Lab	TOL	Water Lab	Bangalore	Bhopal	Chandigarh	Chennai	Kolkata	Lucknow	Pune	Shillong	Vadodara			
1	Air Handy Sampler							4	2	2			2			10	1.00	10.00
2	Analytical Balance (6 digit)						1	1			1	1		1	1	6	15.00	90.00
3	Analytical Balance 4/5 digit for 20/200 gm		1	1		2			2	1		2	2	1	1	13	15.00	195.00
4	Analytical Balance 3 Digit (Top Loading)		1	1		3				1			1		1	8	1.50	12.00
5	Bio-aerosol Sampler		1													1	4.00	4.00
6	Attenuated Total Reflectance (ATR)-FTIR spectrometer						1									1	20.00	20.00
7	Autoclave (Paddle lifting) with temperature & pressure indicator		3						2			2	2			9	1.50	13.50
8	Bacteriological Incubator		1						2			2	2	1		8	0.70	5.60
9	Biosafety Cabinet		2						1			1	1			5	3.00	15.00
10	BOD Incubator								1	1		2	2			6	1.75	10.50
11	Centrifuge								1			1	1			3	1.00	3.00
12	CO Analyzer (Handy)							2						1		3	0.50	1.50
13	COD Digestion System digital							1	2	1		3	2		1	10	1.25	12.50
14	Colony Counter		1						1			1				3	3.00	9.00
15	Color Analyser (Digital)							1			1					2	0.50	1.00
16	Combined PUC Analyser							1								1	2.50	2.50
17	Combo pH, TDS & Conductivity meter							3	2						2	7	0.20	1.40
18	Conductivity meter							1	2	1	1	3	1	1		10	0.50	5.00
19	Cyanide Distillation Assembly							2								2	2.65	5.30
20	Deep Freezer Vertical (2-10 °C)							1	1							2	1.50	3.00
21	Deep Freezer (Horizontal) (2-10 °C)											1				1	1.50	1.50

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S. No.	Name of the Instrument / Equipment	H.O. Delhi					Regional Directorates									Total	Cost / Unit\ (in ₹.lakh)	Total Cost (in ₹. Lakh)
		Air Lab	Bio Lab	Inst. Lab	TOL	Water Lab	Bangalore	Bhopal	Chandigarh	Chennai	Kolkata	Lucknow	Pune	Shillong	Vadodara			
22	Dehumidifier											1				1	4.50	4.50
23	Digital Burette (50 ml)					5		2	6			2	2			17	2.50	42.50
24	Digital Pipette (1 ml - 10 ml)							2	2				2			6	0.25	1.50
25	Digital Pipette (1 ml - 20 ml)							2	1				1			4	0.25	1.00
26	Digital Pipette (1 ml - 5 ml)							2	1				1			4	0.25	1.00
27	Digital Pipette (1 µl - 1000 µl)							2	1				1			4	0.25	1.00
28	DO Meter (Desktop)		1					1		1						3	2.50	7.50
29	DO Meter (Portable)		1				2	3	2		2					10	1.00	10.00
30	ED-XRF Analyser (Bench model)						1									1	40.00	40.00
31	Filtration Assembly (Multi funnel)							2								2	2.00	4.00
32	Filtration assembly with suction pump								2	1		2	2	1		8	1.00	8.00
33	Flame photometer (Digital)								1	1		1	1			4	1.50	6.00
34	Flow Calibrator Digital (Air)	1														1	0.50	0.50
35	Fluoride Analyser													1		1	5.00	5.00
36	Fumehood with exhaust system									1		1	2			4	3.55	14.20
37	Acetylene Gas Leakage Detector (Portable)			1												1	0.50	0.50
38	Gas Chromatograph (GC) with ECD and FID detector													1		1	25.00	25.00
39	Portable pH meter														2	2	2.00	4.00
40	Heating Mantle (Single Heater)								2				2			4	0.50	2.00
41	Heating Mantle 6 places									1						1	0.10	0.10
42	High Volume Sampler						4	4	2				4			14	1.50	21.00
43	Hot Air Oven - digital								2	1		2	2	1		8	1.25	10.00
44	Hot Plate- digital								1	1		2	2			6	0.60	3.60
45	ICP-MS hyphenated with Liquid Chromatography (LC)			1												1	200.00	200.00
46	Ion Analyzer with Electrodes							1	1	1		1	1			5	6.00	30.00

S. No.	Name of the Instrument / Equipment	H.O. Delhi					Regional Directorates									Total	Cost / Unit\ (in ₹.lakh)	Total Cost (in ₹. Lakh)
		Air Lab	Bio Lab	Inst. Lab	TOL	Water Lab	Bangalore	Bhopal	Chandigarh	Chennai	Kolkata	Lucknow	Pune	Shillong	Vadodara			
47	Jar Test Apparatus					1										1	0.75	0.75
48	Laminar Flow (Vertical)													1		1	3.00	3.00
49	Laser distance meter (100 m range)						4			1						5	0.10	0.50
50	Liquid Chemical Dispenser (1 - 10 ml)			3				3	3							9	0.25	2.25
51	Liquid Chemical Dispenser (2.5 - 25 ml)			2				2		2						6	0.25	1.50
52	Liquid Chemical Dispenser (10 - 50 ml)								3	2						5	0.25	1.25
53	Liquid Chemical Dispenser HF (1-10 ml)			1				2								3	0.60	1.80
54	Low flow pump													3		3	1.00	3.00
55	Low volume handy Sampler for air sampling.						2									2	1.00	2.00
56	Magnetic Stirrer							2	1	2						5	0.10	0.50
57	Magnetic Stirrer with ceramic plate												4			4	0.50	2.00
58	FTIR (Microplastic analysis)							1			1					2	180.00	360.00
59	Multipurpose Microwave Sample Digester			1			1	1								3	35.00	105.00
60	Muffle Furnace (1200 °C)						1		1			1	1			4	2.00	8.00
61	Niskin Depth Sampler for water (2L)						2				2					4	0.80	3.20
62	Nitrogen Generator (Table Top)				1											1	10.00	10.00
63	OC/EC Analyzer	1														1	120.00	120.00
64	Pen type temperature, TDS/EC and pH meter									3			4			7	1.00	7.00
65	Phenol Assembly							1				1				2	17.00	34.00
66	pH Meter (Bench top)		2				1		2	1			1	1	1	9	0.72	6.48
67	pH meter (Bench top) display upto 3 decimal place											2			1	3	0.50	1.50
68	pH and Potentiometer connected dossimeter										1					1	7.00	7.00
69	PM_{10} Sampler	10					4		4	4	2	3	4			31	1.50	46.50
70	$PM_{2.5}$ Sampler (Certified)	6					4		2		4	5	4	1		26	2.00	52.00
71	Portable Ammonia Analyzer							1								1	0.25	0.25
72	Portable CO_2 Analyzer							1								1	0.15	0.15

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S. No.	Name of the Instrument / Equipment	H.O. Delhi					Regional Directorates									Total	Cost / Unit\ (in ₹.lakh)	Total Cost (in ₹. Lakh)
		Air Lab	Bio Lab	Inst. Lab	TOL	Water Lab	Bangalore	Bhopal	Chandigarh	Chennai	Kolkata	Lucknow	Pune	Shillong	Vadodara			
73	Portable Flow Meter Digital (Water)							2	2		2					6	15.00	90.00
74	Portable VOC Analyzer							2								2	1.00	2.00
75	Portable Ozone & Oxygen Analyzer							1								1	0.50	0.50
76	Refrigerator (500 L) Double Door														1	1	0.75	0.75
77	Refrigerator (350 L) Double Door								1	1		3				5	0.75	3.75
78	Refrigerator (200 L)												2			2	0.50	1.00
79	Rotatory Vacuum Conc. with Accessories				6							1				7	5.00	35.00
80	Safety Shower			1												1	0.25	0.25
81	Spectrophotometer Portable									1	1					2	6.00	12.00
82	Spectrophotometer (Visible)											2				2	3.00	6.00
83	Spectrophotometer (UV / Vis) Digital							2	1	1	2	2	1		1	10	6.00	60.00
84	Standard Weight Box												1			1	0.30	0.30
85	Temperature & Humidity control chamber (For storage of CRMs)							1	1			2				4	1.50	6.00
86	Temperature & Humidity control chamber with SS eq (For filter paper)									1						1	1.00	1.00
87	Thermometer (Alcohol base)		1							3						4	0.01	0.02
88	TKN Analyser (Automatic) with Digestion Assembly							1	1		1	1	1		1	6	10.00	60.00
89	Total Organic Carbon Analyser						1		1		1				1	4	50.00	200.00
90	Turbidity Meter (digital)						1	1	1	1	1	2	1	1	1	10	0.50	5.00
91	Ultra-Sonic Water bath											2			1	3	0.80	2.40
92	UPS 10 KVA with minimum 01-hour backup)								3			1				4	3.00	12.00
93	UPS 15 KVA														1	1	4.00	4.00
94	UPS 30 KVA		1										1			2	3.50	7.00
95	UPS 60 KVA			1							1					2	9.00	18.00
96	Visi Cooler / Bottle cooler							2	1	1		2	2			8	0.40	3.20

S. No.	Name of the Instrument / Equipment	H.O. Delhi					Regional Directorates									Total	Cost / Unit\ (in ₹.lakh)	Total Cost (in ₹. Lakh)
		Air Lab	Bio Lab	Inst. Lab	TOL	Water Lab	Bangalore	Bhopal	Chandigarh	Chennai	Kolkata	Lucknow	Pune	Shillong	Vadodara			
97	Vortex Mixer											2				2	0.25	0.50
98	Water Bath (SS), 16 holes								1	1		2	1			5	0.60	3.00
99	Water Purification System		1				1		1	1		1	1			6	10.50	63.00
100	Pocket Weather Meter / Tracker						2									2	0.75	1.50
101	Portable XRF Analyser						1									1	16.00	16.00
102	Analytical Pyrolysis Injection Probe for microplastic analysis (compatible with Agilent GC 7890B MS 5977A)						1									1	40.00	40.00
103	Autosampler for HPLC (Agilent 1260 Infinity)										1					1	16.00	16.00
104	Autosampler for GC-MS (Agilent 7890B GC 5977 MSD) 150 Vials Capacity										1					1	13.00	13.00
																	Total	**2327.00**

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Annexure-16

Item No. 03 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 693/2023

In re: News item appearing in Deccan Herald dated 24.10.2023 titled **"Pollution control boards are the weak link"**

Date of hearing: 23.11.2023

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Respondent: Mr. Amit Singh Chauhan, Adv. for CPCB (Through VC)

ORDER

1. This OA is registered in *suo motu* exercise of power on the basis of the News Item titled **"Pollution control boards are the weak link"** appearing in Deccan Herald dated 24.10.2023.

2. The news item states that the State Pollution Control Board (SPCB) as also Central Pollution Control Board (CPCB) have miserably failed to effectively contribute in curbing the pollution. It is stated that the PCBs across India are in a state of a shambles, though in course of time, their mandate has been expanded much beyond the water related issues. Referring to a working paper from the Centre for Policy Research, the report states that the SPCBs do not have the resources and capacity to perform the functions assigned to them under various laws due to inadequate sanctioned strength of personnel, high number of vacancies especially in technical positions, absence of proper training, lack of pollution monitoring and abatement equipment, absence of technically competent leadership, protracted enforcement mechanisms, insufficient funds and ineffectual spending.

3. The news item raises a substantial issue affecting the compliance of environmental laws.

4. Hence, we find it to be a fit case for consideration by registering OA in *suo-motu* exercise of power which is permissible in terms of the judgment of the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897.*

5. On the basis of advance notice, a report on behalf of CPCB dated 22.11.2023 has been filed. A perusal of the said report reveals that the news report about insufficient staffing of the PCBs across the country is correct, as in the report of the CPCB following chart has been reproduced disclosing the status of manpower of SPCBs and PCCs:

"Status of manpower of SPCBs / PCCs

S. No	*State Pollution Control Boards*	*Sanctioned*	*In place*	*Vacant*
1	*Andhra Pradesh*	*289*	*87*	*202*
2	*Arunachal Pradesh*	*29*	*27*	*2*
3	*Assam*	*264*	*176*	*88*
4	*Bihar*	*249*	*47*	*202*
5	*Chhattisgarh*	*328*	*241*	*87*
6	*Goa*	*140*	*127*	*13*
7	*Gujarat*	*831*	*497*	*334*
8	*Haryana*	*450*	*165*	*285*
9	*Himachal Pradesh*	*371*	*221*	*150*
10	*Jharkhand*	*271*	*73*	*198*
11	*Karnataka*	*723*	*290*	*433*
12	*Kerala*	*459*	*224*	*235*
13	*Madhya Pradesh*	*1228*	*459*	*769*
14	*Maharashtra*	*839*	*473*	*366*
15	*Manipur*	*120*	*47*	*73*
16	*Meghalaya*	*152*	*83*	*69*
17	*Mizoram*	*14*	*10*	*4*
18	*Nagaland*	*24*	*19*	*5*
19	*Odisha*	*442*	*179*	*263*
20	*Punjab*	*652*	*324*	*328*
21	*Rajasthan*	*808*	*332*	*476*
22	*Sikkim*	*18*	*12*	*6*
23	*Tamil Nadu*	*987*	*590*	*397*
24	*Telangana*	*230*	*127*	*103*

25	*Tripura*	*28*	*24*	*4*
26	*Uttarakhand*	*130*	*51*	*79*
27	*Uttar Pradesh*	*732*	*407*	*325*
28	*West Bengal*	*309*	*178*	*131*
	Sub - Total (A)	***11117***	***5490***	***5627***

S. No	***Pollution Control Committees***	***Sanctioned***	***In place***	***Vacant***
1	*Andaman and Nicobar Islands*	*9*	*6*	*3*
2	*Chandigarh*	*9*	*7*	*2*
3	*Dadra & Nagar Haveli and Daman & Diu*	*12*	*2*	*10*
4	*Delhi*	*344*	*111*	*233*
5	*Jammu & Kashmir*	*445*	*248*	*197*
6	*Ladakh*	*16*	*3*	*13*
7	*Lakshadweep*	*5*	*1*	*4*
8	*Puducherry*	*12*	*9*	*3*
	Sub - Total (B)	***852***	***387***	***465***
	Grand Total (A+B)	***11,969***	***5,877***	***6,092***

„

6. The above chart clearly reveals that out of 11,969 sanctioned posts, only 5877 are filled and in many States such as, Gujarat, Himachal Pradesh, Maharashtra, Meghalaya, Mizoram, Nagaland, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, West Bengal, etc., the working strength in the SPCBs/PCCs is even less than half of the sanctioned strength.

7. Same is the position in respect of the laboratories of SPCBs and PCCs which is reflected in the report filed by CPCB in the chart form as under:

"Details of Environmental Laboratories of SPCBs/PCCs

S. No	***SPCBs***	***Central***	***Regional***	***Total***	***EPA***	***NABL***
1	*Andhra Pradesh*	*0*	*5*	*5*	*0*	*2*
2	*Arunachal Pradesh*	*1*	*1*	*2*	*0*	*0*
3	*Assam*	*1*	*4*	*5*	*0*	*1*
4	*Bihar*	*1*	*4*	*5*	*0*	*0*
5	*Chhattisgarh*	*1*	*6*	*7*	*0*	*0*
6	*Goa*	*1*	*0*	*1*	*0*	*1*
7	*Gujarat*	*1*	*8*	*9*	*1*	*4*
8	*Haryana*	*1*	*3*	*4*	*0*	*3*
9	*Himachal Pradesh*	*1*	*5*	*6*	*0*	*2*
10	*Jharkhand*	*1*	*4*	*5*	*0*	*0*

11	*Karnataka*	*2*	*7*	*9*	*1*	*0*
12	*Kerala*	*1*	*15*	*16*	*1*	*0*
13	*Madhya Pradesh*	*1*	*10*	*11*	*0*	*6*
14	*Maharashtra*	*1*	*7*	*8*	*5*	*3*
15	*Manipur*	*1*	*0*	*1*	*0*	*0*
16	*Meghalaya*	*1*	*0*	*1*	*0*	*1*
17	*Mizoram*	*1*	*0*	*1*	*0*	*0*
18	*Nagaland*	*1*	*0*	*1*	*0*	*0*
19	*Odisha*	*1*	*14*	*15*	*0*	*1*
20	*Punjab*	*1*	*2*	*3*	*0*	*0*
21	*Rajasthan*	*1*	*12*	*13*	*0*	*2*
22	*Sikkim*	*1*	*0*	*1*	*0*	*0*
23	*Tamil Nadu*	*1*	*17*	*18*	*1*	*2*
24	*Telangana*	*1*	*2*	*3*	*1*	*0*
25	*Tripura*	*1*	*3*	*4*	*0*	*0*
26	*Uttarakhand*	*1*	*4*	*5*	*0*	*0*
27	*Uttar Pradesh*	*1*	*22*	*23*	*1*	*11*
28	*West Bengal*	*1*	*5*	*6*	*1*	*1*
	Sub- Total (A)	***28***	***160***	***188***	***12***	***40***

S. No	***PCCs***	***Central***	***Regional***	***Total***	***EPA***	***NABL***
1	*Andaman & Nicobar Islands*	*0*	*0*	*0*	*0*	*0*
2	*Chandigarh*	*0*	*1*	*1*	*0*	*0*
3	*Dadra & Nagar Haveli and Daman & Diu*	*0*	*0*	*0*	*0*	*0*
4	*Delhi*	*1*	*0*	*1*	*0*	*0*
5	*Jammu & Kashmir*	*1*	*1*	*2*	*0*	*0*
6	*Ladakh*	*0*	*0*	*0*	*0*	*0*
7	*Lakshadweep*	*0*	*0*	*0*	*0*	*0*
8	*Puducherry*	*1*	*1*	*2*	*0*	*1*
	Sub- Total (B)	***3***	***3***	***6***	***0***	***1***
	Grand Total (A+B)	***31***	***163***	***194***	***12***	***41***

„

8. The above chart reflects that in some of the States, the properly accredited laboratories are not there under the Environment Protection Act as Environmental Laboratories and in respect of some PCCs such labs even do not exist.

9. Tribunal in O.A. No. 95/2018 in the matter of *Aryavart Foundation Vs. M/s Vapi Green Enviro Ltd.* dated 05.02.2021 had issued following direction:-

"22. The directions on the subject are summed up as follows:

i. *The Chief Secretaries of all States/UTs, in coordination with their respective Secretary Environment and Chairman State PCB/PCCs, need to forthwith study and address the issues emerging from the CPCB report, prepare and execute their respective action plans which will include filling up all vacant posts by competent persons and procuring the requisite equipment, including commissioning and upgradation of all laboratories and recognition under the EP Act, 1986. The CPCB may assist and monitor all the States for compliance of these directions. The steps in this regard be initiated and completed as far as possible within six months. In view of Section 33 of the NGT Act, 2010, whereunder the NGT Act has overriding powers over other statutes, any restriction placed by any administrative order will not stand in the way of carrying out this direction.*

ii. *We direct the CPCB to prepare a format which may contain qualifications, minimum eligibility criteria, required experience for the key positions and the specifications of equipment. All States/UTs may act accordingly.*

iii. *MoEF&CC and CPCB may design a mechanism for annual performance audit of all the State PCBs/PCCs.*

iv. *It is suggested that if some of the State PCBs find it difficult to select/recruit suitable candidates, a designated Committee of the MoEF&CC and CPCB, in consultation with such State PCBs, may explore possibility of the central selection mechanism so that the talent pool so selected can be made available for posting at appropriate locations, where requirement is found to be otherwise difficult. A plan be prepared for continuous training of the incumbents at regional levels periodically.*

v. *In view of the findings in the report that at some places administrative manpower is more than technical manpower, such situation may be reviewed and remedied by the concerned States.*

vi. *The observations that the work of regulators should be fulltime for the incumbents appointed applies to all key positions, including Chairman/Member Secretary and Regional Officers, Engineers, Scientists of PCBs/PCCs. Such incumbents may not be given any other additional charge. Only exception can be in States where there are no significant environmental issues so as to provide the incumbents fulltime work. Such States may seek exemption in respect of this direction from CPCB, giving relevant information justifying such exemption.*

vii. *CPCB and State PCBs/PCCs, as directed earlier, may utilise EC funds on laboratory set up/upgradation, and on the mentioned areas in the report as well as on approved District Environment Plans. No approval of*

Central/State Government will be necessary in this regard in view of section 33 of the NGT Act, supra.

viii. Consistent with Digital India initiatives, MoEF&CC/MoJS/CPCB may consider setting up and periodically updating National Environment Data Grid (NEDG) linked to the State Environment Data Grids (SEDGs) DEDGs and further linked to available portals like online air/water quality, Sameer and other monitoring stations to facilitate analysis, research and planning on the subject. It may be further interlinked to initiatives like NMCG/Swachh Bharat/Jal Jeevan Mission.

ix. To assess the extent of monetary loss caused to the environment on account of violation of environmental norms by failure to scientifically manage waste, violating Water/Air/EP/Forest (Conservation) Acts and other specified Acts for fixing accountability, for improving efficiency and better enforcement of 'Polluter Pays' principle.

x. To monitor the extent of carrying capacity for particular activities at different locations for planning suitability of siting of particular activities for giving effect to 'Precautionary' and 'Sustainable Development' principles."

10. In view of the above, we deem it proper to implead the following as respondents in this OA:

1) State of Andhra Pradesh through Principal Secretary, Department of Environment and Forest.
2) State of Arunachal Pradesh through Principal Secretary, Department of Environment and Forest.
3) State of Assam through Principal Secretary, Department of Environment and Forest.
4) State of Bihar through Principal Secretary, Department of Environment and Forest.
5) State of Chhattisgarh through Principal Secretary, Department of Environment and Forest.
6) State of Goa through Principal Secretary, Department of Environment and Forest.

7) State of Gujarat through Principal Secretary, Department of Environment and Forest.

8) State of Haryana through Principal Secretary, Department of Environment and Forest.

9) State of Himachal Pradesh through Principal Secretary, Department of Environment and Forest.

10) State of Jharkhand through Principal Secretary, Department of Environment and Forest.

11) State of Karnataka through Principal Secretary, Department of Environment and Forest.

12) State of Kerala through Principal Secretary, Department of Environment and Forest.

13) State of Madhya Pradesh through Principal Secretary, Department of Environment and Forest.

14) State of Maharashtra through Principal Secretary, Department of Environment and Forest.

15) State of Manipur through Principal Secretary, Department of Environment and Forest.

16) State of Meghalaya through Principal Secretary, Department of Environment and Forest.

17) State of Mizoram through Principal Secretary, Department of Environment and Forest.

18) State of Nagaland through Principal Secretary, Department of Environment and Forest.

19) State of Odisha through Principal Secretary, Department of Environment and Forest.

20) State of Punjab through Principal Secretary, Department of Environment and Forest.

21) State of Rajasthan through Principal Secretary, Department of Environment and Forest.

22) State of Sikkim through Principal Secretary, Department of Environment and Forest.

23) State of Tamil Nadu through Principal Secretary, Department of Environment and Forest.

24) State of Telangana through Principal Secretary, Department of Environment and Forest.

25) State of Tripura through Principal Secretary, Department of Environment and Forest.

26) State of Uttarakhand through Principal Secretary, Department of Environment and Forest.

27) State of Uttar Pradesh through Principal Secretary, Department of Environment and Forest.

28) State of West Bengal through Principal Secretary, Department of Environment and Forest.

29) Union Territory of Andaman & Nicobar through Principal Secretary, Department of Environment and Forest.

30) Union Territory of Chandigarh through Principal Secretary, Department of Environment and Forest.

31) Union Territory of Dadra & Nagar Haveli and Daman & Diu through Principal Secretary, Department of Environment and Forest.

32) Union Territory of Delhi through Principal Secretary, Department of Environment and Forest.

33) Union Territory of Jammu & Kashmir through Principal Secretary, Department of Environment and Forest.

34) Union Territory of Ladakh through Principal Secretary, Department of Environment and Forest.

35) Union Territory of Lakshadweep through Principal Secretary, Department of Environment and Forest.

36) Union Territory of Puducherry through Principal Secretary, Department of Environment and Forest.

37) Central Pollution Control Board's Central and Regional Laboratories through Secretary, MoEF&CC.

11. Let notice be issued to the above respondents.

12. The above respondents are directed to file their reports showing the sanctioned strength and working strength of staff in the concerned SPCBs/PCCs, CPCB the ratio of administrative, Ministerial and Technical staff in the SPCBs/PCCs, CPCB and the regulating and monitoring facilities which are available with the SPCBs/PCCs/CPCB. In respect of laboratories, the report will disclose the sanctioned strength and present working strength of staff, the infrastructure which is available in the labs and further need for equipment and infrastructure in those labs and the provisions made in laboratories for enforcement and monitoring of hotspots in critically polluted areas. The report should also include the availability of budget and its sources and expenditure in last two years (2020-2021 and 2021-2022). Let these reports be submitted within a period of 8 weeks by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.

13. List on 02.02.2024.

Prakash Shrivastava, CP

Dr. A. Senthil Vel, EM

November 23, 2023
Original Application No. 693/2023
DV