

**DIVISION –WISE  
FACT SHEETS**

**Central Pollution Control Board  
Delhi – 110032**

**July, 2022**

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## **AIR QUALITY MANAGEMENT DIVISION**

### **A. INITIATIVES TAKEN BY THE CPCB:**

#### **Air Quality Monitoring and Network:**

1. **National Air Quality Index (AQI)** which was launched in 2015 is being disseminated to public through daily air quality bulletins.
2. **Ambient Air Quality Network:** Ambient air quality monitoring network in Delhi NCR presently comprises 143 stations (81 continuous and 62 manual systems).
3. In addition, to supplement conventional ground level monitoring, satellite based PM<sub>2.5</sub> monitoring in collaboration IIT Delhi is being established using aerosol optical depth (AOD).
4. A Central Control Room is operated by Central Pollution Control Board wherein, hour to hour tracking of various information such as PM concentrations, Live Air Quality Data of Monitoring stations, Live Air Quality Index, Air Quality Forecast in Delhi-NCR (Source: SAFAR, IITM, Pune) is available.
5. AQI is monitored along with other parameters and is published on the website in the form of AQI Bulletin after analysis. The links for the same have been made available to CAQM for consideration and deciding on urgent actions for control of pollution in Delhi-NCR.

#### **Measures for control of Vehicular Emissions:**

1. Installation of Vapour Recovery System (VRS) in 3,600 petrol pumps;
2. New policy – VRS to be installed at new petrol pumps;
  - a. selling >100kl per month in million plus cities
  - b. selling >300kl per month in cities with population between 1 lakh to 1 million
3. Directions issued to M/s IOCL, M/s BPCL, M/s HPCL, M/s RIL, M/s Shell, M/s Nayara for installation of VRS as per above mentioned criteria;
4. Guidelines issued for setting up of new petrol pumps including siting criteria;
5. Guidelines prepared for siting criteria for new petrol pumps around water bodies.

#### **Measures for control of Industrial Emission:**

1. MoEF&CC has notified emission standards for industrial boilers and five industrial sectors i.e. lime kiln, foundry, ceramic, glass and reheating furnaces, in the year 2018;
2. Shifting of industries to clean fuel and installation of OCEMS in red category industries in Delhi-NCR is in progress. Out of total of 7,022 industrial units in NCR-Delhi, 3,613 units have shifted to PNG;
3. CPCB has also prepared a report on “Financial Implications of switching over of industries to PNG in NCR-Delhi” and communicated the same to MoEF&CC on 03.10.2019;
4. Shifting of all operational brick kilns to zig-zag technology in Delhi and NCR. 3003 brick kilns have been converted to zig- zag type.

## **MSW, C&D Waste, E- Waste, Biomedical Waste and Hazardous Waste:**

1. CPCB published guidelines on
  - Environmental Management of Construction & Demolition (C & D) Wastes' in March, 2017;
  - 'Guidelines on DUST Mitigation Measures in Handling Construction Material & C&D Wastes' in November 2017;
  - Disposal of legacy waste by bio-mining and bio-remediation to address open burning and landfill fires;
  - **Deployment of Anti-Smog Gun at large construction projects sites** in all construction projects in Delhi-NCR having more than 20,000 sq. meters' built-up area;
2. Extended Producer Responsibility (EPR) for plastic and e-waste management.
3. Ban on use of Single Use Plastic (SUP) w.e.f. July 01, 2022.

### **Technical Interventions:**

1. Advisory have been issued to State Boards to use **dust suppressant** as about 30% reduction in dust concentrations was observed up to 6 hours;
2. **Smog tower** at Anand Vihar, ISBT is operational from October 01, 2021 onwards and its performance will be evaluated by IIT Bombay in association with IIT Delhi. Sensors for particulate matter monitoring have been installed at different locations around the smog tower so as to get an idea of impact/influence of smog tower operation. Monitoring data generated with help of reference/research grade instruments will be used for giving final report on performance of the tower;
3. Research projects are being carried out by CPCB in collaboration with premier institutions like IIT, NEERI, etc. under Environment Protection Charge (EPC) funds. Projects like:
  - Delineation of Delhi NCR air shed
  - Modelling techniques for spatial mapping and forecasting of pollutants
  - Ultrafine particles formation in transport microenvironment
  - Real time source apportionment studywill provide scientific inputs for taking focused action towards improvement in air quality of Delhi NCR.
4. Air quality forecasts are closely monitored to initiate pre-emptive actions for air quality management, including timely alerts to implementing agencies for taking proactive actions.

### **Close Monitoring & Ground level implementation:**

1. Central Pollution Control Board has been continuously deploying dedicated CPCB's teams on the field during the winter season from 2017 onwards to review the action taken by the various agencies. The teams visited the areas through a randomized process.
2. 03.12.2021 onwards 40 officers of CPCB have been deployed as flying squads for Commission on Air Quality Management in National Capital Region and Adjoining areas in various areas of Delhi, NCR regions of Uttar Pradesh, Haryana, and Rajasthan.
3. Daily monitoring of Active Fire Events (AFE) is done during stubble burning period and suitable directions are given to implementing agencies.
4. Team Feedback is being transferred to responsible agencies on real time for redressal of complaints within 24 hours.

### **Regular Stakeholder Consultation, Public & Media Outreach:**

1. Continuous coordination with agencies through review meetings (40) and meetings of Task Force meetings (68).
2. Twitter and Facebook accounts for public outreach and complaint redressal are closely monitored and complaints resolved within timeframe.
3. Dedicated media corner on CPCB website informs latest developments and actions taken. Media briefings are also organized.

### **Regulatory Actions:**

1. Graded Response Action Plan (GRAP) was prepared for implementation under different Air Quality Index (AQI) categories in pursuant to the Hon'ble Supreme Court's Order dated December 02, 2016;
2. Task Force, headed by CPCB and comprising of members from Delhi Pollution Control Committee (DPCC), State Pollution Control Boards (SPCBs) of Haryana, Uttar Pradesh & Rajasthan, India Meteorology Department (IMD) and Health Expert was constituted for recommending measures under GRAP to EPCA. 68 meetings of the Task Force were held until EPCA was dissolved on promulgation of Commission for Air Quality Management in NCR and Adjoining Areas (CAQM);
3. Various directions issued under Section 18(1) (b) of the Air (Prevention and Control of Pollution) Act, 1981 and under Section 5 of the Environment (Protection) Act, 1986 to all the implementing agencies for taking actions to curb the air pollution;
4. Comprehensive Action Plan (CAP) for air pollution control in Delhi & NCR is developed by MOEF&CC which identified timelines and implementing agency for actions identified. CPCB issues directions to all the concerned agencies under Section 3 and 5 of Environmental (Protection) Act, 1986 for implementation of Comprehensive action plan;
5. Commission on Air Quality Management in National Capital Region and Adjoining areas (CAQM), in its meeting held on 10.11.2020, entrusted the task of operationalizing and monitoring the GRAP measures to CPCB till a mechanism is set up by the Commission; Subsequently, CPCB reviewed air quality and meteorological scenario and issued the orders on 11.11.2020, 23.12.2020 and 15.01.2021 to all the concerned states;
6. The Commission for Air Quality Management in NCR and Adjoining Areas (CAQM) constituted a sub-committee for operationalization of GRAP and issuing necessary orders to the effect, under which regular meetings are held, and Orders are issued under GRAP for mitigation of air pollution in Delhi-NCR. As on date (01.07.2022), 13 meetings have been convened and 8 Orders issues;
7. CPCB, on 27.11.2020, under section 18(1)(b) directed SPCBs/PCC of NCR-Delhi to allow only those new industrial units in NCR-Delhi, which are using cleaner fuels such as natural gas (PNG/CNG), liquefied petroleum gas, biogas, propane, butane etc;
8. CPCB had requested MoEF&CC for **revision of GRAP** and further, CPCB has prepared revised action plan which was forwarded to the Commission for Air Quality Management in NCR and Adjoining Areas for taking it further.

### **Other Actions:**

1. CPCB has initiated issuance of a daily report comprising of AQI of Delhi and NCR towns, comparative AQI status, year-wise trends of PM concentration, hotspots for the day, AFE counts, contribution of stubble burning and meteorological forecast. This report is prepared based on the inputs available from various sources such as IMD, SAFAR, State Remote Sensing Centres etc., and disseminated through CPCB website;

2. Dedicated media corner, twitter and Facebook accounts have been created for public outreach and complaint redressal's is closely monitoring the complaints on SAMEER app and social media platforms (Twitter & Facebook). Sameer and social media complaints redressal status are being shared with respective agencies.

## **B. ACTIONS TAKEN BY THE CENTRAL GOVERNMENT**

### **Measures for control of vehicular emissions:**

1. Leapfrogging from BS-IV to BS-VI fuel standards since 1st April, 2018 in NCT of Delhi and from 1<sup>st</sup> April, 2020 for the rest of the country;
2. RFID (radio-frequency identity) system implemented by South Delhi Municipal Corporation (SDMC) for collection of toll and Environment Compensation Charges from commercial vehicles entering Delhi;
3. Ban on all diesel vehicles older than 10 years and all petrol vehicles older than 15 years, in Delhi and NCR. (Hon'ble SC order dated 29.10.2018);
4. Introduction of BS VI compliant vehicles across the country since April, 2020;
5. Department of Heavy Industry is providing subsidy on e-vehicles under Faster Adoption and Manufacture of (Hybrid &) Electric Vehicles in India (FAME -II India) scheme;
6. Sustainable Alternative Towards Affordable Transportation (SATAT) has been launched as an initiative to set up Compressed Bio-Gas (CBG) production plants and make CBG available in the market for use in automotive fuels;
7. Operationalization of Expressways & Highways to divert non-destined traffic

### **Measures for control of industrial emission:**

1. In compliance of the directions of Hon'ble Supreme Court of India, in the matter of Writ Petition (C) No.13029/1985, MoEF&CC has notified emission standards for industrial boilers and five industrial sectors i.e. lime kiln, foundry, ceramic, glass and reheating furnaces, in the year 2018;
2. Notification regarding SO<sub>2</sub> and NO<sub>x</sub> emission standards have been issued for Thermal Power Plants;
3. Closure of Badarpur Thermal Plant;
4. Ban on use of pet coke and furnace oil as fuel in NCR States since October 24, 2017 and ban on use of imported pet coke in the country since July 26, 2018, with exception for use in permitted processes;
5. Promotion of policies such as 5-10% use of biomass pellets with coal for power generation in thermal power plants and 10% ethanol blending in transport fuels by 2022;
6. Development of low carbon strategies across sectors such as phasing out older coal based power plants, compliance of standards, City Gas Distribution (CGD) network, emphasis on improved power reliability in urban areas, etc.

### **Measures for control of emissions from Stubble Burning:**

1. Under Central Sector Scheme on 'Promotion of Agricultural Mechanization for in-situ management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi', agricultural machines and equipment for in-situ crop residue management are promoted with 50% subsidy to the individual farmers and 80% subsidy for establishment of Custom Hiring Centers.
2. Central Government had launched a Scheme 'Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue in the State of Punjab, Haryana, and Uttar Pradesh & NCT of Delhi'.

### **MSW, C&D Waste, E- Waste, Biomedical Waste and Hazardous Waste:**

1. Notifications of 06 Waste Management Rules covering solid waste, plastic waste, e-waste, bio-medical waste, C&D waste and hazardous wastes issued in 2016;
2. Increased capacity of Construction & Demolition (C&D) waste processing units along with notification of C & D Waste Management Rules;
3. Bio-mining of three dumpsites at Bhalswa, Okhla and Ghazipur is being carried out and is under progress.

### **Measures for control of emissions from Firecrackers:**

1. Introduction of green crackers with low emission and noise levels. Green Crackers has 30% potential reduction of PM and gaseous emissions compared to conventional firework.

### **National Clean Air Programme:**

1. PRANA a portal for monitoring implementation of NCAP has been launched.
2. With the prime objective of abating Air Pollution, the Ministry, in 2019 launched a National Clean Air Programme (NCAP) as a National-level Strategy outlining the actions for reducing the levels of air pollution at city and regional scales in India.
3. NCAP targets to achieve 20 to 30 % reduction in Particulate Matter less than 10 and 2.5 microns (PM<sub>10</sub> and PM<sub>2.5</sub>) concentrations by 2024 across the country.
4. Activities in these cities include strengthening of ambient air quality network, source apportionment studies, dust mitigation equipment, composting units, infrastructure for non-motorized transport, shifting to clean energy in unorganized sectors, etc.
5. The NCAP focuses on multi-sectoral sources of pollution including power plants, industries, vehicles, open burning of waste, construction & demolition activities, etc.; inter-Ministerial coordination for convergence of actions and interventions; and partnership with Institutes of National repute and International Agencies as Knowledge Partners
6. Comprehensive Action Plan (CAP) - CAP for air pollution control in Delhi & NCR, with identified timelines for various action points to abate air pollution, has been developed and is being implemented.

### **Other Actions:**

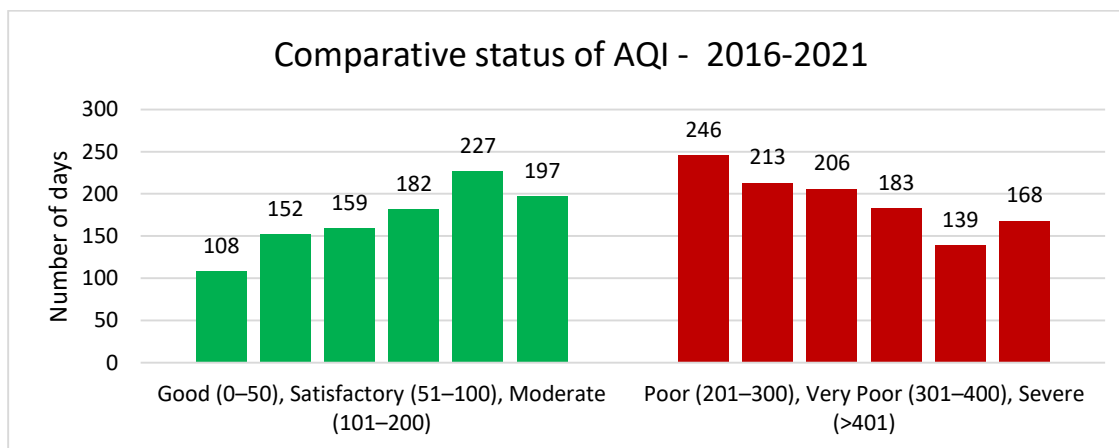
1. Ministry is promoting people's participation and awareness building among citizens for environmental conservation through Green Good Deeds that focus on promotion of cycling, saving water and electricity, growing trees, proper maintenance of vehicles, following of lane discipline and reducing congestion on roads by car-pooling etc.
2. Extension of Ujawala Yojana to ensure shifting to cleaner fuel.
3. Swatcch Bharat Mission and Waste Management initiatives.

### **AIR QUALITY TRENDS:**

#### **Air Quality Index:**

Improvement was noted in the year 2021 in comparison to 2016 with the number of 'Good', 'Satisfactory' and 'Moderate' days increasing to 197 against 108 in 2016, and number of 'Poor', 'Very Poor' and 'Severe' days decreasing to 168 against 246 in 2016.

Category	Year	2016	2017	2018	2019	2020	2021	2016	2017	2018	2019	2020	2021
	No. of Days	354	365	365	365	366	365						
Good (0-50)		0	2	0	2	5	1						
Satisfactory (51-100)		25	45	53	59	95	72	108	152	159	182	227	197
Moderate (101-200)		83	105	106	121	127	124						
Poor (201-300)		120	115	114	103	75	80						
Very Poor (301-400)		101	89	72	56	49	64	246	213	206	183	139	168
Severe (>401)		25	9	20	24	15	24						



Similarly, in Delhi, for the period **01 January, 2022 to 15 July, 2022** in comparison to 2016 (01 January to 15 July), the number of ‘Good’, ‘Satisfactory’ and ‘Moderate’ days have increased to **69 in 2022** against **41 in 2016**, and the number of ‘Poor’, ‘Very Poor’, and ‘Severe’ days have decreased to **127 in 2022** against **150 in 2016**.

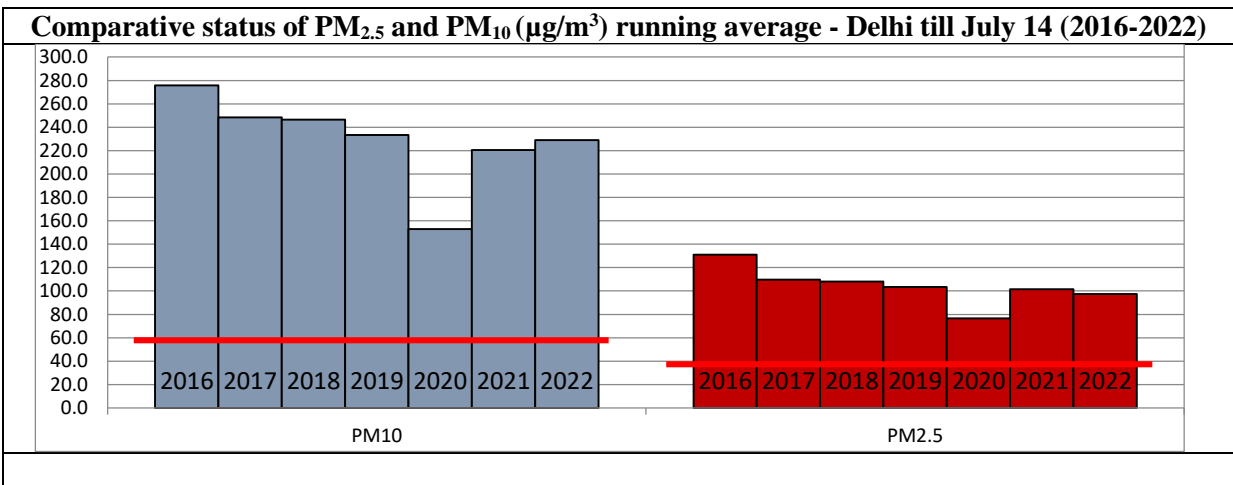
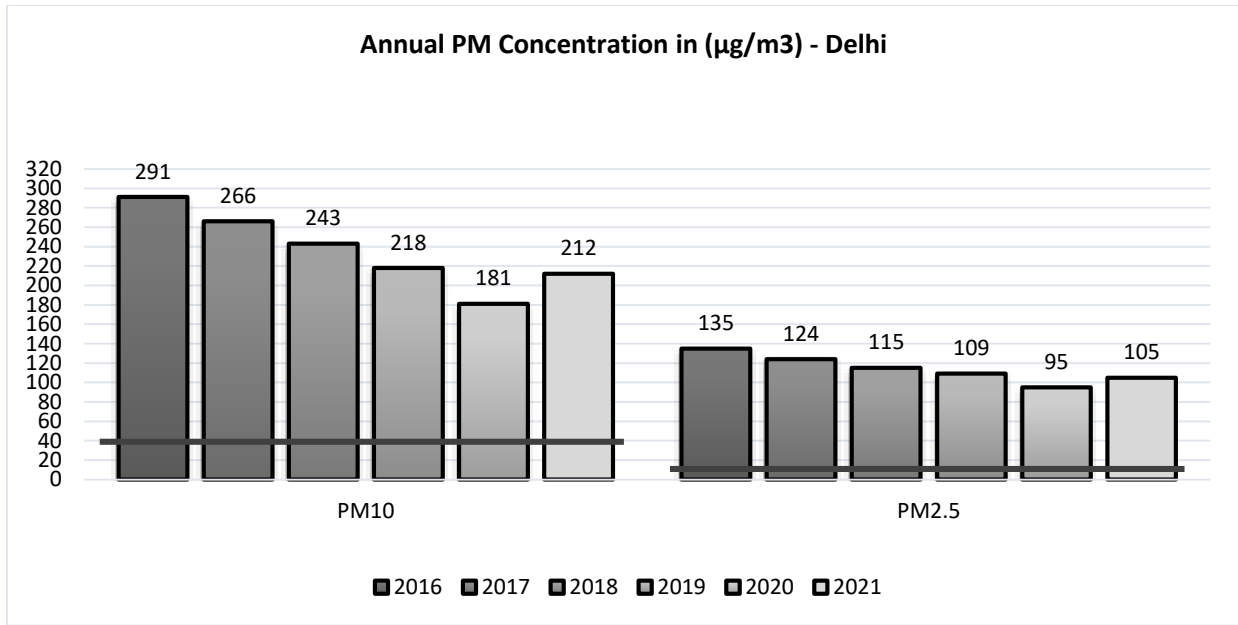
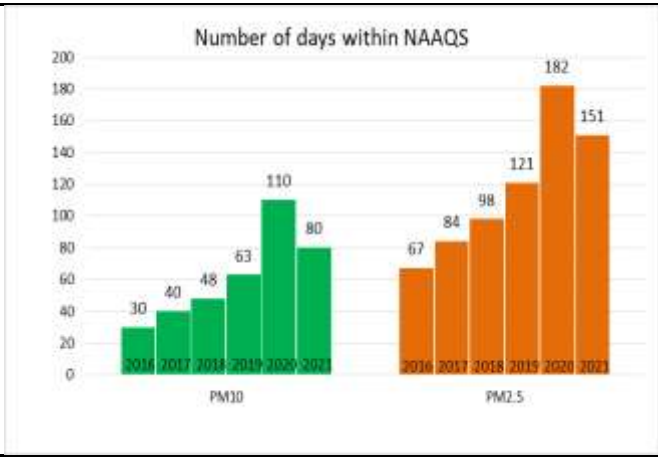
Category	Year	2016	2017	2018	2019	2020	2021	2022	2016	2017	2018	2019	2020	2021	2022
	No. of days	191	196	196	196	197	196	196							
Good (0-50)		0	0	0	0	1	0	0							
Satisfactory (51-100)		1	7	9	5	44	17	18	41	71	80	88	141	97	69
Moderate (101-200)		40	64	71	83	96	80	51							
Poor (201-300)		90	89	82	74	39	60	105							
Very Poor (301-400)		54	36	28	27	15	33	21	150	125	116	108	56	99	127
Severe (>401)		6	0	6	7	2	6	1							

#### Particulate Matter (PM):

CAAQMS data for Delhi reveals that annual concentration of PM has decreased gradually since 2016. Despite increased in number of vehicles, growing population, increased industries activities and adverse meteorology, able to achieve 38% reduction in PM<sub>10</sub> and 30% in PM<sub>2.5</sub> in Year 2020 w.r.t 2016 in Delhi. Similarly, 27% reduction in PM<sub>10</sub> and 22% in PM<sub>2.5</sub> in Year 2021 w.r.t 2016 in Delhi was observed.



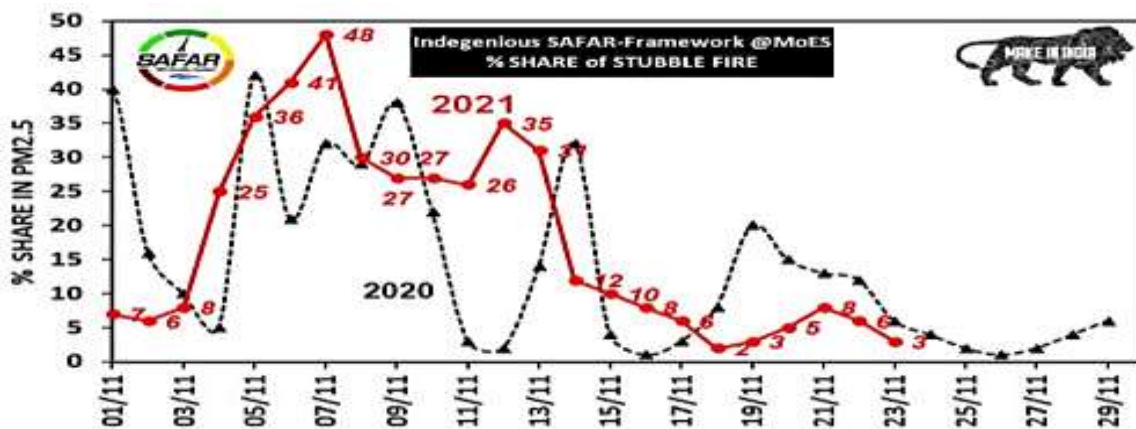
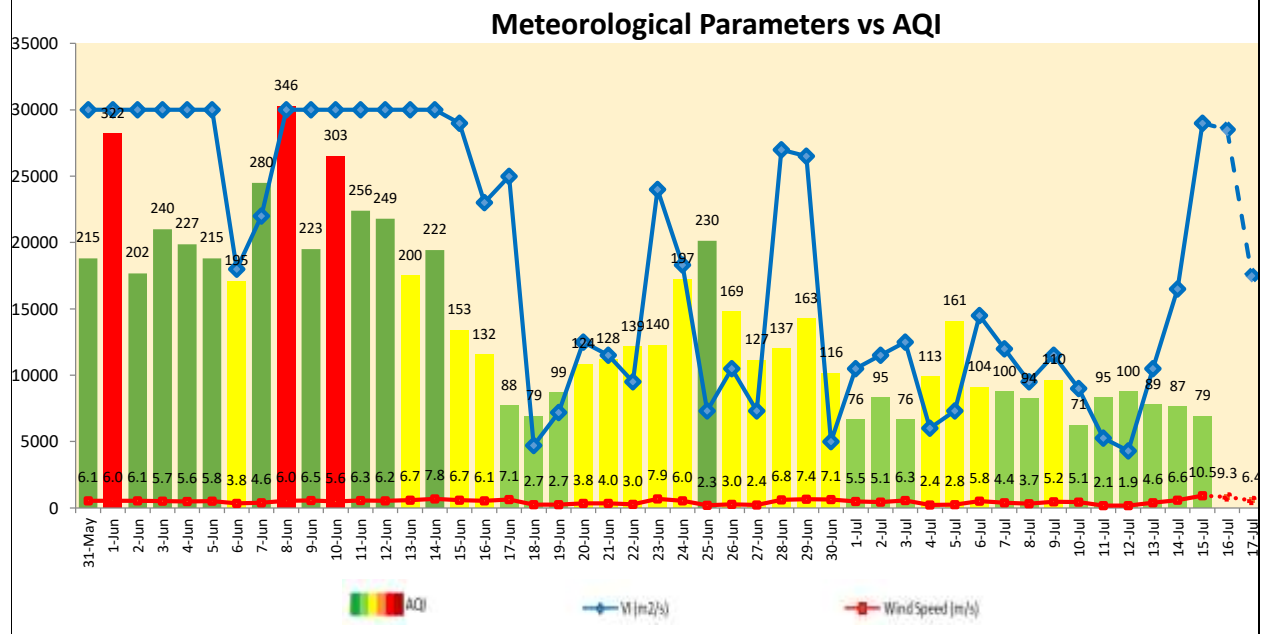
Year	PM <sub>2.5</sub>		PM <sub>10</sub>	
	Concentration (µg/m <sup>3</sup> )	Reduction as compared to 2016 (%)	Concentration (µg/m <sup>3</sup> )	Reduction as compared to 2016 (%)
2016	135	-	291	-
2017	124	8	266	9
2018	115	15	243	16
2019	109	19	218	25
2020	95	30	181	38
2021	105	22	212	27



### Meteorological Forecast (16.07.2022):

The air quality over Delhi-NCT is likely to remain in Satisfactory category on 16.07.2022. The predominant surface wind is likely to be coming from Southeast direction in Delhi with wind speed 08-22 kmph, generally cloudy sky, light rain/thundershowers at a few places tomorrow. Ventilation index is likely to be 28,500 m<sup>2</sup>/s.

Dates	Wind speed (at surface) in km/h		Wind speed (at 900 m) in km/h	Wind Direction	
	As per IMD (at 17:30 hrs.)	As per windy.com (at 16:00 hrs.)	As per windy.com (at 16:00hrs)	As per IMD (at 17:30hrs.)	As per windy.com at 900m
July 16, 2022	08	16	29	SE	E
July 17, 2022	12	09	12	NW	E
July 18, 2022	16	05	07	NW	NE



### Ambient Air Quality Network

State	Districts	City	Total number of stations installed				Total no. of stations (Manual +CAAQ Ms)
			Manual		CAAQMS		
			No. of stations	Total no. of stations	No. of stations	Total no. of stations	
<b>Delhi</b>	Delhi	Delhi	<b>10</b>	<b>10</b>	<b>40</b>	<b>40</b>	<b>50</b>
<b>Haryana</b>	Jhajjhar	Bahadurgarh	1	23	1	22	45
		Beri	1		-		
	Faridabad	Ballabgarh	-		1		
		Faridabad	2		4		
	Bhiwani	Bhiwani	-		1		
	Charkhi Dadri	Charkhi Dadri	3		1		
	Rewari	Dharuhera	-		1		
		Bawal	1		-		
		Rewari	1		-		
	Gurugram	Gurugram	-		4		
		Manesar	-		1		
	Jind	Jind	1		1		
	Karnal	Indri	1		-		
		Karnal	1		1		
	Nuh	Mandikhera	-		1		
	Mohindergarh	Mohindergarh	1		-		
		Narnaul	-		1		
		Nangal chaudhary	1		-		
Mewat	Ujjina	1	-				
Palwal	Prithla	1	-				
	Hodal	1	-				
	Palwal	-	1				
Panipat	Panipat	2	1				
Rohtak	Rohtak	2	1				
Sonipat	Sonipat	2	1				
<b>Rajasthan</b>	Alwar	Alwar	3	9	1	2	11
		Bhiwadi	3		1		
	Bharatpur	Bharatpur	3		-		
<b>Uttar Pradesh</b>	Baghpat	Baghpat	2	20	1	17	37
	Bulandshahr	Khurja	2		1		
	Gautambudh Nagar	Greater Noida	2		2		
		Noida	4		4		
	Ghaziabad	Ghaziabad	4		4		
	Hapur	Hapur	2		1		
	Meerut	Meerut	2		3		
Muzaffarnagar	Muzaffarnagar	2	1				
<b>Total</b>			<b>62</b>		<b>81</b>		<b>143</b>

## Stubble Burning – Status

### Active Fire Events 2020 vs 2021

Date	Punjab		Haryana		Date	Punjab		Haryana		Date	Punjab		Haryana	
	2020	2021	2020	2021		2020	2021	2020	2021		2020	2021	2020	2021
15-Sep	5	0	2	0	11-Oct	377	64	90	51	06-Nov	5382	3942	151	219
16-Sep	0	2	1	0	12-Oct	388	97	69	51	07-Nov	5491	5199	150	182
17-Sep	5	0	3	0	13-Oct	266	132	47	91	08-Nov	3674	4397	115	138
18-Sep	17	9	0	0	14-Oct	605	229	69	98	09-Nov	1718	5079	21	217
19-Sep	30	5	2	0	15-Oct	449	660	106	363	10-Nov	3127	4008	80	184
20-Sep	67	8	6	0	16-Oct	654	429	80	176	11-Nov	2822	4156	93	126
21-Sep	54	0	2	0	17-Oct	1172	14	143	0	12-Nov	1989	3403	83	127
22-Sep	34	0	1	0	18-Oct	938	57	166	1	13-Nov	2441	3742	105	210
23-Sep	49	0	0	0	19-Oct	1080	496	72	55	14-Nov	307	2541	35	195
24-Sep	78	5	0	0	20-Oct	890	788	62	155	15-Nov	32	1761	31	129
25-Sep	184	11	11	0	21-Oct	1392	597	101	131	16-Nov	8	1757	0	269
26-Sep	190	19	5	0	22-Oct	1665	1111	128	140	17-Nov	248	523	9	101
27-Sep	78	37	8	0	23-Oct	1438	620	106	218	18-Nov	670	680	60	111
28-Sep	55	28	6	1	24-Oct	911	0	57	38	19-Nov	454	448	37	132
29-Sep	63	64	9	4	25-Oct	1416	76	155	71	20-Nov	677	283	77	127
30-Sep	116	27	22	2	26-Oct	2126	329	77	175	21-Nov	457	168	65	178
01-Oct	165	13	15	4	27-Oct	2563	279	96	93	22-Nov	46	66	15	91
02-Oct	141	0	30	2	28-Oct	3232	906	139	149	23-Nov	43	91	52	59
03-Oct	110	9	8	6	29-Oct	1624	1353	52	161	24-Nov	9	34	20	37
04-Oct	162	23	29	2	30-Oct	3946	1373	100	148	25-Nov	0	31	1	41
05-Oct	161	18	17	3	31-Oct	3531	2895	108	353	26-Nov	16	21	0	48
06-Oct	171	42	30	0	01-Nov	3835	1796	151	124	27-Nov	124	19	26	28
07-Oct	197	72	32	11	02-Nov	4098	3001	111	203	28-Nov	84	5	57	9
08-Oct	95	108	29	27	03-Nov	2818	2512	93	197	29-Nov	55	8	65	14
09-Oct	121	114	20	39	04-Nov	4584	3032	72	228	30-Nov	21	5	17	18
10-Oct	232	150	33	95	05-Nov	4529	5327	66	331					

#### Details of meetings of Sub-Committee on GRAP:

S. No.	Meeting of the Sub-committee	Date	Order Issued
1.	First	12.10.2021	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAP.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAP.pdf</a>
2.	Second	18.10.2021	
3.	Third	22.10.2021	
4.	Fourth	28.10.2021	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAP1.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAP1.pdf</a>
5.	Fifth	03.11.2021	
6.	Sixth	08.11.2021	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAP2.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAP2.pdf</a>
7.	Seventh	12.11.2021	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAP3.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAP3.pdf</a>
8.	Eighth	13.11.2021	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAP4.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAP4.pdf</a>
9.	Ninth	12.12.2021	
10.	Tenth	30.12.2021	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAP5.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAP5.pdf</a>
11.	Eleventh	21.01.2021	
12.	Twelfth	16.02.2022	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAPs7.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAPs7.pdf</a>
13.	Thirteenth	04.05.2022	<a href="https://cpcb.nic.in/uploads/AQM/New_GRAP8.pdf">https://cpcb.nic.in/uploads/AQM/New_GRAP8.pdf</a>

## AIR QUALITY MANAGEMENT NETWORK DIVISION

### AIR QUALITY NETWORK AT A GLANCE (as on 01.07.2022)

#### 1 Air quality network in the country (NAMP & CAAQMS)

Country network (manual & real-time)	-	1243 stations in 465 cities, 28 states & 7 UTs
Country network - PM <sub>2.5</sub> (manual & real-time)	-	739 stations in 284 cities, 28 states & 5 UTs

#### 2 NAMP (manual network)

Total manual network	-	882 stations in 378 cities, 28 states & 7 UTs
PM <sub>2.5</sub> network (manual)	-	382 stations in 173 cities
Rural network (manual)	-	26 stations in 26 villages, 1 state & 1 UT

#### 3 CAAQMS (Real-time network)

Total real-time network	-	361 stations in 185 cities, 27 states & 4 UTs
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#### 4 Noise Monitoring Network

-	70 Stations in 7 cities, 7 states
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#### 5 Network in Delhi- NCR

No. of stations (NAMP)	-	62 stations
No. of stations (CAAQMS)	-	82 stations
Total stations	-	144 stations

#### 6 Million- Plus cities

No. of stations (NAMP)	-	271 stations in 52 cities
No. of stations (CAAQMS)	-	187 stations in 43 cities

#### 7 Non-attainment & 8 Million plus cities (132 cities)

No. of stations (NAMP)	-	544 stations in 131 cities
No. of stations (CAAQMS)	-	266 stations in 81 cities

#### 8 Parameters monitored

NAMP	-	SO <sub>2</sub> , NO <sub>2</sub> , PM <sub>10</sub> at all locations CO, O <sub>3</sub> , PM <sub>2.5</sub> , NH <sub>3</sub> , Pb, B(a)P, C <sub>6</sub> H <sub>6</sub> selected locations
CAAQMS	-	SO <sub>2</sub> , NO <sub>2</sub> , CO, O <sub>3</sub> , NH <sub>3</sub> , C <sub>6</sub> H <sub>6</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> Meteorological parameters are monitored at selected locations across the country

9 **Cost of stations**

**NAMP**

- Capital Cost
  - 9.30 Lakhs (3 parameters)
  - 15.75 Lakhs (PM<sub>2.5</sub>)
  - [100% for weaker states, 50% for stronger states]
- O&M Cost
  - 7.36 lacs per year (1 station per city)
  - 4.48 lacs per year (2 stations per city)
  - 3.52 lacs per year (3 stations per city)
  - [100% for weaker states, 50% for stronger states]

**CAAQMS**

- Capital Cost
  - 1 crore
- O&M Cost
  - 15 - 20 lacs per year

**Continuous Noise Monitoring System**

- 20 Lakhs (including O&M cost of one year)

## WATER QUALITY MANAGEMENT –I DIVISION

S. No.	Subject	Details												
<b>National Water Quality Monitoring Program (NWMP)</b>														
1	Monitoring Network (Manual)	4484 (as on 31.03.2022), 4111 (2020), 4022 (2019) and 3500 (2018)												
2	Aquatic Bodies monitored (locations)	River: 2108; Lakes: 437, Ponds: 112, Tanks 141, Wells: 1235; Others: 451												
3	Frequency of sampling	Monthly, Quarterly, Half-Yearly & Yearly (High Altitude)												
4	Parameters analysed / monitored	As per Guidelines for Water Quality monitoring, 2017 (GWQM, 2017) issued by MoEF&CC:  Surface Water : 72 Parameters Ground Water : 68 Parameters  (General, Microbial, Nutrients, Major Ions, Other inorganics, Demand parameters, Micro pollutants, site specific parameters)												
5	Participating SPCBs & Laboratories	SPCBs & PCCs: 35 (except A& N) Laboratories: 165												
6	Online data submission by the States & UTs	Water Quality Data Entry System (EWQDES)												
7	Outcome of Water Quality Monitoring	<ul style="list-style-type: none"> <li>• Identification and Action Plan for Rejuvenation of Polluted River Stretches</li> <li>• Filing replies in Hon'ble Courts (Supreme Court, High Courts, NGT)</li> <li>• Data dissemination in parliamentary matters, VIP references, RTIs, Students &amp; researchers and General public.</li> </ul>												
8	No. of Polluted River Stretches Identified, no. of Clean rivers, based on the monitoring carried out by CPCB	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 10%;">year</th> <th style="width: 25%;">No of polluted Stretches w.r.t BOD &gt; 3 mg/L</th> <th style="width: 25%;">No of polluted rivers w.r.t BOD &gt;3 mg/L</th> <th style="width: 20%;">No of Clean Rivers w.r.t BOD&lt;3 mg/L</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>302</td> <td>275</td> <td>170</td> </tr> <tr> <td>2018</td> <td>351</td> <td>323</td> <td>198</td> </tr> </tbody> </table>	year	No of polluted Stretches w.r.t BOD > 3 mg/L	No of polluted rivers w.r.t BOD >3 mg/L	No of Clean Rivers w.r.t BOD<3 mg/L	2015	302	275	170	2018	351	323	198
year	No of polluted Stretches w.r.t BOD > 3 mg/L	No of polluted rivers w.r.t BOD >3 mg/L	No of Clean Rivers w.r.t BOD<3 mg/L											
2015	302	275	170											
2018	351	323	198											
9	Polluted River Stretches Identified in States/UTs	351 Polluted River Stretches in 28 States and 03 UTs												
10	Action plan for Rejuvenation of Polluted River Stretches approved by CPCB	Action Plans Approved (P-I and P-II): 61 out of 61 (18 States and 02 UTs) Action Plans approved (P-III and P-IV):115 out of 115 (24 states & 1 UT)												

11 Display of Data on Website

CPCB website: <http://cpcb.nic.in/nwmp-data>  
River Ganga at Inter-State Boundary Locations  
[http://cpcb.nic.in/NGTMC/ganga\\_Interstate.pdf](http://cpcb.nic.in/NGTMC/ganga_Interstate.pdf)  
River Yamuna Data <https://cpcb.nic.in/yamuna-monitoring-committee/>

36 RTWQM data:- <http://122.166.234.42:8992/cr/>  
Assessment report on Pre and Post Idol immersion by SPCBs/PCCs  
<https://cpcb.nic.in/wqm/statewise-assessment-reports-preandpost-idol-immersion.pdf>

**Active Court Matters**

12 Supreme Court

- Assessment of Drinking Water Quality in NCT Delhi Writ Petition, (Civil) No 13029/1985
- River Yamuna WP (Civil) No 8 / 2021

NGT Matters

- Rejuvenation of 351 Identified Polluted River Stretches
- Restoration of Stagnant Water Bodies
- Coastal /Marine Pollution and its Control



## WATER QUALITY MANAGEMENT –II DIVISION

Ganga river (2525 km) from its origin (Gomukh in Uttarakhand) to Diamond Harbour in West Bengal, is divided into the following segments, for control of pollution and restoration of water quality:

- 1) **Ganga Phase-I Segment-A:** Gomukh to Haridwar.
- 2) **Ganga Phase-I-Segment-B:** Haridwar to Kanpur
- 3) **Ganga Phase-II:** Kanpur Border to Uttar Pradesh Border.
- 4) **Ganga Phase-III:** Uttar Pradesh Border to till Jharkhand Border
- 5) **Ganga Phase-IV:** Jharkhand Border to Bay of Bengal (West Bengal).

Factual Data on river Ganga Project is as follows:

S. No.	Specifications	
1	<b>States</b>	07 (Uttarakhand, Uttar Pradesh, Haryana, Delhi, Jharkhand, Bihar & West Bengal)
2	<b>Towns</b>	97
3	<b>Grossly Polluting Industries</b>	2706 (as per inventory in October, 2021) (1051 in river Ganga main stem and 1655 in river Yamuna basin)
4	<b>Real time monitoring stations</b>	76 Parameters monitored: BOD, DO, pH, Conductivity, Temperature Ammonia, Chloride, COD, Turbidity, Nitrate TOC and Water Level.
5	<b>Manual monitoring stations</b>	97 Parameters monitored: BOD, DO, pH, Conductivity, Temperature Ammonia, Chloride, COD, Turbidity, Nitrate TOC, TC, FC, Total alkalinity, hardness, calcium, heavy metals, TDS, Fluoride, Boron, Phosphate, TSS, Faecal <i>Streptococci</i> etc. Breakup of monitoring locations- Uttarakhand- 16, Uttar Pradesh-30, Bihar-33, Jharkhand- 4 and West Bengal-14
6	<b>CETP</b>	8
7	<b>STP</b>	135 Parameters monitored: BOD, DO, pH, Ammonia, Residual chlorine, COD, Color, Nitrate, TC, FC, heavy metals, TDS, Phosphate, TSS, Total Nitrogen, Total Phosphorous etc.
8	<b>Drains</b>	679 Parameters Monitored: BOD, DO, pH, Ammonia, Chloride, COD, Color, Nitrate, TC, FC, heavy metals, pesticides, TDS, Flow etc.
9	<b>Industrial Clusters</b>	Haridwar, Laksar, Meerut, Pilkhuwa, Farrukhabad, Kanpur, Unnao, Rooma, Banthar, Bhadohi, Patna, Bhagalpur, Muzaffarpur, Haldia and East Midnapur

- 10 **On-Line Continuous Effluent Monitoring System (OCEMS)** 959 GPIs (out of 1051 GPIs in Ganga river)  
293 GPIs (out of 1655 GPIs in river Yamuna basin)

**Grossly Polluting Industries (GPIs)** as per inventory updated in October 2021 are **2706**. Sector and state wise details are provided in Table 1.

**Table 1: Inventory of GPIs 2021-22**

Sector	Bihar	Delhi	Haryana	Jharkhand	Uttar Pradesh	Uttarakhand	West Bengal	Total
CETP	0	13	19	0	7	3	0	42
Chemical	0	0	5	1	11	2	2	21
Distillery	10	0	12	1	69	4	3	99
Fertilizer	0	0	1	0	6	0	1	8
Food & Beverages	23	3	43	1	78	6	8	162
Oil & Refinery	1	0	1	0	1	0	1	4
Others	4	154	288	2	48	7	10	512
Pesticide	0	0	0	0	1	1	1	3
Petrochemical	0	0	1	0	1	0	3	5
Pharmaceutical	0	0	7	0	3	1	2	13
Pulp & Paper	6	0	5	0	96	36	19	162
Slaughter House	5	1	0	0	48	0	0	55
Sugar	11	0	8	0	119	7	2	147
Tannery	2	1	15	0	386	0	0	404
Textile	4	38	519	0	503	2	3	1069
<b>Total</b>	<b>66</b>	<b>210</b>	<b>924</b>	<b>5</b>	<b>1377</b>	<b>69</b>	<b>55</b>	<b>2706</b>

*Newly added: 450 (river Ganga: 40; river Yamuna: 410) Deleted: 484 (river Ganga: 69; river Yamuna: 415)*

**Inspections of 2706 GPIs and actions by SPCBs are under process.**

**Compliance Status of 2740 GPI's inspected during 2020-21:**

- 2740 GPIs (based on inventory 2020)
- Inspected by technical institutions: 18
- Period: October 2020 – March 2021

**River Ganga main stem (1080 GPIs)**

- Complying: 874
- Non-Complying: 39
  - ✓ Show cause notices: 09
  - ✓ Closure directions: 30
- Closed: 167
  - ✓ Permanently Closed: 44
  - ✓ Temporary Closed: 123

**River Yamuna Basin (1660 GPIs)**

- Complying: 1250
- Non-Complying: 89
  - ✓ Show cause notices: 13
  - ✓ Closure directions: 76
- Closed: 321
  - ✓ Permanently Closed: 193
  - ✓ Temporary Closed: 128

<b>Annual Inspection of GPIs by third party technical institute</b>	Period: December 2021-April 2022 Institutes: 24 Commenced w.e.f. December 10, 2021 Inspections Completed: April 2022 Action completed: under progress
<b>STPs</b>	Number of STPs: 135 (in 2021) Operational: 103 Non- Operational: 32 Complying STP:17 Non-Complying:86
<b>CETPs</b>	Monitoring done: 8 (in 2021) Complying: 01 Non /Complying: 07
<b>Drains</b>	Number of drains monitored during post-monsoon 2021: 679 Ganga: 548 Ramganga: 25 Kali East: 26 Pandua: 06 Uttarakhand (Banganga, Suswa-Song, Dhela, Pilakhar, Gaula, Kailash, Kosi): 20 Uttar Pradesh (Yamuna, Moorva, Jargo, Ozla and Varuna): 54
<b>Important Court Cases</b>	National Green Tribunal: 200/2014; M.C. Mehta Vs. Union of India

**URBAN POLLUTION CONTROL –I DIVISION**

S. No	Activity/Sector	Relevant Statistics			Important Project/ Studies	Court Cases	Issues requiring attention
		No. of industries	Standard notification date	Key Issues			
<b>Activity related to Construction and Demolition Waste Management</b>							
1.	Implementation of “The Construction and Demolition Waste Management Rules, 2016” and Guidelines	-	Vide GSR 317(E) dated 29.03.2016	<ul style="list-style-type: none"> <li>• Implementation of the Rules.</li> <li>• Preparation of Annual Report and communication to MoEF&amp;CC.</li> </ul>	<ul style="list-style-type: none"> <li>• “The Construction and Demolition Waste Management Rules, 2016” have been reviewed &amp; proposal has been finalized and communicated to MoEF&amp;CC.</li> <li>• Annual Report for the year 2019-20 is under submission for review.</li> <li>• Worked in the matter of Functional Audit of SEIAA of two States.</li> </ul>		
2.	Ecomark label scheme for C & D Waste products				<ul style="list-style-type: none"> <li>• Work on Eco-marking/labeling of C&amp;D waste recycled / processed products is under progress.</li> </ul>		
<b>Activity related to Noise and Emission</b>							
3.	Implementation of “The Noise Pollution (Regulation And Control) RULES, 2000”		vide S.O. 123(E), dated 14.2.2000	<ul style="list-style-type: none"> <li>• Implementation of the Rules.</li> <li>• Amending the rules for due implementation.</li> </ul>			
4.	Emission and Noise Norms of Petrol driven Generator sets		Vide GSR 535 (E) 07.08.2013	<ul style="list-style-type: none"> <li>• CPCB is vigilant on its implementation</li> </ul>			
5.	Emission Norms of Genset Diesel engine		Vide GSR 771 (E) dated 11.12.2013	<ul style="list-style-type: none"> <li>• CPCB is vigilant on its implementation</li> </ul>			
6.	Noise Norms of Genset Diesel engine		Vide GSR 371 (E) dated 17.05.2002	<ul style="list-style-type: none"> <li>• CPCB is vigilant on its implementation</li> </ul>			
7.	Emission and Noise Norms of dedicated LPG/CNG, Petrol/Biofuel (LPG), Diesel/Duel fuel (Diesel+LPG/CNG) Generator Sets		Vide GSR 281 (E) dated 07.03.2016	<ul style="list-style-type: none"> <li>• CPCB is vigilant on its implementation</li> </ul>			

8.	Emission Norms of Generator sets across all existing and coming alternative fuels		To be notified	<ul style="list-style-type: none"> <li>Draft has been published. Final Notification to be notified.</li> </ul>
9.	Development of emission Norms for Loco Engines		To be notified	<ul style="list-style-type: none"> <li>Under deliberation with stakeholders</li> </ul>
10.	Development of SOP for proposed emission Norms for Loco Engines			<ul style="list-style-type: none"> <li>To be developed. Under preparation in consultation with testing agencies.</li> </ul>
11.	Development of SOP for RECD equipment for obtaining Type Approval			<ul style="list-style-type: none"> <li>SOP Developed. It is under implementation in collaboration with testing agencies.</li> </ul>
12.	Execution of Pilot Project on Retrofitment of Diesel Generator sets upto 1000 KVA to reduce PM emission in field			<ul style="list-style-type: none"> <li>Project awarded to Certification Agency ICAT, Manesar.</li> <li>Two round presentations have been made.</li> <li>Further follow up on the progress continues.</li> </ul>
<b>Activities related to Sewage Management</b>				
13.	STP Standards			<ul style="list-style-type: none"> <li>Inventorization of STPs in India</li> <li>Assessment of Sewage Generation and Treatment Capacity of India</li> <li>Performance Evaluation of STPs in India</li> <li>Study on Faecal Sludge Management to be initiated.</li> </ul>
14.	Performance Evaluation of sewage treatment plants.			
<b>Noise Monitoring Network</b>				
15.	Operation and Maintenance of Existing 70 Noise Monitoring Stations.			<ul style="list-style-type: none"> <li>Noise management in India.</li> <li>Mass awareness among general public through media, school, colleges etc.</li> <li>Source Bases Standards for Loudspeakers.</li> <li>Awareness Programme for Noise Pollution Control.</li> <li>Noise Mapping, Hot spot identification and mitigation plan for Noise Pollution Control in Delhi.</li> </ul>
<b>Activities related to Light Pollution</b>				
16.	Study on EMR (Light Pollution)			Study on EMR (Light Pollution) to be initiated.

## WASTE MANAGEMENT-I DIVISION

### Biomedical Waste Management:

- Government of India notified Biomedical Waste Management Rules, 2016 under Environment (Protection) Act, 1986.
- The total quantum of biomedical waste generation for the year 2020-2021 is 774 tons/day, out of which 656 tons/day is non-COVID biomedical waste and 118 tons/day is COVID biomedical waste.
- There are 3,52,014 no. of Health Care Facilities (HCFs), out of which 1,13,186 no. of HCFs are bedded and 2,37,938 no. of HCFs are non-bedded.
- 2,44,282 no. of HCF utilises facilities of CBWTFs for collection, treatment & disposal of biomedical waste and 17,206 No. of HCFs are having their own captive bio-medical waste treatment and disposal facilities.
- There are 208 Common Biomedical Waste Treatment Facilities are in operation and 33 are under construction.

Bio-medical waste management scenario in the Country is given below:

• No. of HCFs	: 35,20,14
• No. of bedded HCFs	: 1,13,186
• No. of non-bedded HCFs	: 2,37,938
• No. of beds	: 2,5,44,116
• No. of CBWTFs	: 208*+ 33**
• No. of HCFs granted authorization	: 1,60,736
• No. of HCFs having Captive Treatment Facilities	: 17,206
• No. of Captive Incinerators Operated by HCFs	: 125
• Quantity of bio-medical waste generated in Tonnes/day	: 774
• Quantity of bio-medical waste treated in Tonnes/day	: 708
• No. of HCFs violated BMW Rules	: 22,261
• No. of Show-cause notices/Directions issued to defaulter HCFs	: 13,389

*Note: (i) \* - CBWTFs in operation (ii) \*\* - CBWTFs under installation*

- ✓ Based on the random inspection conducted by CPCB for verification of compliance to BMW Rules, 2016, CPCB issued directions under section 5 of Environment (Protection) Act, 1986 against 76 no. of CBWTFs and HCFs.
- ✓ For gross violations, CPCB also imposed Environment Compensation Charges against 57 nos. of CBWTFs and HCFs.

### COVID BMW Management:

- ✓ CPCB issued separate guidelines with title "Handling, treatment and disposal of waste generated during treatment, diagnosis and quarantine of COVID-19 Patient". These guidelines were issued in beginning of COVID Pandemic in March, 2020 and the same has been revised five times till date looking at the situation requirement.
- ✓ In May, 2020 CPCB developed a tracking application namely 'COVID19BWM', which is available on mobile as well as on web which helps in tracking of COVID-19 biomedical waste as and when generated by waste generator.

- ✓ Since May 2020, 14,089 nos. of COVID biomedical waste generators have been registered on the above tracking application and total COVID biomedical waste generation as on date is about 57,367 tons.
- ✓ CPCB constituted High Level Task Team (HLTT) under the Chairmanship of Chairman, CPCB with members from Ministry of Environment Forest & Climate Change, Ministry of Health & Family Welfare, Ministry of Jal Shakti, Ministry of Defence and Ministry of Housing & Urban Affairs. Meetings of HLTT were held 6 wherein Chairman, CPCB discussed and reviewed the status of COVID waste management and gaps were communicated to States.
- ✓ For Public awareness, CPCB has created a separate page on website wherein information like technical guidelines, Dos and Don'ts, Posters, videos etc. have been placed.

## ASSESSMENT AND REMEDIATION OF CONTAMINATED SITES

### Background

There are several contaminated dumpsites in various parts of country where hazardous and other wastes dumped historically, which resulted in contamination of soil, groundwater and surface water thereby posing health and environmental risks. Most of the contaminated sites created when industrial hazardous wastes disposed by occupiers in unscientific manner or in violation of the rules prescribed. Some of the sites were developed historically when there was no regulation on management of hazardous wastes. In some instances, polluters, responsible for contamination, have been either closed down their operations or the cost of remediation is beyond their capacity, thus the sites remains a threat to the environment.

These sites need to be investigated in detail and thereafter remediation activity should be carried out to reduce human health risks and environmental impacts by adopting appropriate remediation technologies. Remediation of contaminated sites involves cleaning of contaminated media i.e. soils, groundwater, surface water and sediments by adopting various in-situ or ex-situ clean-up technologies up to a predefined remediation target levels for each identified constituent.

### Action Taken

To assess the probable contaminated sites, (i) Guidance document on “*Assessment and Remediation of Contaminated Sites in India*” and (ii) “*Reference document for identification, inspection and assessment of contaminated sites*” have been prepared and issued to SPCBs/PCCs.

As on April, 2022, the list of **280 probable contaminated sites** have been revised to **276 sites** based on the preliminary/detailed investigation of the sites carried out by CPCB, SPCBs/PCC. Summary of the State wise site distribution is given below at **Table-I**.

(i) Total No. of Sites covering in 21 states	: 276
(ii) No. of Probable contaminated sites (Assessment needed)	: 157
(iii) No. of Contaminated sites (Confirmed)	: 119

Accordingly, the status of sites has been compiled based on following criteria:

- Probable sites need to be investigated by site inspection and preliminary sampling,

- Confirmed sites where hazardous waste is till lying,
- Confirmed sites for which DPRs have been prepared by CPCB/MoEF&CC,
- Sites where remediation works are initiated or on-going.

A clear picture on contaminated sites will be known only when SPCBs/PCC gets the sites investigated by responsible parties or investigate the sites by themselves

### Current Status

Out of **119** contaminated sites identified so far, **28 sites** have been investigated in detail and identified for remediation works. Among these 28 sites:

- Detailed Project Reports (DPRs) have been prepared for **16 sites** under National Clean Energy Fund (NCEF) Project of MoEF&CC, GoI. Out of 16 sites, **3 sites remediation works is underway.**
- Preparation of DPR for **3 sites in Madhya Pradesh** is underway.
- DPR prepared for **1 site** (Telangana) under the World Bank assisted Capacity Building for Industrial Pollution Management Project (CBIPMP) of MoEF&CC, GoI and Telanagana SPCB;
- Total Remediation works underway at **11 sites**;
- For remaining **89 contaminated sites**, detailed investigation is underway by SPCBs/PCCs.

For the **remaining 157 probable contaminated sites**, preliminary investigation is underway by SPCBs/PCCs. Therefore, the actual scenario of contaminated sites will remain unknown till completion of the task.

Regular Performance evaluation and monitoring by CPCB of **11 on-going remediation works** being implemented by responsible parties for contamination.

### Summary of contaminated sites

S. No.	States/UTs	Status as April, 2022		HW lying at site	Preliminary Assessment	Identified site for remediation	
		Probable Sites (PCS)	Contaminated Sites (CS)			Detailed Investigation and DPRs <sup>1</sup>	Remediation Works <sup>2</sup>
1	Andhra Pradesh	2	0		2		
2	Assam	2	1				
3	Chhattisgarh	3	2				
4	Delhi (NCR)	9	14				
5	Goa	2	1				
6	Gujarat	15	9				2

<sup>1</sup>DPRs completed under National Clean Energy Fund (NCEF) Project of MoEF&CC, GoI & CPCB (Project Implementing Agency)

<sup>2</sup> Remediation works underway



S. No.	States/UTs	Status as April, 2022		HW lying at site	Preliminary Assessment	Identified site for remediation	
		Probable Sites (PCS)	Contaminated Sites (CS)			Detailed Investigation and DPRs <sup>1</sup>	Remediation Works <sup>2</sup>
7	Haryana	10	4				
8	Himachal Pradesh	0	1				
9	Jharkhand	12	2				1
10	Karnataka	19	6		25		
11	Kerala	5	4	1		3	
12	Madhya Pradesh	13	7	1		3 <sup>3</sup>	
13	Maharashtra	0	6	2	5		1
14	Odisha	9	23	4(3 <sup>4</sup> )		1	3 <sup>5</sup>
15	Punjab	3	6				
16	Rajasthan	8	2				
17	Tamil Nadu	5	6	1		1	2
18	Telangana	7	2			1 <sup>5</sup>	
19	Uttar Pradesh	22	21	1		7	2
20	Uttarakhand	5	1				
21	West Bengal	6	1			1	
<b>Total</b>		<b>157</b>	<b>119</b>	<b>10</b>	<b>32</b>	<b>17</b>	<b>11</b>

<sup>3</sup> DPR preparation is underway

<sup>4</sup> Remediation work initiated, however shifting of HW in a SLF is about to execute

<sup>5</sup> DPR completed under the World Bank assisted Capacity Building for Industrial Pollution Management Project (CBIPMP) of MoEF&CC, GoI

## WASTE MANAGEMENT-II DIVISION

S. No	Subject	Details (2020-21)
1	No of Hazardous Waste Generating Units	76,235
2	Total Quantity of hazardous waste generated (including previous year stored and imported quantity)	10.92 Million Metric Tonne (MMT)
3.	Quantity of HW Recycled (HW listed under Schedule IV under the HOWM Rules, 2016)	1.44 MMT
4.	Quantity of HW Utilized (co-processing, captive utilization and non-captive utilization under Rule 9 of HOWM Rules, 2016)	4.18 MMT
5.	Quantity of HW disposed (captive/common Incinerator and Secured Landfill)	2.89 MMT
6.	Quantity of HW stored at occupier's premises (at the end of financial year)	2.10 MMT
7.	Number of authorized recyclers for recycling of commonly recyclable hazardous wastes (listed under Schedule-IV of HOWM, Rules, 2016)	2162
8.	Number of Cement Plant Co-processing HW	96
9.	Number of HW utilisers (under Rule 9 of HOWM Rules, 2016)	736
10.	No of Common Hazardous Waste Treatment, Storage and Disposal Facilities (TSDFs)	45 Common TSDFs in 18 States/UT (18 are integrated having both secured landfills and incinerator, 16 are exclusive secured landfills and 11 are standalone incinerators)
11.	No of Captive Hazardous Waste Treatment, Storage and Disposal Facilities (TSDFs)	136 Captive TSDFs in 18 States/UT (13 integrated TSDFs having both Secured Landfills and Incinerators; 79 captive incinerators, and, 44 captive Secured Landfills)
12.	Numbers of Standard Operating Procedures prepared for utilization of various categories of hazardous waste	80

## WASTE MANAGEMENT-III DIVISION

INFORMATION	DESCRIPTION
<b>Rules</b>	<ul style="list-style-type: none"> <li>• E-Waste (Management) Rules, 2016</li> <li>• E-Waste (Management) Amendment Rules, 2018</li> </ul>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Extended Responsibility to producers for collection and channelization of E-waste through EPR Authorization (EPRA).</li> <li>• Promote and encourage establishment of an efficient e-waste collection mechanism</li> <li>• Promote Environmentally Safe &amp; Sound Recycling by channelizing E-waste to authorized dismantlers and recyclers of e-waste</li> <li>• Minimize illegal recycling / recovery operations</li> <li>• Reduce Hazardous substances in Electrical and Electronic components</li> </ul>
<b>Principle of E-Waste Management</b>	Extended Producer Responsibility (EPR).
<b>EPR Authorisation (EPRA)</b>	Grant of Extended Producer Responsibility Authorisation (EPRA) by CPCB to producer for managing their EPR. EPRA includes EPR Plan, annual collection targets and details of dismantlers / recyclers and PRO if included in the Plan.
<b>Extended Producer Responsibility (EPR)</b>	It is the responsibility of a producer for his electrical and electronic equipment (EEE) at post consumer stage for their collection, storage, transportation, dismantling and recycling. EPR also includes responsibility of creating awareness and making budgetary provisions for managing of EPR.
<b>Number EPR Authorization granted</b>	2061 (As on 15-07-2022)
<b>Registered PROs</b>	74 (As on 15-07-2022)
<b>E-Waste Generation</b>	10,14,961.213 tonne (2019-20) <i>Note: based on the sales data of 1380 producers of 21 types of notified electrical and electronic equipment (EEE). E-Waste generation data for 2020-21 and 2021-22 is under compilations</i>
<b>E-Waste collected under EPR during Fy2020-21</b>	2,44,291.5 MT (Based on annual returns of 601 Producers)
<b>Quantity of E-Waste collected and processed (as reported by 31 SPCBs/PCCs)</b>	3,54,291.22 tonnes in the FY 2020-21
<b>Number of Authorized Dismantler / Recycler under e-waste rules</b>	472 Processing Capacity -1426685.22 tonnes.

**INFORMATION****DESCRIPTION****Review Portal on Enforcement of E-Waste Management Rules in Country**

As per the directions of Hon'ble NGT a portal has been developed by CPCB for receiving quarterly progress reports from SPCBs/PCCS on implementation of action plan in their respective States/UTs

**On-line application and e-waste Mass balance System**

An online e-waste management system is under development by C-DAC with features like material balance during flow of e-waste, live vehicle tracking system, video monitoring system, etc. It will help in effective implementation of e-waste (Management) Rules, 2016

**Guidelines**

- Implementation Guidelines for E-Waste (Management) Rules, 2016
- Guidelines for Producer Responsibility Organisation (PRO)-Under E-Waste (Management) Amendment Rules, 2018
- Guidelines on imposition of EC against non-compliance/violations under E-Waste Rules

**Guidance to the applicant for EPR Authorization**

Guidance document namely 'Revised SOPs for Grant of EPR Authorisation' has been prepared and placed on website of CPCB which provide guidance on how to fill up the application and what will be checked in the application. This document helps in maintaining uniformity in evaluation of the applications seeking EPR Authorization (Available on CPCB website)

**Monitoring Mechanism for compliance of E-waste Rules, 2016**

- Annual and Quarterly returns from EPR authorized Producers.
- Annual return i.e. Form 3 submitted by authorized Manufacturers, Dismantlers, Recyclers, Refurbishers, Bulk Consumers to their concerned SPCBs/PCCs
- Annual Report submitted by SPCBs/PCCs to CPCB.
- Random verifications of Dismantler/ recyclers to ensure compliance of CPCB guidelines
- Random inspection EPRA producers (Collection centres) to ensure compliance of EPR conditions.
- CPCB through SPCBs/PCCs has established a system of continuous verification of the producer's system of collection and verification of their compliance including collection target. The SPCBs/PCCSs also has to continuously verify the dismantlers and recyclers of e-waste. SPCBs/ PCCs are required to submit their quarterly progress report in the system.
- Annual Review Report on E-Waste management by CPCB to MoEF&CC.

**Information on website**

Clarification and notices related to EPR Authorisation, Query related to E-Waste Rules. Technical Guidelines, Salient features of E-Waste Rules, List of registered PROs, EPR Authorisation.

## LAW DIVISION

**As on March, 2022:** Number of cases before Courts/Tribunals including Preparation of Counter Affidavits/Rejoinders/Status/Compliance Report and arrange to file the same within timelines:

- Hon'ble Supreme Court: 168
- Hon'ble All High Courts except Delhi HC, Other Tribunals and Lower courts: 312
- Hon'ble Delhi High Court and NGT PB: 172
- Hon'ble NGT Zonal Benches: 249

## **IT DIVISION**

CPCB initiated a project called Online Continuous Emission & Effluent Monitoring System (OCEMS) in the year 2014 to promote self-regulation among highly polluting industries. OCEMS has been implemented in following categories:

- Industries falling under 17 categories (Highly Polluting)
- GPI Industries in Ganga Basin
- Common Hazardous & Bio Medical Waste Incinerators
- Common ETPs and
- Sewage Treatment Plants (STPs)

Currently ~6400 Industries have installed OCEMS and providing online data through ~38,000 devices on 15-minute basis. Exceedance alerts based on OCEMS data is being used by CPCB for random shortlisting of industries, for physical inspection.

Recently, CPCB has directed all STPs in the country to install OCEMS analyzers and also developed protocol for calibration of effluent analyzers based on UV-methodology.

### **Sameer App and CAAQMS Network Factsheet**

Sameer App was created by CPCB to create public awareness about air quality and provide a platform for grievances redressal. Since its launch, it has been downloaded by more than 1,00,000 users on Android and iOS platforms.

The App provides hourly updated information on AQI for more than 181 cities using real time data from 358 stations. It can be readily accessed using the interactive map format. It provides real-time AQI, pollutant-wise sub-index and monthly calendar depicting overview of AQI for each monitoring location. Daily AQI bulletin published by CPCB is uploaded on the App at 4 PM. The App also issues advisories through push notifications to the public as per prevailing air quality levels. This CAAQMS data is made available to public and various agencies through the CPCB CCR Portal (<https://app.cpcbcr.com>).

Sameer App provides a facility for lodging grievances related to air pollution. The complainant can upload photographs along with complaint, and geo-coordinates are automatically captured for pinpointing exact location of source of air pollution for facilitating prompt action by concerned agencies. The complaints are automatically forwarded to implementing agencies depending on the location of the complaint. Currently, around 40 agencies responsible for mitigation of air pollution are configured on the App which is well integrated with complaint management system of implementing agencies.

The complaints are monitored on a daily basis and agencies are required to resolve the complaint in a time bound manner and submit Action Taken Report (ATR) to CPCB. Once the complaint is resolved by the agencies, it is marked as closed. However, if the complainant is not satisfied with the response of the agency, the same can be reopened. Daily reports are prepared evaluating performance of agencies in resolving grievances and submitted to their higher authorities for perusal. The App was also used by CPCB field teams during Clean Air Campaign in winter season to lodge their field observations.

## INDUSTRIAL POLLUTION CONTROL-I DIVISION

S.No.	Name of The Sector	Number of Industries	Date of release of MoEF & CC notification of standards
1	Dye & Dye Intermediate	126	May 07, 2014
2	Fertilizer	118	December 29, 2017
3	Pesticide	82	June 13, 2011
3	Oil refinery	23	March 18, 2008
5	Pharmaceuticals	774	August 06, 2021
6	Caustic Soda	33	October 24, 1989
7	Petrochemicals	36	November 09, 2012

### Important Projects/Activities:

- i. **Preparation of COINDS on Pharmaceutical industry and development of Emission Standards including VOCs**

Environmental standard of Pharma industry including emission limits of VOCs notified on 06.08.2021 by MoEF&CC.

- ii. **Review of standards and preparation of COINDS of pesticide industry:**

CPCB has proposed the (revised) effluent and emission discharge standards. The pesticide industry association has raised objections to some of the proposed standards. The pertinent issues have been discussed in the Peer and Core Committee meeting on 29.09.2021 and the meeting with Pesticides Manufacturers and Formulators Association of India (PMFAI) on 08.02.2022. PMFAI objected to stringency of proposed BOD and COD. In the meeting, it was decided that PMFAI shall submit the monitoring data. PMFAI has provided the data without the analytical reports. PMFAI has been asked to provide the data verified by the concerned laboratory / SPCB.

- iii. **Review of Environmental standards of Caustic Soda industry (Membrane cell) and preparation of COINDS on Caustic soda.**

Membrane cell technology is a relatively recent development after phase out of Mercury cell in Chlor alkali sector. The standard of the sector was also 30 years old. To revise and review the standards for Membrane cell, the Project is initiated with the help of M/s CP Consultants Pvt. on 30.12.2019. The total cost of the Project is Rs 24,78,000/- and 30 % of the project cost is released. Dry study in 10 selected industries and in-depth study in 5 selected industries has been completed and reports of dry visit and in depth visits has been submitted.

### Review of extant guidelines / norms:

- i. **Review of deep sea discharge norms:**

To deliberate the issue of review of deep sea discharge norms, the Technical Committee meetings were held through video conferencing on June 11,2020, September 08,2020 and December 02, 2020 respectively. The technical committee after deliberations has given its final recommendations that

further studies are required for deciding revision of deep sea discharge norms. The report on the Review of deep sea discharge norms had been submitted to MoEF&CC for further course of action.

**ii. Development and Promotion of non- POPs alternatives to DDT**

The “Development and promotion of non-POPs alternatives to DDT” project has initiated to reduce production, use and consumption of DDT and promote alternative chemicals like Neem oil, Neem based IRS, long lasting insecticidal nets (LLIN)etc. CPCB is the executive agency. The project is awarded to NEERI. The cost of the Project is USD 9,12, 425. The four training modules in this regard has been developed and same has also approved by NVBDCP on January 22,2021. The physical/Virtual training has started. UNEP has extended the time limit of the project up to December 31, 2022.

**iii. Zero liquid Discharge**

The Guideline for “Water Conservation and Safe Treated Water Reuse” has been finalized for 14 sectors and Industries would adopt /explore cascading Safe Treated Water Reuse (STWR) approach and reduce 50 % fresh water consumption in five years’ time. The same was forwarded to MoEF&CC for concurrence.

**NGT Matter:**

**A. Assessment of Air, Water and Soil quality in Baghjan Oil blow out site and its Vicinity, Tinsukia, Assam**

There’s an accident of Natural Gas Leakage, occurred in Baghjan. In this matter the Hon’ble NGT passed order dated June 24, 2020; July 02, 2020, August 06, 2020 and asked from the Committee to submit the interim report on damage assessment with regard to health, agriculture, property and environmental parameters such as air, water, soil, etc. This project has been awarded to CSIR-NEIST, Jorhat on 13.01.2021 with cost of Rs 81.4 lakhs. The duration of the project is 5 months from the date of first payment 17.03.2021. The draft report has been submitted by CSIR NEIST vide email dated March 12, 2022.

**B. Assessment of environmental damages and preparation of restoration plan for air, water and soil environment due to styrene gas leakage incident at Visakhapatnam” order dated 01.06.2020 in the Hon’ble NGT matter of OA 73/2020.**

There’s an accident of Styrene Gas Leakage, occurred in LG Polymer Pvt. Ltd., Vishakhapatnam on 07/05/20. CPCB, Delhi has awarded the job of “Assessment of environmental damages and preparation of restoration plan for air, water and soil environment due to styrene gas leakage incident at Visakhapatnam” to CSIR-NEERI, Hyderabad on 18.11.2020 on Grant in Aid basis. Duration of the Project is 5 months. Total cost of the projects is Rs. 54,51, 900. Final report submitted by NEERI is also forwarded to MoEF&CC for concurrence.

**C. As directed by Hon’ble National Green Tribunal on 11.06.2021 in Original Application No. 60/2021, Central Pollution Control Board and the Ministry of Environment, Forests and Climate Change in coordination with other concerned authorities viz. Directorate General Factory Advice Service and Labour Institute, National Institute of Disaster Management, Petroleum and Explosives Safety Organization, National Safety Council and Indian Chemical Council etc. have prepared the guidelines titled “Integrated Guidance Framework for Chemicals Safety in Respect of the Isolated**



Storages and Industries Covered Under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.” The aforementioned guidelines were forwarded to all State Pollution Control Boards and Pollution Control Committees for compliance through letter dated 24.12.2021.

**Status of the issued directions:**

**During 2021-2022:** Total 06 Number of request of revocation of closure directions have been received out of which 06 closure directions have been revoked.

**Status of the review of inspection reports received in 2021:**

Received reports of 23 inspections in 2021. After reviewing up of the said inspection reports and subsequently putting up the inspection reports to the Competent Authority. 10 number of show cause notices have been issued to the non-complying units. All the units have submitted reply to show cause notice issued to them.

## INDUSTRIAL POLLUTION CONTROL-III

### Sectors:

Pulp & Paper, Distillery, Sugar, Textile, Food & Beverages (Confectioneries, Coffee, etc.)

### Functions/activities:

- Development & Revision of Environmental Standards.
- Development of industry specific Charter, Guidelines, etc.
- Development of inventory in industry sector and preparation of comprehensive documents.
- Compliance verification & Monitoring including court matter, complaints, etc.
- Technical and R&D projects in respective sectors.

**No. of Industries- Sector Wise** (as per the 17 category list):

S.No	Sector (17 category)	No. of Industries
1.	Distillery	347
2.	Pulp & Paper	246
3.	Sugar	602

**Date of issue of last notification in each sector:**

S.No.	Sector	Date of Notification
1.	Sugar	14.01.2016
2.	Textile	10.10.2016
3.	Distillery*	08.01.1990 & 02.04.1996
4.	Pulp & Paper*	02.04.1996 & 30.8.2005
5.	Coffee	24.01.2020
6.	Starch**	02.04.1996

*\*The pulp & paper and distillery standard has been revised and forwarded to MoEF&CC for notification.*

*\*\*A project on COINDS for starch industry has been included in AAP 2021-22 for approval so that the standard may be revised and notified.*

### Directions issued:

Details of non-complying industries pertaining to Distillery, Pulp & Paper, Sugar Industries and Textile, during the last two years under section 5 of E (P) Act, 1986 (directly to industry) or 18 (1) (b) of Water (PCP) Act 1974 (to State Pollution Control Boards (SPCBs)/ Pollution Control Committee (PCC)) are given below;

Year	Number of Directions/Notices u/s 5 of E(P)A, 1986				Number of Directions u/s 18(1)(b) of Water Act & Air Act			
	Distillery	Pulp & Paper	Sugar	Textile	Distillery	Pulp & Paper	Sugar	Textile
2018-19	17	22	03	06	01	00	09	--
2019-20	08	15	09	06	03	--	--	--
2020-21	05	01	09	00	00	00	00	00
2021-22	06	01	08	06	00	00	00	00

**Summary of major activities:**

S. No	Activities performed	Numbers			
		2018-19	2019-2020	2020-21	2021-22
1.	<b>Inspection</b> reports processed /examined	52	28	09	29
2.	<b>Field visit</b> (inspection/monitoring) conducted for industrial unit/sites (including under NGT/Court/study)	77	18	10	04
5.	<b>Public complaint</b> / VIP Reference / PMO Reference handled	63	84	54	72
6.	<b>Meetings</b> with Association/SPCB/MoEF/Committee	06	19	04	09
7.	<b>RTI</b> application handled	51	45	38	35
8.	<b>Parliament Questions</b> handled	08	13	06	12
9.	<b>Imp. Court cases</b> being handled & ongoing	--	12	13	13

**Important Project /Studies:**

For the preparation of guidance document on various technologies & best environmental practices in the various industrial sectors, following projects are being undertaken;

- Performance evaluation of zero liquid discharge (ZLD) RCF based Pulp & Paper Mills and preparation of guidance document.
- Revision of Bio-composting guidelines w.r.t utilization of MEE concentrate in composting and Performance evaluation of incineration boilers used for spent wash incineration in distilleries.
- Environmental waste management in Coffee Estates and preparation of guidance document for Coffee Estates.
- The report "Environmental Guidelines for Compressed Biogas Plant (CBG)/Bio-CNG plants" published in March 2022, contains environmental best practices for CBG plants towards management of solid Waste, Solid Manure, Liquid Manure (Fermented Organic manure, Self-Monitoring system, Scrubber System and steps to be taken by Green & Orange category CBG/BIO-CNG plant to qualify as white category  
Other ongoing/proposed projects;
- Development of Reference documents/COINDS in the textile sector in collaboration with UBA & GIZ as per the joint declaration of intent signed by CPCB, UBA & GIZ.
- Bioremediation of Contaminated Soils, Soils + Sludge and Surface Water and Remediation of Ground water of De-sludge refilled Lagoon of Distillery Spent wash of M/s Godavari Bio-refineries.
- Exploration of possibilities for effective utilization and safe disposal of recovered salt being accumulated in the premises of textile & tannery ZLD based CETPs /ETPs

**EC Deposited by the industries in compliance of CPCB direction in the F.Y 2019-20 and 2020-21; 2021-22 till date**

Sector	Total EC deposited
Sugar	Rs. 44.10 Lakhs
Distillery	Rs. 58.20 Lakhs
Pulp & Paper	Rs. 22.50 Lakh
Food & Bevg.	Rs. 27.90 Lakh

**Important Court Cases (Ongoing):**

**Sugar – 04**

1. Appeal No.40/2020 Bhairavnath Sugar Works Ltd. Vs. Chairman CPCB&Ors.
2. Appeal NO.39/2020 Shri SantDamaji SSK Ltd. Vs. Chairman CPCB&Ors.
3. Appeal No.33/2020 SadashivraoMandlikKagalTalukaSSK Ltd. Vs. Chairman CPCB&Ors.
4. Civil Appeal No. 2549 of 2022 DSM Sugar Mills Ltd. Vs. Vinit Kumar and ors. at Hon'ble Supreme Court of India

**Textile – 02**

1. Civil Appeal No.2901/2020; Jetpur Dyeing & Printing Association Vs. Ramdevbhai Samatbhai Sanjva
2. Civil Appeal No.55/2021; Jetpur Dyeing & Printing Association Vs.RamdevbhaiSamatbhaiSanjva

**Distillery -05**

1. Shailesh Singh Vs Bajaj Hindustan Sugar Ltd. Palia&Ors.; O.A. No- 1041/2018
2. O.A No. 07/2014 (THC) (WZ) [JanardanPharandeVsMoEFCC]
3. Ashok GabajiKajale&Ors Vs. Godavar Bio refineries; O.A No. 68/2014(WZ)
4. Bajaj Hindustan (Gola) Vs CPCB WP (S) CIVIL No. 778/2020
5. Civil Appeal No. 2391-92 of 2022 M/s Sir Shadilal Distillery and Chemical Works Pvt. Ltd. Vs. Vinit Kumar and ors.

**Pulp & Paper– 01**

1. O.A. No. [Beant Singh BajwaVs State of Punjab]

**Food & Beverages– 01**

1. Moon and VarunBevg-Pepsi O.A No. (69/2020)

**OCEMS - INSTALLATION STATUS**

Sector	Total Units	Exempted Units	Connected Units	Closure In-force	% connectivity
P&P	246	06	179	61	75
Sugar	602	00	452	150	75
Distillery	347	32	242	73	78

## INDUSTRIAL POLLUTION CONTROL-IV

### A. Milk Processing Plants & Chilling Plants

Background	Large Integrated Dairy Industry has been categorized in red category while non-integrated small dairy unit falls in orange category.
Environmental Issues	These units are water as well as air polluting in nature
Inventory of Milk Processing Plants & Chilling Plants	<ul style="list-style-type: none"><li>• There are 1881 Dairy Industries including milk processing plants and centres in 34 States/UTs.</li><li>• Tamil Nadu (429), Maharashtra (360), Gujarat (181), Uttar Pradesh (129) and Rajasthan (124) are Dairy intensive states.</li></ul>
Environmental Standards/Policies	<ul style="list-style-type: none"><li>• Environmental Standards for Dairy Industry has been notified on 05.05.1992 by MoEF &amp; CC.</li><li>• Comprehensive Industry Document was formulated in 1992-93.</li></ul>
Current Project	<ul style="list-style-type: none"><li>• Environmental standards of Dairy Industry &amp; revision of COINDS project was taken up by the division and Inventory received &amp; compiled from 34 States/UTs (1881 Dairy Industries).</li><li>• Detailed questionnaire survey circulated to selected 521 dairy industries based on type &amp; scale of operation in PAN-India and received information from 155 dairy industries.</li><li>• Compilation of information received from industries is in-progress and based on findings industries will be selected for in-depth studies.</li></ul>

### B. Dairy Farms and Gaushalas

Background	Dairy farms have been categorized under Orange Category while Gaushalas under Green Category.
Environmental Issues	<ul style="list-style-type: none"><li>• Handling of dung and wastewater is the major environmental issues.</li><li>• Poor handling of dung leads to odour issues.</li></ul>
Inventory of Dairy Farms and Gaushalas	<ul style="list-style-type: none"><li>• There are about 2,31,000 dairy farms operating in the States/UTs except Assam, Manipur, Rajasthan &amp; West Bengal having 20,24,000 animals.</li><li>• There are around 6,000 gaushalas operating in these States/UTs having about 4,37,500 animals.</li><li>• Maharashtra is having largest Dairy farms (79,723) and Gaushalas (2,208).</li></ul>
Environmental Standards/Policies	<ul style="list-style-type: none"><li>• There are no environmental standards notified for Dairy Farms and Gaushalas.</li></ul>

- Current Project
- CPCB has revised “Guidelines for Environmental Management of Dairy Farms and Gaushalas” highlighting the solid wastes management, wastewater management and air quality management on the Hon’ble NGT directives in the matter of O.A. No. 46/2018, Nuggehalli Jayasimha Vs Government of NCT of Delhi and circulated to all Chief Secretaries of States and all SPCBs/PCCs for implementation in July, 2021.

### **C. Tannery Industries:**

- Background
- In Tannery industries raw hides processed to finished Leather. These industries fall under Red category.
  - Compliance verification of notified standards done through surprise inspection under SMS Alerts. If found non-complying, issue Directions to the concerned Tannery.

- Issues and Challenges
- Issue of high TDS in the wastewater
  - Non-compliance of discharge norms particularly w.r.t. Chromium
  - Lack of implementation of cleaner technologies

- Inventory of Tannery
- There are 1618 tannery units in 29 States/UTs.
  - There are four tannery intensive states in India i.e. Tamil Nadu (709), West Bengal (345), Uttar Pradesh (473) and Punjab (105).

- Environmental Standards/Policies
- Revised Environmental Standards for Tannery Sector has been notified on 10.09.2022 by MoEF & CC and implemented since July 1<sup>st</sup> 2022.

- Current Project
- Study of Waterless Chrome Tanning Technology in tannery units in Kanpur and Tamil Nadu in association with CLRI with the help of RD Lucknow and RD Chennai will be carried out.

### **D. Slaughterhouse:**

- Background
- Slaughtering is a process where various parts (horns, legs, hides, etc.) of the animal are removed and used for various purposes.
  - These industries fall under Red category.

- Environmental Issues
- Poor operation & maintenance of Municipal Slaughter houses including non-compliance of environmental norms
  - Handling of dead animals in illegal operating plants.

- Inventory of Tannery
- There are 563 slaughter houses in 27 States/UTs.
  - Tamil Nadu (161) is having the largest number of slaughterhouses.

- Environmental Standards/Policies
- Revised Environmental Standards for Slaughterhouses or Meat Processing Units or both have been notified on 28.10.2016 by MoEF & CC. The revised standards are stringent than earlier standards.
  - “Guidelines for Utilisation of Treated Effluent in Irrigation” have been framed in compliance of Hon’ble NGT vide order dated 24.05.2019 in the matter of O.A. No. 348/2017, Shailesh Singh Vs Al-Dua Food Processing Pvt. Ltd. and these guidelines circulated to all SPCBs/PCCs for implementation.

## **E. Crematorium:**

Background	Crematorium is a place for performing final rituals of the dead body by burning it either using wood, gas or electricity
Environmental Issues	<ul style="list-style-type: none"><li>• Emissions from the crematorium</li><li>• Disposal of dead body remains</li></ul>
Inventory of Tannery	<ul style="list-style-type: none"><li>• Inventory received from 16 States/UTs, are under compilation and follow-up with remaining</li></ul>
Environmental Standards/Policies Current Project	<ul style="list-style-type: none"><li>• There is no Environmental Guidelines or standards for Crematorium</li><li>• Development of Environmental Guidelines for Crematorium is taken up by the Division</li><li>• Preliminary visit of four Crematoria based on wood, gas and electricity in Delhi completed</li><li>• Letters sent to RDs for carrying out inspection cum monitoring of five crematoria located under their jurisdiction using diverse fuel and technology and four crematoria will be carried out by CPCB-HO</li></ul>

## INDUSTRIAL POLLUTION CONTROL-V

### KOLHU INDUSTRY IN INDIA:

#### A. General Introduction

- Kolhu industries produce Gur/ Jaggery from the sugarcane juice and are one of the large agro-based cottage sectors in unorganized sectors in India. India contributes about 70% of the total world jaggery production.
- Kolhus are owned and operated by farmers using knowledge and expertise gained over generations.
- The Kolhu units are constructed using locally available resources such as bricks, soil and mud, and use sugarcane bagasse as the main fuel.
- Major states having Kolhus are Uttar Pradesh, Bihar, Maharashtra, Tamil Nadu, Karnataka and Uttarakhand

#### B. Environmental Impact

Release of pollutants      Flue gas emissions, mainly Particulate Matter

Environmental Impact      Particulate matters is harmful for human health and surrounding flora & fauna.

#### C. Technologies used

Technologies used by Kolhu plants in the country      Kolhu unit involved following processes:

- Extraction of juice
- Clarification of juice
- Concentration of juice

Pollution control measures      In order to prevent the emission, following control measures are taken by Kolhu units:

- Use of multi-pan for heating of sugar juice.
- Use of flap on fuel feed hole to control excess air.
- Fire grate for complete burning of fuel.
- Chimney of adequate height consisting of bricks and cement.

#### D. Environment Standard /policies followed in Kolhgus/ jaggery units in the country

Guidelines      • Guidelines for Pollution Control in Kolhu, circulated to all SPCBs/PCCs in 2019 for implementation and compliance



## **HOT MIX PLANT IN INDIA:**

### **A. Introduction**

- Hot Mix Plants are used for mixing of stone aggregates with bitumen for the construction of roads.
- These plants are installed near construction site and highways, and operate for such time till the construction work completed.

### **B. Technologies Used**

- (i) Batch Hot Mix Plants
- (ii) Drum Hot Mix Plants
  - (a) Parallel Flow Drum Mix Plants
  - (b) Counter Flow Drum Mix Plants

### **C. Environmental Issues in Hot Mix Plants**

- Emission from burning of fuel during preparation of bitumen mix (PM and gaseous pollutants like SO<sub>2</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, VOCs, PAH etc).
- Fugitive emissions during handling of aggregates and heating of bitumen. Emissions also result from vehicular traffic on paved or unpaved roads, aggregate storage, handling operations, and vehicle exhaust.

### **D. Environment Standard /Norms/policies followed in Hot Mix Plants in India**

- Presently, there are no specific standards for hot mix plants at national level.
- The Central Pollution Control Board (CPCB) has conducted a scientific study to formulate the environmental standards and guidelines.
- Environmental standards for HMPs were proposed in the Peer & Core Committee of CPCB on July 6<sup>th</sup>, 2022 and proposed emission standards for hot mix plants are as under:

- 1. Batch hot mix plant      150 mg/Nm<sup>3</sup>
- 2. Drum hot mix plant      300 mg/Nm<sup>3</sup>

### **E. Pollution Control Systems deployed in HMPs**

- Multi-cyclone, Bag Filter, Venturi Scrubber, Wet Scrubber

## POULTRY FARMS IN INDIA:

### General Introduction

Poultry farms refers to breeding, layer broiler and hatcheries farms. Poultry farming is the rearing of domesticated birds such as chickens, turkeys, ducks, goose etc. for the purpose of farming meat or eggs for food. Chickens raised for eggs are usually called laying hens or layers while chickens raised for meat are often called broilers. Chicken are most numerous and popular domesticated poultry species, while other species, e.g. duck, goose form a very small proportion of activities in comparison.

Total Nos of Poultry Farms in India      There are Total Nos of 851.809 Nos of Poultry (birds) in millions as per the 20<sup>th</sup> livestock census carried out by Department of Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry & Dairying,

Major states having Poultry Farms      Tamil Nadu, Andhra Pradesh, Telangana, West Bengal followed by Maharashtra, Karnataka, Assam, Haryana, Kerala and Odisha.

### Environmental Impact

Release of pollutants      

- Major environmental issues associated with the Poultry Farms is release of gaseous emission ( $H_2S$  &  $NH_3$ ) causing odour due to handling of Solid waste.
- Handling & disposal of Solid Waste i.e Poultry dropping/litter/dead birds & hatchery waste
- Breeding of flies, rodents, etc. and use of antibiotics in poultry feed are the other issues in poultry farms.

Environmental Impact      Release of gaseous emission ( $H_2S$  &  $NH_3$ ) causes odour and flies problem due to handling of solid waste and is a cause of public nuisance.

### Poultry Process used

#### Poultry Farming Process

Poultry Farms involved following processes:

- Breeding
- Hatchery
- Layer farm &
- Broilers

#### Pollution Control measures

CPCB revised the guidelines as per directives of Hon'ble NGT and circulated to all SPCBs/PCCs in 2022 for implementation and compliance. The major pollution control options suggested in guidelines are as under:

- Management of solid wastes (Solid Wastes contains Manure/Litter, Hatchery Debris and Dead Birds);
- Disposal/utilization of manure/litter through composting or biogas production or composting or combination of both.
- Ventilation through proper poultry housing allowing sufficient supply of fresh air prevent build-up of gases such as ammonia, hydrogen sulphide carbon dioxide, methane, etc.

- Dead Bird disposal through Burial Pit/Composting/Incineration & hatchery waste (egg shells, unhatched eggs etc) in a rendering plant for its conversion to poultry feeds.
- Air Emission (Includes gaseous emission, Odour and Dust): Proper ventilation and free flow of air over manure collection points to keep it dry and to construct, operate and maintain storage facilities to contain all manure, litter.
- Waste water Management: The waste water generated from the cleaning operations (after each batch removal) shall be collected in appropriate holding tank and utilized in the green belt.

### **Environment Standard /policies followed in Poultry Farms in the country**

- Guidelines
- Guidelines for Pollution Control in Poultry Farms were revisited in compliance of Hon'ble NGT directives and circulated to all SPCBs/PCCs in 2022 for implementation and compliance.

### **READY MIX CONCRETE INDUSTRY IN INDIA**

- General Introduction
- Ready mix concrete (RMC) is playing a vital role in building construction and road work industry and is an integral part of a developing and growing country.
  - The raw material used in the process are coarse and fine aggregates, Cement, fly ash and water.
- Total no. of RMC plant operating in the country
- Since RMC plant is still an unorganized sector in India, no authentic data is available on the RMC industry in India.
  - Based on rough estimates, it was reported that as on December 2008, there were around 450-500 commercial RMC plants producing about 25-30 million m<sup>3</sup> of concrete per annum.
- Major states having RMC plants
- Almost all States have RMC plants in their major metro cities such as Delhi-NCR, Mumbai, Chennai, Ahmedabad, Bhopal, Cochin, Indore, Jaipur Bengaluru, Pune, Hyderabad, Kolkata, Lucknow, etc.,
  - But now this industry has grown all part of country including Tier 2 and Tier 3 cities.

### **Environmental Impact of Ready mix concretes**

- Release of pollutants
- The major source of pollution in a RMC plant is fugitive dust emission due to inherent dry and dusty nature of raw materials.
  - Waste water is also generated from cleaning of Machines, vehicles etc.
- Environmental Impact
- The dust emissions generated from the RMC plants is public health hazard and cause of public complaints.

### **Technologies used**

Technologies used by RMC plants

RMC production involved following processes:

1. Storage
2. Batching
3. Mixing

Pollution Control Measures

In order to prevent the emission of fugitive dust following environment measures are to be used in RMC plants:

- Wet scrubbers and bag filters to be installed in silos.
- Conveyer belt of aggregate and sand should be covered.
- Water sprinkles should be provided.
- Adequate green belt development.

### **Environment Standard /policies followed in Ready mix concrete Industry in the country**

Acts, Rules, Regulations and Standards

- As on date, policy/guidelines are not existing to address the environmental issues related to this sector,
- Some states like Tamilnadu, Maharashtra and Haryana have their own sitting guideline.
- CPCB is in process of framing Guidelines for Environmental Management in RMC plants

### **STONE CRUSHER INDUSTRY IN INDIA**

The stone crusher exists in the vicinity of almost all major cities/towns to facilitate construction activity.

Total no. of stone crushers operating in the country

- About 12,000 registered stone crushers.

Major states having stone crushing units

- North Zone: Punjab, Haryana, J&K, H.P., Uttaranchal, Western and Central Uttar Pradesh
- East Zone: Eastern and Southern UP, West Bengal, Bihar Jharkhand
- Western Zone: Gujrat, Maharashtra and Rajasthan
- South Zone: Kerala, Tamil Nadu, Karnataka and Andhra Pradesh

### **Environmental Impact of Stone Crushers**

Release of pollutants

Fugitive dust emission and Particulate Matter (PM)

Health Impact

Respiratory diseases due to inhaling of Particulate Matter (PM) by the workers

### **Technologies used**

Stone crushing technologies used in the country

- Generally, jaw crushers are used for crushing of stone.
- Screening is a process of separating of aggregates into groups of various sizes. The screen used includes coarse screens and fine screens.

Pollution Control Measures

In order to prevent the emission of fugitive dust following environment measures are adopted in stone crushing units:

- Dust containment cum suppression system for the equipment.
- Construction of wind breaking walls.
- Construction of the metalled roads within the premises.
- Regular cleaning and wetting of the ground within the premises.
- Growing of a green belt along the periphery

### **Environment Standard /policies followed in stone crushing Industry in the country**

Acts, Rules, Regulations and Standards

- Emission Standards were notified under Environment (Protection) Act, 1986 by Ministry of Environment Forest & Climate Change vide Notification No. G.S.R. 742(E) dated 30th August 1990.
- Notified standards are as follow:  
The Suspended Particulate Matter contribution value at a distance of 3-10 meter from a controlled isolated as well as from a unit located in a cluster should be less than 600 µg/m<sup>3</sup>.
- CPCB has published Comprehensive Industry Document (COINDS): COINDS/78/2007-08, covering overview of stone crushing industry, environmental issues related to stone crushers, environmental standards, guidelines, etc.

### **BRICK INDUSTRY IN INDIA**

Total production of bricks in India

- About 260 billion bricks/year
- (2<sup>nd</sup> largest brick producer after China)

No of brick kilns operating in the country

- About 1,21,000 registered brick kilns.

Major brick making states /clusters

- North: Punjab, Haryana, J&K, H.P. Uttaranchal, Western and Central Uttar Pradesh
- East Zone: Eastern and Southern UP, West Bengal, Bihar Jharkhand
- Western Zone: Gujarat, Maharashtra and Rajsathan
- South Zone: Kerala, Tamil Nadu, Karnataka and Andhra Pradesh

### **Environmental Impacts of Brick Kilns**

Release of pollutants

- Fugitive dust emission, Particulate Matter (PM), SO<sub>2</sub>, NO<sub>x</sub>

Health impact

- Respiratory diseases due to release of PM

## Technologies Used

Brick making technologies being used

- Based on process of firing and type of kilns, brick kilns are classified as:
- Intermittent type: Clamp, Down Draught,
- Continuous: Hoffman, Fixed Chimney Bull's Trench Kilns (FCBTK), Zig-Zag, Tunnel and Vertical Shaft Brick Kilns.
- About 75% of the kilns in India are based on FCBTK technology

Specific energy consumption (MJ/Kg) in various types of brick kilns

- Clamp: 1.5 to 4.0
- Down Draught/Scove/ Scooth: 2.72-2.97
- Fixed Chimney Bull's Trench Kiln (FCBTK): 1.1- 1.5
- Zig-Zag Kilns: 0.9 to 1.2
- Vertical Shaft Brick Kilns: 0.6- 1.0
- Tunnel Kiln: 1.34-1.47

Available environmentally sound technology /ies

The following technologies are considered as energy efficient and less polluting:

- Hoffman, Tunnel, Zig-Zag and Vertical Shaft Brick Kilns
- Other measures to reduce the emissions: Use of internal fuel in brick making by mechanizing the brick making process.

## Environment Standard /Norms/policies followed in Brick Industry in India

Acts, Rules, Regulations

- Ministry of Environment, Forest and Climate Change has notified revised Environmental Standards for Brick Kilns vide GSR 143 (E) dated 22.02.2022 under the Environment (Protection) Rules, 1986 to mitigate the air pollution from Brick Kilns.
- The revised notified emission standards for particulate matter i.e. 250 mg/Nm<sup>3</sup>,
- The major highlights of the notification are as follows:
  - a) All new brick kilns shall be allowed only with zig-zag technology or vertical shaft or use of Piped Natural Gas as fuel in brick making and shall comply to these standards as stipulated in this notification.
  - b) The existing brick kilns which are not following zig-zag technology or vertical shaft or use Piped Natural Gas as fuel in brick making shall be converted to zig-zag technology or vertical shaft or use Piped Natural Gas as fuel in brick making within a period of (a) one year in case of kilns located within ten kilometre radius of non-attainment cities as defined by Central Pollution Control Board (b) two years for other areas. Further, in cases where Central Pollution Control Board/State Pollution Control Boards/Pollution Control Committees has separately laid down timelines for conversion, such orders shall prevail.

- c) All brick kilns shall use only approved fuel such as Piped Natural Gas, coal, fire wood and/or agricultural residues. Use of pet coke, tyres, plastic, hazardous waste shall not be allowed in brick kilns.

The revised notification emphasized on use of improved technology and cleaner fuel for control of air pollution from Brick Kiln.

## **GOLD ASSAYING AND HALLMARKING CENTRES IN INDIA**

### **General Introduction**

- Hallmark is a certifying mechanism to certify the purity of precious metals jewellery viz. gold and silver, sold in India.
- The testing and marking of the jewellery is done in BIS certified Assaying & Hallmarking centres across the country.
- Assaying is the technical term used for the quantitative chemical analysis of precious metals. In context of Gold Jewellery, assaying means determination of gold in the jewellery/article.

Major states having Gold Assaying and Hallmarking facilities in India

- There are 923 recognized Gold Assaying and Hallmarking facilities in India (As per data 2020).
- Highest number of such facilities is in Southern region (312 Nos), followed by Western Region (203 Nos), Eastern Region (181) Central Region (133) and Northern Region (94).

### **Environmental Impact**

Release of pollutants

- Emissions of Lead oxides and Nitrous fumes during cupellation and parting process.
- Used/Spent cupels bearing lead and scrubbed water containing residues of lead are the hazardous wastes generated during fire assay posing risk to the environment

Environmental Impact

- Poses a risk to human & environment if emissions of lead oxides and nitrous fumes and hazardous waste disposal is not addressed

### **Technologies used**

Technologies using by Gold Assaying & Hallmarking Centres in the country

- Assay and Hallmarking of gold is done by the fire assay test as per the method IS 1418: 2009 (Assaying of Gold in Gold Bullion, Gold alloys and Gold Jewellery/Artefacts).

### **Environmental pollution measures**

- Use of suction hood and duct arrangement system to control lead and nitric acid fumes from cupellation and parting process

## **Environment Standard /policies followed in Gold Assaying & Hallmarking Centers in the country**

### **Guidelines**

- Guidelines for Pollution Control in circulated to all SPCBs/PCCs in 2020 for implementation and compliance.
- Followings are the brief of guidelines to be followed by such facilities.
  - i) To provide well-designed suction hood and duct arrangement system equipped with scrubber to control lead and nitric acid fumes.
  - ii) The spent acid generated from parting acid should be disposed through TSDF or neutralized before its disposal.
  - iii) The spent cupels/scrubbed water containing lead should be disposed to TSDF or to the authorized registered lead recyclers dealers.
  - iv) All the gold assaying and hallmarking centers shall obtain necessary Consents under the provisions of Water (Prevention and Control of Pollution) Act, 1974 & Air (Prevention and Control of Pollution) Act, 1981 & Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 from the concerned State Pollution Control Boards / Pollution Control Committees.
  - v) The Gold Hallmarking Assaying facilities/Centres should be established as per the siting policies/guidelines of local administration



## INDUSTRIAL POLLUTION CONTROL-VI DIVISION

S. No.	Particulars	Details
1	Development of industry specific environmental standards, notified under Environment (Protection) Act, 1986.	Environmental standards have been notified under Schedule-I of EPA,1986 for 81 sectors. For remaining sectors, general standards are notified under Schedule-VI of EPA are applicable.
2	Categorization of industrial sectors under Red, Orange, Green and White categories.	Total no. of categorized sectors: 254 <ul style="list-style-type: none"> <li>• Red: 61</li> <li>• Orange: 90</li> <li>• Green: 65</li> <li>• White: 38</li> </ul>
3	Status of Installation of Online Continuous Emission/Effluent Monitoring Systems (OCEMS) in 17-categories of highly polluting industries.	<ul style="list-style-type: none"> <li>• Total no. of units targeted for OCEMS installation: 4,245</li> <li>• No. of units which have installed OCEMS &amp; provided data connectivity to CPCB: 3,535.</li> <li>• No. of units for which closure directions are still in-force: 712</li> </ul>
4	Inspection of industries based on SMS alerts, generated from OCEMS, installed in 17-categories of highly polluting industries.	<ul style="list-style-type: none"> <li>• Total no. of industries inspected: 759</li> <li>• No. of non-complying industries: 370</li> <li>• No. of industries to whom closure directions were issued u/s 5 of EPA, 1986: 186</li> <li>• No. of industries to whom show-cause notice/technical direction were issued u/s 5 of EPA: 180</li> <li>• No. of directions issued to SPCBs u/s 18(1)(b) of Water Act and Air Act: 4</li> <li>• No. of units found non-complying during inspection but complying as on date: 326</li> <li>• No. of units for which CPCB directions/notices are still in-force: 44</li> </ul>
5	Shifting of industries to Piped Natural Gas (PNG), wherever PNG supply is available in NCR-Delhi.	<ul style="list-style-type: none"> <li>• Total no. of units in PNG network area: 7,022</li> <li>• No. of units converted to PNG: 3,613</li> </ul>
6	Continuous monitoring of air emissions in medium & large scale red category air polluting industries in NCR-Delhi.	<ul style="list-style-type: none"> <li>• Total no. of targeted units: 634</li> <li>• No. of units which have installed OCEMS and linked to CPCB: 590</li> </ul>

7 Compliance status of various categories of industries in the country is as follows:

<b>Industrial Category</b>	<b>Total number of industries</b>	<b>No. of self-closed industries</b>	<b>No. of operational industries</b>	<b>No. of industries complying with environmental standards</b>	<b>No. of industries non-complying with environmental standards</b>
Red	1,13,859	12,648	1,01,211	9,2795	8,324
Orange	2,33,299	20,810	2,12,489	1,92,697	11,796
Green	1,64,696	13,256	1,51,440	1,42,175	4,537
17categories	4,447	669	3,778	3,452	326
GPI	2,836	656	2,180	2,053	127
Water Polluting units	66,605	1,880	64,725	63,446	1,283

## INDUSTRIAL POLLUTION CONTROL-VII DIVISION

### COMPREHENSIVE ENVIRONMENTAL POLLUTION INDEX (CEPI)

S.No.	Particulars	Details
1.	CEPI assessment of Polluted Industrial Areas (PIAs)	CPCB conducted CEPI monitoring during 2018 for evaluation of CEPI scores as per the revised CEPI-2016 for <b>100 Polluted Industrial Areas (PIAs)</b> , located in <b>21 States/UTs</b> across the country.
2.	Identification of PIAs as CPAs/SPAs/OPAs	<ul style="list-style-type: none"><li>• Nos. of Critically Polluted Areas (CPAs) : <b>38</b></li><li>• (PIAs with CEPI scores <math>\geq 70</math>)</li><li>• Nos. of Severely Polluted Areas (SPAs) : <b>31</b></li><li>• (PIAs with CEPI scores <math>\geq 60</math> &amp; <math>&lt; 70</math>)</li><li>• Nos. of Other Polluted Areas (OPAs) : <b>31</b></li><li>• (PIAs with CEPI scores <math>&lt; 60</math>)</li><li>•</li></ul>
3.	State-wise list of CPAs/SPAs	<ul style="list-style-type: none"><li>• State-wise locations of no. of PIAs as CPAs/SPAs/OPAs, is provided at <b>Table-A.</b></li><li>• State-wise details of CPAs and SPAs are given at <b>Table-B.</b></li></ul>
4.	Status of Action Plans	<ul style="list-style-type: none"><li>• CPCB requested concerned SPCBs/PCCs to prepare and implement time bound action plans for improvement of environmental quality within norms.</li><li>• Total no. of identified CPAs/SPAs = 69</li><li>• Action Plans received = 61</li><li>• Action Plans reviewed by CPCB and uploaded on CPCB website= 60</li><li>• Follow-up for submission of Action Plan under progress = <b>8</b></li></ul>

**Table-A: Location of Polluted Industrial Areas (PIAs) in 21 States of India, evaluated in CEPI assessment during 2018**

Sl. No.	Name of State	Total No. of PIAs	No. of CPAs	No. of SPAs	No. of OPAs
1.	Andhra Pradesh	2	0	1	1
2.	Assam	2	1	0	1
3.	Bihar	1	0	1	0
4.	Chhattisgarh	4	2	0	2
5.	Delhi	1	1	0	0
6.	Gujarat	10	6	1	3
7.	Haryana	3	2	1	0
8.	Himachal Pradesh	3	0	3	0
9.	Jharkhand	7	0	3	4
10.	Karnataka	6	2	1	3
11.	Kerala	1	0	0	1
12.	Maharashtra	9	2	4	3
13.	Madhya Pradesh	6	0	0	6
14.	Orissa	5	0	2	3
15.	Punjab	4	2	1	1
16.	Rajasthan	5	5	0	0
17.	Tamil Nadu	8	4	4	0
18.	Telangana	3	1	2	0
19.	Uttar Pradesh	13	9	4	0
20.	Uttarakhand	2	1	0	1
21.	West Bengal	5	0	3	2
<b>TOTAL</b>		<b>100</b>	<b>38</b>	<b>31</b>	<b>31</b>

**Table-B: State wise details of CPAs/SPAs as per the CEPI monitoring carried out during 2018**

State	Critically Polluted Areas (CEPI score)	Severely Polluted Areas (CEPI score)
Andhra Pradesh	---	Vijayawada (68.04)
Assam	1. Brynihat (78.31)	---
Bihar	---	Hajipur (64.36)
Chhattisgarh	1. Siltara Industrial Area (79.94) 2. Raipur (70.77)	---
Delhi	1. Nazafgarh drain basin –Delhi (92.65)	---
Gujarat	1. Ankleshwar (80.21) 2. Rajkot (70.62) 3. Surat (76.43) 4. Vadodara (89.09) 5. Vatva (70.94) 6. Vapi (79.95)	1. Bhavnagar (61.94)
Haryana	1. Gurgram (85.15) 2. Panipat (83.54)	1. Faridabad (62.17)

Himachal Pradesh	---	1. Baddi (68.26) 2. Parwanoo (65.77) 3. Kala Amb (65.70)
Jharkhand	---	1. Hazaribagh (64.20) 2. Ramgarh (66.75) 3. Saraikela (60.26)
Karnataka	1. Peenya (78.12) 2. KIADB Industrial Area, Jigini, Bangalore (70.99)	1. Bidar (65.64)
Kerala	---	---
Maharashtra	1. Tarapur (93.69) 2. Chandrapur (76.41)	1. Navi Mumbai (66.32) 2. Aurangabad (69.85) 3. Dombivalli (69.67) 4. Nashik (69.49)
Madhya Pradesh	----	----
Orissa	----	1. Ib Valley (66.35) 2. Paradeep (60.61)
Punjab	1. Jalandhar (74.76) 2. Ludhiana (73.48)	1. Batala (68.92)
Rajasthan	1. Bhiwadi (79.63) 2. Jodhpur (81.16) 3. Pali (80.48) 4. Sanganer Industrial Area (79.10) 5. Jaipur (77.40)	----
Tamil Nadu	1. Manali (84.15) 2. Vellore -North Arcot (79.38) 3. Tiruppur (72.39) 4. Mettur (71.82)	1. Coimbatore (63.64) 2. Cuddalore (62.56) 3. Erode (60.33) 4. Tuticorine (66.34)
Telangana	1. Patancheru-Bollaram (75.42)	1. Kukatpally (66.46) 2. Kattedan (60.17)
Uttar Pradesh	1. Agra (76.22) 2. Bulandsahar-Khurza (85.23) 3. Firozabad (81.62) 4. Gajraula Area (80.14) 5. Ghaziabad (72.30) 6. Kanpur (89.46) 7. Mathura (91.10) 8. Moradabad (87.80) 9. Varanasi- Mirjapur (85.35)	1. Aligarh (64.42) 2. Noida (68.76) 3. Meerut (66.09) 4. Singrauli (62.59)
Uttarakhand	1. Udham Singh Nagar (81.26)	---
West Bengal	-----	1. Bandal (67.64) 2. Durgapur (65.56) 3. Howrah (61.76)
<b>Total</b>	<b>38</b>	<b>31</b>

## COMMON EFFLUENT TREATMENT PLANTS (CETPS):

S. No.	Particulars	Details
1.	State-wise details of CETPs	<ul style="list-style-type: none"> <li>No. of States/UTs having CETPs: <b>20</b></li> <li>Total No. of CETPs in the States/UTs: <b>196</b></li> <li>Total designed capacity = <b>1810 MLD</b></li> <li>Present operational capacity = <b>1070 MLD</b></li> <li>State-wise details of CETPs with their design/operational capacity is provided at <b>Table-C</b>.</li> <li>CETPs with ZLD facility i.e. water recovery system: <b>45</b>.</li> <li>Sector-wise details of CETPs with ZLD facility in States is provided at <b>Table-D</b>.</li> <li>Prime sectors catered by CETPs :</li> </ul>

S. No.	Type of industry	No. of CETP catering said industries
1.	Automobile Industries	1
2.	Chemical Industries	3
3.	Electroplating Industries	7
4.	Fish Meal and Oil Manufacturers	1
5.	Industries Receiving from R& D Sector	1
6.	Marine food processing Industries	1
7.	Rubber Industries	1
8.	Vegetable Tanning Industries	1
9.	Tanneries Industries	19
10.	Textile Industries	54
11.	Pharmaceutical Industries	2
12.	Mixed industries	104
13.	Steel industries	1
	<b>TOTAL</b>	<b>196</b>

2.	Status of installation of OCEMS and data connectivity with CPCB	❖ CETPs with OCEMS connected to CPCB server: <b>163</b>
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**Table-C: State-wise details of CETPs**

S. No.	State	Number of CETPs	Design Capacity (MLD)	Operational Capacity (MLD)
1	Andhra Pradesh	6	31.5	11.1
2	Assam	1	1.0	0.05
3	Delhi	13	212.3	51.7
4	Gujarat	34	754.85	533.7
5	Haryana	19	190.18	102.1
6	Himachal Pradesh	1	25.0	16.8
7	Jammu & Kashmir	2	0.6	0.3
8	Jharkhand	1	1.2	0.0
9	Karnataka	10	3.0	1.0
10	Kerala	6	4.4	1.9
11	Madhya Pradesh	3	9.4	3.1
12	Maharashtra	26	197.2	149.8
13	Punjab	3	5.6	3.5
14	Rajasthan	16	143.9	61.3
15	Tamil Nadu	36	134.9	58.1
16	Telangana	7	11.5	8.3
17	Tripura	1	0.5	0.1
18	Uttar Pradesh	7	50.5	41.7
19	Uttarakhand	3	13.2	9.9
20	West Bengal	1	20.0	16.0
	<b>Total</b>	<b>196</b>	<b>1810</b>	<b>1070</b>

**Table-D: Sector-wise details of CETPs with ZLD facility in States**

Sl. No.	Name of Sector	Name of State	Number of CETPs
1.	Textile	Tamil Nadu	18
		Rajasthan	6
		Maharashtra	1
		Gujarat	2
2.	Tannery	Tamil Nadu	11
3.	Electroplating	Tamil Nadu	1
		Andhra Pradesh	1
		Punjab	1
4.	Mixed type of industries	Kerala	1
		Gujarat	1
5.	Pharmaceutical industries	Andhra Pradesh	1
		Gujarat	1
<b>Total number of ZLD CETPs</b>			<b>45</b>

## AIR LABORATORY

### NAMP and ITO

- Manual Ambient air quality monitoring is being conducted at seven locations in Delhi (Six stations under NAMP namely Shahdara, Shahzada Bagh, Pitam Pura, Nizamuddin, Siri Fort and Janakpuri and other at ITO). The objective is to determine the present status and trends of air quality in Delhi.
- Total samples (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>) of NAMP stations analysed = **8392** Nos.
- Total samples (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>) of ITO station analysed = **2771** Nos.
- Total metal samples analysed = **580** Nos.

### Surveillance Activity & Auditing

- To comply with the Hon'ble Court's directions, Laboratory is assisting to all CPCB divisions to carryout Source emission, ambient & Noise monitoring in industries.

No. of Stacks Monitoring	= <b>24</b> Nos.
No. of Noise monitoring	= <b>12</b> Nos.

### Compliance verification of surveillance Activities

- Air Laboratory has carried out inspection and monitoring of industries whereby total no. of source samples, analysed is = **117** Nos.

### SODAR & Meteorology

- Meteorological data is obtained by O&M of SODAR and Automatic Weather Station at Parivesh Bhawan whereby air quality data of Delhi (PM<sub>2.5</sub> and PM<sub>10</sub>) with respect to meteorological data (Mixing Height, Wind Speed, Temperature and Relative Humidity) is compared daily. Daily basis report prepared and send to competent authorities and concerned division.

### CAAQMS

- Maintaining of 15 CAAQM Stations in Delhi, Chennai, Bengaluru and Lucknow under O&M Contract for monitoring of all notified parameters and Operation of CAAQMS at ITO for regular generating of air quality data with AQI preparation.

### Laboratory Operations and Upgradations

- Internal audit of Central Laboratory at Head Office and Regional Laboratory at RD-Kolkata was conducted as per new standard, ISO/IEC 17025:2017.
- Internal audit (online) of Regional Laboratory at RD-Lucknow was conducted as per new standard IS/ISO 45001:2018 for Occupational Health & Safety (OH&SMS) Management System.
- External audit (On-line) of CPCB, Delhi was conducted for surveillance cum changeover to new standard IS/ISO45001:2018 For Occupational Health & safety (OH&SMS) management system.



## Deepawali Monitoring-2021

- Coordination of Nation-wide Ambient air quality and noise monitoring for assessment of Air quality during Deepawali -2021.
- Ambient air sample collected & analysed = **705** Nos.
- Ambient noise locations monitored = **6** Nos.
- Compilation of Noise monitoring data received from various SPCBs and PCCs and prepared a report to upload in CPCB website.

## Hon'ble Court's directions monitoring

- In compliance to the directions of Hon'ble Supreme Court, Air Lab personnels inspected brick kiln units in NCR.  
Total no. of brick kiln inspected = **307** Nos. (Approx.)

Air Lab. team visited to Aligarh for carry out emission monitoring in 24 FCBTK type brick kilns units comes under UP state in compliance of NGT direction. The details of the parameters carried out is as follows.

**PM = 72; SO<sub>2</sub> = 24; and NO<sub>2</sub> = 21** Nos.

1. What are the parameters that can be monitored and analysed in Ambient Air Quality Monitoring and mention the sampling methods?

S. No.	Parameter	Sampling Method
1	SO <sub>2</sub>	IS 5182 Part 2/CB/CL/ SOP/AL-AA-01
2	NO <sub>2</sub>	IS 5182 Part 6/CB/CL/ SOP/AL-AA-02
3	SPM	IS 5182 Part 4/CB/CL/ SOP/AL-AA-03
4	PM <sub>10</sub>	IS 5182 Part 23/USEPA Method IO 2.1/CB/CL/ SOP/AL-AA-04
5	PM <sub>2.5</sub>	IS 5182 Part 24/CB/CL/ SOP/AL-AA-05
6	Metals	USEPA Method IO 2.1 & 3.1/CB/CL/ SOP/AL-AA-07
7	BaP	IS 5182 Part 12/ USEPA Method TO-13/CB/CL/ SOP/AL-AA-08

2. What are the parameters that can monitored in Source Emission Monitoring and mention the sampling methods?

S. No.	Parameter	Sampling Method
1	SO <sub>2</sub>	IS 11255 Part 2/CB/CL/ SOP/AL-SE-02
2	NO <sub>2</sub>	IS 11255 Part 7/USEPA Method 7/CB/CL/ SOP/AL-SE-03
3	PM	IS 11255 Part 1 & 3/CB/CL/ SOP/AL-SE-01
4	Metals	USEPA Method 29
5	Halides (HF/HCL)	USEPA Method 26/26A

3. What are the parameters that can be monitored in Ambient Noise?

S. No.	Parameter	Sampling Method
1	Leq dB (A)	CB/CL/ SOP/AL-05

## **WATER LABORATORY**

Central water Laboratory plays a key role in assessing level of pollution in terms of physico chemical parameters of different water streams like river, lakes, ground water, municipal drains, industrial effluent etc. due to rapid urbanization and industrialization. Water laboratory also involves in collection of samples and imparting training to the staff of other organizations and students of different educational institutes. Central Water Laboratory has three separate analytical sections:

### **1. FRESH WATER SECTION:**

**Sources of fresh water samples:** River water, Ground water, Lakes, ponds etc.

**Parameters:** pH, Conductivity, Color, Alkalinity, Acidity, DO, TDS, TSS, COD, BOD, Chloride, Total Residual Chlorine, Ortho Phosphate, Total P, Total Hardness as CaCO<sub>3</sub>, Sulphate, Sodium, Potassium, Calcium, Magnesium, Fluoride, NO<sub>2</sub>-N, NH<sub>3</sub>-N, TKN etc.,

#### **Major Functions:**

- The Main function of this section is to analyze samples from different potable, riverine and ground water sources for physio-chemical parameters.
- River water analysis of samples carried out under different projects NGRBA, NRCD, MINARS.
- Conducted Analytical Quality Control Exercises for 201 recognized govt. and Pvt. Laboratories. Based on their performance, 66 labs got 100% accuracy and 166 labs got more than 60% accuracy.
- Studies on water quality of lakes and ponds for remediation.

### **2. WASTE WATER SECTION:**

**Sources of waste water samples:** Domestic/industrial drains, STP (Sewage Treatment Plants), Industrial waste water treatment plants (ETP/CETP)

**Parameters:**pH, Conductivity, Color, TSS, TS, TDS, COD, BOD, Oil & Grease, Phosphate-P, Total-P, Chloride, Sulphate, NH<sub>3</sub>-N, TKN, Phenolic compounds, CN, Cr<sup>+6</sup>

#### **Major Functions:**

- Analysis of industrial effluent from different Sewage Treatment plants, Combined Effluent Treatment Plants, and ETP's of industries, drains, contaminated water(Leachate from Land filling and contaminated sites), collected from different divisions of CPCB from different category of industries.
- Analysis of samples collected by different divisions in compliance to order of Honorable NGT/Supreme Court/High Court.
- Assessing pollution levels in Yamuna River due to drains under Honorable Supreme Court direction in Delhi and NCR.
- Analysis and data compilation of project "performance evaluation of STP's in Delhi and NCR due to urban pollution and status of sewage treatment in India".

### **3. Soil & solid waste Section:**

**Sources of soil & solid waste samples:** Industrial, Contaminated sites, TSDF sites, Municipal solid waste handling & processing sites

**Parameters:** pH, Conductivity, Moisture, Organic Matter, Exchangeable Na, Exchangeable K, Exchangeable Ca, Exchangeable Mg, Cation Exchange Capacity, Exchangeable Na%, ESP. TCLP extraction for heavy metals analysis for all soil and solid waste analysis.

**Functions:**

- Analysis of hazardous waste samples from different contaminated, TSDF sites and industrial sludge's, Ash and bio – medical waste, CETP Sludge. Analysis of contaminated soil from agricultural and industrial sites.
- Analysis of solid waste samples of compost and municipal solid waste.
- Providing service by preparing TCLP and Water Extract for metal analysis to study leachability and contamination level of heavy metals.

**System for Quality assurance:**

The Central Water Laboratory is accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) in accordance with the international standard ISO / IEC 17025, (2017). Various Quality control assurance programs are observed annually. Participation in various proficiency testing programs to maintain competency among the analysts is ensured. Effectiveness of these programs are assessed by internal and external audits throughout the year. In the year 2020, Water Laboratory has participated in international Proficiency Testing (PT) exercise conducted by LGC standards, UK for water & waste parameters. The performance of the laboratory in this exercise was about 87 percent. For soil & solid waste parameters, the laboratory had participated in Inter Laboratory Comparison (ILC) exercise in the year 2019 with six other laboratories & the performance of the lab was 90 percent.

**System for occupational health and safety management:**

To ensure the safety of Laboratory Personnel and assets, CPCB has implemented Occupational Health and Safety Management system in the Laboratories OH & SMS Program and certified from BIS as per IS 18001:2007. To meet the standards for safety, measures are being taken up and monitored periodically. Occupational Safety Equipment viz Emergency Showers, Eyewashes, Face shield, Goggles, Respirators, Aprons, Sensitive Fire Alarm & Fire Fighting System are available in laboratory. The external audit by BIS for switching to IS/ISO 45001:2018 has been completed on March 30-31, 2021. All the s

**Infrastructure:**

The Laboratory is equipped with highly sophisticated instruments for analysis of environmental samples. Instruments such as uV- Visible Spectrophotometer, Ion Chromatograph, Ion meter, Fourier Transform Infrared Spectroscopy, CHNS analyzer, Bomb Calorimeter, Flash Point Apparatus, Moisture Titrate and Detector, TKN Analyzer, Moisture Balance, Glassware Washer and all other basic instruments/equipment such as BOD Incubator, Hot Plate, Hot air oven, Filtration Assembly, Muffle Furnace etc.,

**Laboratory Layout Facilities:**

**The Central Water Laboratory has provision of** Centralized air-conditioner system with negative pressure area. Dedicated vapour collection treatment and exhaust system for chemicals storage rooms and sample storage room (cold room with temperature control at 4°C for storing the samples), Separate balance rooms with vibration resistance table and water purification system are provided.

The laboratories are bifurcated for Analytical lab, Instrumentation Lab, Hot equipment lab, separate staff room, sample storage room etc.,

The laboratory has Uninterrupted Power Supply, Low Constant Volume (LCV) Fume Hoods with Digital Flow Monitor, and Control Panel in Sample Pre-treatment & Processing Rooms. Glassware washer for different types of glassware used in the laboratory.

The laboratory is in process of implementing Laboratory Information Management System (LIMS) which will enable smoother process and improved transparency.

**Other work:** Officials of water laboratory are regularly participating in Air Quality Monitoring (AQM) as other works assigned by the competent authority.

#### **Performance of the Laboratory for the past two years**

Total no. of samples analyzed and measurements done by the laboratory during last 2 years are depicted in the following table.

Year	Samples				Measurement			
	FW	WW	S&SW	Total	FW	WW	S&SW	Total
2020-21	1051	1482	64	<b>2597</b>	8038	6304	258	<b>14600</b>
2021-22	1033	1383	153	<b>2569</b>	10627	9596	583	<b>20806</b>

FW- Fresh Water, WW- Wastewater, S&SW- Soil

## **Instrumentation Laboratory**

Instrumentation laboratory is engaged in analysis of trace metals in water, wastewater, air, soil and solid samples. Also it is carrying out testing of total organic matter (TOC) and adsorbable organic halides (AOX) in solid and liquid samples.

**Trace Metals Analysed:** Twenty heavy metals including Al, As, Ba, Cd, Cr, Fe, Mn, Ni, Se, Sn, V, Sb, Be, B, Cu, Hg, Ag, Sr, Co, Zn in water, wastewater, soil, solid wastes, biological materials etc.,

**Trace Organic compounds:** Total Carbon, Total inorganic carbon, Adsorbable organic halides are analysed in water, wastewater and solid samples.

### **Major Functions of Instrumentation Labs:**

The main function of this laboratory is to analyse samples from different surface, ground water and drinking water for analysis of trace metals. Soil/Solid samples submitted by Waste Management Divisions for characterization and TCLP/STLP samples are tested for heavy metals.

Conducting Analytical Quality Control (AQC) for EPA recognised Govt. and Private Laboratories  
The laboratory also involves in recognition of laboratories (Private & Government) under EPA, 1986.  
The laboratory provides training to the students for digestion and analysis of samples using sophisticated instruments.

### **A. Major Analytical Instruments and Equipment:**

#### **1. Inductively Coupled Plasma Mass Spectrometer (ICP-MS)**

The ICP-MS is an analytical technique used for elemental determinations. It has many advantages over other elemental analysis techniques such as Atomic absorption and Optical emission spectrometry. An ICP-MS combines a high temperature ICP (Inductively Coupled Plasma) source converts the atoms of the elements in the sample to ions. These ions are further separated and detected by the mass spectrometer. The ICP-MS measures most of the elements in the periodic table. The elements can be analyzed with detection limits at or below the part per billion (ppb). This is used for metals analysis in fresh water samples. The ICP-MS detects only elemental ions and can determine the individual isotopes of each element.

#### **2. Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES)**

This is another analytical technique i.e. Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) used for multi element analysis of environmental samples. The technique offers advantage over AAS and other multi element methods as matrix problems are eliminated or minimized through use of high temperature argon plasma & detection limit are equal to or better than the AAS depending on the element to be analysed. It is mainly used for testing of wastewater samples.

#### **3. Atomic Absorption Spectrophotometer (AAS)**

Apart from use of ICP-MS and ICP-AES, AAS is being used to analyze heavy Metals in environmental samples i.e. Solid (sludge/ sediment), Water & wastewater samples using Flame, Hydride & Graphite furnace. Atomic-absorption spectroscopy (AAS) uses the absorption of light to measure the concentration of gas-phase atoms. Since samples are usually liquids or solids, the analyte atoms or ions must be vaporized in a flame or graphite furnace. The analyte concentration is determined from the

amount of absorption. The light source is usually a Hollow-cathode lamp of the element that is being measured. This is generally used for solid and hazardous wastes samples.

#### **4. Mercury Analyser (MA)**

This ECIL make dedicated Mercury Analyser helps precise analysis of water, wastewater and other environmental samples at trace level. Established with water methods based on Cold Vapour Atomic Absorption Spectrophotometer CV-AAS). The mercury analyser is one of the cost effective instrument and having superb detection limits with user-friendly platform.

#### **5. Direct Mercury Analyser (DMA)**

Direct Mercury Analyzer used for determination of mercury at Nano gram level in the environmental samples without sample digestion. It runs with thermal decomposition, amalgamation, Atomic Absorption Spectrophotometer (AAS) based principle that Mercury vapor (atoms) absorbs resonance radiation at 253.7 nm. This instrument is more suitable for solid and hazardous sample analysis.

#### **6. Total Organic Halide Analyser (TOX)**

Total organic halides (TOX) are the organic compounds bounded with halides viz. Chlorine, Bromine, Iodine and are one of the pollutant generated from pulp and paper industry during the bleaching process. They may be in the form of Adsorbable, Extractable and Purgeable Organic halides. TOX analyser in the laboratory is being used for determination of these compounds as summary parameters in water and waste water samples by adsorption and pyrolysis at 9500C followed by coulometric titration.

#### **7. Total Organic Carbon Analyser (TOC)**

The Total Organic Carbon Analyser (TOC) is being used for determination of Total Carbon, Total Organic Carbon and Total Inorganic Carbon in the environmental samples. The existing TOC Analyser is based on high temperature combustion of the samples resulting in production of Carbon dioxide which is measured by NDIR Detector of the instrument.

#### **8. Microwave Digestion System (MDS)**

The microwave digester system helps the complete breakdown of samples in presence of suitable acids for any samples such as metals, pharmaceuticals, hazardous, plants, soil, or food so they are ready for elemental analysis. Microwave digestion systems are popular because their decreased digestion times, due to the use of closed vessels made of chemically inert materials and direct heating of sample solution, can result in significantly higher sample throughput. Typical digestions will take approx. 20–40 min and can reach up to 310 °C and 2000 psi.

#### **9. Water Purification System (WPS)**

Water purification system provides the Type I and Type II water, as per ASTM D1193, to run the sophisticated instruments for environmental sample processing and their analysis. The system is capable of producing RO pure and Nano pure water with a pre-requisite for preparation of samples before analysis.

## Analysis of Samples received by the Laboratory during 2021-22

Month-wise details of total number of samples received and analysed in Instrumentation Lab for trace metals, Mercury, AOX and TOC using ICP-MS, ICP-OES, Mercury Analyser, TOC Analyser and AOX Analyser are as given below:

Sl. No.	Month	Total No. of Sample received	No. of Samples analysed	No. of Measurements
1.	April – 2021	118	104	340
2.	May – 2021	0	5	5
3.	June – 2021	204	62	445
4.	July – 2021	120	229	1,122
5.	August – 2021	148	82	282
6.	September – 2021	193	158	1,368
7.	October – 2021	87	174	1,317
8.	November – 2021	305	264	1,408
9.	December - 2021	243	414	3,491
10.	January - 2022	168	74	583
11.	February - 2022	70	187	1,249
12.	March - 2022	173	127	602
	<b>Total</b>	<b>1,829</b>	<b>1,880</b>	<b>12,212</b>

The procurement of EDXRF in Instrumentation laboratory is under process.

370 air filter samples (PM<sub>2.5</sub>) of Pre Diwali, Diwali and Post Diwali ambient air quality monitoring were received for elemental analysis by EDXRF and analyzed for 2220 measurements. The results as received were checked and compiled. Test reports were prepared.

### **Performance Evaluation of Environmental Laboratories of Central and State Pollution Control Boards, State Pollution Control Committee's, EPA Recognized Labs (Government/ Public Sector & Pvt./NGO) Through 33<sup>rd</sup> "Analytical Quality Control (AQC) Exercise for trace metals".**

Central Pollution Control Board has dispatched letters to 287 Environment laboratories including Central and State Pollution Control Boards, State Pollution Control Committee's, EPA Recognized Labs (Government/ Public Sector & Pvt./NGO) and requested to send their willingness along with payment of participation fee, for participation in the 33<sup>rd</sup> AQC exercise.

To conduct this exercise systematically the instrumentation laboratory has prepared a Standard Operating Procedure to conduct the 33<sup>rd</sup> AQC exercise on trace metals and get approved by the Divisional Head, Instrumentation laboratory.

In this exercise, two different concentration of samples along with sample analysis instruction sheet have been sent to each participating laboratory which has submitted their willingness and participation fee.

An Internal Committee is constituted for the Evaluation of 33<sup>rd</sup> Analytical Quality Control (AQC) Test Results Received from 144 nos. of Participating Environmental Laboratories. The office order is forwarded to all committee members for fair, accurate, transparent and early evaluation of test results received from the participating laboratories.

Finally, CPCB has declared the 33<sup>rd</sup> AQC results on 16<sup>th</sup> July 2021. The performance report of each individual laboratory has been prepared on the basis of z-score for each parameter and the score card of each laboratory has been sent through email.

#### **Summary of the 33<sup>rd</sup> AQC outcomes:**

1. Total number of laboratories participated in 33<sup>rd</sup> AQC exercise = 147
  - i. Govt. Laboratories = 45
  - ii. Private Laboratories = 102
2. Total number of laboratories submitted their test results = 144
  - i. Govt. Laboratories = 43
  - ii. Private Laboratories = 101
  - iii. Results not submitted = 03
3. Total number of laboratories scored >60.00 % =121 (84 %)
  - i. Govt. Laboratories = 30
  - ii. Private Laboratories = 91
4. Total number of laboratories scored <60.00 % =23 (16 %)
  - i. Govt. Laboratories = 13
  - ii. Private Laboratories = 10
5. Total number of laboratories scored 100 % = 37 (26 %)
  - i. Govt. Laboratories = 05
  - ii. Private Laboratories = 32
6. Performance of CPCB's laboratories including CPCB Head Office is greater than 60.00% for all laboratories (5/5)

#### **IMPLEMENTATION AND TRANSITION OF NABL ACCREDITATION TO ISO/IEC 17025:2017**

The Instrumentation Laboratory being a part of Central Laboratory of CPCB is NABL Accredited ISO/IEC 17025:2017. The external audit was conducted during November 20-21, 2021 and the laboratory has successfully complied the requirements that needs to fulfil all the requirement of new version of standards.

As per requirement, the laboratory has provided inputs for finalization of the Quality manual for accreditation as per the new version of ISO 17025:2017. Prepared/revised the Standard Operating Procedures (SOP) for the following analytical instruments/ techniques:

- AAs for Flame Atomic Absorption Spectrophotometer (FAAS), Electro-thermal Atomic Absorption Spectrophotometer (ETAAS) & Hydride Generator Atomic Absorption Spectrophotometer (HG-AAS)
- Inductively Coupled Plasma Mass Spectrometer (ICP-MS). And
- Inductively Coupled Plasma – Optical Emission Spectrometer (ICP-OES)
- Mercury Analyser
- TOC analyser

Prepared and finalized the System procedures for the following:

1. Procedure for Ensuring the Validity of Test Results and Internal Quality Check Plan,
2. Procedure to Determine the Competence, Authorization, Monitoring Competence in a Laboratory.
3. Procedure for Intermediate Check of Performance of Measuring Equipment.
4. Procedure to address Risk Identification and Opportunities for Improvement in Instrumentation laboratory.
5. Procedure for impartiality and Confidentiality.



### **Other SOPs:**

- SOP for “Monitoring of Environmental Conditions in Instrumentation Laboratory” has been prepared and finalized and get controlled by Quality cell.
- Prepared and finalized the SOP for Sample receiving system in Instrumentation Laboratory
- Revised the SOP for “Procedure for Holding of Samples for Retesting” and get controlled by Quality Cell.
- Risk has been identified and Assessment Based On IS/ISO/IEC 17025:2017 has been prepared for Instrumentation Laboratory.
- Verification of results as per IS\_17025:2017.
- Prepared Quality control chart (Shewart’s charts) of 13 elements for ICP-OES.

### **IMPLEMENTATION OF OH&SMS as per IS/ISO 45001:2018**

- All the preparedness to fulfil the requirements of OHSMS at the Instrumentation lab has been performed for Internal Audit of the lab. Hazard Identification and Risk Assessment (HIRA) document of the laboratory has been revised and get controlled by Management Representative (MR).
- Laboratory has successfully participated in the internal audit as per IS/ISO 45001:2018 and also two officials performed the internal audit of Building Division and Air laboratory.
- Subsequently the laboratory has successfully participated in the online External Audit by BIS as per IS/ISO 45001:2018 and got the extension of its Certification of OHSMS.
- Now, the laboratory has got accreditation as per IS/ISO 45001:2018.

### **Procurement of Instruments/ equipment under Lab Strengthening Project**

#### **Procurement under EPC Fund**

Being a user division and member of Purchase committee for Scientific and Technical items, associated in the procurement of Energy Dispersive X-Ray Fluorescence Spectrometer (EDXRF), Direct Mercury Analyzer and Inductively Coupled Plasma –Optical Emission Spectrometer under EPC Fund. The procurement procedures were completed for ICP-OES under installation in Inst. Lab.

Following instruments are purchased and installed at Instrumentation laboratory.

1. Conductivity Meter – 1 No.
2. Water Bath – 1 No.
3. Refrigerator (Big) – 2 Nos.
4. Refrigerator (Small) – 2 Nos.
5. Muffle Furnace – 1 No.
6. Orbital Shaker – 1 No.
7. BOD Incubator – 1 No.
8. Deep Freezer (Vertical) – 1 No.
9. Visi-Cooler, 300L – 1 No.

### **Recognition of Environmental Laboratories under E(P)A-1986:**

- A new Expert Committee for operationalization of “Guidelines for Recognition of Environmental laboratories under the E(P)A, 1986 has been constituted.
- Organized 66<sup>th</sup> and 67<sup>th</sup> Expert committee meeting on 6<sup>th</sup>- 7<sup>th</sup> September, 2021 and 14<sup>th</sup> & 20<sup>th</sup> January, 2022 and placed the comments of 103 (52 +51) cases of Private laboratories and 11 (06 +05) cases of Govt./ Semi Govt./ Public undertaking/ Institutes after processing the applications and compliance reports.
- Recommendations of the Expert Committee with respect to the recognition of Environmental Laboratories (Govt. & Private) under the EPA, 1986, the observations/ recommendations have been communicated to all the respective labs for information and corrective action at their level by e mail.
- Total 06 Govt. Labs and 57 Private Labs lab has been considered for recognition under the EPA, 1986.
- EPA web portal (Version2) has been developed and Presently the applications are being received through EPA web portal ( <https://cpcbepalab.in/epalab>) and processing of applications also being done through the said portal.

### **Revision of Guidelines**

- Constituted an Expert Committee for revision of Guidelines for EPA Recognition of Environmental laboratories under the E(P)A, 1986 .The laboratory has coordinated and organized 1<sup>st</sup> and 2<sup>nd</sup> Expert Committee meeting for revision of Guidelines for EPA Recognition of Environmental laboratories under the E(P)A, 1986 held on 27<sup>th</sup> Oct 2021 and 28<sup>th</sup> Feb. 2022, respectively.The first draft of Guidelines for EPA Recognition of Environmental laboratories under the E(P)A, 1986 have been prepared and forwarded to the members of expert committee, Regional Directorates, CPCB and all Divisional Heads, CPCB, for their comments.

### **Laboratory Information Management System (LIMS)**

Implementation of LIMS for online management of data for smooth functioning and transparency is under the process of implementation.



**SUPPLEMENTARY INFORMATION**

**AQM-DIVISION**

**NATIONAL CLEAN AIR PROGRAMME**

**Q. What is the basis of framing National Clean Air Programme?**

**Ans.** With recent policy interventions, the air quality has purportedly shown some minor improvement in some major cities in recent times, which, as of now, cannot be called a trend. This is not sufficient and a higher level of focused, time-bound initiatives, at both the city and rural level, appear obligatory to address the issue in a comprehensive manner at the national level. It is in this context that the need for a National Clean Air Programme (NCAP) as a national-level strategy for reducing the levels of air pollution at both the regional and urban scales is felt.

**Q. What is the goal and tenure of NCAP?**

**Ans.** The goal of the NCAP is to meet the prescribed annual average ambient air quality standards at all locations in the country in a stipulated timeframe (long-term). NCAP will be a mid-term, five-year action plan to begin with keeping 2019 (revised due to lack of data during 2017) as the base year. However, the international experiences and national studies indicate that significant outcome in terms of air pollution initiatives are visible only in the long-term, and hence the programme may be further extended to 20–25 years in the long-term after a mid-term review of the outcomes.

**Q. What is the target of NCAP?**

**Ans.** Taking into account the available international experiences and national studies, the tentative national level target of 20%–30% reduction of PM<sub>2.5</sub> and PM<sub>10</sub> concentration by 2024 is proposed under the NCAP. This is keeping 2017 as the base year for the comparison of concentration.

**Q. What are the objectives of NCAP?**

**Ans.** Following are the objectives of NCAP:

- To ensure stringent implementation of mitigation measures for prevention, control and abatement of air pollution.
- To augment and evolve effective and proficient ambient air quality monitoring network across the country for ensuring a comprehensive and reliable database.

- To augment public awareness and capacity-building measures encompassing data dissemination and public outreach programmes for inclusive public participation and for ensuring trained manpower and infrastructure on air pollution.

**Q. What approach have been proposed under the plan? What is the implementing mechanism?**

**Ans.** Following approach will be undertaken for implementation of NCAP:

- Collaborative, multi-scale and cross-sectoral coordination between the relevant central ministries, state governments and local bodies.
- Mainstreaming and integrating the existing policies and programmes of the including the National Action Plan on Climate Change (NAPCC) and other initiatives of Government of India in reference to climate changes.
- With reference to NAPCC the main focus will be on mainstreaming the initiatives under five national missions of NAPCC viz. National Solar Mission, National Mission for Enhanced Energy Efficiency, National Mission on Sustainable Habitat, National Mission for a Green India and National Mission for Sustainable Agriculture.
- While many of these policies and programmes are already part of our current actions, they may need a change in direction, enhancement of scope, and effectiveness and an accelerated implementation of time-bound plans.
- The NCAP will be dynamic and will continue to evolve based on the additional available scientific and technical information as they emerge and in response to international best practices and experiences that are available.

Implementation mechanism of NCAP is as follows:

- The CPCB shall, in consonance with the Air (Prevention and control of Pollution) Act, 1981, and in particular with the provision of Section 16(2)(b) of the Act, execute the nation-wide programme for the prevention, control, and abatement of air pollution within the framework of the NCAP.
- The NCAP will be institutionalized by respective ministries and will be organized through inter-sectoral groups, which include, in addition to the related ministries, the Ministry of Finance, Ministry of Health, NITI Aayog, CPCB, experts from the industry, academia, and civil society.
- The Ministry of Road Transport and Highways (MoRTH) acts as a nodal agency for the implementation of various provisions on control of air pollution from vehicles through Motor Vehicle Act, 1988, and Central Motor Vehicle Rules 1989.
- In addition, various other ministries viz. MoEF&CC, M/o Power, M/o Petroleum and Natural Gas, M/o New and Renewable Energy, M/o Heavy Industry, M/o Housing and Urban Affairs, M/o Agriculture through incorporating pollution in their sectoral policies contribute to air pollution mitigation.
- Ministry of Environment, Forest and Climate Change (MoEF&CC) is implementing NAPCC with eight missions spreading across various sectors. Five of the missions viz. National Mission for a Green India, National Mission for Enhanced Energy Efficiency, National Solar Mission, National Mission on Sustainable Habitat, National Mission for Sustainable Agriculture have direct link with mitigation of air pollution, which can be one of the co-benefit of these ongoing missions.
- Each sector specific Working Group will be tasked to evolve specific objectives spanning the remaining years of this Plan Period and subsequently.
- Comprehensive component-wise documents detailing objectives, strategies, plan of action, timelines and monitoring, and evaluation criteria would be developed.
- The Apex Committee in the Ministry will periodically review the progress of these Components. Annual performance will be periodically reported upon. Appropriate indicators will be evolved for assessing the emission reduction benefits of the actions.

**Q. When was NCAP launched?**

Ans. NCAP was launched by MoEF&CC on 10<sup>th</sup> January, 2019.

**Q. What are the major components of NCAP?**

Ans. NCAP has following three major components:

1. Mitigation Actions
2. Knowledge and Database Augmentation
3. Institutional Strengthening

**Q. Are there any strategies outlined for local, city, regional, transboundary levels?**

Ans. *Following strategies are outlined for local levels:*

▪ Land use planning: demand side management	Dept. of Planning
▪ Transport: enhancing public transport, plying restrictions, I&M, and non-motorized transportation	Dept. of Transport
▪ Waste: Solid waste management, land fill gas recovery	Municipal Corp.
▪ Roads: Paving, maintenance and cleaning of roads	PWD
▪ DG set: 24x7 power supply	Dept. of Energy
▪ Enforcement	SPCBs

**Following strategies are outlined for city (city/state level) levels:**

▪ Land use planning: demand side management	Dept. of Planning
▪ Transport: enhancing public transport, plying restrictions, I&M, and non-motorized transportation	Dept. of Transport
▪ Waste: Solid waste management, land fill gas recovery	Municipal Corp.
▪ Roads: Paving, maintenance and cleaning of roads	PWD
▪ DG set: 24x7 power supply	Dept. of Energy
▪ Enforcement	SPCBs

**Following strategies are outlined for regional levels:**

▪ Transport: Auto fuel policy for stringent norms for fuel and vehicles, road toll/ waterways, fleet modernization, electric vehicle policies, clean fuels, bye-passes, taxation policies etc.	MoRTH, MoPNG
▪ Industries: Stringent industrial standards, clean fuels, clean technology, emission trading schemes, and enforcement (continuous monitoring)	MoEF&CC, CPCB
▪ Biomass: Enhanced LPG penetration, agricultural burning control and management	MoPNG, MoA

**Following strategies are outlined for transboundary levels:**

<ul style="list-style-type: none"> <li>▪ Linking INDC's target of additional forest and tree cover of 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent by 2030 to the NCAP. There needs to be more focus on the western regions of India (Rajasthan and Gujarat) for an enhanced tree cover, which will reduce wind-blown dust within the country and will also act as barriers for transboundary dust.</li> </ul>	MoEF&CC
<ul style="list-style-type: none"> <li>▪ Air quality management at the South-Asia regional level.</li> </ul>	Intergovernmental taskforce

**Q. What type of mitigation actions are proposed under NCAP?**

Ans. Following are the subcomponents of mitigation actions proposed under NCAP:

S.NO.	COMPONENT/ACTIVITIES in NCAP
1	<b>AIR POLLUTION MITIGATION MEASURES</b>
1.1	<b>STRINGENT ENFORCEMENT THROUGH THREE TIER MECHANISM FOR REVIEW OF MONITORING, ASSESSMENT AND INSPECTION</b>
1.1.1	Web based system on above line to be evolved in association with NIC and other relevant national and international agencies.
1.1.2	Intensive training of all the stakeholders involved in implementation of this web based system.
1.1.3	Mandatory use of this three tier mechanism in 102 cities.
1.2	<b>EXTENSIVE PLANTATION DRIVE</b>
1.2.1	Plantation initiatives under NCAP at pollution hot spots in the cities/towns to be undertaken under GIMs with Compensatory Afforestation Fund (CAF) being managed by National Compensatory Afforestation Management and Planning Authority (CAMPA).
1.2.2	Development of plantation plans for the non-attainment cities/towns involving Universities as University of Delhi and other Research Organizations with expertise in plantation.
1.2.3	Execution of city specific plantation plans.
1.3	<b>TECHNOLOGY SUPPORT</b>
1.3.1	Clean Technologies with potential for air pollution mitigation will be supported for R&D, pilot scale demonstration and field scale implementation.
1.3.2	The mechanism for such support will be formulated as an action plan.
1.4	<b>REGIONAL AND TRANSBOUNDARY PLAN</b>
	<b>Regional Measures</b>
1.4.1	Various measures specially implementation of pollution abatement policies as Transport- Auto fuel policy for stringent norms for fuel and vehicles, road to rail/waterways, fleet modernization, electric vehicle policies, clean fuels, bye-passes, taxation policies etc Industries – Stringent industrial standards, clean fuels, clean technology, enforcement (continuous monitoring); and Biomass– Enhanced LPG penetration, agricultural burning control and management need to emphasized through regional level inter-state coordination for Indo-Gangetic plain.
1.4.2	A comprehensive Regional Plan to be formulated incorporating the inputs from Regional Source Apportionment studies.
	<b>Transboundary Measures</b>
1.4.3	Linking INDC's target of additional forest and tree cover of 2.5 to 3 billion tonnes of CO <sub>2</sub> equivalent by 2030 to NCAP. There needs to be more focus on western regions of India (Rajasthan and Gujarat) for enhanced tree cover, which will reduce wind-blown dust within the country and will also act as barriers for trans-boundary dust.

1.4.4	Air quality management at South-Asia regional level through Intergovernmental task force to be explored.
1.4.5	A comprehensive Transboundary Plan to be formulated
	<b>SECTORAL INTERVENTIONS</b>
1.5	<b>DUST MANAGEMENT (ROAD DUST AND C&amp;D)</b>
1.5.1	Introducing mechanical sweepers on the basis of feasibility study in cities;
1.5.2	Evolve SOP for addressing the specific issue of disposal of collected dust from mechanical sweeping, taking into consideration all the above cited factors.
1.5.3	Stringent implementation of C&D Rules, 2016 and Dust Mitigation notification, 2018 of Government of India.
1.5.4	Wall to wall paving of roads to be mandated.
1.5.5	Control of dust from construction activities using enclosures, fogging machines, and barriers-stringent implementation.
1.5.6	Greening and landscaping of all the major arterial roads and national highways after identification of major polluting stretches.
1.5.7	Maintenance and repair of roads on priority.
1.5.8	Sewage Treatment Plant (STP) treated water sprinkling system having PVC (Polyvinyl Chloride) pipe line along the roads and at intersecting road junctions and spraying of water twice a day before peak traffic hours.
1.6	<b>INDOOR AIR POLLUTION MANAGEMENT</b>
1.6.1	Building specific Guidelines and Protocols on monitoring and management of indoor air pollution.
1.6.2	Extend PMUY in 102 cities/towns and associated village areas.
1.6.3	Guidelines and provisions for building designs that define proper ventilation, clean cooking and living area to maintain healthy air quality inside the house to be integrated with Pradhan Mantri Awas Yojana (PMAY)
1.7	<b>POWER SECTOR EMISSIONS</b>
1.7.1	Stringent compliance by all TPPs with respect to the emission norms according to the timelines upto December 2022 and as per the action plan prescribed in the direction dated December 2017 issued under EPA 1986.
1.7.2	CGD network distribution shall be taken up on priority within the country, emphasizing on 102 non-attainment cities.
1.7.3	There is need for optimizing the use of existing power plants by prioritizing capacity utilization of natural gas/ clean fuel based thermal power plants.
1.7.4	Phasing out older coal based power plants and converting specific coal based power plants to natural gas.
1.7.5	Emphasis on improved power reliability in urban areas to eliminate the operation of DG sets.
1.7.6	Emphasizing the expansion of renewable power initiatives prioritizing the use of existing framework of NAPCC in non-attainment cities.
1.8	<b>INDUSTRIAL EMISSION</b>
1.8.1	Introduction of gaseous fuels in industries including SMEs.
1.8.2	Enforcement of new and stringent SO <sub>2</sub> /NO <sub>x</sub> /PM <sub>2.5</sub> standards for industries using solid fuels.
1.8.3	Stricter enforcement of standards in large industries through continuous monitoring.
1.8.4	Full enforcement of zig-zag brick technology in brick kilns.
1.8.5	Elimination of DG set usage by provision of 24x7 electricity.
1.8.6	Evaluate and evolve industry specific innovative tail-pipe control technologies.
1.8.7	Evolve standards and norms for in-use DG sets
1.8.8	Ensure DG Sets meeting the standards are only allowed to be marketed and sold.
1.8.9	For DG Sets already operational, ensure usage of either of the two options:



	(i)Use of retrofitted emission control equipment having a minimum specified PM capturing efficiency of at least 70%, type approved by one of the 5 CPCB recognized labs.  (ii)Shifting to gas-based generators by employing new gas based generators or retrofitting existing DG sets for partial gas-usage.
1.8.10	Utilize Gujarat case study for a compelling case for other States to adopt third party audits for polluting industries for enhancing implementation.
1.9	<b>TRANSPORT SECTOR EMISSION</b>
1.9.1	Stringent implementation of BS VI norms all over India by April 2020.
	<b>Green Mobility</b>
1.9.2	Stringent implementation of National Biofuel Policy with respect to ethanol and biodiesel blending target of 20% and 5%, respectively by 2030.
1.9.3	City Action plans to review the extension of Mass Rapid Transit (MRT) in cities/towns.
1.9.4	Improvement and strengthening of inspection and maintenance system for vehicles through extension of Inspection and Certification (I&C) centres
1.9.5	Stringent implementation of PUC Certificate through regular inspection and monitoring
1.9.6	Fleet modernization and retro-fitment programmes with control devices to be in place
1.9.7	Reducing real world emissions by congestion management
1.9.8	Review the Green Corridor Project and feasibility of its extension with reference to 102 cities
1.9.9	To review the scaling up of Pilot project of MoPNG for introducing CNG in 2-wheelers and ensure timely implementation
1.9.10	Scaling up of R&D on use of Hydrogen as transport fuel
	<b>E-Mobility</b>
1.9.11	Formulation of National, State and City specific action plan for e-mobility
1.9.12	Rapid augmentation of charging infrastructure in the country focusing on 102 cities
1.9.12	Central Government offices fleets older than 15 years to be shifted to electric vehicles
1.9.13	Government-run buses for public transport, private buses and 3-wheelers to be converted to EV
1.9.14	Gradual transition to e-mobility in the 2-wheeler sector.
1.9.15	Specific allocations for creating a venture capital fund for e-mobility.
1.9.16	Investment in R&D and pilots focusing on indigenization of battery manufacturing, cheap alternate resource to lithium and cobalt, resource efficiency associated with circular economy, re-use and recycling for lithium batteries etc.
1.10	<b>CROP RESIDUE MANAGEMENT</b>
1.10.1	Evaluate the status of implementation of the MoA funded scheme in the states and impact on reduction of air pollution in Delhi and NCR.
1.10.2	Evaluate the socio-economic feasibility for implementation of ex-situ options like production of Prali-Char, biochar, pellets, briquettes, bioCNG, bioethanol etc. as ex-situ solutions for management of crop residue burning especially with NPB in place.
1.10.3	Review the impact of crop residue burning on air pollution in other part of the country.
1.10.4	Coordination with ISRO for regular availability of Remote Sensing Monitoring data for crop burning by the farmers.
1.11	<b>WASTE MANAGEMENT</b>
1.11.1	Formulate plan for use of Smart Cities framework to launch NCAP in the 43 smart cities falling in the list of 102 non-attainment cities.
1.11.2	Transform our centralised waste disposal infrastructure to a sustainable decentralised system in 102 cities.

1.11.3	Source Segregation into dry and wet waste to be made mandatory through involvement of municipalities and RWA.
1.11.4	Mandatory Training and capacity building of municipalities and RWA.
1.11.5	Formulation of city specific plan for transitioning towards a zero-waste pathway through an integrated solid waste management strategy, including targeting waste prevention, recycling, composting, energy recovery, treatment, and disposal.
1.11.6	Stringent implementation of integrated waste management plan in cities.
1.11.7	Waste reduction schemes such as “polluters pay” principle, recycling projects, composting, biomethanation, RDF plants and co-processing to be supported under integrated solid waste management strategy.
1.11.8	Construction of decentralized composting plant, biomethanation plant and C&D waste plants.
1.11.9	Deployment of fixed compactor and doing away with dhalaos.
1.11.10	Focus for training of Municipalities and SPCBs to be on national and international technologies for integrated waste management options.
1.11.11	In line with National Biofuel Policy, promote technologies which can convert waste/plastic, MSW to drop in fuels. One ton of such waste has the potential to provide around 20% of drop in fuels.
1.11.12	Stringent implementation and monitoring for Extended Producer Responsibility for e-waste and plastic waste.
1.11.13	Strict implementation of existing six waste management’s rules on solid, Hazardous, Electronic, Bio-medical, Plastics and C&D waste.
1.11.14	Swachh Bharat Mission and National Mission on Sustainable Habitat to be used as platform to push the objectives under this sector.
1.12	<b>CITY SPECIFIC AIR QUALITY MANAGEMENT PLAN FOR 102 NON-ATTAINMENT CITIES</b>
1.12.1	Preliminary City-specific action plans to be formulated for 102 non-attainment cities.
1.12.2	City-specific action plans to be taken up for implementation by State Government and city administration.
1.12.3	City based clean air action plans are to be dynamic and evolve based on available scientific evidences including the information available through source apportionment studies.
1.12.4	A separate emergency action plan in line with GRAP for Delhi to be formulated for each city for addressing the Severe and Emergency AQI.

**Q. What type of actions are proposed under knowledge and database augmentation?**

Ans. Following actions are proposed:

<b>2</b>	<b>KNOWLEDGE AND DATABASE AUGMENTATION</b>
<b>2.1</b>	<b>Air Quality Monitoring Network</b>
<b>2.1.1</b>	Augment the Manual monitoring stations from existing 703 stations to 1500 stations.
<b>2.1.2</b>	150 CAAQMS with average of 2-3 stations in each city to be installed prioritizing Indi-Gangetic plain.
<b>2.1.3</b>	Identification of alternative technology for real time monitoring with impetus on low cost indigenous real-time monitoring stations and promoting real time monitoring in other cities these low cost sensors.
<b>2.1.4</b>	Mobile air quality monitoring network to be made part of these alternative technologies. At least one mobile monitoring station for each city to be considered. This will facilitate preliminary assessment in areas without conventional monitoring stations.
<b>2.1.5</b>	Set up 100 monitoring stations in rural areas.
<b>2.1.6</b>	Review the existing guideline and issue protocol for setting up of monitoring stations and monitoring.

<b>2.1.7</b>	Augment the number of monitoring stations for PM2.5 from existing 167 in 80 cities to all stations under NAMP.
<b>2.1.8</b>	<b>Set up 10 city Super Network</b> to generate highly quality controlled data and represent national air quality dynamics.
<b>2.1.9</b>	The Plan for <b>10 city Super Network</b> to be formulated.
<b>2.2</b>	<b>EXTENDING SOURCE APPORTIONMENT STUDIES TO ALL NON-ATTAINMENT CITIES</b>
<b>2.2.1</b>	Unified guideline for source apportionment study will be formulated.
<b>2.2.2</b>	Source apportionment studies to be extended to all 102 non-attainment cities.
<b>2.3</b>	<b>AIR POLLUTION HEALTH IMPACT STUDIES</b>
<b>2.3.1</b>	Study on National Environmental health profile to be completed in time.
<b>2.3.2</b>	Ministry of Health to actively take up environmental health for ensuring regular health profile or database for assisting decision making.
<b>2.4</b>	<b>INTERNATIONAL COOPERATION INCLUDING SHARING OF INTERNATIONAL BEST PRACTICES ON AIR POLLUTION</b>
<b>2.4.1</b>	International scientific and technical cooperation in the area of air pollution will be established in accordance with national priorities and socio-economic development strategies and goals.
<b>2.4.2</b>	Modalities of such cooperation may include joint research and technology development, field studies, pilot scale plants and field demonstration projects with active involvement of academia, research institutions and industry on either side.
<b>2.5</b>	<b>REVIEW OF AMBIENT AIR QUALITY STANDARDS AND EMISSION STANDARDS</b>
<b>2.5.1</b>	Guidelines with respect to periodicity of review of such standards to be formulated
<b>2.5.2</b>	The existing standards need to be strengthened periodically and new standards need to be formulated for the sources where standards are not available, based on extensive scientific evidence with reference to protection of public health and environment.
<b>2.6</b>	<b>NATIONAL EMISSION INVENTORY</b>
<b>2.6.1</b>	Comprehensive National Emission Inventory which is still lacking in the country will be formalized under NCAP.

**Q . What type of actions are proposed under institutional strengthening?**

Ans. Following actions are proposed:

<b>3</b>	<b>INSTITUTIONAL CAPACITY</b>
<b>3.1</b>	<b>PUBLIC AWARENESS AND EDUCATION</b>
<b>3.1.1</b>	City specific Awareness programme targeting key stakeholders to be formulated and taken up for implementation.
<b>3.2</b>	<b>TRAINING AND CAPACITY BUILDING</b>
<b>3.2.1</b>	Extensive capacity building programme for both CPCB and SPCBs with reference to both manpower and infrastructure augmentation;
<b>3.2.2</b>	Intensive training, comprising of national and international best practices and technological options, of all the associated stakeholders.
<b>3.3</b>	<b>SETTING UP OF AIR INFORMATION CENTRE</b>
<b>3.3.1</b>	Plan for setting up of Air Information Centres will be formulated.
<b>3.3.2</b>	Air Information Centres at central level and regional level will be set up in some of the identified institutes.
<b>3.4</b>	<b>CERTIFICATION SYSTEM FOR MONITORING INSTRUMENTS</b>
<b>3.4.1</b>	To operationalise NPL-India Certification Scheme (NPL-ICS) at central and regional level to cater to the country's needs in respect of online monitoring of air pollution.

<b>3.4.2</b>	To evolve action plan for the need of certification agencies for air pollution mitigation equipment in addition to monitoring equipment.
<b>3.5</b>	<b>AIR QUALITY FORECASTING SYSTEM</b>
<b>3.5.1</b>	All the ongoing and future initiatives under SAFAR will be integrated with NCAP for taking all preventive measures to draw the benefits for addressing the air pollution issue from available information.
<b>3.5.2</b>	The efforts will be to extend it to 102 non-attainment cities under NCAP.
<b>3.6</b>	<b>NETWORK OF TECHNICAL INSTITUTIONS- KNOWLEDGE PARTNERS</b>
<b>3.6.1</b>	Detailed Action Plan for setting up of the network integrating with existing network under NAPCC to be formulated.
<b>3.6.2</b>	System of regular web based online interaction mechanism will be evolved to ensure continuity of interactions.
<b>3.7</b>	<b>TECHNOLOGY ASSESSMENT CELL</b>
<b>3.7.1</b>	A detail action plan for Technology Assessment Cell to be formulated.
<b>3.7.2</b>	Technology Assessment Cell will be created involving IITs, IIMs, Universities, industries and using the existing mechanisms and programme of DST, India Innovation Hub etc.
<b>3.8</b>	<b>INSTITUTIONAL FRAMEWORK</b>
	<b>Centre Level</b>
<b>3.8.1</b>	National Monitoring committee at MoEF&CC
<b>3.8.2</b>	National Level PMU at MoEF&CC
<b>3.8.3</b>	Five (5) Sectoral Working Groups on co-chairing basis
<b>3.8.4</b>	Technical Expert Committee at MoEF&CC
<b>3.8.5</b>	National level Project Implementation Unit (PIU) at CPCB
	<b>State Level</b>
<b>3.8.6</b>	State Monitoring Committee under Chief Secretary in States
<b>3.8.7</b>	State Level PMU at SPCB
<b>3.8.8</b>	City level Review Committee under Municipal Commissioner
<b>3.8.9</b>	DM level Committee in the Districts

**Q. What are the committees constituted for implementation of NCAP?**

Ans. Three national committees have been constituted:

1. Steering Committee
2. Monitoring Committee
3. Implementation Committee

**Q . What are the terms of condition of Steering Committee?**

Ans. The terms of reference of the Steering Committee are:

- i. To provide overall guidance and direction for effective implementation of NCAP for each financial year.
- ii. To review the overall progress of the components/ activities of NCAP
- iii. To approve the budget for NCAP and also approve the annual action plan for NCAP submitted by State governments.
- iv. To ensure inter-ministerial/ organizational cooperation & sharing of information and to resolve inter-ministerial/ organizational issues under NCAP.
- v. The headquarter of the committee shall be at New Delhi.
- vi. To meet periodically/ as and when required in Delhi

**Q . What are the terms of condition of Monitoring Committee?**

Ans. The terms of reference of the Monitoring Committee are:

- i. To review the draft interventions and action plans submitted by State Governments and forward them to the Steering Committee.
- ii. To monitor the progress of the components/ activities of NCAP to ensure strict implementation of the programme.
- iii. To oversee that all interventions under NCAP are in line with the programme document/ operational guidelines and that the city/ component-wise implementing agencies/ partners are appropriately tasked to deliver the results expected.
- iv. To review any other matters referred to them by the Steering Committee and make recommendations to this committee on these matters as and when required.
- v. To stimulate collaboration between the organisations involved with city-specific components/ activities under NCAP.
- vi. To meet periodically/ as and when required in Delhi.

**Q . What are the terms of condition of Implementation Committee?**

Ans. The terms of reference of the Implementation Committee are:

- i. To evaluate the progress made in implementing the state/ city-wise action plan under NCAP and to report on the aforesaid progress as per the terms and frequency determined by the Steering Committee
- ii. To review any matters referred to them by the Steering & Monitoring Committees and make recommendations to these committees on these matters as and when required.
- iii. To facilitate collaboration and sharing of information between the states/ cities and its partner agencies as they implement the city action plan under NCAP.
- iv. To meet as and when required in Delhi.

**Q. How many Steering, Monitoring and Implementation Committees have been held so far?**

Ans.: Under NCAP, 04Steering, 07Monitoring and 09 Implementation Committees Meeting have been convened so far.

**Q. What are the committees constituted for implementation of NCAP at State Level?**

Ans. Three state level committees (Steering, Monitoring and Implementation)have been constituted for implementation of NCAP. 24 states with 132 non-attainment and million plus cities have constituted Steering and Monitoring Committees. 132 identified citieshave constituted city level implementation committee

**Q. What is National Knowledge Network?**

Ans. The National Knowledge Network (NKN) has been constituted under NCAP with a vision to build local technical capacities in order to have a larger pool of institutes to support activities under NCAP. NKN also has objective to prepare the identified institutes of repute (IoR) not only for the current programme but also to create adequate capacity in the States/UTs to support future air quality management efforts. NKN, will be an advisory group to the Central Pollution Control Board (CPCB) and shall function with the support of CPCB under NCAP program.

**Q. What are Institutes of Repute (IoR)?**

Ans. IoRs have been identified for every state with non-attainment cities to carry out air quality management research and provide technical support to States for improving air quality. States (State Pollution Control Boards/ Committees and Urban Local Bodies) have signed Memorandum of Understanding with identified IoRs for implementation of various air quality management activities. So far 23 States/ Union Territories have signed MoUs.

**Q. How will NCAP be funded?**

Ans. As per minutes of 3<sup>rd</sup> steering committee of NCAP, fund allocations under NCAP is based on the factor of population and PM10 concentration (FY 2019-20) and release and utilization of funds is guided by the “Guidelines for Release and Utilization of Funds under NCAP” issued by MoEFCC.

**Q. Which cities/ towns are funded under NCAP?**

Ans - Out of 132 NACs, 90 cities are Non-Attainment Cities (NACs), 34 are million plus as well as non-attainment cities and 8 are only Million Plus Cities (MPC). Out of 90 NACs, 8 cities are part of Urban Agglomeration covered under MPC. Therefore, 82 NACs are covered and funded under NCAP and remaining 50 cities are covered and funded under 15th Finance Commission grants (XV-FC). List of non-attainment cities enclosed as **Annexure I**.

**Q. What was the fund allotted under NCAP for FY 2021-22?**

Ans: ₹290 crores were allotted under NCAP for 82 cities .

**Q. How much fund has been released so far under NCAP?**

Ans. Total Rs442.74 Cr. has been released till 31-3-2022 under NCAP

**Q. How NCAP fund are being utilized?**

Ans. The funding from NCAP is performance-based-supplemental grant for funding of activities of CAP for which adequate funding is not available from other sources and schemes.

Cities are advised to utilize the funds based on the approved city action plan and prioritize the actions approved with the City/ District level Implementation Committee.

Total of Rs. 227.62 Cr is utilized

**Q. How is progress under NCAP monitored in non-attainment cities?**

Ans. Robust format including following thematic areas has been circulated to all non-attainment cities to plan and provide the quarterly progress report.

- Air Quality Data,
- Capacity Building, Monitoring Network & Source Apportionment
- Public Outreach
- Road Dust and Construction & Demolition
- Vehicles
- Industries
- Waste and Biomass – Dumping and Burning

Also a Portal for Regulation of Air pollution in Non-Attainment cities: (PRANA), is being developed for monitoring of implementation of NCAP, wherein these robust details being digitized to track the physical and financial progress against city action plan in improvement of air quality made in NACs and disseminating the information to public.

**Q. What is the status of air quality management in the country and progress of activities under NCAP?**

Ans: 132 identified non-attainment cities have prepared city action plans and same have been rolled out for implementation. These action plans focus on city specific short/medium/long term actions to control air pollution from sources such as vehicular emission, road dust, burning of biomass/crop/garbage/Municipal Solid Waste, construction activities, industrial emission, etc.

42 million plus cities have been identified under Fifteenth Finance Commission (XVFC) for focused air quality management actions. Funds under XVFC are linked to performance of air quality indicator and year on year targets have been proposed for performance assessment.

Apart from source specific actions, city action plans also include actions such as capacity and infrastructure building of local agencies, source identification studies, emergency response system and public outreach. Under these action plans.

- Source Apportionment & Emission Inventory studies have been completed for 37 cities. Work is in progress in 54 cities and it is at proposal stage in 41 cities.
- Emergency Response System (ERS) have been developed in 122 cities and in progress in 10 cities.
- Public Grievance Redressal Portal (PGRP) on the pattern of Sameer app for Non-attainment cities is developed by 114 cities with dedicated helpline numbers/web portals active in 12 cities. In 6 cities dedicated helpline numbers/web portals is developed and app Under Development.

Quarterly progress report of implementation of city action plans in non-attainment cities are being submitted by States/ UTs. Three national and state level committees have been constituted namely Steering Committee, Monitoring Committee and Implementation Committee for overall guidance and direction for effective implementation of NCAP, reviewing proposed interventions, and to evaluate the progress made.

Monitoring network is expanded continuously and list of non-attainment cities updated every year based on criteria defined by CPCB.

In addition, Government has also taken several measures that will help in reducing air pollution across the country. These include implementation of BS VI norms, expansion of metro rail network in many cities, e-mobility, Ujjwala Yojna, Swach Bharat Mission, etc.

**Q. What is the proposed budget for air quality management in the country?**

Ans. In addition to budget available under various Central Government schemes, following funds are also made available specifically for air pollution mitigation

- Rs442.74 crore have been released to non-attainment cities under NCAP for initiating actions such as expansion of monitoring network, construction and demolition waste management facilities, non-motorised transport infrastructure, green buffers, mechanical street sweepers, composting units etc.

- As per the recommendations of the 15th Finance Commission, so far Rs 6425 crore have been released in the FY 2020-21 and 2021-22 as grants to tackle the burgeoning problem of air pollution for 42 cities/ urban agglomerates (UAs) having million plus population as per Census 2011.
- Further, as recommended under XVFC Million Plus City Challenge Fund for the year 2022-23, a provision of Rs 2299 crore has been made to these 42 cities/ UAs for improvement of air quality and ₹1,41,678 crore have been made for Urban Swachh Bharat Mission 2.0 over a period of 5 years from 2021-2026 with a focus on air pollution reduction by effectively managing waste from construction-and-demolition activities and bio-remediation of all legacy dump sites.
- Government of India has also released ₹1726.67 crore for crop residue management in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi, during the year 2018-21.

**Q. What is the definition of Non-attainment cities and criteria?**

Ans. Non-attainment cities (NACs) have been defined as those “cities which exceed annual average concentrations of any of the notified parameters under National Ambient Air Quality Standards consecutively for five years”.

The following criteria were approved for identifying NACs:

1. Ambient air quality data monitored during last consecutive five years should be available. The proposed list of NAC is based on the ambient air quality data for the period 2015-2019.
2. The cities exceeding annual National Ambient Air Quality Standards with respect to any one of the notified parameters for consecutively for five years shall be taken as a NAC
3. A city with adequate number of ambient air quality monitoring stations shall only be considered for NAC calculation. Minimum three (3) stations shall be considered as adequate number of monitoring stations in a city / town.
4. Adequate data of a city / town shall be taken as at least 104 days/observations of monitoring a year for all monitoring station in a city.
5. List of NAC shall be updated every year in the 1st week of June.
6. Exclusion criteria: Cities being within the NAAQS for consecutively five years will be excluded from the list of NACs.

**Q. How many smart cities of India is the part of Non-attainment cities?**

Ans. CPCB has identified 124 non-attainment cities based on air quality data for the period 2015 – 2019 including 47 smart cities.

**Q. What mechanism has been followed for release of XVFC and NCAP grants for FY 2021-22?**

Ans. The disbursement of fund earmarked in FY 2021-22 under XVFC is based on assessment of city performance on air quality on following four parameters:

- A. Strengthening of the pollution monitoring mechanism
- B. Source –wise cause analysis for air pollution
- C. Progress on action plan and compliance of statutory guidelines/rules
- D. Quantification of air quality improvement

The disbursement of fund earmarked in FY 2021-22 under NCAP is based on submission of Utilization Certificate of 60% utilization of fund release, Signing of Tripartite Memorandum of Understanding (MoU)



for air quality improvements as well as assessment of city performance on air quality on following three parameters:

- A. Strengthening of the pollution monitoring mechanism
- B. Source –wise cause analysis for air pollution
- C. Progress on action plan and compliance of statutory guidelines/rules

Guideline for utilization and release of fund under NCAP has been released by MoEFCC

**Q. What mechanism will be followed for release of NCAP grants for FY 2022-23 onwards?**

Ans. The disbursement of fund earmarked in FY 2022-23 under NCAP is based on submission of Utilization Certificate of 75% utilization of total fund released as well as assessment of city performance on air quality on Quantification of air quality improvement. The details are shown in Table 1:-

**Table 1: Performance evaluation framework for release of funds in FY 2022-23 to FY 2025-26**

S.No.	Release of funds during FY 2022-23	
<b>A.</b>	<b>First instalment</b>	
	<b>Necessary Condition</b>	<b>Funds to be released as First instalment</b>
<b>1</b>	Submission of utilization of 75% of funds available in previous financial year (unspent balance funds as on 1st April of previous financial year plus funds released during the previous financial year)	60% of annual allocation of the city in a particular financial year will be released.
<b>B</b>	<b>Second instalment</b>	
	<b>Necessary Condition</b>	<b>Funds to be released as First instalment</b>
<b>1.</b>	Submission of Utilization Certificates (UCs) of minimum 60% of available funds (unspent balance on 1st April of the FY plus the amount of funds released as first instalment in the Financial Year)	The quantum of funds to be released as percentage of allocated second instalment (40% of the annual allocation of the city) will be determined as per the achievement against the target assigned.

**Q. What is the role of State Level Monitoring and Implementation Committee (SLMIC)?**

Ans. As per operational guidelines issued by DoE, SLMIC will be responsible for submission of performance assessment report of million plus cities under XVFC. After recommendations received from this committee further process for release of fund will be proceeded year –on-year. States are also directed to constitute SLMIC under the chairmanship of Principal Secretary, Environment. Out of 15 states, constitution of SLMIC is under process in 2 states i.e. Chhattisgarh and Karnataka.

**Q. What are the targets for improvement in air quality for release of performance linked funds?**

Ans.:

**Under NCAP:**

Target for cities covered under NCAP is 20-45% reduction in PM levels by 2025-26 keeping 2019-20 as baseline for the improvement.

**Under XV-FC:**

Target for cities covered under XVFC is 15 % reduction in PM10 concentration & 15% improvement in AQI good days on year-on-year basis.

**Q. How many cities have submitted MoUs as per XVFC and NCAP Guidelines for improvement in air quality?**

Ans: As per XVFC Guidelines signed MoUs between MoEFCC, State Government and ULB have been submitted by all 42 cities and as per NCAP Guidelines signed MoUs between CPCB, SPCB and ULB have been submitted by 81 cities out of 82 cities.

**Q. How many cities have submitted the Performance Assessment Report for grants to be released for FY 2021-22 and FY 2022-23?**

Ans: Performance Assessment Reports for cities funded under NCAP and XVFC for the year FY 2021-22 have been submitted by all the cities. The details are enclosed as **Annexure X**. Further, for release of funds for FY 2022-23 the recommendation report from SLMIC is awaited.

**Q. How Air Quality Improvements are quantified?**

Ans: Details on quantification of air quality improvement are given below: -

- I. Annual Target for Reduction in PM10 concentration - The city wise targets for reduction of PM<sub>10</sub> concentrations for year 2021-22 to 2025-26 are fixed based on PM<sub>10</sub> concentration levels in year 2019-20 and possibility of achieving maximum reduction on best effort basis. Accordingly, targets of reduction of PM10 levels in consultation with states are determined.
- II. Evaluation of performance for Reduction in Air pollution levels (Particulate Matter)
  - For air quality management and assessment purpose the annual data will be considered from 1st April to 31st March.
  - The performance factor P for assessment year would be calculated as follows
$$P = 100 \times R(A) / R(T)$$
Where, Performance factor (On total score of 100) – P  
Actual reduction in PM10 for the Assessment year – R(A)  
Targeted reduction of PM10 for the assessment year – R(T)

**What is the State-wise physical progress of 132 cities under NCAP?**

State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRANA	SA/ EI	PGR P (App based )	GR AP	Io R	Hotspot identified	AQM C
Andhra Pradesh (13)	1.	Guntur	X	MoU Stage	✓	✓	✓	✓	✓
	2.	Kurnool	X	MoU Stage	✓	✓	✓	✓	✓
	3.	Nellore	X	MoU Stage	✓	✓	✓	✓	✓
	4.	Vijayawada	X	Under Progress	✓	✓	✓	✓	✓
	5.	Vishakhapatnam	X	MoU Stage	✓	✓	✓	✓	✓
	6.	Anantapur	✓	MoU Stage	✓	✓	✓	✓	✓
	7.	Chittoor	X	MoU Stage	✓	✓	✓	✓	✓
	8.	Eluru	✓	MoU Stage	✓	✓	✓	✓	✓
	9.	Kadapa	✓	MoU Stage	✓	✓	✓	✓	✓
	10.	Ongole	X	MoU Stage	✓	✓	✓	✓	✓
	11.	Rajahmundry	✓	MoU Stage	✓	✓	✓	✓	✓
	12.	Srikakulam	X	MoU Stage	✓	✓	✓	✓	✓
	13.	Vizianagaram	✓	MoU Stage	✓	✓	✓	✓	✓
Assam (05)	14.	Guwahati	X	MoU Stage	Web Portal	X	✓	X	✓
	15.	Nagaon	X	MoU Stage		X	✓	X	✓
	16.	Nalbari	X	MoU Stage		X	✓	✓	✓
	17.	Sibsagar	X	MoU Stage		X	✓	✓	✓

State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRANA	SA/ EI	PGRP (App based)	GR AP	Io R	Hotspot identified	AQM C
	18.	Silchar	X	MoU Stage		X	✓	✓	✓
Bihar (03)	19.	Patna	✓	Completed	✓	✓	✓	✓	✓
	20.	Gaya	✓	Completed	✓	✓	✓	✓	✓
	21.	Muzaffarpur	✓	Completed	✓	✓	✓	✓	✓
Chandigarh (01)	22.	Chandigarh	X	MoU Stage	✓	✓	✓	✓	✓
Chhattisgarh (03)	23.	Bhilai	X	Under Progress	Web Portal	X	✓	X	✓
	24.	Korba	X	Under Progress		X	✓	X	✓
	25.	Raipur	X	Under Progress		X	✓	X	✓
Delhi (01)	26.	Delhi	X	Completed	✓	✓	X	✓	✓
Gujarat (04)	27.	Surat	✓	Completed	✓	✓	✓	✓	✓
	28.	Ahmedabad	✓	Completed	✓	✓	✓	✓	✓
	29.	Vadodara	✓	MoU Stage	✓	✓	✓	✓	✓
	30.	Rajkot	✓	MoU Stage	✓	✓	✓	✓	✓
Haryana (01)	31.	Faridabad	X	MoU Stage	✓	✓	✓	✓	✓
Himachal Pradesh (7)	32.	Baddi	X	Completed	✓	✓	✓	✓	✓
	33.	Damtal	X	Completed	✓	✓	✓	✓	✓
	34.	Kala Amb	✓	Completed	✓	✓	✓	✓	✓
	35.	Nalagarh	X	Completed	✓	✓	✓	✓	✓

State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRA NA	SA/ EI	PGRP (App based)	GR AP	Io R	Hotspot identified	AQM C
	36.	Paonta Sahib	✓	Completed	✓	✓	✓	✓	✓
	37.	Parwanoo	X	Completed	✓	✓	✓	✓	✓
	38.	Sunder Nagar	X	Completed	✓	✓	✓	✓	✓
Jammu & Kashmir (2)	39.	Jammu	X	Under Progress	✓	✓	✓	✓	✓
	40.	Srinagar	X	Under Progress	✓	✓	✓	✓	✓
Jharkhand (03)	41.	Dhanbad	X	Completed	✓	✓	✓	✓	✓
	42.	Jamshedpur*	X	Under Progress	✓	✓	✓	✓	✓
	43.	Ranchi*	X	Under Progress	✓	✓	✓	✓	✓
Karnataka (04)	44.	Bangalore	X	Completed	Web portal	✓	✓	✓	✓
	45.	Devanagere	X	MoU Stage		X	✓	X	✓
	46.	Gulbarga	X	MoU Stage		X	✓	X	✓
	47.	Hubli-Dharwad	X	MoU Stage		X	✓	X	✓
Madhya Pradesh (07)	48.	Bhopal	✓	Under Progress	✓	✓	✓	✓	✓
	49.	Dewas	✓	MoU Stage	✓	✓	✓	✓	✓
	50.	Indore	✓	MoU Stage	✓	✓	✓	✓	✓
	51.	Sagar	✓	MoU Stage	✓	✓	✓	✓	✓
	52.	Ujjain	✓	MoU Stage	✓	✓	✓	✓	✓
	53.	Gwalior	✓	Under Progress	✓	✓	✓	✓	✓

State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRANA	SA/ EI	PGRP (App based)	GR AP	Io R	Hotspot identified	AQM C
	54.	Jabalpur	✓	MoU Stage	✓	✓	✓	✓	✓
Maharashtra (19)	55.	Akola	✓	Under Progress	✓	✓	✓	X	✓
	56.	Amravati	✓	Completed	✓	✓	✓	✓	✓
	57.	Aurangabad	✓	Completed	✓	✓	✓	✓	✓
	58.	Badlapur*	✓	Under Progress	✓	✓	✓	✓	✓
	59.	Chandrapur	✓	Under Progress	✓	✓	✓	✓	✓
	60.	Jalgaon	✓	Under Progress	✓	✓	✓	X	✓
	61.	Jalna	✓	Under Progress	✓	✓	✓	✓	✓
	62.	Kolhapur	✓	Completed	✓	✓	✓	X	✓
	63.	Latur	✓	Under Progress	✓	✓	✓	✓	✓
	64.	Mumbai	✓	Completed	✓	✓	✓	✓	✓
	65.	Nagpur	✓	Under Progress	✓	✓	✓	✓	✓
	66.	Nashik	✓	Completed	✓	✓	✓	✓	✓
	67.	Navi Mumbai*	✓	Completed	✓	✓	✓	✓	✓
	68.	Pune	✓	Completed	✓	✓	✓	✓	✓
	69.	Sangli	✓	Under Progress	✓	✓	✓	✓	✓
	70.	Solapur	✓	Completed	✓	✓	✓	✓	✓
	71.	Ulhasnagar*	✓	Under Progress	✓	✓	✓	✓	✓

State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRA NA	SA/ EI	PGRP (App based)	GR AP	Io R	Hotspot identified	AQM C
	72.	Thane*	✓	Under Progress	✓	✓	✓	✓	✓
	73.	Vasai-Virar	✓	MoU Stage	✓	✓	✓	✓	✓
Meghalaya (01)	74.	Byrnihat	X	Under Progress	✓	✓	✓	✓	✓
Nagaland (02)	75.	Dimapur	X	MoU Stage	Helpline	✓	✓	X	✓
	76.	Kohima	X	MoU Stage		✓	✓	X	✓
Orissa (07)	77.	Angul	X	Under Progress	✓	✓	✓	✓	✓
	78.	Balasore	X	MoU Stage	✓	✓	✓	✓	✓
	79.	Bhubaneswar	X	Under Progress	✓	✓	✓	✓	X
	80.	Cuttack	X	Under Progress	✓	✓	✓	✓	✓
	81.	Rourkela	X	Under Progress	✓	✓	✓	✓	✓
	82.	Talcher	X	Under Progress	✓	✓	✓	✓	✓
	83.	Kalinga Nagar	X	Under Progress	✓	✓	✓	✓	✓
Punjab (09)	84.	Dera Bassi	X	Completed	✓	✓	✓	✓	✓
	85.	Gobindgarh	✓	Completed	✓	✓	✓	✓	✓
	86.	Jalandhar	X	Completed	✓	✓	✓	✓	✓
	87.	Khanna	X	Completed	✓	✓	✓	✓	✓
	88.	Ludhiana	X	Completed	✓	✓	✓	✓	✓
	89.	Naya Nangal	X	Completed	✓	✓	✓	✓	✓

State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRA NA	SA/ EI	PGRP (App based)	GR AP	Io R	Hotspot identified	AQM C
	90.	Pathankot/Dera Baba	X	Completed	✓	✓	✓	✓	✓
	91.	Patiala	X	Completed	✓	✓	✓	✓	✓
	92.	Amritsar	X	Under Progress	✓	✓	✓	✓	✓
Rajasthan (05)	93.	Alwar	✓	Under Progress	✓	✓	✓	✓	✓
	94.	Jaipur	✓	Completed	✓	✓	✓	✓	✓
	95.	Jodhpur	✓	Under Progress	✓	✓	✓	✓	✓
	96.	Kota	✓	MoU Stage	✓	✓	✓	✓	✓
	97.	Udaipur	✓	Under Progress	✓	✓	✓	✓	✓
Tamilnadu (04)	98.	Thoothukudi	X	MoU Stage	Web Portal	✓	✓	✓	✓
	99.	Trichy	X	Under Progress		✓	✓	✓	✓
	100.	Madurai	X	Under Progress		✓	✓	✓	✓
	101.	Chennai	X	Under Progress		✓	✓	✓	✓
Telangana (04)	102.	Hyderabad	✓	Under Progress	✓	✓	✓	✓	✓
	103.	Nalgonda	X	MoU Stage	✓	✓	✓	✓	✓
	104.	Patancheruvu*	✓	Under Progress	✓	✓	✓	✓	✓
	105.	Sangareddy	X	MoU Stage	✓	✓	✓	✓	✓
Uttar Pradesh (17)	106.	Agra	✓	Completed	✓	✓	✓	✓	✓
	107.	Allahabad	✓	Under Progress	✓	✓	✓	✓	✓



State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRA NA	SA/ EI	PGRP (App based)	GR AP	Io R	Hotspot identified	AQM C
	108.	Anpara	✓	Under Progress	✓	✓	✓	✓	✓
	109.	Bareilly	✓	Under Progress	✓	✓	✓	✓	✓
	110.	Firozabad	✓	Under Progress	✓	✓	✓	✓	✓
	111.	Gajraula	✓	Under Progress	✓	✓	✓	✓	✓
	112.	Ghaziabad	✓	Completed	✓	✓	✓	✓	✓
	113.	Jhansi	✓	Under Progress	✓	✓	✓	✓	✓
	114.	Kanpur	✓	Completed	✓	✓	✓	✓	✓
	115.	Khurja	✓	Under Progress	✓	✓	✓	✓	✓
	116.	Lucknow	✓	Under Progress	✓	✓	✓	✓	✓
	117.	Moradabad	✓	Under Progress	✓	✓	✓	✓	✓
	118.	Noida	✓	Under Progress	✓	✓	✓	✓	✓
	119.	Raebareli	✓	Under Progress	✓	✓	✓	✓	✓
	120.	Varanasi	✓	Under Progress	✓	✓	✓	✓	✓
	121.	Gorakhpur	✓	MoU Stage	✓	✓	✓	✓	✓
	122.	Meerut	✓	MoU Stage	✓	✓	✓	✓	✓
Uttarakhand (03)	123.	Kashipur	X	Under Progress	✓	✓	✓	✓	✓
	124.	Rishikesh	X	Under Progress	✓	✓	✓	✓	✓
	125.	Dehradun	X	Under Progress	✓	✓	✓	✓	✓

State	S. No.	City	Micro cum Annual Action Plan for FY 21-22 on PRA NA	SA/ EI	PGRP (App based)	GR AP	Io R	Hotspot identified	AQMC
West Bengal (07)	126.	Kolkata	X	Completed	✓	✓	✓	✓	✓
	127.	Asansol	X	Under Progress	✓	✓	✓	✓	✓
	128.	Barrackpore*	X	MoU Stage	✓	✓	✓	✓	✓
	129.	Durgapur	X	Under Progress	✓	✓	✓	✓	✓
	130.	Haldia	X	MoU Stage	✓	✓	✓	✓	✓
	131.	Howrah*	X	Completed	✓	✓	✓	✓	✓
	132.	Raniganj*	X	Under Progress	✓	✓	✓	✓	✓

**Q . What is the status of State Action Plan?**

Ans. The State action plan has been received from Delhi, Haryana, Telangana, UP and MP and are awaited from remaining states.

**Q . Name the International Organizations associated with NCAP?**

Ans. The following are the International Organizations associated with NCAP for implementation of the city action plans and other activities aiding in improvement of air quality of cities.

- UNDP
- German Development Cooperation (GIZ)
- World Bank
- Swiss Agency for Development and Cooperation (SDC)
- UNEP
- AFD
- USAID
- Bloomberg Philanthropies

Initiatives by International Agencies (IA) under NCAP are enclosed as **Annexure XI**.

**Q . How is progress under NCAP monitored?**

Ans. PRANA or Portal for Regulation of Air pollution in Non-Attainment cities has been launched on September 07, 2021 by Ministry of Environment, Forest and Climate Change (MoEFCC) to monitor implementation of National Clean Air Programme (NCAP).

**Q . What are the key features of the portal?**

Ans. PRANA supports tracking of physical and financial progress of NCAP in 132 non-attainment cities and disseminates information on air quality management efforts under NCAP to public. Key features are:

- Overview of NCAP
- National Dashboard
- City Dashboards for all 132 cities
- Air quality data
- Activities undertaken by sectoral Ministries, International Organisations, for supporting NCAP implementation
- Links to websites of central and state regulators and National Knowledge Network (NKN) & Institute of Reputes (IoRs).
- Various technical resources on Air Quality Management
- Events, minutes of meetings and best practices on Air Quality Management under NCAP
- Intranet for data entry, to monitor progress of city action plan

**Q. What information is available under National and City Dashboards?**

Ans. National Dashboard has information about thematic areas of city action plans, city wise PM10 performance since 2019 -20, status of ambient air quality monitoring network, public grievance redressal portal, graded response action plans, source apportionment studies and Funds released for the 132 cities. City Dashboard has city wise status of city plan, public grievance redressal, graded response action plan and source apportionment for 132 identified cities along with real time air quality index, meteorological data and nodal officer details. It also displays status of funds released under NCAP and 15th Finance Commission grants and PM10 data for every Financial Year since 2018.

**Q . What are the key aspects of intranet portal?**

Ans. Key aspects of intranet are:

- Submission of annual action plan, quarterly progress reports and fund utilization under NCAP.
- Alert system from portal to registered email as reminders for submission of Action-plan / QPR
- Repository of minutes of meetings by City Implementation Committees Memorandums of Understanding signed by SPCBs/ PCCs with IoRs and Urban Local Bodies (ULBs) under NCAP and 15<sup>th</sup> Finance Commission.
- Submission of Hotspot locations and action plan for mitigation
- Facility to generate reports based on action plan and quarterly progress information submitted by cities.

**Q . How do cities submit information in PRANA?**

Ans. City nodal officers from Urban Local Bodies (ULBs) have to submit annual plan and quarterly progress with approval of District Magistrate/Municipal Commissioners or chairman of District /ULB level Implementation and Monitoring Committee (city) by 15th April of each Financial Year and 15th of the first month of the succeeding quarter respectively.

**Q. How many cities have submitted data in PRANA?**

Ans. 10 States have submitted information for 63 cities.

**List of 132 Non-Attainment cities**

State	S.No.	City
Andhra Pradesh (13)	1.	Guntur
	2.	Kurnool
	3.	Nellore
	4.	Vijayawada
	5.	Vishakhapatnam
	6.	Anantapur
	7.	Chittoor
	8.	Eluru
	9.	Kadapa
	10.	Ongole
	11.	Rajahmundry
	12.	Srikakulam
	13.	Vizianagaram
Assam (05)	14.	Guwahati
	15.	Nagaon
	16.	Nalbari
	17.	Sibsagar
	18.	Silchar
Bihar (03)	19.	Patna
	20.	Gaya
	21.	Muzaffarpur
Chandigarh (01)	22.	Chandigarh
Chhattisgarh (03)	23.	Bhilai
	24.	Korba
	25.	Raipur
Delhi (01)	26.	Delhi
Gujarat (03)	27.	Surat
	28.	Ahmedabad
	29.	Vadodara
Himachal Pradesh (7)	30.	Baddi
	31.	Damtal
	32.	Kala Amb

	33.	Nalagarh
	34.	Paonta Sahib
	35.	Parwanoo
	36.	Sunder Nagar
Jammu & Kashmir (2)	37.	Jammu
	38.	Srinagar
Jharkhand (01)	39.	Dhanbad
Karnataka (04)	40.	Bangalore
	41.	Devanagere
	42.	Gulburga
	43.	Hubli-Dharwad
Madhya Pradesh (06)	44.	Bhopal
	45.	Dewas
	46.	Indore
	47.	Sagar
	48.	Ujjain
	49.	Gwalior
Maharashtra (18)	50.	Akola
	51.	Amravati
	52.	Aurangabad
	53.	Badlapur
	54.	Chandrapur
	55.	Jalgaon
	56.	Jalna
	57.	Kolhapur
	58.	Latur
	59.	Mumbai
	60.	Nagpur
	61.	Nashik
	62.	Navi Mumbai
	63.	Pune
	64.	Sangli
	65.	Solapur
	66.	Ulhasnagar
	67.	Thane
Meghalaya (01)	68.	Byrnihat

Nagaland (02)	69.	Dimapur
	70.	Kohima
Orissa (07)	71.	Angul
	72.	Balasore
	73.	Bhubaneswar
	74.	Cuttack
	75.	Rourkela
	76.	Talcher
	77.	Kalinga Nagar
Punjab (09)	78.	Dera Bassi
	79.	Gobindgarh
	80.	Jalandhar
	81.	Khanna
	82.	Ludhiana
	83.	Naya Nangal
	84.	Pathankot/Dera Baba
	85.	Patiala
	86.	Amritsar
Rajasthan (05)	87.	Alwar
	88.	Jaipur
	89.	Jodhpur
	90.	Kota
	91.	Udaipur
Tamilnadu (03)	92.	Thoothukudi
	93.	Trichy
	94.	Madurai
Telangana (04)	95.	Hyderabad
	96.	Nalgonda
	97.	Patancheruvu
	98.	Sangareddy
Uttar Pradesh (16)	99.	Agra
	100.	Allahabad
	101.	Anpara
	102.	Bareilly
	103.	Firozabad

	104.	Gajraula
	105.	Ghaziabad
	106.	Jhansi
	107.	Kanpur
	108.	Khurja
	109.	Lucknow
	110.	Moradabad
	111.	Noida
	112.	Raebareli
	113.	Varanasi
	114.	Gorakhpur
Uttarakhand (03)	115.	Kashipur
	116.	Rishikesh
	117.	Dehradun
West Bengal (07)	118.	Kolkata
	119.	Asansol
	120.	Barrackpore
	121.	Durgapur
	122.	Haldia
	123.	Howrah
	124.	Raniganj

**Million plus cities which is not non-attainment but funded under XV-Financial commission**

State	S. No.	City
Gujarat (1)	1.	Rajkot
Haryana (1)	2.	Faridabad
Jharkhand (2)	3.	Jamshedpur
	4.	Ranchi
Madhya Pradesh (1)	5.	Jabalpur
Uttar Pradesh (1)	6.	Meerut
Maharashtra (1)	7.	Vasai-Virar
Tamilnadu (1)	8.	Chennai

**Non-Attainment Cities Covered under Urban Agglomeration and being funded under XV-FC**

S. No.	Cities	Urban Agglomeration	State
1	Badlapur	Greater Mumbai	Maharashtra
2	Navi Mumbai		
3	Thane		
4	Ulhasnagar		
5	Patancheru	Hyderabad	Telangana

**City wise ratio for allocation of funds under NCAP**

S. No.	States/UTs	City	Fund allocation ratio
1.	Andhra Pradesh	Anantapur	0.60
2.	Andhra Pradesh	Chitoor	0.27
3.	Andhra Pradesh	Eluru	0.47
4.	Andhra Pradesh	Guntur	1.12
5.	Andhra Pradesh	Kadapa	0.48
6.	Andhra Pradesh	Kurnool	0.78
7.	Andhra Pradesh	Nellore	1.11
8.	Andhra Pradesh	Ongale	0.37
9.	Andhra Pradesh	Rajahmundry	0.65
10.	Andhra Pradesh	Srikakulam	0.28
11.	Andhra Pradesh	Vizianagaram	0.48
12.	Assam	Guwahati	3.01
13.	Assam	Nagaon	0.38
14.	Assam	Nalbari	0.06
15.	Assam	Sibsagar	0.08
16.	Assam	Silchar	0.23
17.	Bihar	Gaya	1.09
18.	Bihar	Muzaffarpur	1.44
19.	Chandigarh	Chandigarh	2.65
20.	Delhi	Delhi	6.46
21.	Chhattisgarh	Korba	0.56
22.	Himachal Pradesh	Baddi	0.12
23.	Himachal Pradesh	Damtal	0.01
24.	Himachal Pradesh	Kala Amb	0.00
25.	Himachal Pradesh	Nalagarh	0.04
26.	Himachal Pradesh	Paonta Sahib	0.06
27.	Himachal Pradesh	Parwanoo	0.02
28.	Himachal Pradesh	Sunder Nagar	0.05



29.	Jammu and Kashmir	Jammu	2.81
30.	Jammu and Kashmir	Srinagar	4.57
31.	Karnataka	Devangere	0.81
32.	Karnataka	Gulbarga	1.28
33.	Karnataka	Hubli-Dharwad	2.12
34.	Madhya Pradesh	Dewas	0.76
35.	Madhya Pradesh	Sagar	0.78
36.	Madhya Pradesh	Ujjain	1.34
37.	Maharashtra	Akola	0.84
38.	Maharashtra	Amravati	1.67
39.	Maharashtra	Chandrapur	0.85
40.	Maharashtra	Jalgaon	0.76
41.	Maharashtra	Jalna	0.80
42.	Maharashtra	Kolhapur	1.48
43.	Maharashtra	Latur	0.92
44.	Maharashtra	Sangli	0.99
45.	Maharashtra	Solapur	2.41
46.	Meghalaya	Byrnihat	0.00
47.	Nagaland	Dimapur	0.30
48.	Nagaland	Kohima	0.23
49.	Odisha	Angul	0.12
50.	Odisha	Balasore	0.37
51.	Odisha	Bhubneshwar	2.53
52.	Odisha	Cuttack	1.97
53.	Odisha	Kalinga Nagar	0.15
54.	Odisha	Rourkela	1.78
55.	Odisha	Talcher	0.13
56.	Punjab	Dera Baba Nanak	0.33
57.	Punjab	Dera Bassi	0.08
58.	Punjab	Gobindgarh	0.31
59.	Punjab	Jalandhar	3.02
60.	Punjab	Khanna	0.40

61.	Punjab	Naya Nangal	0.14
62.	Punjab	Patiala	1.29
63.	Rajasthan	Alwar	1.25
64.	Rajasthan	Udaipur	1.82
65.	Tamil Nadu	Tuticorin	0.59
66.	Telangana	Nalgonda	0.27
67.	Telangana	Sangareddy	0.18
68.	Uttar Pradesh	Anpura	0.09
69.	Uttar Pradesh	Bareilly	5.14
70.	Uttar Pradesh	Firozabad	3.65
71.	Uttar Pradesh	Gajraula	0.34
72.	Uttar Pradesh	Gorakhpur	5.54
73.	Uttar Pradesh	Jhansi	1.52
74.	Uttar Pradesh	Khurja	0.99
75.	Uttar Pradesh	Moradabad	6.46
76.	Uttar Pradesh	Raebareli	0.85
77.	Uttar Pradesh	Noida	3.83
78.	Uttarakhand	Dehradun	2.80
79.	Uttarakhand	Kashipur	0.45
80.	Uttarakhand	Rishikesh	0.40
81.	West Bengal	Durgapur	2.21
82.	West Bengal	Haldia	0.42
	<b>Total</b>		<b>100.00</b>

**List of Smart cities in India which is part of Non-Attainment Cities**

State/ /UT	S. No.	City
<b>Andhra Pradesh</b>	1.	Visakhapatnam
<b>Assam</b>	2.	Guwahati
<b>Bihar</b>	3.	Muzaffarpur
	4.	Patna
<b>Chandigarh</b>	5.	Chandigarh
<b>Chhattisgarh</b>	6.	Raipur
<b>Delhi</b>	7.	New Delhi

<b>Gujarat</b>	8.	Ahmedabad
	9.	Surat
	10.	Vadodara
<b>Jammu and Kashmir</b>	11.	Jammu
	12.	Srinagar
<b>Karnataka</b>	13.	Bengaluru
	14.	Davanagere
	15.	Hubballi-Dharwad
<b>Madhya Pradesh</b>	16.	Bhopal
	17.	Gwalior
	18.	Indore
	19.	Sagar
	20.	Ujjain
<b>Maharashtra</b>	21.	Aurangabad
	22.	Nagpur
	23.	Nashik
	24.	Pune
	25.	Solapur
	26.	Thane
<b>Nagaland</b>	27.	Kohima
<b>Odisha</b>	28.	Bhubaneswar
	29.	Rourkela
<b>Punjab</b>	30.	Amritsar
	31.	Jalandhar
	32.	Ludhiana
<b>Rajasthan</b>	33.	Jaipur
	34.	Kota
	35.	Udaipur
<b>Tamil Nadu</b>	36.	Thoothukudi
	37.	Tiruchirappalli
<b>Uttar Pradesh</b>	38.	Agra
	39.	Bareilly
	40.	Jhansi
	41.	Kanpur
	42.	Lucknow
	43.	Moradabad
	44.	Prayagraj (Allahabad)
	45.	Varanasi
<b>Uttarakhand</b>	46.	Dehradun
<b>West Bengal</b>	47.	Kolkata

**Status of Submission of Action Plan in PRANA**

S.No.	State	S.No.	City
1	Andhra Pradesh	1	Eluru
		2	Anantapur
		3	Vizianagaram
		4	Rajahmundry
		5	Kadapa
2	Bihar	6	Patna
		7	Gaya
		8	Muzaffarpur
3	Gujarat	9	Ahmedabad
		10	Vadodara
		11	Rajkot
		12	Surat
4	Himachal Pradesh	13	Paonta Sahib
		14	Kala Amb
5	Madhya Pradesh	15	Dewas
		16	Gwalior
		17	Sagar
		18	Indore
		19	Bhopal
		20	Jabalpur
		21	Ujjain
6	Maharashtra	22	Nashik
		23	Badlapur
		24	Latur
		25	Amravati
		26	Akola
		27	Navi Mumbai
		28	Thane
		29	Kolhapur
		30	Jalna
		31	Pune
		32	Solapur
		33	Nagpur
		34	Aurangabad
		35	Vasai-Virar
		36	Mumbai
		37	Chandrapur
		38	Sangli

S.No.	State	S.No.	City
		39	Jalgaon
7	Punjab	40	Gobindgarh
8	Rajasthan	41	Jodhpur
		42	Jaipur
		43	Kota
		44	Udaipur
		45	Alwar
9	Telangana	46	Hyderabad
10	Uttar Pradesh	47	Khurja
		48	Raebareli
		49	Gorakhpur
		50	Jhansi
		51	Meerut
		52	Firozabad
		53	Kanpur
		54	Allahabad
		55	Varanasi
		56	Moradabad
		57	Noida
		58	Anpara
		59	Ghaziabad
		60	Lucknow
		61	Bareilly
		62	Agra
		63	Gajraula

## **WATER QUALITY MANAGEMENT I**

**Question**      **What is National Water Quality Monitoring Programme (NWMP)?**

**Answer**          NWMP is a committed activity of CPCB. As per the mandate of the Water (Prevention and Control of Pollution) Act, 1974 which states that Pollution Control Board both at States and Central level to restore and maintain the wholesomeness of water bodies in India and to plan and a nation-wide programme is executed for the prevention, control and abatement of water pollution and to collect, compile and publish technical and statistical data related to water pollution.

Thus, CPCB has established a nation-wide network of 4484 locations for assessment of aquatic resources in the country.

Based on assessment of water quality of resources, policies are formulated for restoration of water bodies.

**Question**      **What are major Water Quality Issues in India?**

**Answer**          The major water quality issues in Indian context can be summarized as follows:

- Eutrophication
- Pathogenic pollution
- Oxygen depletion
- Toxicity (due to geo-genic and anthropogenic sources)
- Ecological Health
- Minimum Environment flow

**Question**      **What are the sources of pollution in rivers?**

**Answer**          River water quality monitoring indicates that the rivers are polluted due to large-scale water abstraction and discharge of untreated/partially treated/treated wastewater. The pollution in rivers is increasing due to rapid increase in population and resultant wastewater generation.

**Question**      **What are the kinds of pollution that affect water quality of rivers in our country?**

**Answer**          In our country, sewage is major water pollutant. In addition, there is a significant amount of industrial pollution and pollution from agricultural sources, other non-point sources such as urban run-off etc.

**Question**      **How does river water pollution affect us?**

**Answer**          Water pollution affects us in many ways. It affects human health when polluted water is used for drinking or bathing. Water pollution also affects agricultural and industrial activities. It damages ecological balance of water bodies, thereby reducing productivity of aquatic environment including fish production and quality of fish. Some pollutants get accumulate in the food chain and affect all life forms involved.

**Question**      **How much pollution is generated from urban sources?**

**Answer** Due to fast urbanization, the volume of wastewater discharge has increased manifold. In most of the urban centers due to inadequate arrangements for collection and treatment of wastewater, it is let out untreated/

partially treated. The wastewater either percolates into the ground and in turn contaminates the groundwater or is discharged into the natural drainage system causing pollution in recipient water.

**CPCB assessed total volume of municipal waste water generation in the country i.e. 72368 MLD whereas the sewage treatment capacity developed so far is for 36668 MLD (As per CPCB report on National Inventory of Sewage Treatment Plants in India-2021)**

Detailed report is available on the link, <https://cpcb.nic.in/openpdffile.php?id=UmVwb3J0RmlsZXMvMTIyOF8xNjE1MTk2MzIyX21lZGlhcGhvdG85NTY0LnBkZg==>

**Question      What is the criteria for identification of polluted river stretches in the country?**

**Answer**      The criteria pollutant, Biochemical Oxygen Demand (BOD) was considered for the identification of polluted river stretches.

**Question      What are the steps taken to control river water pollution?**

**Answer**      The Central & State Pollution Control Board is implementing the Water Act, 1974 to restore water quality of rivers. The following main steps are taken to prevent and control pollution of rivers -

- i. Govt. of India enacted The Water (Prevention and Control of Pollution) Act, 1974 and various provisions under The Environment (Protection) Act, 1986 for protection of water bodies.
- ii. The Central & State Pollution Control Boards are implementing the provisions of both The Water (Prevention and Control of Pollution) Act, 1974 & The Environment (Protection) Act, 1986 to prevent and control pollution of aquatic resources
- iii. Regulation of industrial Pollution is implemented through various provisions of The Water (Prevention and Control of Pollution) Act, 1974 under Consent mechanism by the respective State Pollution Control Board (SPCB) and Pollution Control Committee (PCC).
- iv. CPCB issued Directions under Section 5 of The Environment (Protection) Act, 1986 regarding 'Treatment and Utilization of Sewage for Restoration of water quality of River' to Municipal Corporations of 46 Metropolitan cities and 20 State Capitals in October, 2015.
- v. CPCB issued Directions under Section 18 (1) (b) of The Water (Prevention and Control of Pollution) Act, 1974 regarding treatment & utilization of sewage to all SPCBs/PCCs in April, 2015.
- vi. CPCB issued Directions under Section 18 (1) (b) of The Water (Prevention and Control of Pollution) Act, 1974 on 13.8.2019 regarding non-compliance status of Common Effluent Treatment Plants (CETPs) to SPCBs/PCCs.
- vii. Online Continuous Effluent Monitoring Systems (OCEMS) are installed by the industrial units in the country through directives issued by CPCB for getting real

time information on the effluent quality and non-complying unit were identified for follow-up inspections and actions.

- viii. Government of India stipulated General discharge standards and industry specific effluent discharge standards under The Environment (Protection) Rules, 1986 with an aim to prevent pollution in the water bodies.
- ix. Industrial estate and clusters numbering 100 were assessed in the country to assess Comprehensive Environmental Pollution Index (CEPI) in 2018. Based on Comprehensive Environmental Pollution Index (CEPI) score, the critically polluted areas are identified to take necessary measures through time-targeted Action Plans.

**Question**      **Has CPCB issued Indicative Guidelines for Formulation of Action Plans for Restoration of Polluted River Stretches to respective States/ UTs?**

**Answer**        Based on water quality monitoring conducted by CPCB polluted river stretches have been identified for which National River Action Plan is being implemented to restore water quality of these water bodies. The action plan includes identification of sources, detailed gap analysis w.r.t sewage, industrial effluent, waste management, interception & diversion of sewage from natural drains, establishment of adequate infrastructure for sewage management (interception and diversion, STPs, bio-remediation of natural drains, utilisation of treated sewage), industrial effluent management (establishment of captive ETPs, CETPs and interception and diversion of industrial effluent discharges from natural drains), for waste management such as Secured/integrated facilities for solid waste, HW and CBWTFs for Bio-medical waste), removal of encroachments, Greenery development by setting of bio-diversity parks, rain water harvesting, ground water recharge maintaining E-flows etc.

**Question**      **What is the current status of action plans for restoration of polluted river stretches?**

**Answer**        Hon'ble NGT in **O. A. No 673 of 2018 in the matter of News item published in the Hindu authored by Jacob Koshy – “More River Stretches are now critically polluted: CPCB”** vide orders dated 20.9.2018 & 6.12.2019 directed CPCB to review action plans (random scrutiny) w.r.t. Priority I to Priority IV polluted river stretches.

All the concerned State Governments (28)/UT Administrations (03) have prepared action plan for rejuvenation of 351 identified polluted river stretches in the respective State/ UT in compliance to Hon'ble NGT Directions passed in the matter of OA. 673 of 2018 in the matter of News item published in “THE HINDU” titled “More river stretches are now critically polluted: CPCB”.

For rejuvenation of 351 polluted rivers identified by CPCB, action plans have been prepared by four-member Committee called “River Rejuvenation Committee” (RRC) constituted by the respective State Government/UT Administration, under the overall supervision and coordination of Principal Secretary, Environment of the concerned State/Union Territory. Prepared action plans covers aspects such as Source control (Municipal sewage management, Industrial pollution control, Waste management), River catchment/Basin Management (Adoption of good irrigation practices, Utilization of treated sewage, Ground water recharge aspects), Flood Plain Zone protection and its management



(Setting up of bio-diversity parks, Removal of encroachments, Rain water harvesting, Plantation on both sides of the river), Ecological/Environmental Flow (E-Flow) and Watershed management.

Presently, Central Monitoring Committee (CMC) constituted under the Chairmanship of Secretary, Ministry of Jal Shakti (MoJS) reviews the progress of implementation of approved action plans for rejuvenation of polluted rivers at Central level. Till date, CMC has conducted 13 meetings with States/UTs to review the progress on execution of action plans for rejuvenation of polluted river stretches under the chairmanship of the Secretary, Ministry of Jal Shakti.

### **Criteria for identification of Polluted River Stretches**

The polluted locations in a continuous sequence are defined as polluted river stretches and categorised in five priority classes based on BOD concentration exceeding to BOD levels >30 mg/l, BOD between 20 & 30 mg/l, BOD between 10 & 20mg/l, BOD between 6 &10 mg/l and BOD between 3 & 6 mg/l.

### **Criteria for Priority 1**

- ◆ Monitoring locations exceeding BOD 30 mg/l has been considered as it is the standard for discharge of treated sewage from sewage treatment plants and general standard for effluent discharge from effluent treatment plants to rivers/streams it appears without dilution (River locations having water quality exceeding discharge standards for BOD to fresh water sources)
- ◆ All monitoring locations exceeding BOD concentration 6 mg/l on all occasions.
- ◆ Monitoring locations exceeding 3 mg/l BOD are not meeting desired water quality criteria but does not affect to Dissolved Oxygen level in water bodies. If BOD exceeds 6mg/l in water body, the Dissolved Oxygen is reduced below desired levels.
- ◆ The raw water having BOD levels upto 5 mg/l are does not form complex chemicals on chlorination for municipal water supplies. Hence the water bodies having BOD more than 6 mg/l are considered as polluted and identified for remedial action.

### **Criteria for Priority 2**

- ◆ Monitoring locations having BOD between 20-30 mg/l.
- ◆ All monitoring locations exceeding BOD concentration 6 mg/l on all occasions.
- ◆ List of identified stretches enclosed.

### **Criteria for Priority 3**

- ◆ Monitoring locations having BOD between 10-20 mg/l.
- ◆ All monitoring locations exceeding BOD concentration 6 mg/l on all occasions.

### **Criteria for Priority 4**

- ◆ Monitoring locations having BOD between 6-10 mg/l.

### **Criteria for Priority 5**

- ◆ Monitoring locations having BOD between 3-6 mg/l.
- The locations exceeding desired water quality of 3mg/l BOD.

**Table - State-wise & Priority wise number of Polluted River Stretches**

S. No.	STATE/UNION TERRITORY	PRIORITY					Grand Total
		I	II	III	IV	V	
1	ANDHRA PRADESH	-	-	-	2	3	5
2	ASSAM	3	1	4	3	33	44
3	BIHAR	-	-	1	-	5	6
4	CHHATTISGARH	-	-	-	4	1	5
5	DAMAN, DIU AND DADRA NAGAR HAVELI	1	-	-	-	-	1
6	DELHI	1	-	-	-	-	1
7	GOA	-	-	1	2	8	11
8	GUJARAT	5	1	2	6	6	20
9	HARYANA	2	-	-	-	-	2
10	HIMACHAL PRADESH	1	1	1	-	4	7
11	JAMMU & KASHMIR	-	1	2	2	4	9
12	JHARKHAND	-	-	-	3	4	7
13	KARNATAKA	-	-	4	7	6	17
14	KERALA	1	-	-	5	15	21
15	MADHYA PRADESH	3	1	1	3	14	22
16	MAHARASHTRA	9	6	14	10	14	53
17	MANIPUR	-	1	-	-	8	9
18	MEGHALAYA	2	-	-	3	2	7
19	MIZORAM	-	-	1	3	5	9
20	NAGALAND	1	-	1	2	2	6
21	ODISHA	1	-	3	2	13	19
22	PUDUCHERRY	-	-	-	1	1	2
23	PUNJAB	2	-	-	1	1	4
24	RAJASTHAN	-	-	1	-	1	2
25	SIKKIM	-	-	-	-	4	4
26	TAMIL NADU	4	-	-	1	1	6
27	TELANGANA	1	2	2	2	1	8
28	TRIPURA	-	-	-	-	6	6
29	UTTAR PRADESH	4	-	1	2	5	12
30	UTTARAKHAND	3	1	1	4	-	9
31	WEST BENGAL	1	1	3	4	8	17
<b>Grand Total</b>		<b>45</b>	<b>16</b>	<b>43</b>	<b>72</b>	<b>175</b>	<b>351</b>

## WATER QUALITY MANAGEMENT II

### Annual Inspection of Grossly Polluting Industries (GPIs)

Inventorization of GPIs having potential to discharge into river Ganga and its tributaries in Ganga main stem states, namely Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal is carried out annually in consultation with the State Pollution Control Boards (SPCBs). Inspections of 100% of GPIs being carried out annually by involving expert technical institutes such as IITs, NITs, AMU, JMI, CPPRI, PCRI.

In 2018, 961 Grossly polluting industries (GPIs) having potential to discharge into river Ganga and its tributaries were monitored by third party technical institutes for compliance verification. Out of 961 GPIs, 683 GPIs were operational and 278 were found closed. Out of 683 operational GPIs, 474 were complying and 209 GPIs were non-complying.

#### *State wise compliance status of GPIs in 2018*

State	Total GPIs	Operational	Non-operational	Complied	Non-complied
Bihar	48	29	19	26	3
Uttar Pradesh	812	569	243	371	198
Uttarakhand	57	45	12	45	0
West Bengal	44	40	4	32	8
<b>Total</b>	<b>961</b>	<b>683</b>	<b>278</b>	<b>474</b>	<b>209</b>

During 2019, 1072 GPIs inventoried in consultation with concerned SPCBs. 726 GPIs were inspected by third party technical institutes for compliance verification and remaining 346 GPIs were closed in compliance of direction issued by Uttar Pradesh Pollution Control Board. Out of 726 inspected GPIs, 595 GPIs were operational, 110 were temporary closed and 21 were permanently closed. Out of 595 operational GPIs, 487 were found complying and 108 GPIs were non-complying.

#### *State wise compliance status of GPIs in 2019*

State	Total GPIs	Operational	Non-operational	Complied	Non-complied
Bihar	56	46	10	46	0
Jharkhand	6	5	1	4	1
Uttar Pradesh	562	447	115	342	105
Uttarakhand	54	52	2	52	0
West Bengal	48	45	3	43	2
<b>Total</b>	<b>726</b>	<b>595</b>	<b>131</b>	<b>487</b>	<b>108</b>

In 2020, 2740 GPIs were inventoried (Ganga main stem-1080, Yamuna basin- 1277 and Hindon sub-basin-383) in seven states (Uttarakhand-65, Haryana-832, Uttar Pradesh-1464, Delhi-267, Bihar- 53, Jharkhand-5 and West Bengal-54). Out of 2740 GPIs, 2109 GPIs were operational, 410 were temporary closed and 221 GPIs were permanently closed. Out of 2109 operational GPIs, 1512 were complying and 597 GPIs were non-complying. Out of 597 non-compliant GPIs, show cause notices to 562 GPIs and closure direction to 35 GPIs were issued by concerned SPCBs/PCC.

**State wise compliance status of GPIs in 2020**

State	Total GPIs	Operational	Non-operational	Complied	Non-complied
Bihar	53	48	5	42	6
Jharkhand	5	5	0	4	1
Uttar Pradesh	1464	1151	313	853	298
Uttarakhand	65	58	7	54	4
West Bengal	54	46	8	31	15
Haryana	832	611	221	391	220
Delhi	267	190	77	137	53
<b>Total</b>	<b>2740</b>	<b>2109</b>	<b>631</b>	<b>1512</b>	<b>597</b>

In 2021, 2706 GPIs were inventoried (Ganga main stem-1051, Yamuna basin- 1655) in seven states (Uttarakhand-69, Haryana-924, Uttar Pradesh-1377, Delhi-210, Bihar- 66, Jharkhand-5 and West Bengal-55). Inspections of 100% GPIs were carried out during December 2021-April 2022. Action by concerned SPCBs is under process. As on 12.07.2022, 2602 actions have been completed.

**State wise compliance status of GPIs in 2021 (As on 12.07.2022)**

State	Total GPIs	Action completed as on 12.07.22	Complied	Temporary Closed	Permanent Closed	Non-Complied	
						Show Cause Notice	Closure Direction
Bihar	66	66	60	05	0	0	01
Delhi	210	210	127	07	29	38	09
Haryana	924	870	572	102	58	137	01
Jharkhand	05	05	01	0	0	04	0
Uttar Pradesh	1377	1327	781	199	78	237	32
Uttarakhand	69	69	58	07	0	03	01
West Bengal	55	55	45	04	01	05	0
<b>Total</b>	<b>2706</b>	<b>2602</b>	<b>1644</b>	<b>324</b>	<b>166</b>	<b>424</b>	<b>44</b>

**State-wise inventory of GPIs in Ganga main stem (2018-2021)**

State	2018	2019	2020	2021
Uttarakhand	57	54	55	58
Uttar Pradesh	812	908	913	867
Bihar	48	56	53	66
Jharkhand	0	6	5	5
West Bengal	44	48	54	55
<b>Total</b>	<b>961</b>	<b>1072</b>	<b>1080</b>	<b>1051</b>

**State-wise inventory of GPIs in Yamuna main stem (2020-2021)**

State	2020	2021
Delhi	267	210

Haryana	832	924
Uttar Pradesh	551	510
Uttarakhand	10	11
<b>Total</b>	<b>1660</b>	<b>1655</b>

### **Improvement in environmental status**

- Compliance status of GPIs improved from 69% in 2018, 82% in 2019 and 81% in 2020.
- Reduction in Effluent generation from 314 MLD in 2018 to 302 MLD in 2019 (4%) to 281.7 MLD in 2020 (10.2%)
- Reduction in BOD Load from 18.75 TPD in 2018 to 16.51 TPD in 2019 (12%) to 9.51 TPD in 2020 (49.2%)

### **Recent technological intervention in major industrial sectors**

#### **Pulp and Paper Industry**

- Charter implementation in pulp & paper mills in Ganga main stem. Installation of Wastewater Treatment System, Chemical Recovery Plant (CRP) for Black liquor and Activated Sludge Process (ASP) based secondary treatment followed by Tertiary Treatment.
- Dismantling of chemical digesters and installation of Chemical Recovery Plant (CRP) in Agro based pulp & paper mills led to enforce Zero Black Liquor Discharge.
- Reduction in BOD load by 85% and specific wastewater generation by 35% through recycling.
- Achieved ZLD in 28 RCF based pulp & paper mills.

#### **Sugar Industry**

- Performance assessment of ETPs and water audit, preparation of irrigation management plan for all sugar mills.
- Set up of CPU in sugar mills for treatment of process condensate for recycle/ reuse in the process and set up separate treatment plant for spray pond overflow effluents.

#### **Distilleries**

- Performance assessment of ZLD system and water audit and installation of condensate polishing unit (CPU) for treatment of process condensate for recycle/ reuse in the process to achieve ZLD.
- Introduction of cleaner technologies viz., Fed batch/ continuous fermentation & Multi Pressure distillation resulting in significant reduction in spent wash generation.

#### **Textiles**

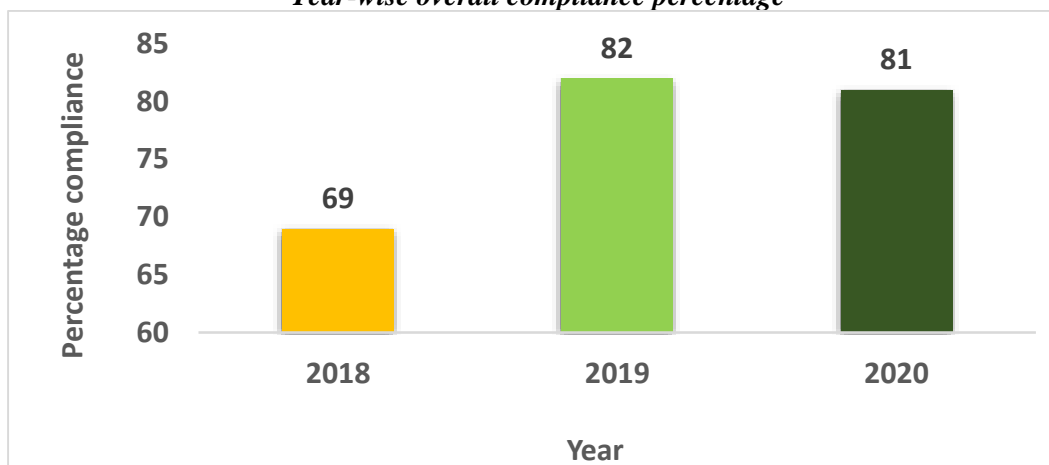
- Upgradation of ETP system upto tertiary treatment level and augmentation of Activated Sludge Process based biological treatment.
- Reduction in fresh water consumption & effluent generation through strict metering.
- Charter implementation in textile mills in Ganga main stem. Strict metering to regulate use of fresh water and effluent generation as per the prescribed norms under the Charter.

## Tanneries

- Primary effluent treatment plants (PETPs) augmented to provide requisite treatment to their effluent to meet the discharge norms at inlet of CETPs.
- Introduction of mechanical desalting system to reduce TDS content in effluent.
- Segregation of Chrome bearing effluent for chrome recovery installed.

### Major impact reported for work done during 2018-2020

*Year-wise overall compliance percentage*



### Year wise compliance in major sectors

Sector	2018	2019	2020
<b>Pulp &amp; Paper</b>			
% Compliance	91	89	88
Specific Water Consumption (KL/tonne)	13.57	12.99	11.81
Specific Effluent Discharge (KL/tonne)	9.74	7.41	7.39
BOD Load (TPD)	5.66	2.39	1.19
<b>Sugar</b>			
% Compliance	72	80	79
Specific Water Consumption (KL/tonne)	212	131.68	91.94
Specific Effluent Discharge (KL/tonne)	174	157.53	137.83
BOD Load (TPD)	5.73	5.53	2.72
<b>Distillery</b>			
% Compliance	89	87	85
Specific Water Consumption (KL/KL)	9.18	10.25	7
Spent-wash generation (KL/KL)	8.3	8	7
<b>Textile</b>			
% Compliance	76	56	68
Specific Water Consumption (KL/tonne)	-	141	138

Specific Effluent Discharge (KL/tonne)	-	80	57.78
BOD Load (TPD)	0.37	0.53	0.44

**Comparative status of STP Monitoring for Ganga front towns for 2019, 2020, 2021 and 2022:**

**Sewage Treatment Plants (STPs) in catchment of river Ganga and its tributaries in five Ganga states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal)**

- Central Pollution Control Board inventoried 384 STPs with total capacity of approximately 7328 MLD in January, 2021 on river Ganga main-stem and its tributaries in the 5 Ganga states in consultation with state authorities.
- Out of 384 STPs, 197 STPs were operational with operational capacity of 4025.61 MLD.
- Other STPs were in different stages of construction which are yet not commissioned.
- At present 136 STPs located in 60 Ganga front towns are commissioned i.e. either operational/non-operational (as per inspections carried out till March 2022). These STPs are being monitored quarterly by CPCB.

**Status of 136 STPs based on Monitoring up to March 2022 - Updated May 2022**

State	Approx. Sewage Generation in Ganga front towns (MLD) (2017-18)	Towns covered	Total STPs monitored	Installed capacity of monit	Operational	Complying	Non-complying	Operational Capacity (MLD)	Utilized Capacity (ML)	Non-operational	Non-operational Capacity
			(A)	(of A)	(B)	(D)	(E)	(of B)	(of B)	(C)	(of C)
			(A=B+C)		(B=D+E)						
Uttarakhand	239.8	18	53	341.2	49	4	45	339.9	242.5	4	1.4
Uttar Pradesh	1255.2	13	35	1197.93	31	2	29	1189.90	1134.29	4	8.01
Bihar	480.0	1	5	220.0	3	1	2	140.0	64.0	2	80.0
Jharkhand	12.0	1	2	12.0	2	0	2	12.0	6.7	0	0.0
West Bengal	1571.5	27	41	665.0	20	2	18	271.3	181.2	21	331.8
<b>TOTAL</b>	<b>3558.5</b>	<b>60</b>	<b>136</b>	<b>2436.2</b>	<b>105</b>	<b>9</b>	<b>96</b>	<b>1953.0</b>	<b>1628.6</b>	<b>31</b>	<b>421.2</b>

*Compliance based on NGT order dt 30.04.2019 in the matter of OA no. 1069/2018 (pH – 5.5-9.0, BOD <10mg/l, TSS< 20mg/l, COD< 50mg/l FC : Desirable limit <100 MPN/100 ml, Permissible limit < 230 MPN/100ml, TN < 10 mg/l and TP< 1.0 mg/l (TP compliance for discharge into ponds and lakes)*

**Status of STPs monitored in Ganga front towns of five Ganga states for the year 2019, 2020, 2021 and 2022 (Upto March)**

**Status Treatment and Utilized Capacity against Sewage of Ganga Front Towns Monitored under PIAS**

State	Estimated Sewage generation (MLD) 2017-18	2019*						2020					
		Number of STP	Installed Capacity (MLD)	Operational	Complying	Non Complying	Non operational	Number of STP	Installed Capacity (MLD)	Operational	Complying	Non Complying	Non operational
Uttarakhand	239.8	38	221.71	37	31	6	1	49	344.64	44	8	36	5
Uttar Pradesh	1255.2	29	1133.8	28	7	21	1	30	1137.79	27	1	26	3
Bihar	480	2	65	0	0	0	2	5	205	4	0	4	1
Jharkhand	12	0	0	0	0	0	0	2	12	2	0	2	0
West Bengal	1571.5	34	536.17	16	16	0	18	34	535.67	14	0	14	20
<b>Total</b>	<b>3558.5</b>	<b>103</b>	<b>1848.9</b>	<b>81</b>	<b>54</b>	<b>27</b>	<b>1155.19</b>	<b>120</b>	<b>2235.1</b>	<b>91</b>	<b>9</b>	<b>82</b>	<b>29</b>

State	2021						2022 (till March)					
	Number of STP	Installed Capacity (MLD)	Operational	Complying	Non Complying	Non operational	Number of STP	Installed Capacity (MLD)	Operational	Complying	Non Complying	Non operational
Uttarakhand	53	341.2	49	14	35	4	53	341.2	49	4	45	4
Uttar Pradesh	34	1187.9	32	1	31	2	35	1197.9	31	2	29	4
Bihar	5	220.0	3	0	3	2	5	220.0	3	1	2	2
Jharkhand	2	12.0	2	0	2	0	2	12.0	2	0	2	0
West Bengal	41	659.1	17	2	15	24	41	665.0	20	2	18	21
<b>Total</b>	<b>135</b>	<b>2420.3</b>	<b>103</b>	<b>17</b>	<b>86</b>	<b>32</b>	<b>136</b>	<b>2436.2</b>	<b>105</b>	<b>9</b>	<b>96</b>	<b>31</b>

*Note: \*Compliance for year 2019 was based on general discharge norms. For 2020, 2021 and 2022 compliance status is based on norms prescribed by Hon'ble NGT in order dated 30.04.2019*

**State wise status of STPs for 2019, 2020, 2021 and 2022 (Upto March)**

**Uttarakhand:**

2019: 38 STPs were installed at 15 Ganga front towns with installed capacity of 221.71 MLD. Out of 38 STPs, 37 STPs were operational (31- complying, 6- Non complying).

2020: 49 STPs were installed at 15 Ganga front towns with installed capacity of 344.64 MLD. Out of 49 STPs, 44 STPs were operational (8- complying, 36- Non complying).



2021: 53 STPs were installed at 18 Ganga front towns with installed capacity of 341.2 MLD. Out of 53 STPs, 49 STPs were operational (14- complying, 35- Non complying).  
2022: 53 STPs were installed at 18 Ganga front towns with installed capacity of 341.2 MLD. Out of 53 STPs, 49 STPs were operational (4- complying, 45- Non complying).

***Uttar Pradesh:***

2019: 29 STPs were installed at 10 Ganga front towns with installed capacity of 1133.8 MLD. Out of 29 STPs, 28 STPs were operational (23- complying, 05 - Non complying).  
2020: 30 STPs were installed at 10 Ganga front towns with installed capacity of 1137.8 MLD. Out of 30 STPs, 27 STPs were operational (1- complying, 26- Non complying).  
2021: 34 STPs were installed at 13 Ganga front towns with installed capacity of 1187.9 MLD. Out of 34 STPs, 32 STPs were operational (1- complying, 31- Non complying).  
2022: 35 STPs were installed at 13 Ganga front towns with installed capacity of 1197.93 MLD. Out of 35 STPs, 31 STPs were operational (2- complying, 29- Non complying).

***Bihar:***

2019: 2 STPs were installed at 01 Ganga front towns with installed capacity of 65 MLD. Out of 02 STPs, no STPs were operational (0- complying, 0- Non complying).  
2020: 05 STPs were installed at 01 Ganga front towns with installed capacity of 205 MLD. Out of 05 STPs, 04 STPs were operational (00- complying, 04- Non complying).  
2021: 05 STPs were installed at 01 Ganga front towns with installed capacity of 220 MLD. Out of 05 STPs, 03 STPs were operational (00- complying, 03- Non complying).  
2022: 05 STPs were installed at 01 Ganga front towns with installed capacity of 220 MLD. Out of 05 STPs, 03 STPs were operational (1- complying, 2- Non complying).

***Jharkhand:***

2019: No STPs were installed.  
2020: 02 STPs were installed at 01 Ganga front towns with installed capacity of 12 MLD. Out of 02 STPs, 02 STPs were operational (00- complying, 02- Non complying).  
2021: 02 STPs were installed at 01 Ganga front towns with installed capacity of 12 MLD. Out of 02 STPs, 02 STPs were operational (00- complying, 02- Non complying).  
2022: 02 STPs were installed at 01 Ganga front towns with installed capacity of 12 MLD. Out of 02 STPs, 02 STPs were operational (00- complying, 02- Non complying).

***West Bengal:***

2019: 34 STPs were installed at 22 Ganga front towns with installed capacity of 536.17 MLD. Out of 34 STPs, 16 STPs were operational (16- complying, 0- Non complying).  
2020: 34 STPs were installed at 22 Ganga front towns with installed capacity of 535.67 MLD. Out of 34 STPs, 14 STPs were operational (00- complying, 14- Non complying).  
2021: 41 STPs were installed at 27 Ganga front towns with installed capacity of 659.1 MLD. Out of 41 STPs, 17 STPs were operational (02- complying, 15- Non complying).  
2022: 41 STPs were installed at 27 Ganga front towns with installed capacity of 665 MLD. Out of 41 STPs, 20 STPs were operational (02- complying, 18- Non complying).

*NOTE: In West Bengal capacity and operational status may change because of under-rejuvenation status of many STPs.*

### **Common Effluent Treatment Plants (CETPs)**

08 Common Effluent Treatment Plants (CETPs) located on main stem of river Ganga and its tributaries are being monitored in quarterly basis. Out of 08 CETPs, 03 CETPs are located in tannery clusters at Jajmau, Banthar and Unnao in Uttar Pradesh, 02 CETPs in textile clusters at Rooma, Kanpur and Pilakhua, Hapur in Uttar Pradesh and 03 CETPs in mixed industrial clusters at Pantnagar, Sitarganj and Haridwar in Uttarakhand.

As per the latest inspection, 06 CETPs at Jajmau, Banthar, Unnao, Rooma, Sitarganj and Pantnagar are non-complying w.r.t. discharge norms and 02 CETPs at Haridwar and Pilakhua are complying w.r.t. discharge norms.

### **Status of Priority Drains (2018 to 2020)**

- CPCB inventoried 205 priority drains in 2018 & 2019 in consultation with SPCBs (UKPCB, UPPCB, BSPCB, JSPCB & WBPCB) in the main stem of Ganga along with its tributaries (Banganga, Ramganga, Kali-East & Pandu). Based on Post-monsoon 2018 and 2019 monitoring data following observations are made:
  - In 2018, Out of 205 drains, 18 drains were tapped and no interim measure was taken. The flow of 205 drains were observed 12867.84 MLD & Organic load was 651.36 TPD.
  - In 2019, Out of 205 drains, 36 drains were tapped and no interim measure was taken. The flow of 205 drains was observed 13801.23 MLD & Organic load was 622.89 TPD.
- In 2020, CPCB updated the inventory and monitored 334 drains in the main stem of Ganga along with its tributaries (Banganga, Ramganga, Kali-East, Pandu, Yamuna, Moorva, Jargo, Ozla and Varuna). Of 334 drains, 64 drains were tapped, 05 STP outlet and interim measure was taken in 17 drains. The flow observed in 334 drains was 11784.8 MLD & Organic load was 481.83 TPD.
- In 2021, CPCB updated the inventory and monitored 637 drains in the main stem of Ganga (503) along with its tributaries (134) (Banganga, Ramganga, Kali-East, Pandu, Yamuna, Moorva, Jargo, Ozla and Varuna). Out of 637 drains, 207 drains were found tapped, 03 STP outlets and interim measures such as bio-remediation and phytoremediation were observed in 08 drains. The flow observed in 637 drains was 13320.43 MLD & Organic load was 604.03TPD.

### **River Ganga water quality during year 2019, 2020, 2021 and 2022**

CPCB is carrying out monitoring for assessment of River Ganga water quality at 97 locations in 5 main stem States through the respective SPCBs. River water quality is assessed for primary water quality criteria notified for outdoor bathing criteria in terms of pH (6.5-8.5), DO ( $\geq 5$ mg/L), Bio-chemical Oxygen Demand (BOD ( $\leq 3$ mg/L) and Faecal Coliform (FC) ( $\leq 2500$  MPN/100ml). Frequency of monitoring in upper Ganga reaches i.e. from Rudraprayag to Devprayag is on quarterly basis. 09 locations in Uttarakhand from Swarg Ashram to D/s Roorkee and all the locations in Uttar Pradesh, Bihar, Jharkhand and West Bengal are monitored on fortnightly basis. Data is analysed using statistical tool *median* which is simply a measure of central tendency.

## Year wise status of water quality of river Ganga

### ***River Water Quality in 2019***

The analysis of data for the year 2019 (**Annexure-III, Table 3**) indicated that the river water quality is meeting the bathing criteria

- **w.r.t. DO & pH(Median)**
  - ✓ At all the locations of River Ganga
- **w.r.t. BOD (Median)**
  - ✓ Origin to U/s Kannauj (UP), Bithoor to U/s Kanpur, Prayagraj (Rasoolabad), Prayagraj D/s (Sangam) to U/s Mirzapur and U/s Varanasi (UP), entire stretch from Buxar (Bihar) to Sangidalan (Jharkhand) and Beharapmore (WB) to Nabadip, Shivpur (Howrah), Uluberia and Diamond Harbour (WB).
- **w.r.t. FC (Median)**
  - ✓ Origin to U/s Kannauj (UP), Bithoor (Kanpur), U/s Vindhyachal, Mirzapur D/s, U/s Varanasi (UP), Arrah-chapra road bridge (U/s Doriganj) (Bihar) and Diamond Harbour (WB).

### ***River Ganga Water Quality in 2020***

The analysis of data for the year 2020 indicated that the river water quality is meeting the bathing criteria

- **w.r.t. DO & pH(Median)**
  - ✓ At all the locations of River Ganga
- **w.r.t. BOD (Median)**
  - ✓ Origin to Bithoor (Kanpur,UP), Prayagraj (Rasoolabad) to U/s Vindhyachal (Mirzapur) and U/s Varanasi (Assighat, UP), entire stretch from Buxar (Bihar) to Sangidalan (Jharkhand) and Beharapmore (WB) to Tribeni near burning ghat, Palta, Serampore and Howrah (shivpur) to Ganga at Patikali near Durga chak (WB)
- **w.r.t. FC (Median)**
  - ✓ Origin to Bithoor (Kanpur, UP), Bathing Ghat (Bharaoghat), Dalmau (Rai Bareilly) to U/s Vindhyachal (Mirzapur, UP) and U/s Varanasi (Assighat, UP).

### ***River water quality 2021***

The analysis of data for the year 2021 indicates that the river water quality is meeting the bathing criteria

- **w.r.t. DO &pH(Median)**
  - ✓ At all the sampled locations of River Ganga
- **w.r.t. BOD (Median)**
  - ✓ Bhagirathi at Gangotri to Kannauj D/s; Kadaghat (Prayagraj) to U/s Vindhyachal (Mirzapur); U/s Varanasi (Vishwa Sundari bridge); Buxar Chausa (Karmnasa) to Tribeni near Burning Ghat; Palta to Ganga at Patikali
- **w.r.t. FC (Median)**
  - ✓ Bhagirathi at Gangotri to U/s Shuklaganj (Bathing Ghat Bharaoghat); Dalmau (Rai Bareilly) to U/s Vindhyachal (Mirzapur) and U/s Varanasi (Vishwa Sundari bridge)

### ***River water quality 2022 (Jan-Mar)***

The analysis of data for the year 2022 indicated that the river water quality is meeting the bathing criteria

- **w.r.t. DO & pH(Median)**
  - ✓ At all the locations of River Ganga
- **w.r.t. BOD (Median)**
  - Mandakini B/c Alaknanda to Farrukhabad; U/s Vindhyachal (Mirzapur); U/s Varanasi (Vishwasundari bridge); A/c Gomto river Bhusaula; Buxar Chausa (Karmnasa) to Nabadip, Ghoshpara near monipurghat; Palta to Dakshineshwar and Diamond Harbour to Ganga at Patikali near Durga chak
- **w.r.t. FC (Median)**
  - Mandakini B/c Alaknanda to Bathing ghat (Gola ghat); Dalmau (Rai Bareilly) to U/s Vindhyachal (Mirzapur); U/s Varanasi (Vishwasundari Bridge); Arrah-Chapra Road Bridge (U/s Doriganj); Mokama D/s; Champanagar and Khagra Behrampore

### **Comparative status of river water quality improvement (2014 vs 2021)**

Manual water quality monitoring was conducted at 53 locations in the year 2014. However, number of stations gradually increased based on available resources and water quality problems. Monthly data of parameters such as **Dissolved Oxygen (DO)**, **Biochemical Oxygen Demand (BOD)** and **Faecal Coliform (FC)** of year **2014** (Median) and **2021** (Median) is compared for 53 locations (for DO and BOD) and 43 locations (for FC). The following observations are made:

- DO (Median) has improved at 34 locations (53 locations compared)
- BOD (Median) has been improved at 44 locations (53 locations compared)
- FC (Median) has been improved at 25 locations (43 locations compared)

An improvement in terms of BOD has been observed in 2021 as compared to 2014 in the following stretch/locations.

- Stretch from Alkananda A/c Mandakini, Rudraprayag to Roorkee D/s except Bhagirathi B/c Alaknanda, Devprayag in Uttarakhand
- stretch from Brijghat D/s, Gharmukteshwar to Kannauj D/s; U/s Kanpur (Ranighat) to Kanpur D/s (Jajmau Pumping Station); stretch from Kadaghat (Prayagraj) to U/s Vindhyachal (Mirzapur); and stretch from U/s Varanasi (Vishwa Sundari Bridge) to Tarighat (Ghazipur) in Uttar Pradesh
- stretch from Buxar, Chausa Karmnasa to Patna D/s (Ganga Bridge) and U/s Mokama to Kahalgaon in Bihar
- stretch from Behrampore to Diamond Harbour except one location namely Tribeni, Near Burning Ghat in West Bengal.

A Deterioration in terms of BOD has been observed in 2021 as compared to 2014 in the following stretch/locations.

- Mandakini B/c Alaknanda, Rudraprayag; Alaknanda B/c Mandakini, Rudraprayag and Bhagirathi B/c Alaknanda, Devprayag in Uttarakhand
- Bithoor (Kanpur); stretch from Dalmau (Rai Bareilly) to Kala Kankar (Rai Bareilly) and D/s Mirzapur in Uttar Pradesh
- Fatuha, A/c of River Punpun in Bihar
- Tribeni, Near Burning Ghat in West Bengal

### **Comparative status of river water quality improvement 2014 vs 2022 (Jan.-Mar.)**

Monthly data of parameters such as Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD) and Faecal Coliform (FC) of year 2014 (Median) and 2022(Median) is compared for 47 locations (for DO and BOD) and 37 locations (for FC). The following observations are made:

- pH (Median) has been observed to be meeting water quality criteria for bathing at all the compared locations during 2014 & 2022 (46 locations compared)
- DO (Median) has improved at 45 locations (47 locations compared)
- BOD (Median) has been improved at 38 locations (47 locations compared)
- FC (Median) has been improved at 21 locations (37 locations compared)

An improvement in terms of BOD has been observed in 2022 as compared to 2014 in the following stretch/locations.

- Alkananda A/c Mandakini, Rudraprayag to Roorkee D/s (except Bhagirathi B/c Alaknanda, Devprayag) in Uttarakhand
- Stretch/location from Brijghat D/s, Gharmukteshwar to Narora (Buladshahar); Kannauj D/s; U/s Kanpur (Ranighat) to kalakankar (rai Bareilly) and U/s Varanasi (Vishwa sundari bridge) to Tarighat (Ghazipur) in Uttar Pradesh
- stretch from Buxar, Chausa Karmnasa to Kahalgaon in Bihar
- Stretch/location from Beharampore to Dakshineshwar; Shivpur (Howrah) and Diamond Harbour in West Bengal.

A Deterioration in terms of BOD has been observed in 2022 as compared to 2014 in the following stretch/locations.

- Stretch from Mandakini B/c Alaknanda, Rudraprayag to Alaknanda B/c Mandakini, Rudraprayag; Bhagirathi B/c Alaknanda, Devprayag in Uttarakhand
- U/s Kannauj, Rajghat; Bithoor, Kanpur; stretch from U/s Vindhyachal, Mirzapur to D/s Mirzapur in Uttar Pradesh Garden Reach and Uluberia in West Bengal

## SUPPLEMENTARY INFORMATION-IPC-I

### Chemical Industries:

**Q. Whether the Government has notified any norms or issued guidelines for various Chemical industries to be complied for prevention and control of pollution in the country:**

**Ans** Yes, there are industry specific effluent and emission norms notified under Environment (Protection) Act, 1986 by MoEF.

**Q. Name the chemical industries which are coming 17 categories of Highly Polluting Industry?**

**Ans:** These are: Chlor-Alkali Plants, Dyes & Dye-Intermediate Industry, Fertilizer Industry, Pesticide (basic) Manufacturing, Petro-Chemicals, Pharmaceuticals (basic) Plants, Petroleum Oil Refinery.

**Q. Are there General Standards, if industry specific standards are not existing?**

**Ans.** Yes, Sir. In Schedule –VI of the E(P) Rules,1986.

**Q. What is the difference between concentration based standards and load based standards?**

**Ans.** Concentration based standards denote the concentration of a particular pollutant at that instant in emission or effluent. Load based standards denote the total pollution load of a particular pollutant per unit of production.

**Q. What is the present status of chemical industry in respect of pollution control?**

**Ans.** Though various pollution control technologies are installed in the industries, their proper operations on regular basis is an issue due to following reasons:

- Process operations, being carried out in batch mode due to market variability, result in emissions only at peak load of the reaction and not continuously.
- Effluent is non-biodegradable containing high TDS and COD.

**Q. What are the sources of effluent?**

**Ans:** The effluent is generated from various sources like floor washing, reactor washing, scrubber bleeding ,mother liquor etc.

**Q. What are treatment system provided by the chemical industries for effluent?**

**Ans:** All the chemical industries provide following three type treatment system

- (i) Captive Effluent treatment
- (ii) Common effluent Treatment Plant
- (iii) ZLD system like MEE and RO
- (iv) Captive Incinerator

**Q. What are types effluent generated from the Chemical industries?**

Ans: The effluent generated from the chemical industries like pharma, Pesticide and dye industries are high COD & high TDS and low COD & low TDS.

**Q. What are the specific treatment system provided for High COD & high TDS?**

Ans: The high TDS and high COD effluent is treated through stripper followed by MEE. The condensate of MEE is treated in Biological treatment system along with low COD & low TDS effluent. The Concentrated is disposed off through TSDF.

**Q. What are the specific treatment system provided for only high COD ?**

Ans: The effluent generated from spent solvent is contain high calorific value and is incinerated either in captive incinerator or in Common hazardous waste Incinerator.

**Q. What are the bases on which standards are prescribed?**

Ans. The standards are developed on the basis of three factors such as; health impact, technology availability and economical viability.

Central Pollution Control Board realised that standards developed by technological consideration alone cannot serve the purpose. It needs to be debated within the group of experts from various disciplines, for social acceptability as well. Hence, a core group comprising experts and representatives of industry organisation i.e. CII, Government departments, research and related institutes, has been constituted. The core group is further supported by peer group which is related to a particular type of industry and consist of Industry Associations, concerned Government departments, State Boards, where that type of industries are located in large number and expert in that field. The proposed standards by CPCB on the basis of field study, literature survey, technologies required to achieve standards and cost involved. The standards thus ratified by the Expert committee of MoEF & CC. The standards are forwarded to the Government (Ministry of Environment & Forests) for notification under E (P) Act.

**Q. Is there any programme worked out by MoEF/ CPCB by involving industrial association?**

Ans:

The representatives of the industrial associations are involved in following activities of CPCB:

- a. Setting up of new standards / revision of existing environmental standards
- b. Framing / amendment of rules under various environmental acts
- c. Complaints / issues raised by association
- d. Various technical review committees / seminars / training programmes pertaining to technological intervention in industries
- e. Formulation of action plans in critically polluted areas.

**Q. How does these standards compare internationally?**

Ans. Comparison with Select International Standards.

- In general the standards are at par with EU, USEPA and WHO

**Q. What are the action taken by Government, If any chemical industry violate environmental norms**

Ans: For noncompliance of the norms, directions u/s 5 of the E(P) Act is being issued to the unit.

**Q. How many 17 category chemical units are located in India**

(v) Oil Refineries -23, (ii) Fertilisers – 128,(iii) Dyes & Dye Intermediates-131 (iv)Chlor-alkali-33, (v) Pharmaceuticals – 774,(vi) Petrochemicals-36,(vii)Pesticides -81

**Q Whether Hazardous Waste generated from the Chemical industry?**

**Ans:** Yes , Process generating HW notified under Schedule 1 of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008

**Q. Who will enforce these standards?**

Ans. As per the E (P) Rules, 1986 the State Board shall enforce the standards

**Q How much time is given for implementation of standards after notification?**

Ans. As per the E(P) Act,1986 for enforcement of notified standards, one-year time is given to SPCBs/PCCs. In the one year time, the SPCB need to sensitize the issue with the stack holders for which SPCBs/PCCs have to hold workshops or interaction meets. The new standards also need to be incorporated in the consent order.

**Q. Whether SPCBs/PCCs have power to relax standards?**

Ans. As per E(P) Act, the SPCBs/PCCs cannot relaxed standards but can give more stringent standards.

**Q. Whether SPCBs/PCCs can developed standards?**

Ans. SPCBs/PCCs can develop the industry specific stringent standards according to the local conditions.

**Q. What is the provision provided in the E(P) Act,1986 to take measure to protect and improve environment by Central Government?**

Ans. Laying down standards for emission or discharge of environmental pollutants from various sources

**Q. How these standards are implemented by SPCBs/PCCs in their states?**

Ans. The notified standards are enforce by State Boards / PCCs either in the consent order issued under the Water Act, the Air Act or authorisation under the Hazardous Waste (Management, Handling, Transboundary) Rules.

**Q. Are there any action taken against defaulter industries?**

Ans: State Boards take action against the defaulting industry by issuing direction u/s 31 A of the Air (PCP) Act, 1981 and 33 A of the Water Act,1974

**Q. What are the new monitoring mechanisms which government proposes to install?**

Ans: New monitoring mechanism like Online monitoring system has been asked to install all the 17 category of highly polluting industries.



## Supplementary information-IPC-I

### Pollution by Pesticides

**Q. What is non-biodegradable pesticides?**

Ans: Non-biodegradable pesticide means which do not degrade easily For example DDT, Endosulfan

**Q. What is toxicity of pesticides?**

Ans: **Toxicity** means a physiological or biological property which determines the capacity of a chemical to do harm or produce injury to a living organism by other than mechanical means.

**Q. What are pesticides, insecticides and weedicides?**

Ans: Pesticides are chemicals sprayed on the main crop which are used to keep rodents and pests like aphids, locusts, grasshoppers etc., from the main crop. some examples of pesticides are malathion, chlorophyrigas and DDC.

An insecticide is a pesticide used against insects.

Weedicides are chemicals which are sprayed in the fields to remove unwanted plants called weeds. They do not harm the main crop as they are diluted before spraying so that it does not cause harm to the main crop.

**Q. How many pesticide industries are there?**

Ans. Technical grade ----- 62  
Formulation ----- 100 approx

**Q. What is the production of pesticides?**

Ans: in thousand metric tonne  
2008-09 ----- 85.34  
2009-10 ----- 82.19  
2010-11 ----- - 81.22

S. No.	Particulars	Installed capacity MT per year	Production capacity MT per year	Percentage share of total production
1	Insecticides	106100	36940	56.5
2	Fungicides	26200	26310	32.4
3	Herbicides /Weedicides	10500	6710	8.3
4	Rodenticide	3200	2220	2.7
5	Fumigants	200	40	0.1
<b>Total</b>		<b>146200</b>	<b>81220</b>	<b>100</b>

Note : Year 2010-2011

**Q. What steps have been taken by Govt to control pollution emitting from pesticide industries?**

Ans: Standards have been prescribed for effluent, gaseous pollutants emitted from the pesticide industries.

**Q. What are different streams of Hazardous Waste generated from the pesticide industry?**

Ans: As per Schedule 1 of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 at S No. 29 Production and formulation of pesticides including stock-piles, the following three streams have been notified:

- Process waste / residues (29.1)
- Chemical sludge containing residues pesticides (29.2)
- Date-expired and off-specification pesticides (29.3)

**Q. What are the technologies suggested for reduction of gaseous pollutants from industries.**

Ans: Condensation/Absorption/adsorption/incineration are the various technologies being used for reducing of gaseous emission from process vent of chemical manufacturing industry.

**Q. What mechanism has been set up to monitor gaseous emission from industries and how frequently these are checked?**

Ans: Source emission/Ambient Air monitoring mechanism is adopted to monitor toxic gases. The frequency of source monitoring of industry depends on consent condition imposed by the State Pollution control Board. The ambient air quality of a particular locality is monitored by twice in a week and 104 times in a year.

**Q. Who regulates/ control gaseous emission from the industries.**

Ans: The consent to operate the industry in a particular state is given by SPCBs/PCCs.

**Q. Are there any action taken against industries meeting poisonous gases.**

Ans: State Boards take action against the defaulting industry by issuing direction u/s 31 A of the Air (PCP) Act, 1981

**Q. Who gives environmental clearance to industries.?**

Ans: Industry located outside notified industrial area are required to obtain EC from MoEF.  
Industry located inside notified industrial area are required to obtain EC from SEIAA (State Environment Impact Assessment Authority)

**Q. What are the new monitoring mechanisms which government proposes to install.?**

Ans: New monitoring mechanism like Online monitoring from the stack and continuous air quality monitoring has been started by some industries.

**Q. Whether the government has notified Ambient Air Quality standards for ensuring that air pollution not to exceed caused by industries.**

Ans: YES

**Q. Are there any public complaints/ VIP references in the knowledge of MoEF/ CPCB regarding effects of emissions of poisonous gases on human health or on agriculture etc.**

Ans: Yes.

**Q. Who is the authority for registration for pesticide industries.**

Ans: Central Insecticides Board & Registration Committee, Faridabad.

**Q. What are the options instead of pesticides.**

Ans: The options in place of pesticides are Biopesticides.

### **Supplementary information-IPC-I**

#### **PETROCHEMICAL**

**Q. Whether the Government has notified any norms or issued guidelines for Petrochemical industries to be complied for prevention and control of pollution in the country:**

Ans Yes, there are industry specific effluent and emission norms notified under Environment (Protection) Act, 1986 by MoEF.

**Q. What is the difference between concentration based standards and load based standards?**

Ans. Concentration based standards denote the concentration of a particular pollutant at that instant in emission or effluent. Load based standards denote the total pollution load of a particular pollutant per unit of production.

**Q. What is the present status in respect of pollution control?**

Ans. All the Petrochemical industries have installed inbuilt pollution control measures . Though various pollution control technologies are installed in the industries, their proper operations on regular basis is an issue due to following reasons:

- Failure/upset of pollution control devices during operation.
- Effluent is non-biodegradable containing high COD.
- Leakages of VOCs from storage tank due to upset of controlled parameter like temperature & pressure

**Q. Who will enforce these standards?**

Ans. As per the provision of the Water (PCP) Act,1974 and Air (PCP) Act,1981 the State Pollution Control Boards/PCCs shall enforce the standards through consent mechanism.

**Q . Whether SPCBs/PCCs have power to relax standards?**

Ans. As per E(P) Act, the SPCBs/PCCs cannot relaxed standards but can impose more stringent standards.

**Q. Whether SPCBs/PCCs can developed standards?**

Ans. SPCBs/PCCs can develop the industry specific stringent standards according to the local conditions but in consultation with CPCB.

**Q. What is the provision provided in the E(P) Act,1986 to take measure to protect and improve environment by Central Government?**

Ans. Laying down standards for emission or discharge of environmental pollutants from various sources

**Q. How these standards are implemented by SPCBs/PCCs in their states?**

Ans. The notified standards are enforced by State Boards / PCCs as part of consent mechanism under the Water Act,1974 or the Air Act ,1981 or authorisation under the Hazardous Waste (Management, Handling, Transboundary) Rules.

**Q. Whether the petrochemical industries carried out EIA study before setting up industry.**

Ans. Yes. Based on EIA reports MoEF issues Environment clearance to the industry.

**Q. Who verifies the EC conditions of MoEF**

Ans . Regional offices of MoEF ensure compliance of the EC conditions.

**Q. What are the action taken by Government, If any petrochemical industry violate environmental norms**

**Ans:** For noncompliance of the norms, directions u/s 5 of the E(P) Act is being issued to the unit.

**Q. Whether any direction has been issued to the Petrochemical industry.**

Ans. CPCB issued notice u/s 5 to the Tamilnadu Petro Products, Tamil Nadu for non-compliance

**Q. How may petrochemical units are operating in India**

Ans. As per the information collected from SPCBs/PCCs, there are 40 Petrochemical units operating.

## Supplementary information-IPC-I

### REFINERY:

#### Q. There are how many refineries in India and of what capacity?

Ans. There are a total of 22 refineries in the country comprising 19 (nineteen) in the Public Sector and 3 (three) in the Private Sector. The country is not only self-sufficient in refining capacity for its domestic consumption but also exports petroleum products substantially.

S. No.	Name of the company	Location of the Refinery	Capacity, MMTPA*
1.	Indian Oil Corporation Limited (IOC)	Guwahati, Assam	1.00
2.	IOC	Barauni, Bihar	6.00
3.	IOC	Koyali, Vadodara, Gujarat	13.70
4.	IOC	Haldia, West Bengal	7.5
5.	IOC	Mathura, Uttar Pradesh	8.00
6.	IOC	Digboi, Assam	0.65
7.	IOC	Panipat, Haryana	15.00
8.	IOC	Bongaigaon, Assam	2.35
9.	Hindustan Petroleum Corporation Limited (HPCL)	Mumbai, Maharashtra	6.50
10.	HPCL, Visakh	Visakhapatnam, Andhra Pradesh	8.30
11.	Bharat Petroleum Corporation Limited (BPCL)	Mumbai, Maharashtra	12.00
12.	BPCL, Kochi	Kochi, Kerala	9.50
13.	Chennai Petroleum Corporation Limited (CPCL)	Manali, Tamil Nadu	10.50
14.	CPCL, Nagapattnam	Nagapattnam, Tamil Nadu	1.00
15.	Numaligarh Refinery Ltd.(NRL)	Numaligarh, Assam,	3.00
16.	Mangalore Refinery & Petrochemicals Ltd. (MRPL)	Mangalore, Karnataka	15.00
17.	Tatipaka Refinery (ONGC)	Tatipaka, Andhra Pradesh	0.07
18.	Reliance Industries Ltd. (RIL); Private Sector	Jamnagar, Gujarat	33.00
19.	Reliance Petroleum Limited (SEZ); Private Sector	Jamnagar, Gujarat	27.00
20.	Essar Oil Limited (EOL); Private Sector	Jamnagar, Gujarat	20.00
21.	Bharat Oman Refineries Ltd.	Bina, Madhya Pradesh	6.00

22.	Guru Gobind Singh Refinery	Bhatinda Punjab	9.00
TOTAL		215.07	

**Q. What are the major Environmental issues associated with oil refineries sector?**

Ans.

- Minimizing NO<sub>x</sub> & fugitive VOC emissions
- Minimizing generation of oily sludge
- Water conservation & reuse/recycle of treated wastewater
- Installation of continuous monitoring systems in major stacks
- Developing oil response facilities in coastal refineries

**Q. What is the status of Indian oil refineries on combating environmental issues mentioned above?**

Ans. Most of the refineries have taken the action to combat the mentioned environmental issues.

**Q. When were the effluent and emission standards revised for oil refineries?**

Ans. Effluent and emission standards were recently revised on 2008.

**Q. What are the special features of revised standards?**

Ans. Revised standards are quite elaborate – covering most of the refinery processes and pollutants e.g. SO<sub>2</sub>, NO<sub>x</sub> from all furnaces and boilers; VOC emissions from storage, equipment leaks, loading & unloading facilities, etc.

**Q. What is the compliance status of the oil refineries in respect of new standards?**

Ans. Most of the refineries are complying with the new standards.

## **Supplementary information of IPC-VII**

### **What is a Common Effluent Treatment Plant (CETP)?**

CETP is a type of waste-water treatment systems, wherein, effluent from Small/Medium Scale Industries located in an industrial cluster/estate are brought to a centralized place for treatment.

Operation and maintenance of CETP is usually carried out by co-operative society formed by the member units. The expenses for operation and maintenance of CETP are being shared by participating member industrial units.

### **What are advantages of CETPs?**

The advantages of CETPs are as follows:

- Facilitates 'economy of scale' in waste water treatment, thereby reducing cost of pollution abatement for individual small and medium sized enterprises (SMEs/industry).
- Addresses the lack of space issue in the individual industry as centralized facility can be planned in advance to ensure that adequate space is available.
- Homogenization of wastewater for heterogeneous industrial cluster.
- Eliminates multiple discharges in the area, provides opportunity for better enforcement by the regulatory bodies.
- Organizing the disposal of treated effluent & sludge and improving the possibilities of recycle/reuse.

### **Whether effluent quality standards for CETP is notified/prescribed?**

MoEF&CC has prescribed inlet and outlet quality norms for CETPs in Feb, 1991. The revised effluent quality standards for CETP were notified by MoEF&CC vide Gazette Notification S.O. 4(E), dated 1/1/2016.

### **What are the major factors/bottlenecks which affect the proper planning, operation and maintenance of the CETPs:**

The major factors/bottlenecks which influence the proper planning, operation and maintenance of the CETPs are as follow:

- i. Inadequate control of CETP operators on the quality & quantity of effluent discharged by its member units leading to fluctuations of effluent reaching the CETP (overload/shock load conditions) for most of the time.
- ii. Inadequate monitoring mechanism and data management to identify defaulting member industries.
- iii. Improper segregation of toxic/hazardous effluent streams at individual member industry leading to inefficient performance of CETPs.
- iv. Non-availability & non-hiring of technically qualified manpower for operation & maintenance of CETPs/ETPs at optimum level.
- v. Inadequate/inefficient operation of Primary Effluent Treatment Plants (PETPs) of member units.
- vi. Improper/inadequate selection of technologies for the treatment of effluent.

- vii. Inadequate CHWT/SDF sites for the disposal of hazardous waste generated by CETPs as well as member units.
- viii. Inadequate upstream and downstream conveyance linkages for the CETPs.
- ix. Insufficient funds for installation, upgradation & operation of CETPs.

**Who are the Stakeholders responsible for effective monitoring and proper functioning of CETPs:**

Three agencies namely, (i) CETP operating agencies, (ii) member industries and (iii) State Governments/SPCBs/PCCs/CPCB are the main stakeholders who are responsible for effective monitoring and proper functioning of CETPs.

**What are compliance enforcement action taken by Government?**

In order to improve the compliance status of CETPs with the stipulated effluent discharge standards, CPCB issued directions to SPCBs/PCCs/CETPs, from time to time, the details of which are as follow:

- i. CPCB issued directions to concerned SPCBs/PCCs under section-18(1)(b) of Water (Prevention and Control of Pollution) Act, 1974, vide letter dated 31/3/2016 for carrying out monitoring of all CETPs and the associated industrial areas at least every quarter, uploading the performance status of all CETPs on SPCB website regularly, taking suitable action against industries/CETPs not complying with the prescribed standards.
- ii. In order to inculcate the habit of self-monitoring within the CETPs for complying with the prescribed standards, CPCB issued directions under section-18(1)(b) of the Water (Prevention & Control of Pollution), Act, 1974 on 5/2/2014 to all State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) to direct the CETPs to install OCEMS for measurement of the sector-specific parameters and connect and submit the monitoring data to SPCBs/PCCs and CPCB. CPCB also, issued directions under section-5 of the Environment (Protection) Act, 1986 on 23/9/2015 to all CETPs regarding installation of OCEMS and providing data connectivity to CPCB and SPCBs/PCCs.

**Is there any government scheme for Common Effluent Treatment Plant (CETPs)?**

Ministry of Environment, Forest and Climate Change had implemented a scheme to fund setting up of CETPs for treatment of effluents generated from Small Scale Industries located in clusters, since 1991. However, this scheme has been discontinued from 2017-18.

**What is the current status of CETPs in India?**

Presently, there are 196 operational CETPs in 20 States across the country. Total installed and operational treatment capacities of these CETPs are 1810 MLD and 1070 MLD, respectively. Out of these 196 CETPs, 164 CETPs have installed Online Continuous Effluent Monitoring System (OCEMS) and provided data connectivity to CPCB. About 45 CETPs, have installed Water Recovery System.



The state-wise details of CETPs as received from SPCBs/PCCs

Sl. No.	State	No. of CETPs	Design Capacity (MLD)	Operational Capacity (MLD)	OCEMS Connectivity with CPCB	No. of CETPs with Water Recovery System
1	Andhra Pradesh	6	31.5	11.1	5	2
2	Assam	1	1	0.05	0	0
3	Delhi	13	212.3	51.7	13	0
4	Gujarat	34	754.9	533.7	29	4
5	Haryana	19	190.2	102.1	15	0
6	Himachal Pradesh	1	25	16.8	1	0
7	Jammu & Kashmir	2	0.6	0.3	0	0
8	Jharkhand	1	1.2	0	1	0
9	Karnataka	10	3	1	9	0
10	Kerala	6	4.4	1.9	5	1
11	Madhya Pradesh	3	9.4	3.1	2	0
12	Maharashtra	26	197.2	149.8	24	1
13	Punjab	3	5.6	3.5	3	1
14	Rajasthan	16	143.9	61.3	10	6
15	Tamil Nadu	36	134.9	58.1	32	30
16	Telangana	7	11.5	8.3	6	0
17	Tripura	1	0.5	0.1	0	0
18	Uttar Pradesh	7	50.5	41.7	5	0
19	Uttarakhand	3	13.2	9.9	3	0
20	West Bengal	1	20	16	1	0
	<b>Total</b>	<b>196</b>	<b>1810</b>	<b>1070</b>	<b>164</b>	<b>45</b>

### Supplementary information of Air Lab

1. What are the parameters that can be monitored and analysed in Ambient Air Quality Monitoring and mention the sampling methods?

S. No.	Parameter	Sampling Method
1	SO <sub>2</sub>	IS 5182 Part 2/CB/CL/ SOP/AL-AA-01
2	NO <sub>2</sub>	IS 5182 Part 6/CB/CL/ SOP/AL-AA-02
3	SPM	IS 5182 Part 4/CB/CL/ SOP/AL-AA-03
4	PM <sub>10</sub>	IS 5182 Part 23/USEPA Method IO 2.1/CB/CL/ SOP/AL-AA-04
5	PM <sub>2.5</sub>	IS 5182 Part 24/CB/CL/ SOP/AL-AA-05
6	Metals	USEPA Method IO 2.1 & 3.1/CB/CL/ SOP/AL-AA-07
7	BaP	IS 5182 Part 12/ USEPA Method TO-13/CB/CL/ SOP/AL-AA-08

2. What are the parameters that can be monitored in Source Emission Monitoring and mention the sampling methods?

S. No.	Parameter	Sampling Method
1	SO <sub>2</sub>	IS 11255 Part 2/CB/CL/ SOP/AL-SE-02
2	NO <sub>2</sub>	IS 11255 Part 7/USEPA Method 7/CB/CL/ SOP/AL-SE-03
3	PM	IS 11255 Part 1 & 3/CB/CL/ SOP/AL-SE-01
4	Metals	USEPA Method 29
5	Halides (HF/HCL)	USEPA Method 26/26A

3. What are the parameters that can be monitored in Ambient Noise?

S. No.	Parameter	Sampling Method
1	Leq dB (A)	CB/CL/ SOP/AL-05