# ANNUAL REPORT

## 2019-20

CENTRAL POLLUTION CONTROL BOARD
Ministry of Environment, Forest & Climate Change
Website: www.cpcb.nic.in

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# CHAPTER – I

# INTRODUCTION

Under the provisions of The Water (Prevention & Control of Pollution) Act, 1974, the Central Government constituted the **'Central Board for the Prevention and Control of Water Pollution'** on September 23, 1974. The name of the Central Board was amended to **Central Pollution Control Board (CPCB)** under the Water (Prevention & Control of Pollution) Amendment Act, 1988 (No. 53 of 1988). The Central Pollution Control Board has been entrusted with the added responsibilities of Air Pollution Control since May, 1981 under the provisions of the Air (Prevention and Control of Pollution) Act, 1981. The enactment of the Environment (Protection) Act, 1986, which is umbrella legislation for enforcement of measures for protection of environment and several notifications of Rules under the Act widened the scope of activities of the Central Board.

The CPCB has been continuously playing a key role in abatement and control of pollution in the country by generating, compiling and collating data, providing scientific information, rendering technical inputs for formation of national policies and programmes, training and development of manpower and through activities for promoting awareness at different levels of the Government and Public at large.

## 1.1 Functions of the Central Board

The main functions of CPCB, as spelt out in The Water (Prevention and Control of Pollution) Act, 1974, and The Air (Prevention and Control of Pollution) Act, 1981, are:

(i) To promote cleanliness of streams and wells in different areas of the States through prevention, control and abatement of water pollution; and,

(ii) To improve the quality of air and to prevent, control or abate air pollution in the country.

In addition to the main functions of promoting cleanliness of streams and wells, improving the quality of air and to prevent, control or abate air pollution, CPCB has been assigned following national level functions:

- Advise the Central Government on any matter concerning prevention and control of water and air pollution and improvement of the quality of air;
- Plan and cause to be executed a nation-wide programme for the prevention, control or abatement of water and air pollution;
- Co-ordinate the activities of the State Boards and resolve disputes among them;
- Provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of water and air pollution, and for their prevention, control or abatement;
- Plan and organise training of persons engaged in programmes for prevention, control or abatement of water and air pollution;
- Organise through mass media, a comprehensive mass awareness programme on prevention, control or abatement of water and air pollution;
- Collect, compile and publish technical and statistical data relating to water and air pollution and the measures devised for their effective prevention, control or abatement;
- Prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts;
- Disseminate information in respect of matters relating to water and air pollution and their prevention and control;
- Lay down, modify or annul, in consultation with the State Governments concerned, the standards for stream or well, and lay down standards for the quality of air;
- Establish or recognize laboratories to enable the Board to perform, and;
- Perform such other functions as and when prescribed by the Government of India.

## 1.2 Functions of the Central Board as State Board for the Union Territories

- Advise the Governments of Union Territories with respect to the suitability of any premises or location for carrying on any industry which is likely to pollute a stream or well or cause air pollution;
- Lay down standards for treatment of sewage and trade effluents and for emissions from automobiles, industrial plants, and any other polluting source;
- Evolve efficient methods for disposal of sewage and trade effluents on land;
- Develop reliable and economically viable methods for treatment of sewage, trade effluents and air pollution control equipment;
- Identify any area or areas within Union Territories as air pollution control area or areas to be notified under The Air (Prevention and Control of Pollution) Act, 1981; and
- Assess the quality of ambient air and water, and inspect wastewater treatment installations, air pollution control equipment, industrial plants or manufacturing processes to evaluate their performance and to take steps for the prevention, control and abatement of air and water pollution.

## 1.3 Delegation of Powers by Central Pollution Control Board

As per the policy decision of the Government of India, the Central Pollution Control Board, delegated its powers and functions from time to time under Section 4, Sub Section 4 of The Water (Prevention and Control of Pollution) Act, 1974 and Section 6 of The Air (Prevention and Control of Pollution) Act, 1981 with respect to various Union Territories (**Annexure-I**) to respective Pollution Control Committees functioning under the local administrative control.

# CHAPTER – II

# CONSTITUTION OF THE CENTRAL BOARD

## 2.1 Constitution of the Central Board

According to the provisions of The Water (Prevention & Control of Pollution) Act, 1974, the Central Board consists of the following members:

- A full-time Chairman, being a person having special knowledge or practical experience in respect of matters relating to environmental protection or a person having knowledge and experience in administering institutions dealing with the matters aforesaid, to be nominated by the Central Government;
- such number of officials, not exceeding five, to be nominated by the Central Government to represent Government;
- such number of persons, not exceeding five, to be nominated by the Central Government, from amongst the members of the State Boards, of whom not exceeding two shall be from amongst the members of the local authorities;
- such number of non-officials, not exceeding three to be nominated by the Central Government, to represent the interest of agriculture, fishery or industry or trade or any other interest which, in the opinion of the Central Government, ought to be represented;
- two persons to represent the companies or corporations owned, controlled or managed by the Central Government, to be nominated by the Government; and
- A full-time Member Secretary, possessing qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control, to be appointed by the Central Government.

## 2.2 Board Members

The list of Board Members during the year 2019 - 20 is provided at **Annexure-II**. The organisation structure of the Central Pollution Control Board is provided at **Annexure-III**. Staff strength as on March 31, 2020 is furnished in **Annexure-IV**.

# CHAPTER - III

# MEETINGS OF CENTRAL POLLUTION CONTROL BOARD

## 3.1 Meetings of the Central Board

During the financial year April 1, 2019 to March 31, 2020, following four meetings of the Central Board were held:

| S.No. | Meeting No. | Date | Place |
|---|---|---|---|
| 1. | 186th | June 18, 2019 | CPCB, Delhi |
| 2. | 187th | September 17, 2019 | CPCB, Delhi |
| 3. | 188th | December 2, 2019 | CPCB, Delhi |
| 4. | 189th | December 17, 2019 | CPCB, Delhi |

## 3.2 Major decisions taken by the Board

- Annual Action Plan for the Financial Year 2019 – 2020 was approved by the Board for utilization of Grant-in-Aid amount of Rs. 100.00 Crore. The Board also accorded approval for placing Annual Report for the year 2018 - 19 before both houses of the parliament during winter session, 2019.

- The Board approved the approach for Certifying Conformity Assessment Bodies for Online Continuous Emission & Effluent Monitoring System (OCEMS) to assure credible and quality data from OCEMS installations through verification of installation, calibration and reliability by certified inspection bodies.

- Noting the need for updating criteria for defining non-attainment (NA) cities in respect of air quality, the Board approved revised criteria to include conditions such as, availability of adequate ambient air quality data monitored under National Air Quality Monitoring Program (NAMP) and Continuous Ambient Air Quality Monitoring (CAAQM) Program during past consecutive five years, including cities exceeding annual National Ambient Air Quality Standards with respect to any one of the notified parameters consecutively for five years, cities with minimum three air quality monitoring stations, etc.

- The Board approved extension of the Central Service (Medical Attendance) Rules, 1944 to employees of CPCB post retirement as per CGHS norms.

- CPCB has been delegated powers for recognizing environmental laboratories and government analysts under Section 12 and 13 of Environment (Protection) Act, 1986 for Government, Semi-Government Organization and Public Sector Undertaking. In view of the recommendation from Expert Committee, the Board approved environmental laboratories of Maharashtra Pollution Control Board (03), MECON Ltd. (01) and Madhya Pradesh Pollution Control Board (01) and 18 government analysts for analysis of permitted parameters.

- The Board approved engagement of senior retired CPCB officials as 'Technical Experts' for inputs on matters related to Hon'ble Courts. They will be hired on case-to-case basis upon providing undertaking of non-conflict of interest, as per agreed terms and conditions.

## 3.3 NATIONAL CONFERENCES

The 64th Chairmen & Member Secretary Conference was held during January 16-17, 2020 at Patna, Bihar. It provided an opportunity to showcase and discuss year round efforts of Central and State Pollution Control Boards on research & development activities, enforcement strategies, prevention, response & recovery efforts to address environmental issues and infrastructure & material needs of the Boards.

The focus was on sharing strategies to improve enforcement for effective plastic and biomedical waste management in the country. The discussions were also held on industrial pollution control, implementation of action plans in non-attainment cities and rejuvenation of water bodies.

# CHAPTER - IV

# COMMITTEES CONSTITUTED BY THE BOARD & THEIR ACTIVITIES

## 4.1 Expert Group Constituted by CPCB

Environmental degradation is a matter of serious concern. In view of emerging concerns, technical advancements and increased awareness, need was felt time and again for dedicated Expert Groups to advise environmental management efforts and provide technical expertise. As a multi-dimensional approach and to broaden technical expertise of CPCB, following nine Expert Groups have been constituted for the period from April, 2019 to March, 2021 comprising eminent experts from different thematic areas.

1. Expert Group on Health Aspects of Air Pollution
2. Expert Group on Vehicular Pollution Control
3. Expert Group on Satellite Based Air Quality Monitoring System
4. Expert Group on Management of Sewage & Sewerage System
5. Expert Group on Water Quality Management
6. Expert Group on Treatment, Storage & Disposal Facilities (TSDFs) – Captive & Common
7. Expert Group on E-Waste Management
8. Expert Group on Implementation of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
9. Expert Group on Environmental Damage Assessment

The members of these Expert Groups examine, advice and assist by way of technical inputs to CPCB on concerned issues.

# CHAPTER – V

# WATER, AIR AND NOISE MONITORING NETWORK

## 5.1 National Water Quality Monitoring Network

The water quality monitoring network was strengthened to 4111 monitoring locations by adding 611 new monitoring locations to the existing network. CPCB monitors 2021 locations on Rivers, 608 on Lakes/ Ponds/ Tanks, 63 on Creeks/Seawater/marine water, 65 on Canals, 60 on Drains, 56 on Sewage Treatment Plants, 5 on Water Treatment Plants (Raw Water) and 1233 Wells as part of National Water Quality Monitoring Programme (NWMP) and state-wise status is given in **Fig. no. 5.1** & **Table 5.1**.

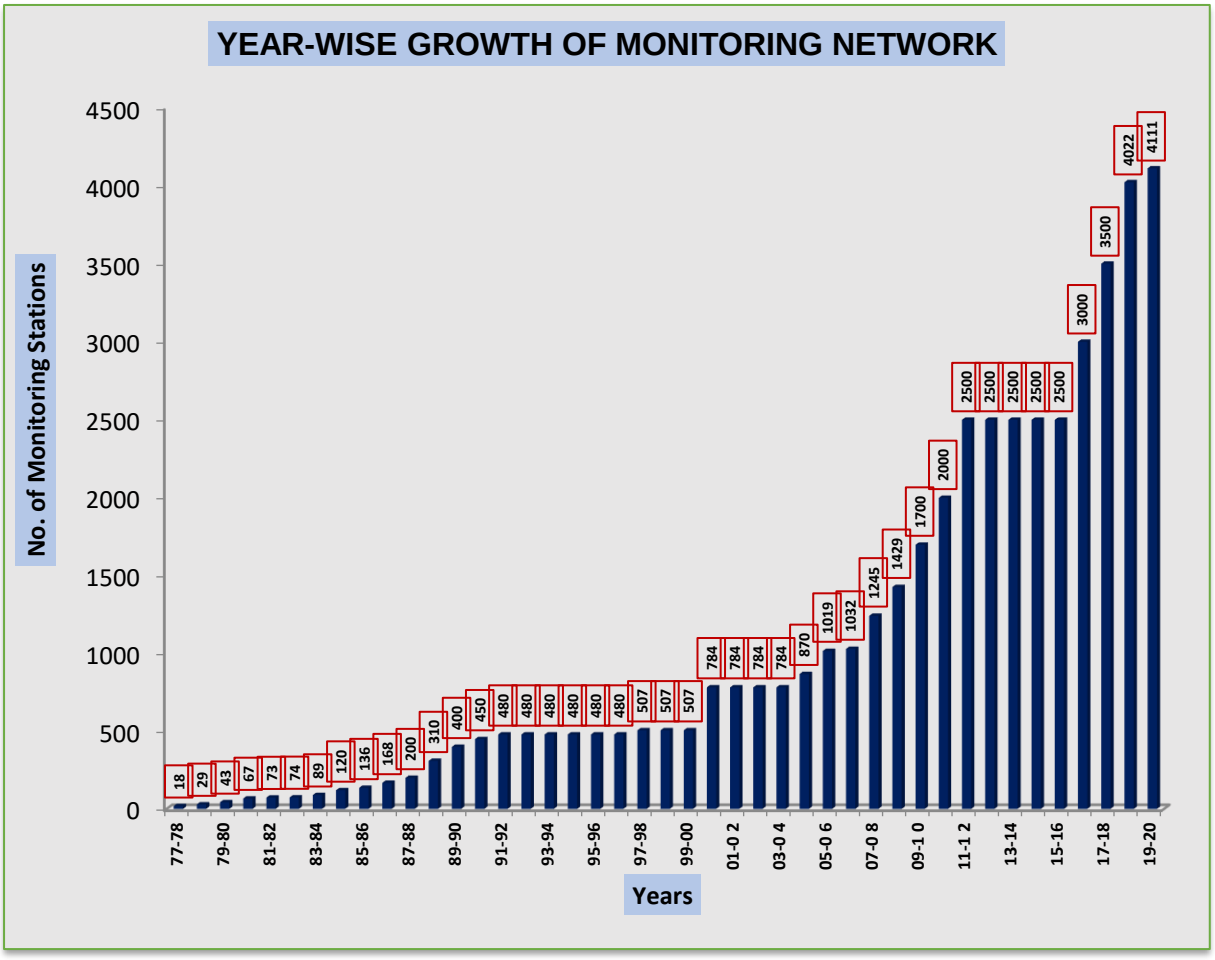



**Fig 5.1: Year-wise growth of Water Quality Monitoring Network**

## Table 5.1 : State-wise Water Quality Monitoring Network (stations) under NWMP

| S. No. | SPCB/PCC | RIVER | LAKE | TANK | POND | CREEK /MARINE /SEA/ COASTAL | CANAL | DRAIN | STP | WATER TREATMENT PLANT | GROUND WATER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ANDHRA PRADESH | 42 | 3 | 1 | - | 11 | 6 | 4 | 1 | - | 33 | **101** |
| 2 | ARUNACHAL PRADESH | 29 | - | - | - | - | - | - | - | - | - | **29** |
| 3 | ASSAM | 102 | 6 | 1 | 27 | - | - | - | - | - | 64 | **200** |
| 4 | BIHAR | 96 | 3 | - | 2 | - | - | - | - | - | 70 | **171** |
| 5 | CHANDIGARH | | 1 | - | - | - | - | 3 | - | - | 7 | **11** |
| 6 | CHATTISGARH | 29 | 1 | - | 1 | - | - | - | - | - | 8 | **39** |
| 7 | DAMAN & DIU, DADRA & NAGAR HAVELI | 13 | - | - | - | - | - | - | - | - | 12 | **25** |
| 8 | DELHI | 10 | 4 | - | - | - | 2 | 9 | 6 | - | 45 | **76** |
| 9 | GOA | 32 | 9 | - | - | 11 | 3 | - | 2 | - | 10 | **67** |
| 10 | GUJARAT | 67 | 20 | 1 | 2 | 3 | 3 | - | 2 | - | 89 | **187** |
| 11 | HARYANA | 20 | 3 | - | 1 | - | 14 | 1 | - | 3 | 29 | **71** |
| 12 | HIMACHAL PRADESH | 142 | 5 | - | 23 | - | - | - | - | - | 49 | **219** |
| 13 | JAMMU & KASHMIR | 64 | 36 | - | - | - | - | 1 | - | - | 23 | **124** |
| 14 | JHARKHAND | 65 | 4 | - | 4 | - | - | - | - | - | 3 | **76** |
| 15 | KARNATAKA | 109 | 80 | 95 | - | - | - | 1 | - | - | 2 | **287** |
| 16 | KERALA | 75 | 16 | - | 2 | - | 3 | - | 1 | - | 34 | **131** |
| 17 | LAKSHADWEEP | - | - | - | 3 | - | - | - | - | - | 42 | **45** |
| 18 | MADHYA PRADESH | 158 | 22 | 1 | 12 | - | - | - | - | - | 54 | **247** |
| 19 | MAHARASHTRA | 162 | - | - | - | 34 | - | 10 | - | - | 50 | **256** |
| 20 | MANIPUR | 41 | 5 | - | 13 | - | 1 | - | - | - | 10 | **70** |
| 21 | MEGHALAYA | 64 | 7 | - | - | - | - | - | - | - | 13 | **84** |
| 22 | MIZORAM | 46 | 1 | 1 | 2 | - | - | - | - | - | 26 | **76** |
| 23 | NAGALAND | 17 | 2 | - | - | - | - | - | - | - | 10 | **29** |
| 24 | ODISHA | 128 | 7 | - | 8 | 4 | 9 | 4 | 3 | - | 90 | **253** |
| 25 | PUDUCHERRY | 6 | 3 | - | - | - | - | - | - | - | 22 | **31** |
| 26 | PUNJAB | 61 | 3 | - | 3 | - | - | 9 | 8 | - | 46 | **130** |
| 27 | RAJASTHAN | 35 | 17 | - | 1 | - | 5 | - | - | - | 141 | **199** |
| 28 | SIKKIM | 16 | | - | - | - | - | - | 3 | - | | **19** |
| 29 | TAMIL NADU | 86 | 8 | 1 | - | - | 5 | 5 | 16 | - | 22 | **143** |
| 30 | TELANGANA | 55 | 50 | 37 | 13 | -- | - | 13 | 11 | - | 45 | **224** |
| 31 | TRIPURA | 38 | 8 | - | 10 | - | 7 | - | - | - | 57 | **120** |

| S. No. | SPCB/PCC | RIVER | LAKE | TANK | POND | CREEK /MARINE /SEA/ COASTAL | CANAL | DRAIN | STP | WATER TREATMENT PLANT | GROUND WATER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | UTTAR PRADESH | 115 | 2 | - | 2 | - | 1 | - | - | 2 | 40 | **162** |
| 33 | UTTARAKHAND | 39 | 2 | - | - | - | 4 | - | 3 | - | 19 | **67** |
| 34 | WEST BENGAL | 59 | 13 | - | - | - | 2 | - | - | - | 68 | **142** |
| **TOTAL** | | **2021** | **341** | **138** | **129** | **63** | **65** | **60** | **56** | **5** | **1233** | **4111** |

In addition to regular monitoring of river Yamuna in Himachal Pradesh, Haryana, Delhi and Uttar Pradesh, CPCB monitored rivers at inter-state locations, groundwater in Delhi NCR, few inaccessible locations of river Yamuna and Ganga, major rivers during festivities of idol immersions and water bodies receiving accidental discharges during 2019.

## 5.2 Water Quality Status in Delhi Stretch of Yamuna River in the year 2019

Central Pollution Control Board is regularly monitoring about 40 km. stretch of Delhi on Yamuna River from Palla to downstream of Okhla barrage at 4 locations i.e. Palla, Nizamuddin Bridge, Okhla at Kalindi Kunj (Okhla U/s) and Okhla D/s on monthly basis. Water quality trend of the river in this stretch during the last five years (2015-2019) in terms of Dissolved Oxygen (DO), Bio-Chemical Oxygen Demand (BOD), Fecal coliform (FC) and for last two years (2018-2019) in terms of Fecal Streptococci (FS) is depicted in Figures. 5.2-5.5. The observed water quality values have been compared with primary criteria prescribed for designated best use of water for organized outdoor bathing as notified under Environment (Protection) Rules, 1986.

The value of Dissolved Oxygen observed during the year 2019 was well above the prescribed limit of 5.0 mg/l at Palla and was in the range of 6.8-13.2 mg/l, with an annual mean of 9.4 mg/l which is slightly high in comparison with 2018. BOD at Palla was found in the range of 1.7- 8.8 mg/l with annual mean of 3.7 mg/l which is high in comparison to 2018. At remaining three locations BOD values in the range of 6.7-63 mg/l with annual average ranges from 17 mg/l, which indicates reduction in its value as compared with previous year. FC & FS which are present in the fecal matter of warm blooded animals and indicates presence of pathogens in the water. At Palla the FC was found exceeding the prescribed standard of 2500 MPN/100 ml (maximum permissible) on three occasions and even found complying the desirable limit of 500 MPN/100 ml with its observed values in the range of 20-4100 MPN/100 ml with an annual average value of 1407 MPN/100 ml which is considerably less compared to year 2018. At remaining three locations, FC was found exceeding the prescribed maximum permissible standard with its value in the range of 68,000-4,90,00,000 MPN/100ml. The Fecal Streptococcal (FS) value was found

meeting the prescribed standard of 500 MPN/100 ml (permissible) at Palla and three locations in the range of 17,000-16,00,000 MPN/100 ml.

Yamuna River water quality in Delhi stretch not only affected by wastewater received from various drains but also depends on other factors e.g. quantity of water received from Western Yamuna canal through Najafgarh drain, input from Hindon cut canal, quantity of fresh water released from Wazirabad and Okhla barrage, fluctuations in the intensity and duration of rainfall etc.

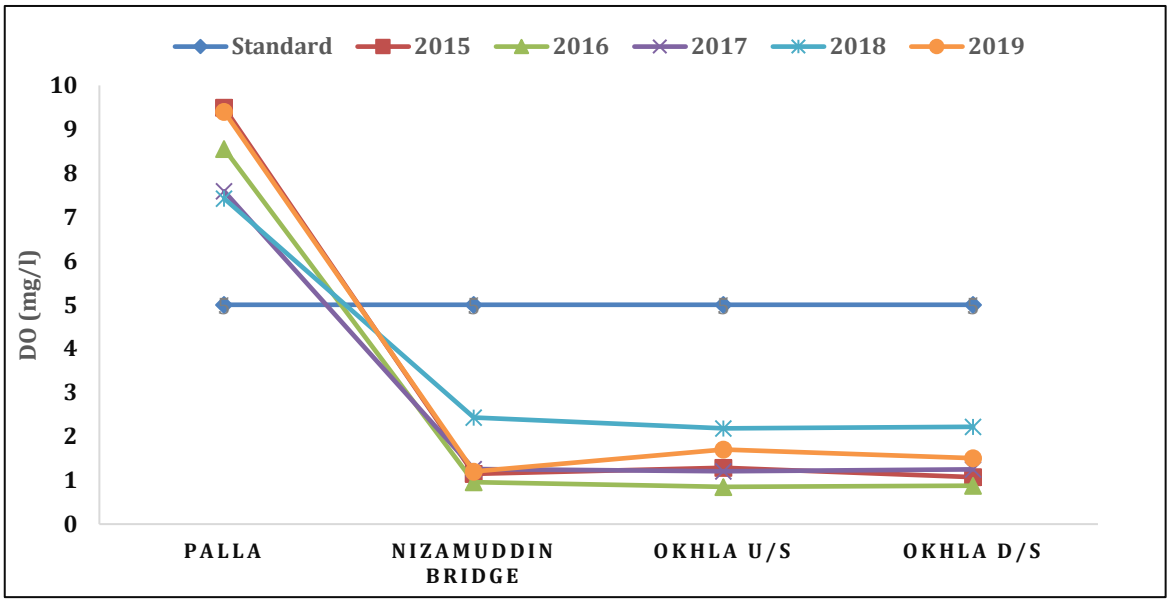



**Fig 5.2: Water quality trend of river Yamuna in terms of DO**

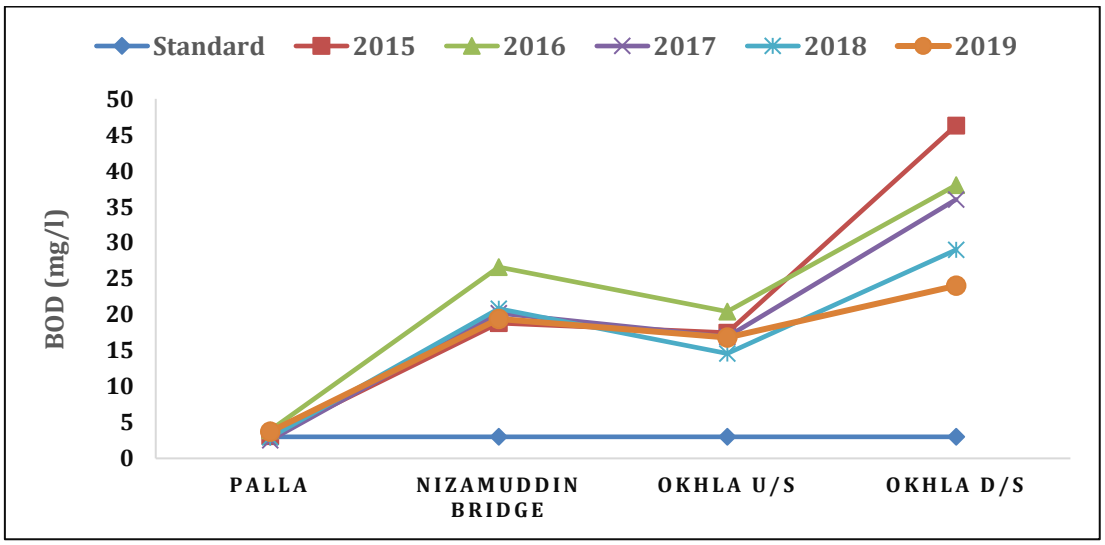



**Fig. 5.3: Water quality trend of river Yamuna in terms of BOD**

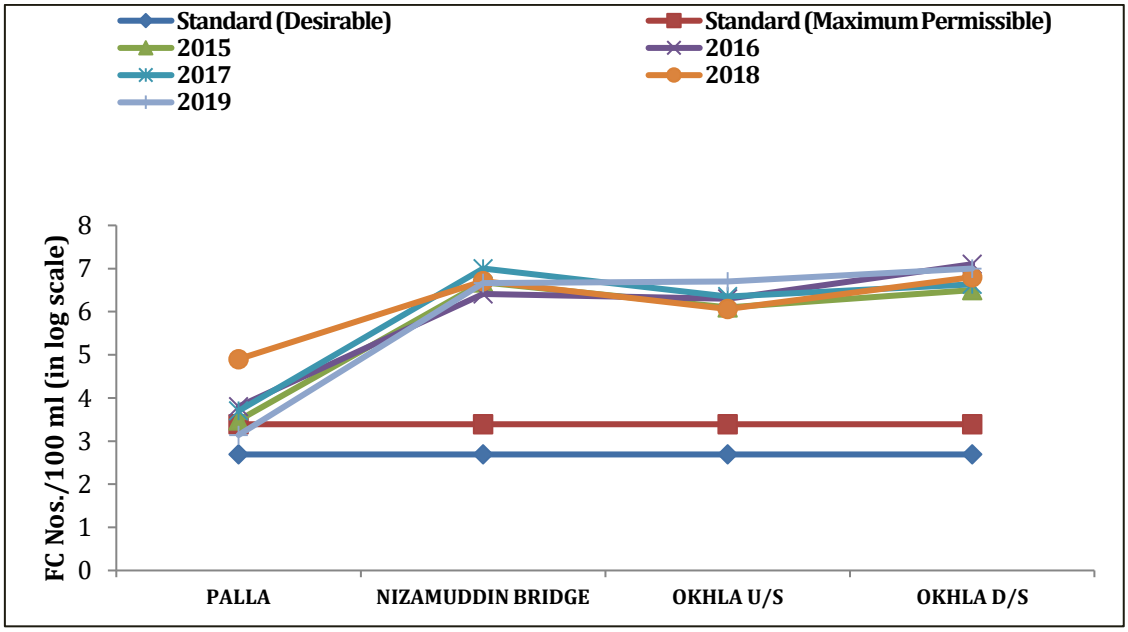



**Fig. 5.4: Water quality trend of river Yamuna in terms of FC**

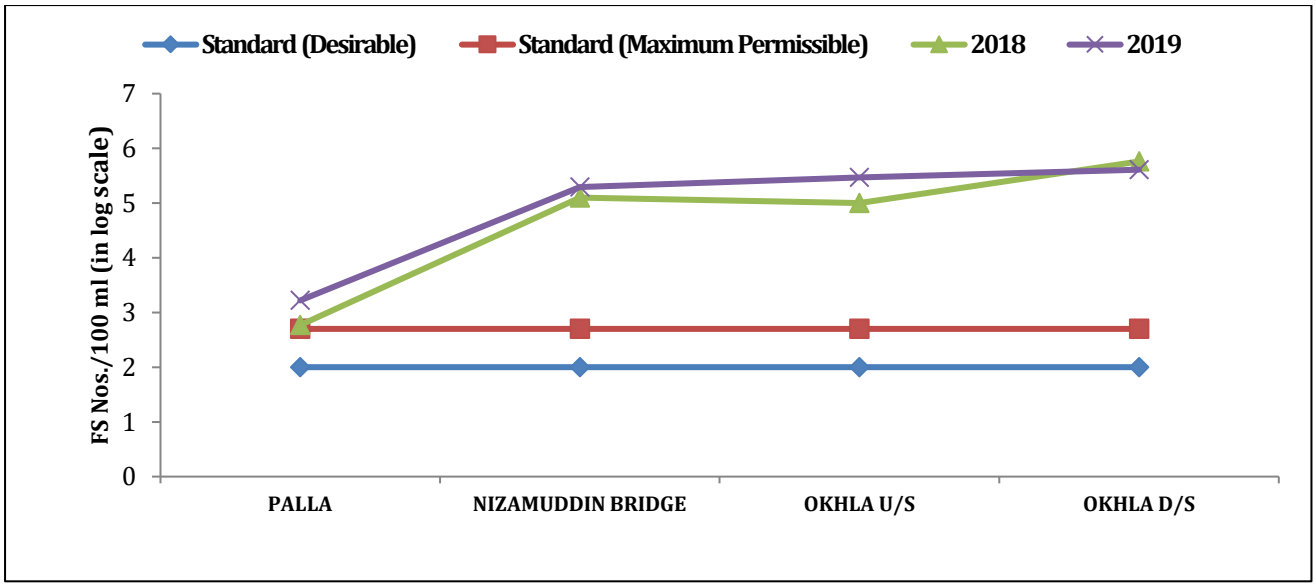



**Fig. 5.5: Water quality trend of river Yamuna in terms of FS**

## 5.3 Discharge of Wastewater and Pollution Load Contributed by Major Drains in NCT- Delhi during 2019

There are 23 major wastewater drains in NCT-Delhi, out of which 20 drains join Yamuna River and rest joins Agra/Gurgaon canal. In the year 2019, flow of few drains e.g. Magazine Road, Sweeper Colony, Khyber Pass and Metcalf house drain was found diverted during dry seasons. Monthly trend of total discharge and load of Bio-chemical Oxygen Demand (BOD load) as received by the river and canal through these drains is depicted in **Figures 5.6 & 5.7**. Total flow of these drains during January to December fluctuated in the range of 32-37 $m^3$/sec whereas, total BOD Load was found in the range of 169-389 tons per

day. The average value of flow and BOD load in respect of all drains for the year 2019 were 34.80 $m^3/s$ and 263 tons per day, respectively. Yamuna River receives about 88 percent of BOD load from Delhi and rest from canals of other states. Two drains i.e. Najafgarh and Shahdara drains contribute about 74% of total BOD load and 81% of total flow in Delhi.

Annual mean of BOD to COD ratio for all the 23 drains for the year 2018-2019 is depicted in **Fig. 5.8**, except Khyber Pass drain where flow was not observed during the entire study period. On the basis of annual mean of the year 2019, maximum BOD/COD ratio of 0.44 was observed in the Kailash Nagar Drain whereas, minimum 0.26 was observed in Drain No. 14. This annual average of BOD to COD ratio for various studied drains was in the range of 0.26 to 0.44, which is almost matching with the range of the year 2018 i.e. 0.25 to 0.44.

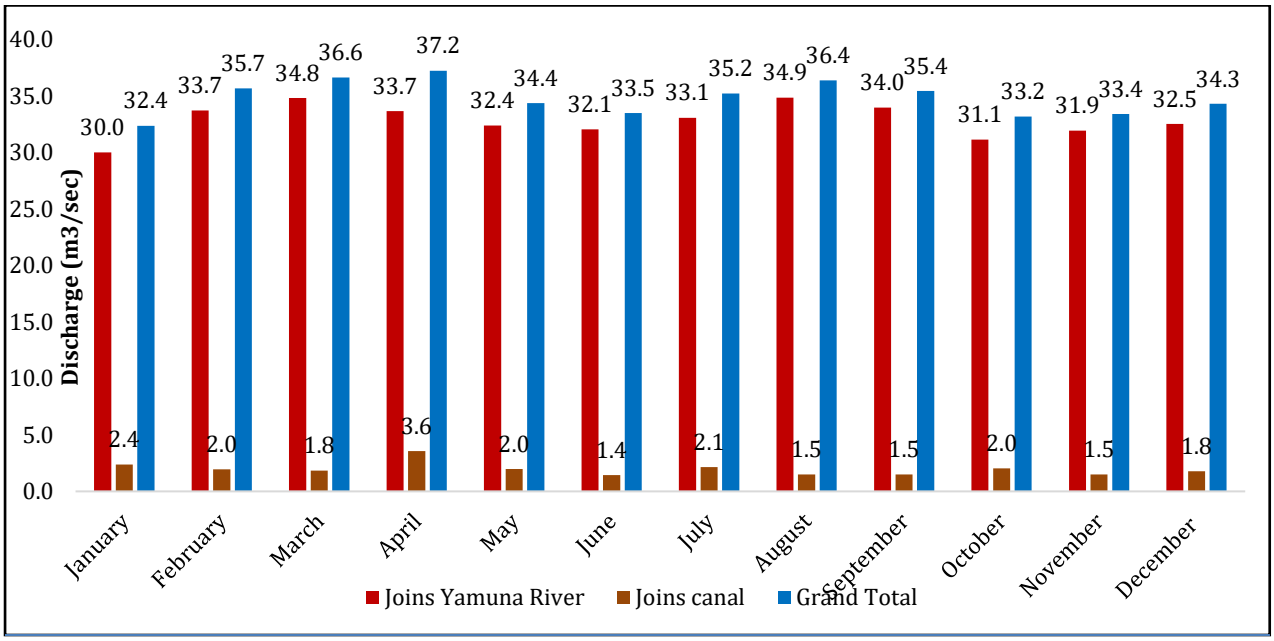



**Fig. 5.6: Discharge trend of major drains of NCT-Delhi (2019)**

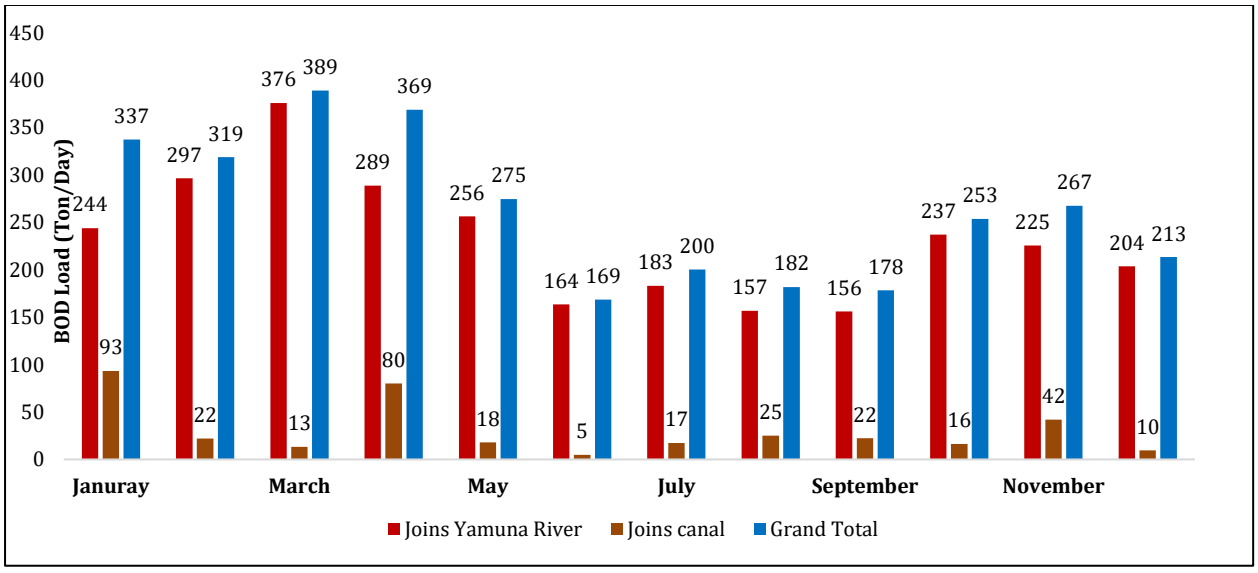



**Fig. 5.7: Trend in BOD load of major drains of NCT-Delhi (2019)**

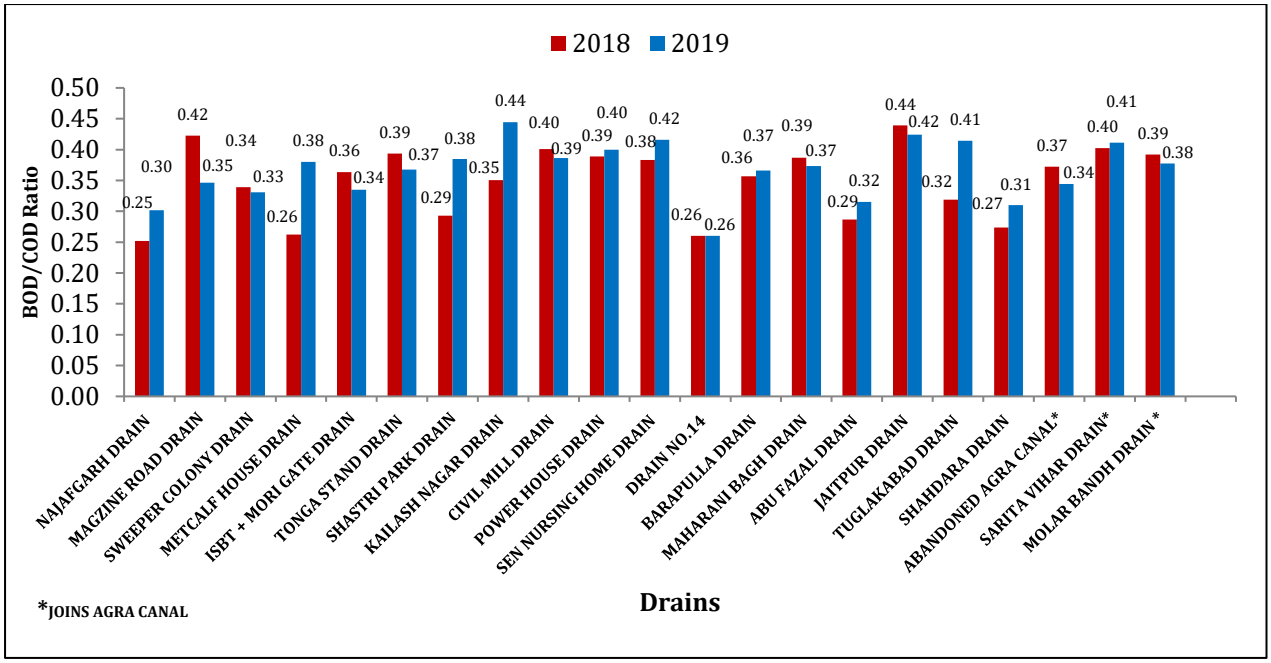



**Fig. 5.8: Trend in BOD/COD ratio of major drains of NCT-Delhi (2018-2019)**

## 5.4 National Ambient Air Quality Monitoring Programme (NAMP)

The Central Pollution Control Board is executing a nation-wide National Air Quality Monitoring Programme (NAMP-manual). The growth of operating Ambient Air Quality Monitoring Stations in the country is given in **Fig 5.9.** The ambient air quality monitoring network has 793 operating stations covering 344 cities/towns in 28 States and 7 Union Territories.


**Fig: 5.9 : Growth of operating Ambient Air Quality Monitoring Stations under NAMP in India**

Under NAMP three main pollutants viz. $PM_{10}$, Sulphur dioxide ($SO_2$) and Nitrogen dioxide ($NO_2$) were monitored regularly at all locations. Out of other notified parameters like Carbon monoxide (CO), Ammonia ($NH_3$), Ozone ($O_3$), $PM_{2.5}$, Benzo(a)pyrene {B(a)P}, Lead (Pb) and Nickel (Ni) are being monitored at selected locations.

The monitoring under the NAMP is being carried out with the help of Central Pollution Control Board; State Pollution Control Boards; Pollution Control Committees, National Environmental Engineering Research Institute (NEERI), Nagpur and Indian Institute of Technology (IIT), Kanpur. CPCB co-ordinates with these agencies to ensure uniformity, consistency of air quality data and provides technical and financial support to them for operating the monitoring station.

The analysis of air quality data of 53 cities during 2019 with respect to $SO_2$ revealed that all cities (100%) are within the National Ambient Air Quality Standard (NAAQS). As for $NO_2$, 10 cities (20%) namely Allahabad, Asansol, Delhi, Ghaziabad, Jamshedpur, Kanpur, Kolkata, Meerut, Patna and Pune exceeded the NAAQS. With respect to $PM_{10}$, 44 cities (86%) and 10 cities (43%) in the respect to $PM_{2.5}$ exceeded the NAAQS. Annual average values of main pollutants in million plus cities are presented in **Table 5.2.**

**Table 5.2: Air Quality in Million Plus Cities of India-2019 under NAMP (Manual Stations)**

| State | S.No | City | Pollutants (µg/m3) | | | |
|---|---|---|---|---|---|---|
| | | | $SO_2$ | $NO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Andhra Pradesh | 1 | Vijaywada | 5 | 19 | 73 | 27 |
| | 2 | Vishakhapatnam | 8 | 19 | 77 | 33 |
| Bihar | 3 | Patna | 3 | 51 | 237 | - |
| Chandigarh | 4 | Chandigarh | 2 | 19 | 97 | 63 |
| | 5 | Durg-Bhillainagar | 7 | 17 | 79 | 42 |
| | 6 | Raipur | 16 | 30 | 69 | - |
| Delhi | 7 | Delhi | 5 | 70 | 199 | 141 |
| Gujarat | 8 | Ahmedabad | 20 | 25 | 135 | 37 |
| | 9 | Rajkot | 20 | 25 | 127 | 35 |
| | 10 | Surat | 23 | 27 | 128 | 40 |
| | 11 | Vadodara | 20 | 26 | 131 | 37 |
| Haryana | 12 | Faridabad | - | - | - | - |
| Jammu & Kashmir | 13 | Srinagar | - | - | 132 | - |
| Jharkhand | 14 | Dhanbad | 14 | 35 | 237 | - |
| | 15 | Jamshedpur | 38 | 47 | 138 | - |
| | 16 | Ranchi | 18 | 37 | 109 | - |
| Karnataka | 17 | Bangalore | 3 | 26 | 79 | 32 |
| Kerala | 18 | Kochi | 2 | 14 | 44 | - |

| State | S.No | City | Pollutants (µg/m3) | | | |
|---|---|---|---|---|---|---|
| | | | $SO_2$ | $NO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| | 19 | Kollam | 3 | 6 | 45 | - |
| | 20 | Kozhikode | 2 | 5 | 44 | - |
| | 21 | Malapuram | 2 | 15 | 35 | - |
| | 22 | Thiruvananthapuram | 9 | 16 | 42 | - |
| | 23 | Thissur | 3 | 5 | 38 | - |
| Madhya Pradesh | 24 | Bhopal | 8 | 17 | 161 | 69 |
| | 25 | Gwalior | 13 | 24 | 139 | 58 |
| | 26 | Indore | 9 | 18 | 77 | 37 |
| | 27 | Jabalpur | 7 | 16 | 84 | - |
| Maharashtra | 28 | Aurangabad | 13 | 36 | 74 | - |
| | 29 | Mumbai | 2 | 27 | 125 | 40 |
| | 30 | Nagpur | 10 | 32 | 101 | 39 |
| | 31 | Nashik | 10 | 22 | 63 | - |
| | 32 | Pune | 38 | 87 | 144 | - |
| | 33 | Thane | 20 | 37 | 128 | - |
| Punjab | 34 | Amritsar | 13 | 34 | 170 | - |
| | 35 | Ludhiana | 12 | 26 | 153 | - |
| Rajasthan | 36 | Jaipur | 7 | 27 | 141 | - |
| | 37 | Jodhpur | 7 | 26 | 240 | - |
| | 38 | Kota | 7 | 24 | 123 | - |
| Tamilnadu | 39 | Chennai | 9 | 18 | 73 | 36 |
| | 40 | Coimbatore | 7 | 18 | 57 | 37 |
| | 41 | Madurai | 13 | 18 | 79 | 26 |
| | 42 | Trichy | 13 | 18 | 73 | 46 |
| Telangana | 43 | Hyderabad | 5 | 37 | 99 | - |
| Uttar Pradesh | 44 | Agra | 5 | 24 | 180 | 106 |
| | 45 | Allahabad | 5 | 42 | 222 | - |
| | 46 | Ghaziabad | 14 | 44 | 231 | 104 |
| | 47 | Kanpur | 6 | 43 | 209 | - |
| | 48 | Lucknow | 7 | 31 | 207 | - |
| | 49 | Meerut | 9 | 63 | 213 | - |
| | 50 | Varanasi | 7 | 29 | 125 | - |
| West Bengal | 51 | Asansol | 15 | 44 | 184 | 81 |
| | 52 | Kolkata | 8 | 43 | 104 | 56 |

**Note:** 'National Ambient Air Quality Standard (NAAQS) for Residential, Industrial, Rural and others Areas (Annual average) for $SO_2$ = 50 µg/$m^3$, $NO_2$ = 40 µg/$m^3$, $PM_{10}$ = 60 µg/$m^3$ & $PM_{2.5}$ = 40 µg/$m^3$ and $SO_2$ = 20 µg/$m^3$, $NO_2$ = 30 µg/$m^3$, $PM_{10}$ = 60 µg/$m^3$and $PM_{2.5}$ = 40 µg/$m^3$ for Ecologically sensitive area.

The air quality scenario with respect to $SO_2$, $NO_2$, $PM_{10}$ and $PM_{2.5}$ in million plus cities during 2019 is represented in **Fig 5.10, 5.11, 5.12 & 5.13.**

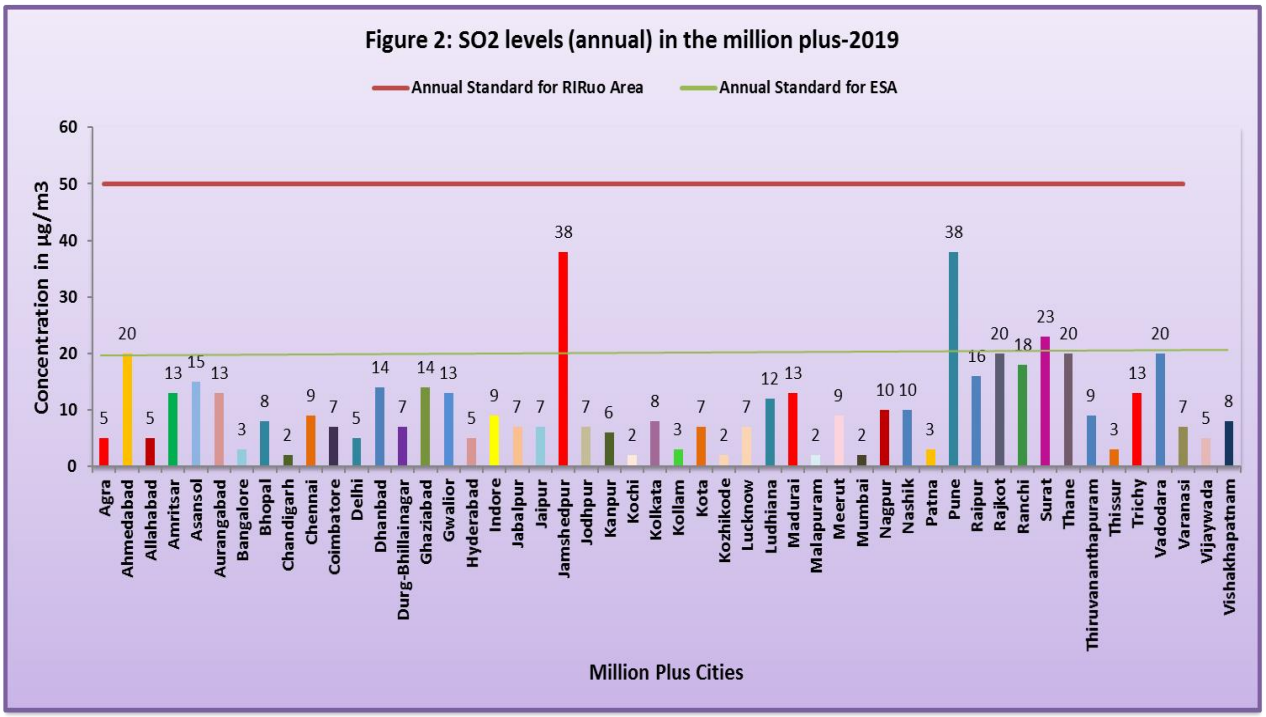



**Fig 5.10: SO2 Levels in Million Plus Cities - 2019**

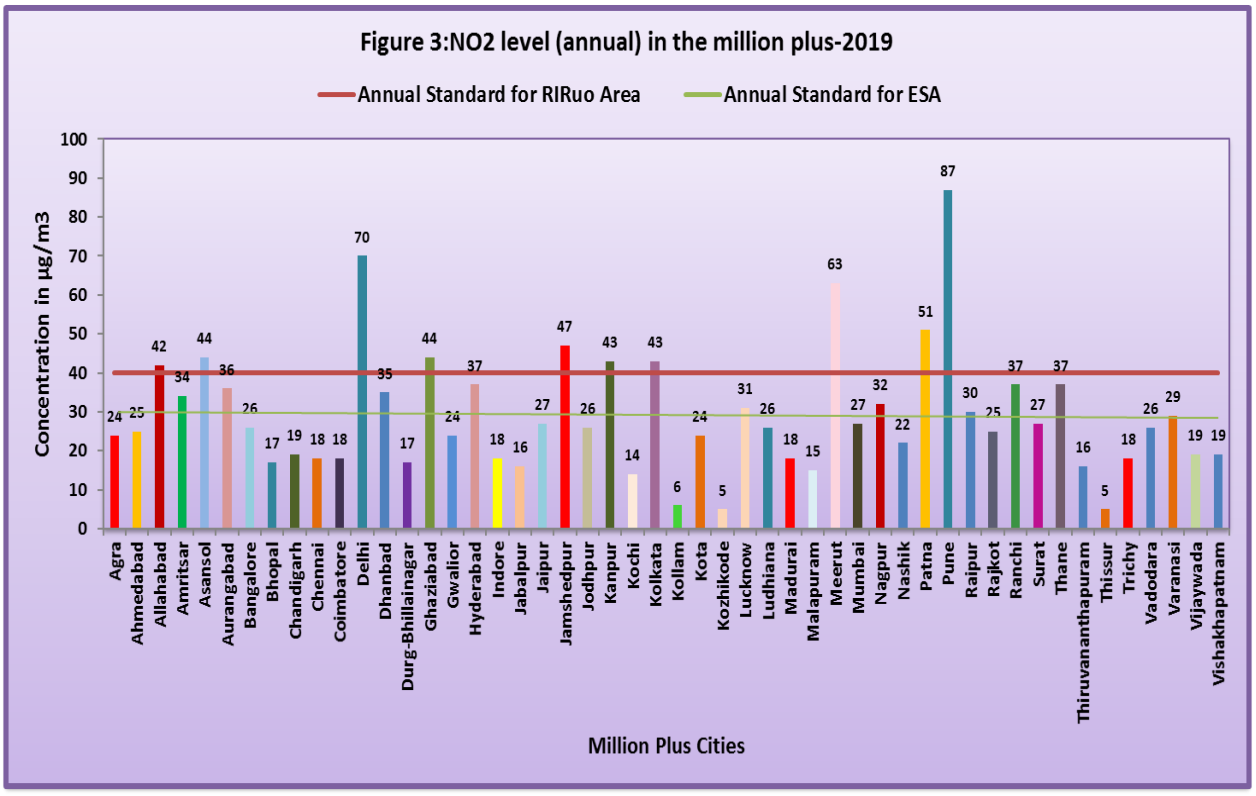



**Fig 5.11: NO2 Levels in Million Plus Cities - 2019**

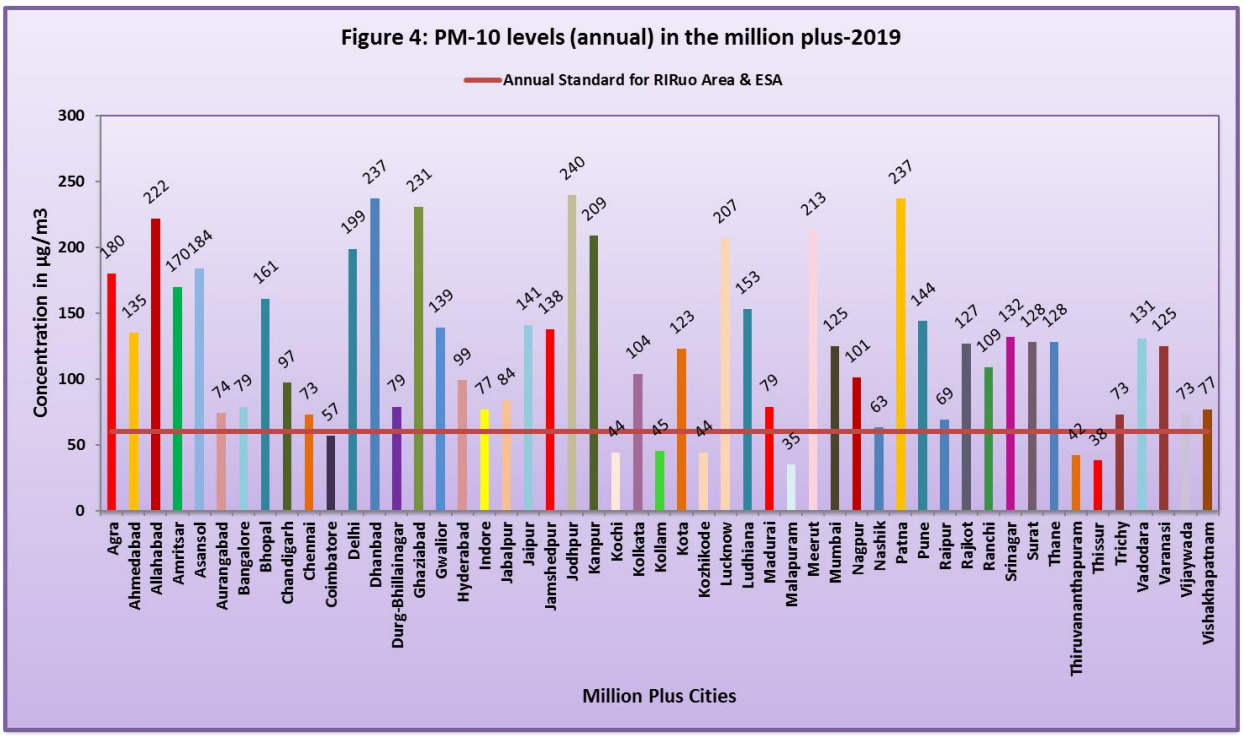



**Fig 5.12: PM 10 Levels in Million Plus Cities - 2019**

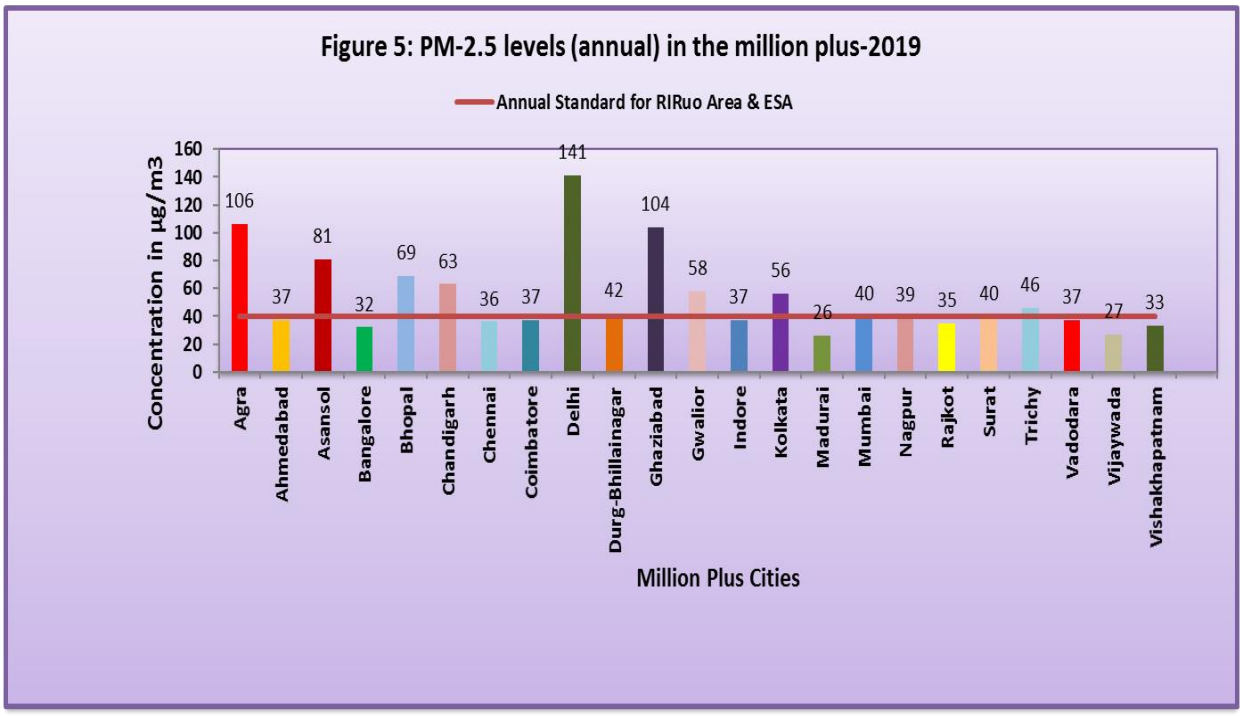



**Fig 5.13: PM 2.5 Levels in Million Plus Cities-2019**

## 5.5 Continuous Ambient Air Quality Monitoring Network in India

The network of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) is expanding in the country and at present, 228 CAAQM stations covering 126 cities in 20 states/UTs are existing across the country, depicted as under:

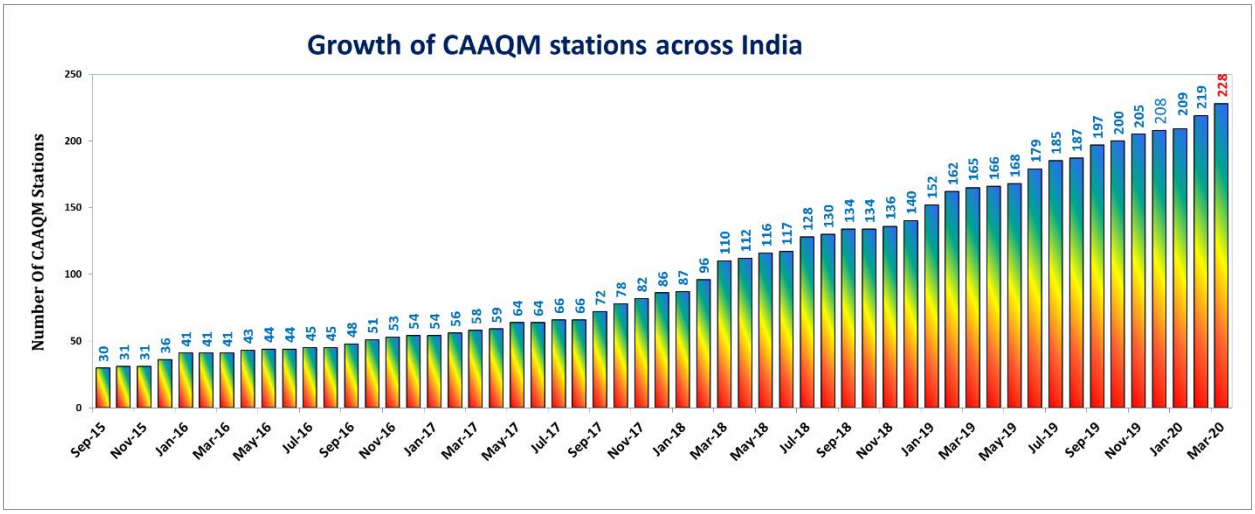


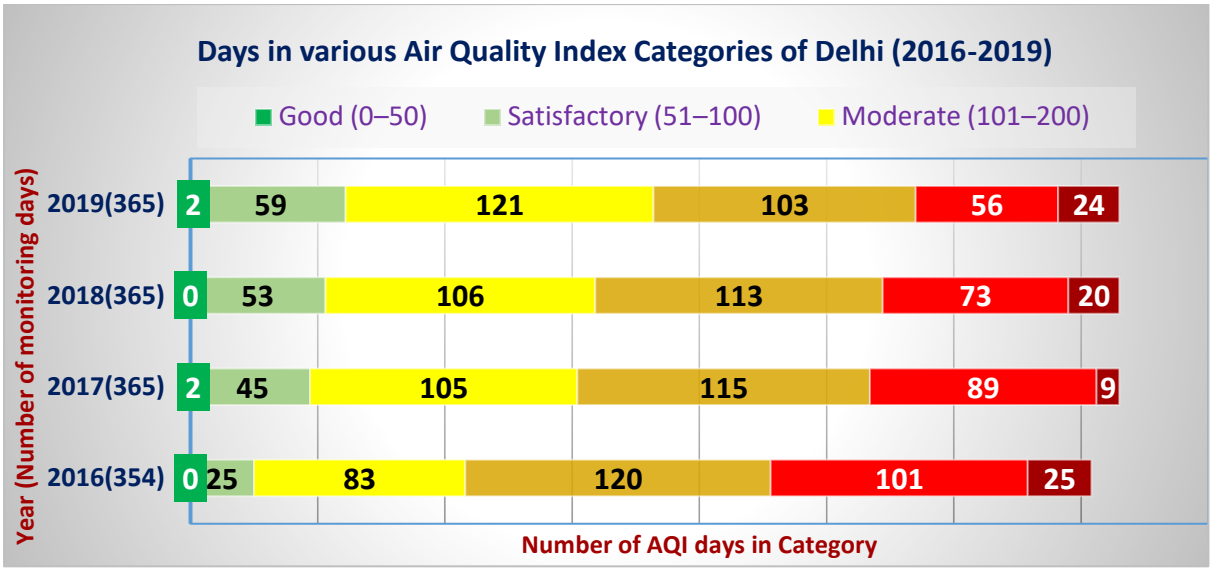

**Fig 5.14: Growth of CAAQM Stations across India**

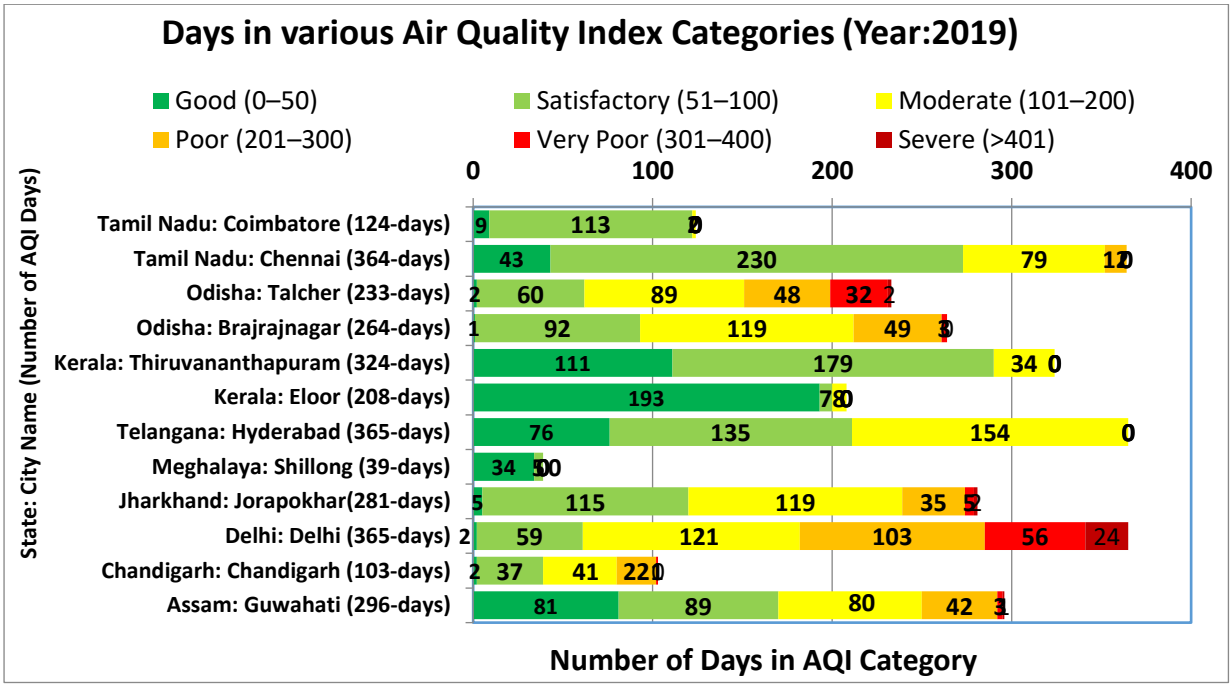
**Table 5.3: Sate-wise CAAQM Stations across the Country**

| S. No. | State | Number of CAAQM stations |
|---|---|---|
| 1 | Andhra Pradesh | 6 |
| 2 | Assam | 1 |
| 3 | Bihar | 09 |
| 5 | Chandigarh | 1 |
| 6 | Delhi | 38 |
| 8 | Gujarat | 6 |
| 10 | Haryana | 28 |
| 11 | Jharkhand | 1 |
| 12 | Karnataka | 20 |
| 13 | Kerala | 8 |
| 14 | Madhya Pradesh | 16 |
| 15 | Maharashtra | 22 |
| 16 | Meghalaya | 1 |
| 17 | Mizoram | 1 |
| 18 | Odisha | 2 |
| 20 | Punjab | 8 |
| 21 | Rajasthan | 10 |
| 22 | Tamil Nadu | 5 |
| 23 | Telangana | 6 |
| 24 | Uttar Pradesh | 26 |
| 25 | West Bengal | 14 |
| **Total Number of CAAQM Stations** | | **228** |

## 5.6 Air Quality of Delhi

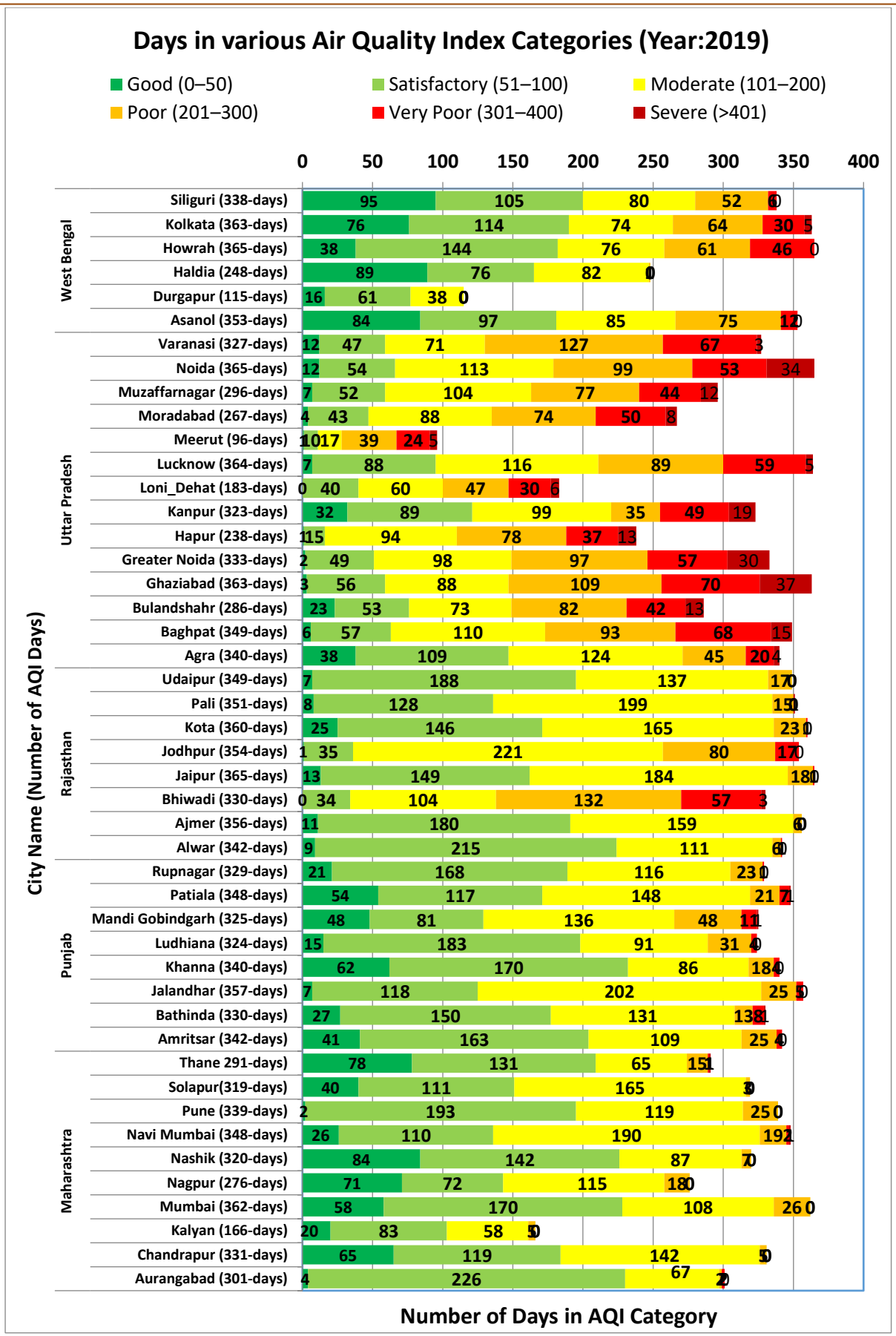
Air Quality Index of Delhi from year 2016 to 2019 is presented in the following figure. Number of days in each category for particular year is depicted in the chart. The chart shows that all Good/Satisfactory/Moderate days have increased significantly and Poor/Very Poor/Severe days in total have gone down as compared to year 2018.




## 5.7 Air Quality in other Cities

Air Quality Index of 114 cities of country for year 2019 is presented in the following charts. Number of days in each category for 2019 is depicted of cities under NAQI.


Days in various Air Quality Index Categories (Year:2019)
Good (0–50)
Satisfactory (51–100)
Moderate (101–200)
Poor (201–300)
Very Poor (301–400)
Severe (>401)
0
50
100
150
200
250
300
350
400
City Name (Number of AQI Days)
West Bengal
Siliguri (338-days) 95 105 80 52 6 0
Kolkata (363-days) 76 114 74 64 30 5
Howrah (365-days) 38 144 76 61 46 0
Haldia (248-days) 89 76 82 0 0
Durgapur (115-days) 16 61 38 0 0
Asanol (353-days) 84 97 85 75 12 0
Uttar Pradesh
Varanasi (327-days) 12 47 71 127 67 3
Noida (365-days) 12 54 113 99 53 34
Muzaffarnagar (296-days) 7 52 104 77 44 12
Moradabad (267-days) 4 43 88 74 50 8
Meerut (96-days) 1 0 17 39 24 5
Lucknow (364-days) 7 88 116 89 59 5
Loni_Dehat (183-days) 0 40 60 47 30 6
Kanpur (323-days) 32 89 99 35 49 19
Hapur (238-days) 1 15 94 78 37 13
Greater Noida (333-days) 2 49 98 97 57 30
Ghaziabad (363-days) 3 56 88 109 70 37
Bulandshahr (286-days) 23 53 73 82 42 13
Baghpat (349-days) 6 57 110 93 68 15
Agra (340-days) 38 109 124 45 20 4
Rajasthan
Udaipur (349-days) 7 188 137 17 0
Pali (351-days) 8 128 199 15 0
Kota (360-days) 25 146 165 23 0 0
Jodhpur (354-days) 1 35 221 80 17 0
Jaipur (365-days) 13 149 184 18 0
Bhiwadi (330-days) 0 34 104 132 57 3
Ajmer (356-days) 11 180 159 6 0
Alwar (342-days) 9 215 111 6 0
Punjab
Rupnagar (329-days) 21 168 116 23 0
Patiala (348-days) 54 117 148 21 1
Mandi Gobindgarh (325-days) 48 81 136 48 11
Ludhiana (324-days) 15 183 91 31 4 0
Khanna (340-days) 62 170 86 18 0
Jalandhar (357-days) 7 118 202 25 5 0
Bathinda (330-days) 27 150 131 13 1
Amritsar (342-days) 41 163 109 25 4
Maharashtra
Thane 291-days) 78 131 65 15 1
Solapur(319-days) 40 111 165 3 0
Pune (339-days) 2 193 119 25 0
Navi Mumbai (348-days) 26 110 190 19 1
Nashik (320-days) 84 142 87 7 0
Nagpur (276-days) 71 72 115 18 0
Mumbai (362-days) 58 170 108 26 0
Kalyan (166-days) 20 83 58 5 0
Chandrapur (331-days) 65 119 142 5 0
Aurangabad (301-days) 4 226 67 2 0
Number of Days in AQI Category

## 5.8 Ambient Air Quality of Delhi

The particulates and the heavy metals in ambient air of Delhi were studied during 2018 & 2019 and findings are presented as under:

### Concentration of Particulate Matter ($PM_{10}$) in Ambient Air of Delhi

The concentration of $PM_{10}$ in ambient air of Delhi monitored at all locations shows a decreasing trend in the year 2019 compared to previous year (Fig.5.15). The concentration of $PM_{10}$ at all locations exceeded the annual national standard and ranged between 178 µg/m$^3$ (Nizamuddin) to 211 µg/m$^3$ (Janakpuri) during the year 2019. The lead, nickel and arsenic contents in PM10 are also being monitored in ambient air of Delhi and presented in Figs 5.16 to 5.18. The annual mean concentration of lead in $PM_{10}$ in the ambient air of Delhi is shown in **Fig.5.15**.

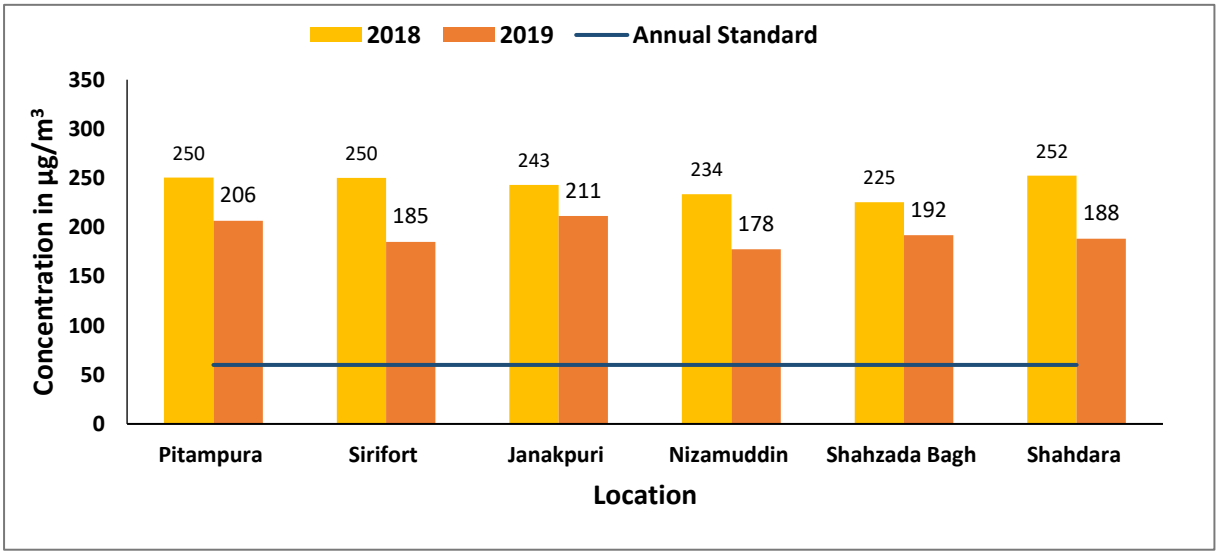



**Fig 5.15: PM10 concentration in Ambient Air of Delhi (2018 – 2019)**

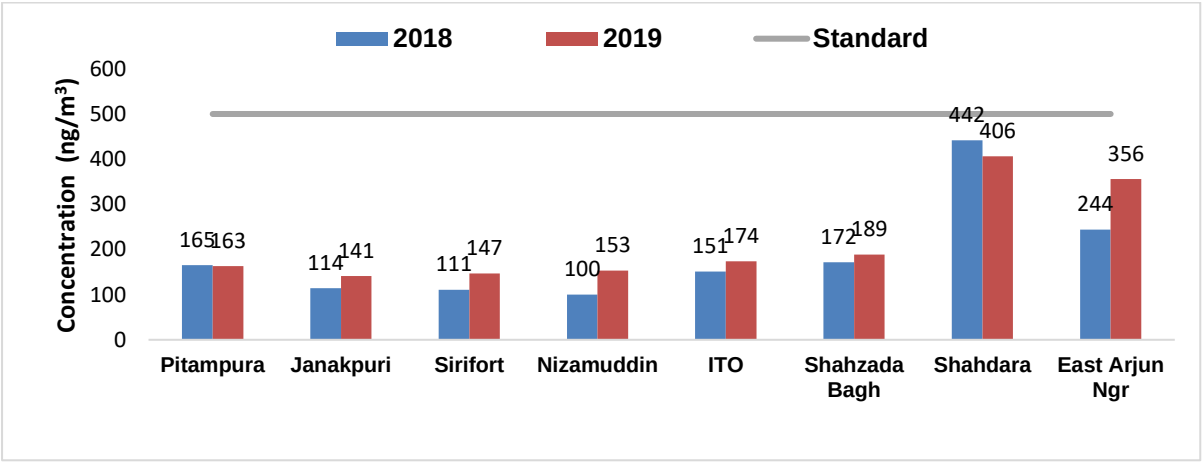



**Fig 5.16: Conc of Particulate Lead concentration in Ambient Air of Delhi (2018 – 2019)**

The annual mean concentration of lead in $PM_{10}$ during year 2018 and 2019 were observed in the range of 100.0 ng/m$^3$ to 442.0 ng/m$^3$ and 141.0 ng/m$^3$ to 406.0 ng/m$^3$ respectively in the ambient air of Delhi. The maximum concentration of particulate lead was observed at Shahdara (442.0 ng/m$^3$ & 406.0 ng/m$^3$) in 2018 and 2019 respectively. The minimum concentration of lead found at Nizamuddin (100.0 ng/m$^3$) in 2018 and Janakpuri (141.0 ng/m$^3$) in 2019. Lead concentration is within the limit (500 ng/m$^3$) prescribed in NAAQS, 2009, across Delhi.

The annual mean concentration of particulate ($PM_{10}$) nickel in the ambient air of Delhi is shown in **Fig.5.17**.

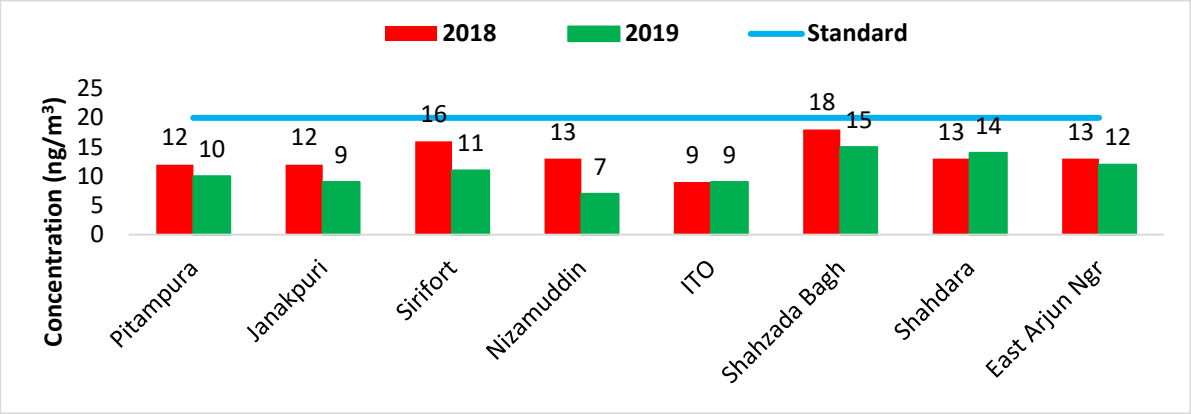



**Fig 5.17: Conc. of Particulate Nickel in Ambient Air of Delhi (2018 & 2019)**

The annual mean concentration of particulate nickel (in $PM_{10}$) was observed in the range of 9.0 ng/m$^3$ to 18.0 ng/m$^3$ (2018) and 7.0 ng/m$^3$ to 15.0 ng/m$^3$ (2019) in Delhi. Concentration of Nickel observed within permissible limit across Delhi; during the year 2018 and 2019, however, the concentrations reported are moderately high, almost touching the limits. Nickel concentration is within the limit (20 ng/m$^3$) prescribed in NAAQS, 2009, in Delhi.

The annual mean concentration of particulate metalloid (arsenic) in the ambient air of Delhi is shown in **Fig. 5.18**.

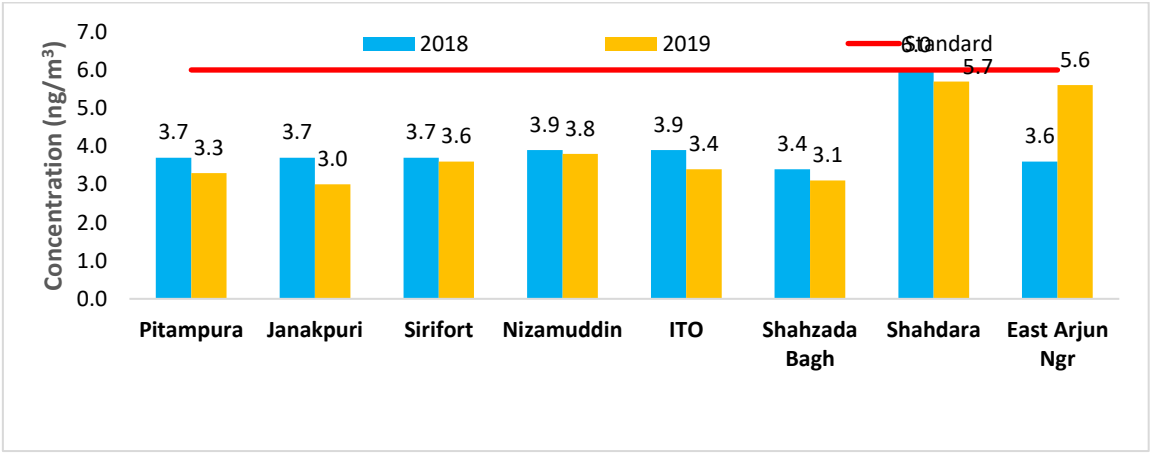



**Fig 5.18: Conc. of Particulate Arsenic in Ambient Air of Delhi (2018 & 2019)**

Concentrations of Arsenic were observed within the prescribed standard limit (6.0 ng/m$^3$) across Delhi. The mean values ranges from 3.4 ng/m$^3$ to 6.0 ng/m$^{3.}$ during 2018 and 3.0 ng/m$^3$ to 5.7 ng/m$^{3.}$ during 2019.

## 5.9 Ambient Air Quality Monitoring at Agra

CPCB is operating manual ambient air quality monitoring stations in Agra. The air quality data shows that particulate matter $PM_{2.5}$ as well as $PM_{10}$ exceeds the national standards. However, the gaseous pollutants measured at all locations are well with in prescribed limits. Among all four location the Tajmahal is having the least concentration of $PM_{10}$, $SO_2$ & $NO_2$. The highest conentration has been observed at Nunhai (Industrial area).

The following chart depicts monthly trends of pollutants at Tajmahal in year 2019.

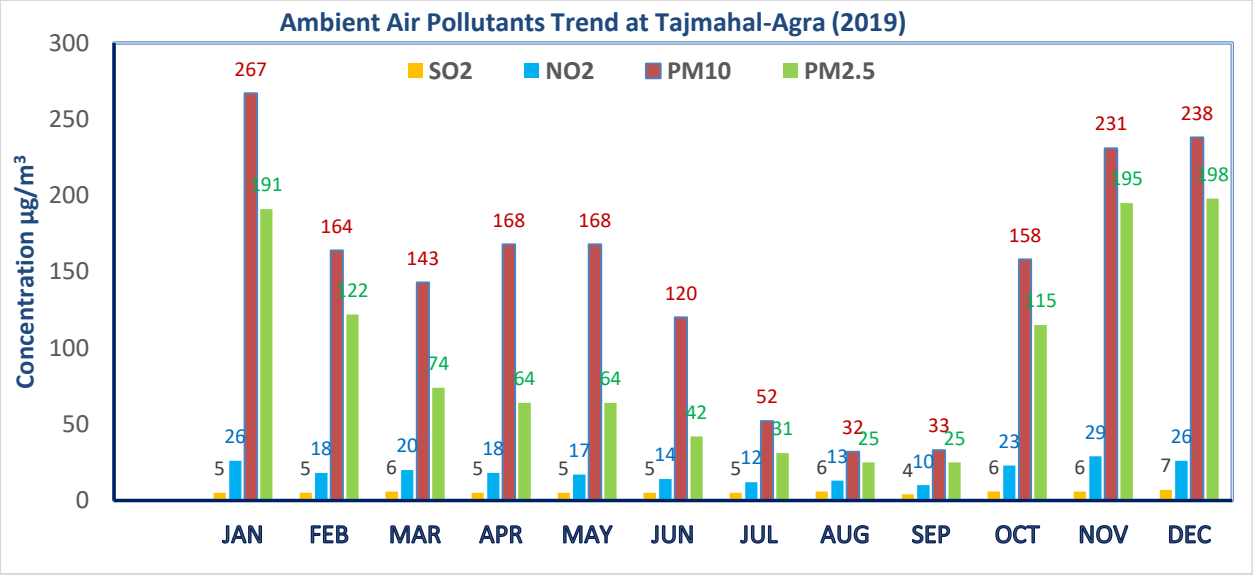
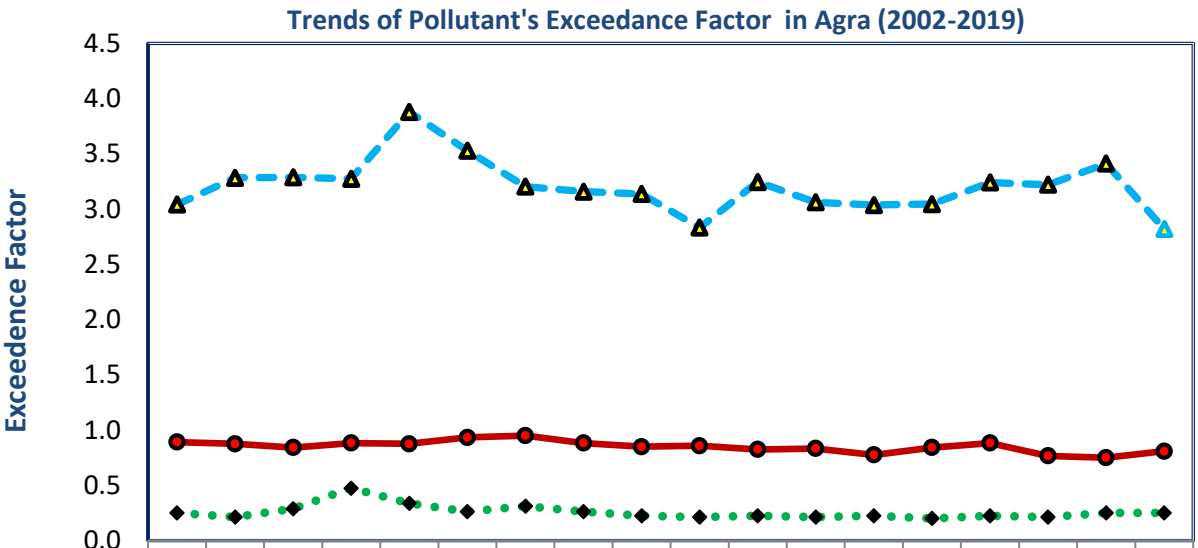



**Fig 5.19: Trend of Ambient Air Quality in Agra (Year 2002 to 2019)**

The Exceedance Factor (i.e. observed value / standard) exhibits decreasing trend in $PM_{10}$ at all monitoring stations. Nearly no significant change was observed in the annual average concentration of $SO_2$ from year 2018 to 2019 at all stations. Similarly, the Exceedance Factor of $NO_2$ is nearly constant during 2002 to 2019.




| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SO2 | 0.3 | 0.2 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 |
| NO2 | 0.9 | 0.9 | 0.8 | 0.9 | 0.9 | 0.9 | 0.95 | 0.9 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 |
| PM10 | 3.0 | 3.3 | 3.3 | 3.3 | 3.9 | 3.5 | 3.2 | 3.2 | 3.1 | 2.8 | 3.2 | 3.1 | 3.0 | 3.0 | 3.2 | 3.2 | 3.4 | 2.8 |

**Fig 5.20: Trends of Pollutants's Exceedance Factor in PM 10 in Ambient Air at Agra (2002-2019)**

Overall trend of $PM_{10}$ as observed at four locations in Agra shows a fluctuating trend with decrease in year 2019 as compared to previous year.

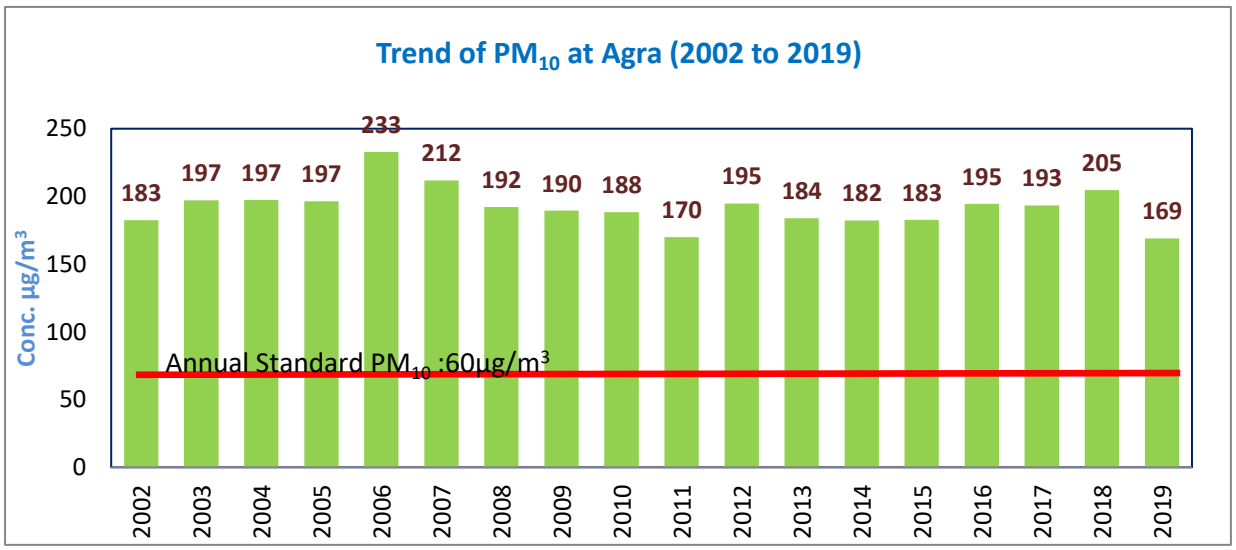



**Fig 5.21: Trends of PM10 in Ambient Air of Agra (2002-2019)**

## 5.10 National Ambient Noise Monitoring Network in India

CPCB in association with State Pollution Control Boards has established National Ambient Noise Monitoring Network (NANMN) in 7 Metro-cities namely- Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Lucknow and Mumbai. A total 70 Noise monitoring stations are operational in these Metro-cities (10 Stations in each metro-city). Station-wise average ambient Noise levels of 7 Metro-cities are given at Table 5.4.

**Table: 5.4: Annual Average Ambient Noise Monitoring Data of 2019**

| Sl. No. | City | Station Name | Day Time dB(A) | Night Time dB(A) |
|---|---|---|---|---|
| 1 | Bengaluru | Parisar Bhawan (C ) | 67 | 62 |
| 2 | | Peenya (I) | 63 | 58 |
| 3 | | Nisarga Bhawan (R ) | 58 | 54 |
| 4 | | Marathahalli (C ) | 62 | 62 |
| 5 | | BTM (R ) | 65 | 64 |
| 6 | | Yeshwanthpur (C ) | 72 | 66 |
| 7 | | R.V. C. E (S) | 59 | 54 |
| 8 | | Whitefield (I) | 66 | 62 |
| 9 | | TERI Domlur (R ) | 63 | 57 |
| 10 | | NIMHANS (S) | 64 | 66 |
| 11 | Chennai | Eye Hospital (S) | 57 | 56 |
| 12 | | T. Nagar (C ) | 76 | 71 |
| 13 | | Perambur (C ) | 64 | 59 |
| 14 | | Guindy (I) | 78 | 76 |
| 15 | | Triplicane (R ) | 53 | 53 |
| 16 | | Pallikaranai (C ) | 67 | 65 |
| 17 | | Velachery (R ) | 65 | 59 |
| 18 | | Washermanpet (C ) | 73 | 68 |
| 19 | | Anna Nagar (S) | 64 | 59 |
| 20 | | Sowcarpet (R ) | 62 | 60 |
| 21 | Delhi | Dilshad Garden (S) | 63 | 63 |
| 22 | | CPCB (C ) | 66 | 58 |
| 23 | | DCE (S) | 60 | 57 |
| 24 | | ITO (C ) | 72 | 70 |
| 25 | | NSIT (S) | 58 | 55 |
| 26 | | Civil Lines (C ) | 62 | 59 |
| 27 | | R K Puram (S) | 61 | 55 |
| 28 | | Anand Vihar (C ) | 65 | 63 |
| 29 | | Mandir Marg (S) | 56 | 49 |
| 30 | | Punjabi Bagh (R ) | 59 | 52 |
| 31 | Hyderabad | Abids (C ) | 74 | 67 |
| 32 | | TSPCB (C ) | 70 | 64 |
| 33 | | Jeedimetla (I) | 69 | 65 |
| 34 | | Zoo (S) | 52 | 51 |
| 35 | | Jublee Hills (R ) | 59 | 54 |
| 36 | | Tarnka (R ) | 66 | 63 |
| 37 | | Gaddapotharam (I) | 70 | 62 |
| 38 | | Gachibowli (S) | 58 | 55 |
| 39 | | Paradise (C ) | 80 | 79 |
| 40 | | JNTU (C ) | 70 | 68 |
| 41 | Kolkata | SSKM Hodspital (S) | 67 | 66 |
| 42 | | Gole Park (I) | 57 | 54 |
| 43 | | WBPCB HQ (C ) | 63 | 57 |
| 44 | | Patauli (R ) | 56 | 55 |

| Sl. No. | City | Station Name | Day Time dB(A) | Night Time dB(A) |
|---|---|---|---|---|
| 45 | | New Market (C ) | 68 | 68 |
| 46 | | Birati Neelanchal (R ) | 68 | 63 |
| 47 | | R G Kar Hospital (S) | 60 | 56 |
| 48 | | Tolly Gunge (C ) | 67 | 64 |
| 49 | | Bag Bazar (R ) | 73 | 72 |
| 50 | | Tartala (I) | 68 | 64 |
| 51 | Lucknow | Talkatora (I) | 63 | 59 |
| 52 | | Hazrat Ganj (C ) | 72 | 69 |
| 53 | | SGPGI Hospital (S) | 57 | 52 |
| 54 | | Indira Nagar (R ) | 46 | 40 |
| 55 | | Gomti Nagar (S) | 67 | 60 |
| 56 | | Chinhat (I) | 66 | 56 |
| 57 | | IT College (S) | 64 | 59 |
| 58 | | RSC Aliganj (C ) | 76 | 68 |
| 59 | | UPPCB HQ (R ) | 64 | 58 |
| 60 | | CCS Airport (C ) | 64 | 60 |
| 61 | Mumbai | Thane (C ) | 68 | 68 |
| 62 | | Vashi Hospital (S) | 67 | 63 |
| 63 | | Acworth Hospital (S) | 49 | 47 |
| 64 | | Bandra (C ) | 64 | 63 |
| 65 | | MPCB HQ (C ) | 69 | 66 |
| 66 | | Kandivali (I) | 60 | 54 |
| 67 | | Ambassador Hotel (C ) | 73 | 69 |
| 68 | | L & T Powai (I) | 58 | 54 |
| 69 | | Pepsico Chembur (R ) | 67 | 62 |
| 70 | | Bisleri Andheri (I) | 73 | 70 |

**Note**: The ambient air quality standards in respect of Noise for day and night are: (i) Industrial area 75 dB(A) & 70 dB(A), (ii) Commercial area 65 dB(A) & 55 dB(A), (iii) Residential area 55 dB(A) & 45 dB(A) and (iv) Silence area 50 dB(A) & 40 dB(A)

**Following actions have been taken by CPCB in respect of Noise Pollution:**

- CPCB prepared a Methodology for formulation of Noise Mapping in India and communicated Chief Secretaries of all States/UTs vide letter dated 03.01.2020 to submit action plan focusing on following issues:
- Noise level monitoring in conjunction with Police Department and initiation of remedial actions.
- Police Departments of all the States/UTs may obtain Noise monitoring devices within a period of three months.
- Police Department of all the State/UTs may train their staff regarding use of such devices.
- Police Department of all the State/UTs may develop robust protocol for taking appropriate action against defaulters.
- CPCB issued directions to SPCBs/PCCs vide letter dated 21.06.2019 under section 18 (1) b of the Air (prevention and control of pollution) Act,1981 regarding noise mapping, identifying hot spots and mitigation plan for control of noise pollution.

# CHAPTER – VI

# PRESENT STATE OF ENVIRONMENT, ENVIRONMENTAL PROBLEMS AND COUNTER MEASURES

## 6.1 Environmental Quality Monitoring of Polluted Industrial Areas (PIAs) for Evaluation of Comprehensive Environmental Pollution Index (CEPI)

Comprehensive Environmental Pollution Index (CEPI) is a rational number to characterize quality of environment at a given location following the algorithm of source, pathway and receptor. CEPI relates to evaluation of environmental quality in the given area based on air, surface water and groundwater pollution as well as on industries and health statistics. According to this index, if the CEPI score exceeds 70 on the scale of 0-100, then the industrial cluster is termed as 'Critically Polluted Area (CPA)' and if the CEPI score is between 60-70, 'Severely Polluted Area (SPA)'. Central Pollution Control Board (CPCB) assessed the Comprehensive Environmental Pollution Index (CEPI) in 100 polluted industrial areas (PIAs) across the country as per revised Comprehensive Environmental Pollution Index-2016 from which 38 Polluted Industrial Areas are identified as Critically Polluted Areas and 31 are identified as Severely Polluted Areas. CPCB prepared and shared the protocol with SPCBs/PCCs for improvement of environmental quality in the identified critically/severely PIAs as well as format for submission of action plan. Action plans for improvement of environmental quality were furnished by 10 SPCBs for 30 CPAs/SPAs which were reviewed by CPCB. CPCB communicated the mechanism for management of CPAs/SPAs and consideration of new and expansion of activities/projects to all the State Governments/UTs and PCBs/PCCs.

The State-wise distribution of CPAs and SPAs out of 100 PIAs assessed are provided in **Table 6.1**.

**Table 6.1: List of Critically & Severely Polluted Areas in India**

| Sr. No | Name of State | Clusters with CEPI >70 (38 Critically polluted areas) | Clusters with CEPI 60-70 (31 severely polluted areas) |
|---|---|---|---|
| 1 | Andhra Pradesh | -- | Vijayawada |
| 2 | Assam | Byrnihat | -- |
| 3 | Bihar | -- | Hajipur |
| 4 | Chhattisgarh | Raipur , Siltara Industrial Area | -- |
| 5 | Delhi | Najafgarh-Drain basin including Anand Parbat, Naraina, Okhla, Wazirpur | -- |
| 6 | Gujarat | Ankleshwar, Vapi, Rajkot, Surat, Vatva, Vadodara | Bhavnagar |
| 7 | Haryana | Gurgaon, Panipat | Faridabad |
| 8 | Himachal Pradesh | -- | Baddi, Kala Amb, Parwanoo |
| 9 | Jharkhand | -- | Hazaribagh, Saraikela, Ramgarh |

| | | | |
|---|---|---|---|
| 10 | Karnataka | Peenya, KIADB Industrial Area-Jigini | Bidar |
| 11 | Madhya Pradesh | | Singrauli (MP area) |
| 12 | Maharashtra | Chandrapur, Tarapur | Aurangabad, Nashik, Dombivali, Navi Mumbai |
| 13 | Orissa | -- | IB Valey, Paradeep |
| 14 | Punjab | Ludhiana, Jalandhar | Batala |
| 15 | Rajasthan | Bhiwadi, Jodhpur, Jaipur, Pali, Sanganeer Industrial Area | -- |
| 16 | Tamil Nadu | Vellore –North Arcot , Manali, Tirupur, Mettur | Coimbatore, Cuddalore, Erode, Tuticorin |
| 17 | Telangana | Pattancheru-Bollaram | Kukatpally, Kattedan |
| 18 | Uttar Pradesh | Gajraula Area, Ghaziabad, Kanpur, Agra, Bulandshar-Khurza, Firozabad, Moradabad, Mathura, Varanasi-Mirjapur | Aligarh, Singrauli (UP area), Meerut, Noida |
| 19 | Uttarakhand | Udham Singh Nagar | -- |
| 20 | West Bengal | -- | Bandel, Durgapur, Howrah |

## 6.2 National Ganga River Basin

Three projects are executed under the Namami Gange Programme (NGP) as given in **Table 6.2.**

**Table 6.2 : Details of Projects under NGRBA Cell**

| S. No | Project | Funding Agency | Project Duration | Total Budget (Rs. Crore) |
|---|---|---|---|---|
| i) | Pollution Inventorization, Assessment and Surveillance on River Ganga (PIAS) under Namami Gange Programme | MoWR, RD & GR | 3 Years (29.09.2017-28.09.2020 | 42.9 |
| ii) | Water Quality Monitoring (WQM) System for River Ganga | The World Bank | 7 Years (19.06.2013-18.06.2020) | 94.45 |
| iii) | Strengthening of Environmental Regulators (SER)- CPCB | The World Bank | 8 Years (19.06.2013-18.06.2021) | 69.26 |

### Compliance Verification of Grossly Polluting Industries (GPIs)

Under PIAS project in 2019, 1072 Grossly Polluting Industries (GPIs) have been inventorized operating in the main stem of River Ganga states namely Uttarakhand, Uttar Pradesh, Bihar and West Bengal. Total 1057 GPI inspections has been conducted, out of which 979 GPIs has been inspected by Third Party (14 Technical Institutes) and 78 GPIs has been inspected by CPCB. Overall compliance status of GPIs through 14 Technical Institutes & CPCB is depicted in **Tables 6.3 & 6.4.**

**Table 6.3 : Compliance Status of GPIs Inspected by CPCB during 2019-20**

| Status of Compliance of GPIs | April, 2019 to March, 2020 |
|---|---|
| Total no. of GPIs Inspected | 78 |
| GPIs inspected under Hindon sub-basin and action will be taken by CPCB | 12 |
| Temporary Closed GPIs | 07 |
| Permanent Closed GPIs | 01 |
| GPIs Closed Due to CPCB directions | 03 |
| Non-Complying GPIs | 26 |
| (A) Closure Direction Issued to GPIs | 15 |
| (B) Show Cause Notice Issued to GPIs | 01 |
| (C) Compliance Direction Issued to GPIs | 07 |
| (D) Directions issued to UPPCB | 03 |
| Complying GPIs | 11 |
| Directions issued Under NGT to GPIs | 18 |

**Table 6.4: State-wise Compliance Status of GPIs Inspected through 14 Technical Institutes & CPCB during 2019-20**

| S No | State | Total GPIs Inspected | Complied GPIs | Non-Complied GPIs | | Temporary Closed GPIs | Permanently Closed GPIs |
|---|---|---|---|---|---|---|---|
| | | | | Show Cause Notice / Compliance directions Issued to GPIs | Closure direction Issued to GPIs | | |
| 1 | Bihar | 56 | 46 | 0 | 0 | 10 | 0 |
| 2 | Uttar Pradesh | 562 | 427 | 12 | 8 | 96 | 19 |
| 3 | Uttarakhand | 54 | 52 | 0 | 0 | 0 | 2 |
| 4 | Jharkhand | 6 | 4 | 1 | 0 | 1 | 0 |
| 5 | West Bengal | 48 | 43 | 2 | 0 | 3 | 0 |
| | **Total** | **726*** | **572** | **15** | **08** | **110** | **21** |

**78 Units were inspected by CPCB*

**Status of Adequacy Assessment of Common Effluent Treatment Plants (CETPs):**

There are 8 Common Effluent Treatment Plants (CETPs) located on the banks of river Ganga or its tributaries affecting the water quality of river Ganga directly or indirectly. Out of 08 CETPs, 03 were found complying and 05 were non-complying. The status of CETPs in Ganga River during 2019-20 is given in **Table 6.5.**

**Table 6.5: Status of CETPs in Ganga River during 2019-20**

| S. No. | Name of CETP | Member unit connected * | Type of Industries | Designed capacity /day in MLD | Operational Status | Compliance status |
|---|---|---|---|---|---|---|
| 1 | CETP Jajmau, Kanpur | 400 Members | Tanneries effluent combined with sewage | 36.0 (09 MLD industrial + 27 MLD sewage) | Operational | Non complying (Inspection dated 24.02.2020) |
| 2 | UPSIDC, Site-II, Unnao | 20 Members (14 operational) | Tanneries | 2.15 | Operational | Non complying (Inspection dated 05.03.2020) |
| 3 | Leather Technology Park, Banthar, Unnao | 42 Members (27 operational) | Tannery & Slaughter house | 4.5 | Operational | Non complying (Inspection dated 05.03.2020) |
| 4 | IIE SIDCUL CETP, Pant Nagar, Uttarakhand | 309 Members | Mixed type industries | 4.0 | Operational | Complying (Inspection dated 17.12.2019) |
| 5 | CETP Sitarganj, Uttarakhand | 97 Members | Mixed type industries | 3.8 | Operational | Non complying (Inspection dated 18.12.2019) |
| 6 | CETP SIDCUL, Haridwar, Uttarakhand | 514 Members | Mixed type industries | 5.2 | Operational | Complying (Inspection dated 03.03.2020) |
| 7 | CETP Rooma Industrial Area, Kanpur | 18 Members (11 operational) | Textile | 1.55 | Operational | Non complying (Inspection dated 27.11.2019) |
| 8 | Textile Centre, Pilkhuwa (UP) | 21 Members | Textile | 2.10 | Operational | Complying (Inspection dated 23.12.2019) |

*Operational units may vary.

### Status of Performance Evaluation of Sewage Treatment Plants (STPs)

There are 105 Sewage Treatment Plants (STPs) located on the banks of river Ganga or its tributaries affecting the water quality of river Ganga directly or indirectly.

The latest status of STPs monitored is given in **Table 6.6**.

**Table 6.6: Sewage Generation and STP Status in Front Towns of Ganga**

| State | Sewage Generation in Ganga front towns (MLD) | Towns covered by 90 STPs | Total STPs monitored | Installed capacity of STP (MLD) | Operational Capacity (MLD) | Utilized Capacity (MLD) | Non-operational Capacity (MLD) |
|---|---|---|---|---|---|---|---|
| Uttarakhand | 239.8 | 16 | 39 | 227 | 227 | 140 | 0.1 |
| Uttar Pradesh | 1255.2 | 10 | 30 | 1138 | 1084 | 863 | 54 |
| Bihar | 480.0 | 01 | 02 | 65 | - | 00 | 65 |
| Jharkhand | 12.0 | 00 | 00 | 00 | 00 | 00 | 00 |
| West Bengal | 1571.5 | 22 | 34 | 536 | 199 | 98.7 | 338 |
| TOTAL | 3558.5 | 49 | 105 | 1966 | 1509 | 1102 | 457 |

The highest number of non-operational STPs is reported from West Bengal where 20 STPs were found non-operational with treatment capacity of 337.5 MLD out of 34 STPs having total installed capacity of 536.17 MLD. In Bihar and West Bengal, most of the STPs are either under upgradation / under construction under Namami Gange Programme.Based on NGT directed new standards, 68 STPs were found non-complying out of 80 operational STPs.

### Status of Pollution Assessment of Major Drains Falling into River Ganga

During 2019-20, two rounds of drain monitoring during pre & post monsoon, 2019 have been completed. Drains which are not discharging directly into main stem of river Ganga and its tributaries (Banganga, Ramganga, Kali East & Pandu) were considered as non-priority drains from 2019. Out of 173 identified drains in River Ganga, only 151 drains were considered as priority. Similarly, out of 62 identified drains in Banganga, Ramganga, Kali East and Pandu river, only 57 drains were considered as priority.

**Table 6.7*:* Observed Variation in Flow and Organic Load of Priority Drains monitored during Pre & Post- Monsoon, 2019 (Discharged into Ganga and tributaries)**

| Phase and Segment | Pre-Monsoon, 2019 | | Post-Monsoon, 2019 | | | | |
|---|---|---|---|---|---|---|---|
| | Flow (MLD) | BOD Load (TPD) | Flow (MLD) | BOD Load (TPD) | Mixed Drains | Domestic Drains | Tapped Drains |
| Uttarakhand, Phase-I Segment-A (Gangotri to Haridwar D/S) | 139.03 | 7.55 | 189.09 | 0.95 | 01 | 16 | 10 |
| Uttar Pradesh, Phase-I Segment-B (Haridwar D/S to Kanpur D/S to Unnao) | 547.54 | 25.62 | 810.03 | 31.67 | 17 | 15 | 15 |
| Uttar Pradesh, Phase-II (Unnao D/S to UP Border) | 568.34 | 33.04 | 1462.86 | 51.22 | 06 | 19 | 08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bihar, Phase-III (UP Border to Jharkhand) | 793.67 | 27.11 | 808.06 | 40.41 | 02 | 17 | - |
| Jharkhand, Phase-III (UP Border to Jharkhand) | 16.09 | 0.74 | 16.45 | 0.14 | - | 02 | - |
| West Bengal Phase-IV (Jharkhand Border to Bay of Bengal) | 7894.57 | 342.90 | 8275.38 | 195.75 | 18 | 38 | - |
| **TOTAL-A** | **9959.24** | **436.96** | **11561.87** | **320.14** | **44** | **107** | **33** |
| Uttarakhand, Phase-I Segment-B (Banganga) | - | - | 126.24 | 0.63 | 01 | - | - |
| Uttar Pradesh, Phase-I Segment-B (Ramganga) | 521.99 | 53.88 | 967.62 | 93.09 | 08 | 16 | - |
| Uttar Pradesh, Phase-I Segment-B (Kali East) | 799.62 | 148.03 | 978.75 | 195.16 | 14 | 12 | 02 |
| Uttar Pradesh, Phase-I Segment-B (Pandu) | 248.74 | 17.21 | 164.89 | 13.52 | 04 | 02 | 03 |
| **TOTAL-B** | **1570.35** | **219.12** | **2237.50** | **302.40** | **27** | **30** | **05** |
| **GRANT TOTAL (A+B)** | **11529.6** | **656.08** | **13799.4** | **622.54** | **71** | **137** | **38** |

**River Water Quality of River Ganga in 2019**

- The Ganga river water quality data for the year 2019 indicates that the pH and DO is meeting the primary water quality criteria for bathing at all monitoring locations along entire stretch of River Ganga.
- BOD is meeting the primary water quality criteria for bathing from origin to u/s Kannauj, Bithoor to u/s Kanpur, Prayagraj (Rasoolabad), Prayagraj d/s (Sangam) to u/s Mirzapur and u/s Varanasi. In Bihar, the entire stretch is meeting the bathing criteria. In West Bengal, the stretch from Tribeni to Garden reach is not meeting the primary water quality criteria for bathing except Shivpur (Howrah) in terms of BOD.
- FC is meeting the primary water quality criteria for bathing from origin to u/s Kannauj. The stretch from Kannauj d/s to Uluberia is not meeting the primary water quality criteria for bathing in terms of FC except five monitoring locations namely:
    - Bithoor (Kanpur), UP
    - Bathing Ghat (Bharaoghat), UP
    - U/s Vindhyachal, UP
    - U/s Varanasi, UP and
    - Arrah-chapra road bridge (u/s Doriganj), Bihar

**Improvement in Ganga River Water Quality of 2019 w.r.t. 2018**

Monthly data of parameters such as Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD) and Faecal Coliform (FC) of year 2018 and 2019 is compared for 90 locations and following observations are made:

- Out of 90 locations, DO has improved at 51 locations
- Out of 90 locations, BOD has been improved at 74 locations
- Out of 79 locations, FC has been improved at 51 locations

An improvement in terms of BOD compliance has been observed in 2019 as compared to 2018 in the following stretch/locations.

- U/s Kannauj (Rajghat), UP
- Bithoor (Kanpur) to Kanpur u/s, UP
- Prayagraj (Rasoolabad), UP
- Prayagraj d/s (Sangam), UP and
- Uluberia, WB

## 6.3 E-Waste Management Regulations & Status

The E-Waste Management in India is regulated under the Environment (Protection) Act, 1986 with the objective of taking all steps required to ensure that e-waste is managed in a manner which shall protect health and environment against any adverse effects, which may result from such e-waste.

CPCB has estimated approximate e-waste generation for the financial year 2019-20 as 1014961 tonnes and the same is based on the sales data of 1380 producers. There are 312 Authorized Dismantler / Recycler having total processing Capacity of 7,82,080.62 tonnes per annum. Based on annual reports submitted by 32 SPCBs/PCCs, the quantity of E-Waste dismantled / recycled in the country during Financial Year 2018-19 was 164663 tonnes.

**Grant of Extended Producer Responsibility Authorization (EPRA)**

Extended producer's responsibility (EPR) has been the main feature of the E-waste (Management) Rules, wherein the producer of electrical and electronic equipment has been given responsibility for managing their equipment after its 'end of life'. EPR Authorization (EPRA) comprises of e-waste collection targets given to producers of EEE based on generation of E-Waste (Schedule III) or based on sales data (Schedule-IIIA for new Producers) of EEE. As on March 31, 2019, CPCB has granted EPRA to 1553 Producers and status uploaded on CPCB website (http://cpcb.nic.in/epr-authorization-status/).

**Registration of Producer Responsibility Organization under Amended Rules, 2018**

Under the E-Waste (Management) Rules, 2016 a Producer Responsibility Organization (PRO) can take the responsibility for collection and channelization of e-waste generated from the 'end-of-life' on behalf of producers to ensure environmentally sound management of their e-waste.

Further under, the E-Waste (Management) Amendment Rules, 2018 a Producer Responsibility Organization (PRO) has to be registered with CPCB. For the convenience of PROs, CPCB prepared guidelines for PROs having all the details vis-a vis their registration. CPCB has registered 35 PROs in the Financial Year 2019-20 and details are uploaded on CPCB's website.

**Efforts made by CPCB for effective implementation of E-Waste Rules:**

CPCB has prepared Guidelines for implementation of E-Waste (Management and Handling) Rules, 2016 and for Producer Responsibility Organizations (PRO) and made available at CPCB's website https://cpcb.nic.in/technical-guidelines-4/

CPCB has published SoP on the processing of EPR application, which details out procedure for grant of EPRA. In addition, it also details out how to fill up applications, etc. The SoP is available at CPCBs website https://cpcb.nic.in/uploads/Projects/E-waste/Revised_SoPs_13.04.2018.pdf

**Advisory Committee on the Management under E-Waste Rules, 2016:**

CPCB has constituted an advisory committee on Management of E-Waste in the country, comprising of subject experts, representation from Ministry of Electronic & IT, SPCBs/PCCs and intends to provide guidance on matters related to E-Waste Management, Development of guidelines as and when required. In the Financial Year 2019-20, CPCB convened two meetings of the advisory committee and aimed at finalization guidelines for Random Sampling for RoHS sampling under the E-Waste Rules and guidelines for imposing Environmental compensation (EC) on violating and non-complying stakeholders.

## 6.4 Hazardous Waste Management

CPCB has prepared and published various Technical guidelines for the effective management of hazardous waste generated in the country. Details of guidelines / documents prepared during 2019-2020 are as below:

- Guidelines for Environmentally Sound Facilities for Handling, Processing and Recycling of End-of- Life Vehicles (ELV):
- Guidelines for Preparation of Inventories on Hazardous and Other Waste Generation and their Management.
- Determination of Environmental Compensation to be recovered for violation of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
- Enforcement Framework for Effective Implementation of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

- Framework on Identification of Materials Generated from Industrial Processes as Wastes or By-products [Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016].

- Categorization of states as Small States based on threshold limit of generation of Hazardous waste

The Technical guidelines are available at CPCB website https://cpcb.nic.in/technical-guidelines/.

As per Rule 20 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, 29 SPCBs/PCCs have submitted the said annual inventory report for the year 2018-19 to CPCB. Gaps identified in the inventory reports were communicated to the respective SPCB/PCC for examination and submission of revised annual inventory report to CPCB. The revised inventory report has been received from only 07 SPCBs/PCCs.

## 6.5 Solid Waste Management

Status of the Solid Waste Management in all States / UTs based on the information provided by SPCBs / PCCs during year 2018-19 is given below:

- Solid Waste Generation : 1,52,076 TPD
- Solid Waste Collection : 1,49,748 TPD (98.5%)
- MSW Treated : 55,759 TPD
- Landfilled Waste : 50,161 TPD
- Source Segregation initiated : 24 Nos
- Total Landfill Sites operational : 22 Nos
- Waste Processing facilities set up : 2028 Nos
- Waste Processing facilities operational :160 Nos
- Identified Landfill Sites : 1161 Nos
- Operational Landfill Sites : 37 Nos

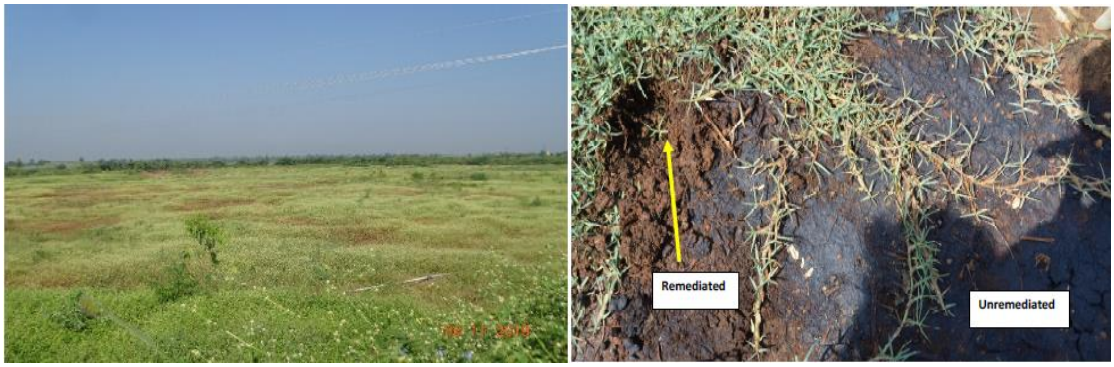
The unaccounted waste is littered in streets or lands up in dumpsites. There are presently 3159 dumpsites in the country which are a major source of groundwater contamination and air pollution. Also they have issues related to fires, stability as well as depreciated aesthetics. Recently, with Hon'ble NGT's intervention, bio-mining, which is essentially a method for stabilization of waste so as to minimize its adverse environmental impact, of these dumpsites has been initiated in 11 states.

# CHAPTER – VII

# ENVIRONMENTAL RESEARCH

## 7.1 Project on Bio-remediation of Soil & Ground Water Contaminated with Spent Wash

CPCB along with University of Delhi has taken a project on “Bio-remediation 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” at Ahmed Nagar, Maharashtra. The project aims at bio remediation of contaminated soil/sub soil/ground water at the distillery premises, using selected species of plants & vegetation like deep rooted trees species, grass communities and certain blue green algae species. It is reported that **around 80 % of the lagoon area** (top soil & sludge) has been remediated by **weedy community**. Also reported **decontamination of surface water and ground water** in the project area. The recharging of the ground water through reservoirs and extraction of contaminated water through trenches leads to attenuation in the contaminants of ground water.

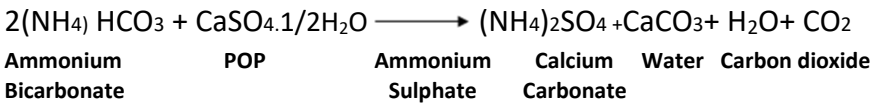



**(Growth of weedy and grass communities at the contaminated soil being bio remediated)**

## 7.2 Pilot project on idol immersion during Ganesh festival

CPCB, RD Bhopal has pilot project during Ganesh festival in association with Bhopal Municipal Corporation on chemical disintegration of POP Ganesh idols using a method developed by CSIR NCL, Pune. A roadmap was prepared to collect all the POP Ganesh idols of the city and brought to Prempura ghat. For the method, 20 % w/v solution of ammonium bicarbonate (Merck India, ABC) was prepared and stored in five number large size plastic tanks arranged at Prempura ghat each of capacity around 5000 litres and fitted with a motor pump and overhead shower to ensure proper mixing and recirculation of water. The ratio of POP to ammonium bicarbonate was kept 1:1. During the study a total of around 3000 kg of POP idols were disintegrated by the method where each

tank containing around 4000 litre of solution having 600 kg of ammonium bicarbonate dissolved in it. The process took around 72 hours for complete disintegration.




The detailed chemical analysis of the aqueous phase was carried out to study the effect on various parameters and application of residues. The analytical results reveal that the method has its practical utility as both the products of reaction i.e. ammonium sulphate and calcium carbonate can further be used effectively in chalk making and as fertiliser with proper dilution, respectively. The concentration of heavy metals was found minimal and insignificant. However, the method is not found so cost effective as 99.99 % purity ammonium bicarbonate is mandatory which costs high and the process requires a specific set up with tanks, mesh, overhead showers, continuous mixing, proper PPEs, supervision etc. So, complete ban on POP idols should be preferred option.

## 7.3 Satellite based near real time monitoring of ambient $PM_{2.5}$

Satellite based near real time monitoring of ambient PM2.5 at national scale for air quality management" has been initiated by CPCB in collaboration with Indian Institute of Technology (IIT), Delhi under NCAP in order to strengthen development of indigenous satellite-based products and techniques to derive useful air quality information and to supplement the current monitoring network. Satellites retrieve a parameter called aerosol optical depth (AOD), which is then converted to surface PM2.5 (fine particulate matter smaller than 2.5 µm) using a dynamic scaling factor that is modulated by vertical distribution of aerosols in the atmosphere, meteorological conditions and emission pattern. At present, satellite-based 24-hr and annual PM2.5 show correlation of 0.87 and 0.98 and Root Mean Square Error (RMSE) of 25 µg/m3 and 1.9 µg/m3 respectively with coincident in-situ data from CPCB network.

## 7.4 Control of Dust Emissions using Dust Suppressant

Considering the issue of road dust emissions in Delhi-NCR, CPCB conducted a Pilot study on "Control of Dust emissions using Dust Suppressant in association with NEERI.

Under this project, application of dust suppressant (salts of calcium/magnesium and bio additives) was done at 03 sites: Sarai Kale Khan Road (Road construction site), DDA Construction site at Narela (Building construction site) and Dilshad Garden flyover to proposed Shahid Nagar Metro Station (Road

construction site) to check the control on dust emissions. Pollution levels (PM10, PM2.5 and PM1) pre and post application of dust suppressant were monitored and upto 30% reduction in dust concentration was observed up to 6 hrs.

In view of the effectiveness of dust suppressant reported from the study, CPCB has issued advisory to NCR SPCBs to consider issuing instructions to road owning agencies and govt. construction for its use at unpaved roads, roads with heavy traffic and construction sites.

## 7.5 Pilot Study for Assessment of Reducing Particulate Air Pollution in Urban Areas by Using Air Cleaning System (sometimes called as Smog Tower)

Incompliance of order dated 13.01.2020 in WP (Civil) 13029/1985 of Hon'ble Supreme Court for installation of smog tower is under progress at Anand Vihar. Tower will reduce air pollution around the area.

IIT Bombay is the Lead Partner, responsible for formulation, coordination and performance evaluation. Tata Projects Limited in liason with University of Minnesota will construct the tower and is responsible for design, fabrication and execution of smog tower. NBCC (India) Ltd. is the project management consultant and will supervise works of Tata Projects Limited.

The tower, would be of downdraft type (polluted air comes in from the top of the tower and clean air comes out of the bottom) and aims to reduce PM2.5 and PM10 The tower has a land area coverage of 20m x 20m for tower base surrounded by shroud and safety area of 10mx10m and a height of 18 m. The filter system called as Novel Geometry Filtration System, which will be used in the tower, has been designed by University of Minnesota. 40 fan units would be installed to provide an airflow rate of 960$m^3$/sec at NGFS which is expected to operate at efficiency of 90% and give a Clean Air Delivery Rate (CADR) of 864 $m^3$/s.

## 7.6 Real Time Source Apportionment

A study on real-time source apportionment for Delhi has been awarded to IIT-Kanpur by CPCB. The study aims to provided source contribution of different sources on near real time basis by deploying online instruments for chemical speciation of particulate matter less than 2.5 microns, metals analysis, VOC analysis and black carbon monitoring and feeding the measured data to a receptor model (which uses Positive Matrix Factorization and Multi linear engine -2).

Under the study, contributions of organics, chlorides and sulphates were assessed. The season-wise composition of $PM_{2.5}$ at IIT Delhi were found to be as follows:

| **Season** | **Organics** | **Sulphate** | **Chloride** |
|---|---|---|---|
| Summer (May-July 2019) | 23% | 12% | 1% |
| Post-monsoon (October-November 2019) | 52% | 7% | 2% |
| Winter (December 2019- January 2020) | 56% | 8% | 3% |

Further, the contribution of primary organic aerosols (POA) and secondary organic aerosols (SOA) to organics at the sites for the three seasons was also examined. At IIT Delhi site, the SOA contribution is much higher than POA in the summer. In the post monsoon season, the contribution of POA and SOA becomes almost similar and in the winter season, POA becomes higher than SOA.

# CHAPTER- VIII

# ENVIRONMENTAL TRAINING

The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 mandates Central Pollution Control Board to plan and organize trainings of persons engaged in programs for prevention, control or abatement of environmental pollution.

During the year 2019-20, CPCB organized twenty-one training programmes through reputed training /R&D/ Professional institutes in various priority areas related to pollution control. The details are as under:

- Design, Operation, Maintenance and Performance of STP & CBMWTFs with Field Visit
- Advance Instrumental Analytical Techniques and Preventive Maintenance – Hands-on-Training


- Planning, Designing, Monitoring and Inspection of Waste Water Treatment Plants and APC Measures
- Analysis of Pesticides & Other Organic Chemicals in Environmental Samples
- Monitoring of Notified Air Pollutants as per revised NAAQS 2009
- Effective Management of Hazardous Waste including E-waste – Co-processing and Co-incineration – Hazardous Waste Rules & Field Visit
- Air Quality Monitoring (Ambient & Source) and Continuous Ambient Air Quality Monitoring (CAAQM)
- Noise Pollution, Measurement, Regulation & Implementation
- Accidental Spill – Emergency Response and Environmental Impact Assessment – Future Perspective

- Occupational Health & Safety Management System (OHSMS) 18001: 2007 – Audit Training
- Integrated Waste Management – Municipal Waste, Plastic Waste, Bio-Medical Waste, Bio Composting, Landfill Gas Management & Control and Waste to Energy with Field Visit

- Identification and Assessment of Contained Sites
- Indoor & Outdoor Air Pollution, Standards and Impact on Human Health – Case Studies

- Sampling and Analysis of Hazardous and Other Wastes listed under HOWM Rules, 2016
- Global Warming, Climate Change and Disaster Management – Future Perspective
- Air Quality Modelling and Source Apportionment

- Environmental Management in Tanneries (including ZLD, Chrome Recovery), Sponge Iron Plants, Slaughter Houses, Pharma and Chemical Sector
- Cleaner Technologies & Waste Minimization for Prevention of Industrial Pollution and Four R's – Reduce, Reuse, Recycle and Recover – Case Studies
- Environmental Legislations, Interpretation, Enforcement, Legal and Statutory Requirements – Case Studies
- Environmental Data Interpretation, Compilation, Analysis, Presentation and Reporting – Hands-on-Training and Case Study

Water Quality Monitoring of Surface, Ground, Waste Water/Effluents, Data Interpretation and Quality Assurance

# CHAPTER - IX

# ENVIRONMENTAL AWARENESS AND PUBLIC PARTICIPATION

## 9.1 Exhibitions at National Level

The Central Pollution Control Board has been participating in National level mass awareness programs for disseminating information about the functions of CPCB and works carried out related to pollution control to public including decision makers, policy planners, scientists and engineers, research workers, etc. across the country.

During year 2019-20, CPCB participated in following Exhibitions to create Mass Awareness:

- Destination Uttarakhand (July 18-20, 2019)
- Government Achievements & Schemes Expo, 2019 at Pragati Maidan (Aug 1 - 3, 2019)
- National Exhibition at Kolkata (Aug 27-31, 2019)
- Vibrant India, 2019 at Pitam Pura, New Delhi (Oct 18-20, 2019)
- Destination Gujarat (Dec 18-20, 2019)
- Indian Science Congress at Bangalore (Jan 3-7, 2020)
- Elimination of Single Use Plastic at Mumbai, Maharashtra (Jan 18-19, 2020)

## 9.2 Mass Awareness on World Environment -2019

a) Central Pollution Control Board, Regional Directorate, Bengaluru organized series of events to create awareness about the significance of a healthy environment and promote positive environmental actions.

To encourage student community and to create awareness on air pollution organized intra school drawing and essay writing competition at Jawahar Balbhavan, Cubbon park, Bengaluru on June 1, 2019.

b) World Environment Day, 2019 was celebrated by CPCB, Regional Directorate, Lucknow to promote awareness on environment and to strengthen our bond with nature. Following activities were of the World performed for the celebration Environment Day atCPCB, Regional Directorate, Lucknow:

**Activities Performed by CPCB, Regional Directorate, Lucknowfor the celebration of World Environment Day**

Poster Competition among the school students

Procession of Scientist and staff of CPCB RD (N) holding banners and slogans


Mass awareness through News Papers


Distribution of Plants

Demonstration to students on monitoring techniques of Air pollution


Discussion on WED – 2019 Theme

## 9.3 Redressal of Public Grievances through CPGRAM Portal

Centralized Public Grievances Redress and Monitoring System (CPGRAMS) is launched for prompt and effective redress of grievances of citizens. The system is a single window grievance portal for the Ministries / Departments / Organisations to record and receive the grievances online and redresses them

indicating actions at different levels. Complaints related to Pollution are forwarded to CPCB, and public complaints taken up with concerned divisions/States and replies placed on portal.

During the financial year 2019-20, 2070 of public grievances were successfully redressed through CPGRAMS Portal with disposal period less than 15 days and disposal rate close to 100%.

## 9.4 केंद्रीय प्रदूषण नियंत्रण बोर्ड में राजभाषा नीति का कार्यान्वयन

क. इस रिपोर्टाधीन वर्ष 2019-20 के दौरान, केंद्रीय प्रदूषण नियंत्रण बोर्ड में विभागीय राजभाषा कार्यान्वयन समिति की 04 बैठकें आयोजित की गई है। इन बैठकों में राजभाषा हिंदी के कार्यान्वयन में आने वाली समस्याओं तथा उससे संबंधित मुद्दों पर चर्चा की गई तथा इस क्रम में आने वाली समस्याओं का समाधान किया गया। प्रत्येक तिमाही में विभागीय राजभाषा कार्यान्वयन समिति की बैठक आयोजित की गई। इन बैठकों की अध्यक्षता केंद्रीय बोर्ड के अध्यक्ष महोदय द्वारा की गई तथा इनमें सदस्य सचिव महोदय सहित सभी प्रभागों के प्रभारी अधिकारी शामिल हुए।

ख. इसके अलावा, इस रिपोर्टाधीन वर्ष के दौरान नगर राजभाषा कार्यान्वयन समिति (उत्तरी दिल्ली) द्वारा विभिन्न बैठकों एवं राजभाषा सम्मेलनों का आयोजन किया गया। इसमें कार्यालय के वरिष्ठ अधिकारी सम्मिलित हुए तथा राजभाषा नीति के कार्यान्वयन में आने वाली समस्याओं पर चर्चा की गई। नराकास की बैठकों में की गई चर्चा के आलोक में हिंदी में कामकाज को बढ़ाए जाने हेतु आवश्यक कदम उठाए गए।

ग. केंद्रीय प्रदूषण नियंत्रण बोर्ड में प्रतिवर्ष भव्य स्तर पर हिंदी दिवस का आयोजन किया जाता है। गत वर्षों की भांति इस वर्ष भी बोर्ड में 14 सितंबर, 2019 को श्री वी.पी. यादव, वैज्ञानिक 'ई' एवं श्री अभय सोनी, वैज्ञानिक 'ई', केंद्रीय बोर्ड की अध्यक्षता में हिंदी दिवस समारोह का आयोजन किया गया।



हिंदी पखवाड़े के दौरान आयोजित विभिन्न प्रतियोगिताओं में केंद्रीय प्रदूषण नियंत्रण बोर्ड के अधिकारियों एवं कर्मचारियों ने सक्रिय रूप से भाग लिया। इस अवसर पर हिंदी टिप्पण/आलेखन, वैज्ञानिक एवं तकनीकी लेख, हर चित्र कुछ कहता है एवं शब्द स्मरण

प्रतियोगिता आयोजित की गई। इन प्रतियोगिताओं में विजित अधिकारियों एवं कर्मचारियों को प्रथम, द्वितीय एवं तृतीय पुरस्कारों से पुरस्कृत किया गया। हिंदी दिवस कार्यक्रम में हिंदी की सुप्रसिद्ध कवयित्री श्रीमती संगीता शर्मा अधिकारी ने अपनी कविताओं से उपस्थित अधिकारियों/कर्मचारियों को आनंदित किया।

**घ.** बोर्ड में प्रतिवर्ष प्रोत्साहन पुरस्कार योजना (टिप्पण/आलेखन) लागू की जाती है। वर्ष 2019-20 की अवधि में भी प्रोत्साहन पुरस्कार योजना (टिप्पण/आलेखन) लागू की गई। इस प्रतियोगिता में 10 प्रतिभागियों को पुरस्कारों से सम्मानित किया गया।

## 9.5 Portals Developed by CPCB

### i) Reporting & Tracking System for Management of COVID-19 Waste

In extraordinary pandemic situation, CPCB has developed a system for tracking the generation, collection, and disposal of COVID-19 Bio-medical Waste. This App was developed on urgent basis within a period of 10 days. Users comprising of waste generators, waste handlers, Common Biomedical Waste Treatment Facilities (CBWTF), State Pollution Control Boards/Pollution Control Committees may use mobile App or web Application. This system enables the waste generator to register their waste, waste handlers to pick up the waste, Common Biomedical Waste Treatment Facilities to accept waste transported by waste handlers, and regulators to track the generation and movement of waste. The system also provides various real time statistics to its users.

### ii) CPCB E-inspection App for Remote Inspection of Industries

CPCB developed this App to facilitate remote inspection of industries through live streaming of videos and images. The purpose of the system is to reduce the number of subsequent follow up inspections after an initial physical inspection. The App can also be used for other verifications like porthole creation, ladder construction, and other facility needed to materialize inspection.


### iii) Sameer App for Awareness and Public Complaint Redressal

Sameer App was created by CPCB to create public awareness about air redressal. Since its launch, it has been downloaded by more than 100,000 users on Android and iOS platforms.

The App provides hourly updated information on AQI for more than 120 cities using real time data from 232 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 though the CPCB CCR Portal (https://app.cpcbccr.com).

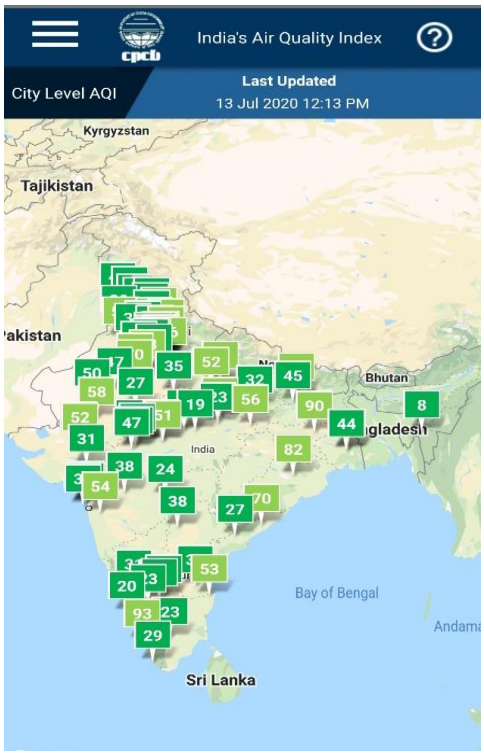
Sameer App provides a facility for lodging grievances related to air pollution. The complainant can upload photographs along with complaint and geo-coordinates are automatically captured for pinpointing exact location of source of air pollution for facilitating prompt action by concerned agencies. The 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 and is well integrated with complaint management system of implementing agencies.

The App was also used by CPCB field teams during Clean Air Campaign in winter season to lodge their field observations.

During November, 2018 and March, 2020, about 20,000 public complaints were received on Sameer App. Out of these about 80% complaints (19,400) were resolved through coordination with 40 implementing agencies in Delhi NCR.

**Snapshot of AQI**

**Map View:-** It shows the Average AQI for a City on map display

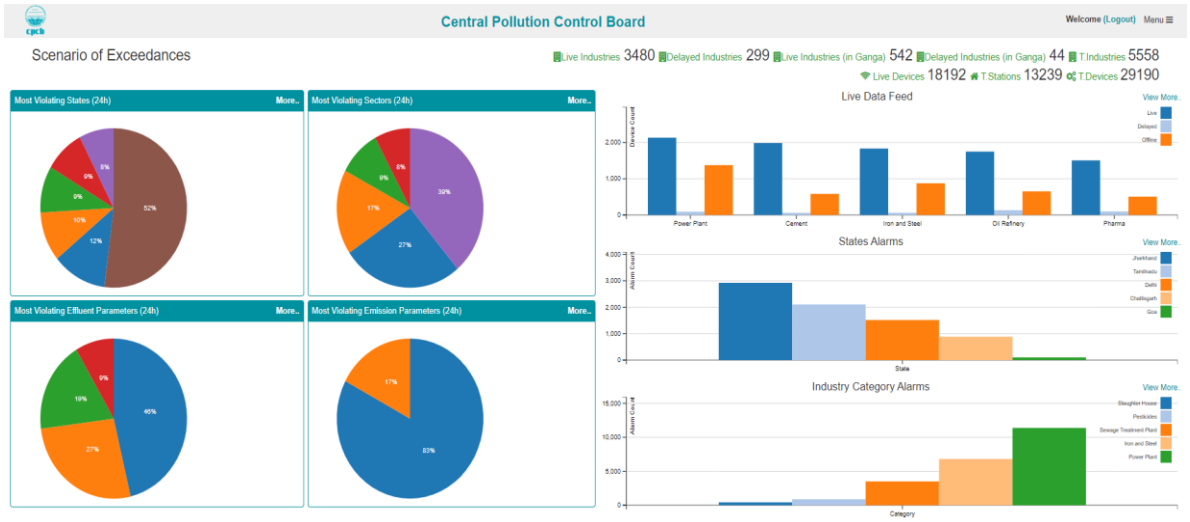



**List View: -** It Shows the Avg. AQI values in list view


- **Pollutant wise 24 – Hour Trend:** Provides detailed view for different ambient air quality pollutants monitored at a selected station


## iv) Online Continuous Emission and Effluent Monitoring System (OCEMS)

Online Continuous Emission and Effluent Monitoring Systems have been installed in highly polluting industries in the country and data generated is being transferred to CPCB/SPCB on real time basis. Based on data exceedances, alerts are being generated and forwarded on the fly to various stakeholders of this system, including the representatives of industries and officials of SPCB and CPCB, for taking immediate corrective actions for controlling pollution from industries. As of now, under self- regulation program, more than 5500 industrial units are sending their real-time emission and effluent data to CPCB through OCEMS, on the basis of which physical inspections of polluting units are being done. In addition, CPCB has also carried out a technical audit of protocol followed for calibration of OCEMS installed at CETPs/STPs.



## v) Website of CPCB

CPCB website plays an important role to disseminate information in respect of matters relating to pollution and its prevention and control in various areas/ sectors among public. CPCB's Website shares information and data. It contains information about nation-wide data on manual as well as real time Air Quality, Water quality, Noise Pollution, Industrial Pollution etc. In addition, it provides information about various Standards, Technical Reports, Publications, Tenders, Recruitment, Directions issued, etc.

CPCB's website has achieved major recognition by obtaining "Website Quality Certification" from Standard Testing and Quality Certification (STQC) under the Ministry of Electronics and Information Technology as per Guidelines for Indian Govt Websites (GIGW) for the period of three years. CPCB is the first department to achieve this certification among departments of MoEF&CC. By implementing secured socket layer, CPCB has made its website secured https and also acquired Cyber Security Audit Certificate from Cert-in Empanelled Auditor.

एस. टी. क्यू. सी. वेबसाईट गुणवत्ता प्रमाणीकरण सेवाएं
इलेक्ट्रॉनिक्स और सूचना प्रौद्योगिकी मंत्रालय
इलेक्ट्रॉनिक्स निकेतन, 6, सी. जी. ओ. कॉम्प्लेक्स, लोधी रोड़, नई दिल्ली – 110 003.

वेबसाइट गुणवत्ता प्रमाणपत्र

यह प्रमाणित किया जाता है कि
केंद्रीय प्रदूषण नियंत्रण बोर्ड, दिल्ली
URL: https://www.cpcb.nic.in

की वेबसाईट
वेबसाईट गुणवत्ता प्रमाणीकरण योजना, गुणवत्ता स्तर - 1
की आवश्यकताओं को पूरा करती है *

यह वेबसाईट भारत सरकार वेबसाईट दिशा निर्देशों
की आवश्यकताओं का अनुपालन करती है
यह वेबसाईट के अपने गुणवत्ता मैनुअल को भी संदर्भित करता है
और यह प्रमाणीकरण निरंतर अनुपालन के अधीन है।

इस प्रमाणपत्र की वैधता 16th Oct., 2022 ** तक है
अनुमोदन क्रमांक : CQW/ 252
जारी करने की तिथि : 17th Oct., 2019

(रवि प्रकाश सोंधी)
मुख्य कार्यकारी अधिकारी एवं वैज्ञानिक "जी"

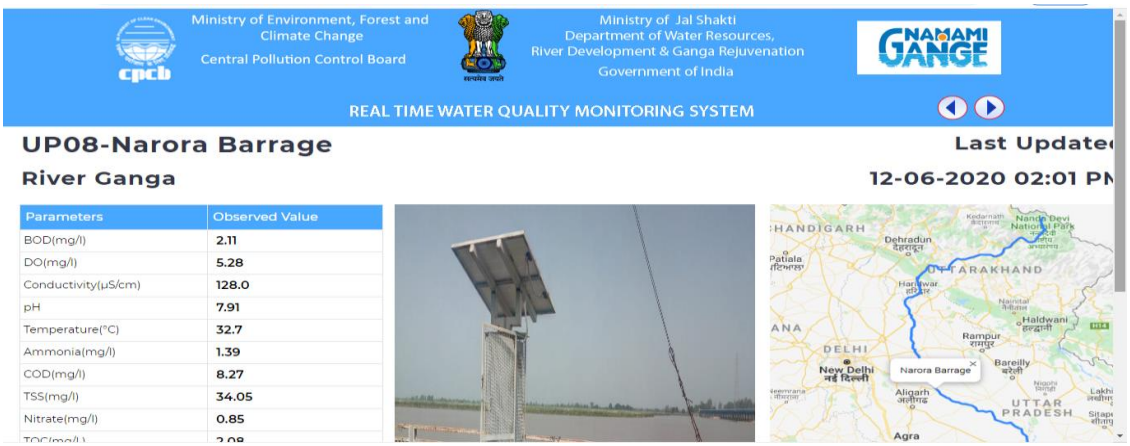
* संलग्नक - 1 में दी हुई 11 रियायतों सहित
** वैध सुरक्षा आडिट प्रमाणपत्र की उपलब्धता के अधीन.

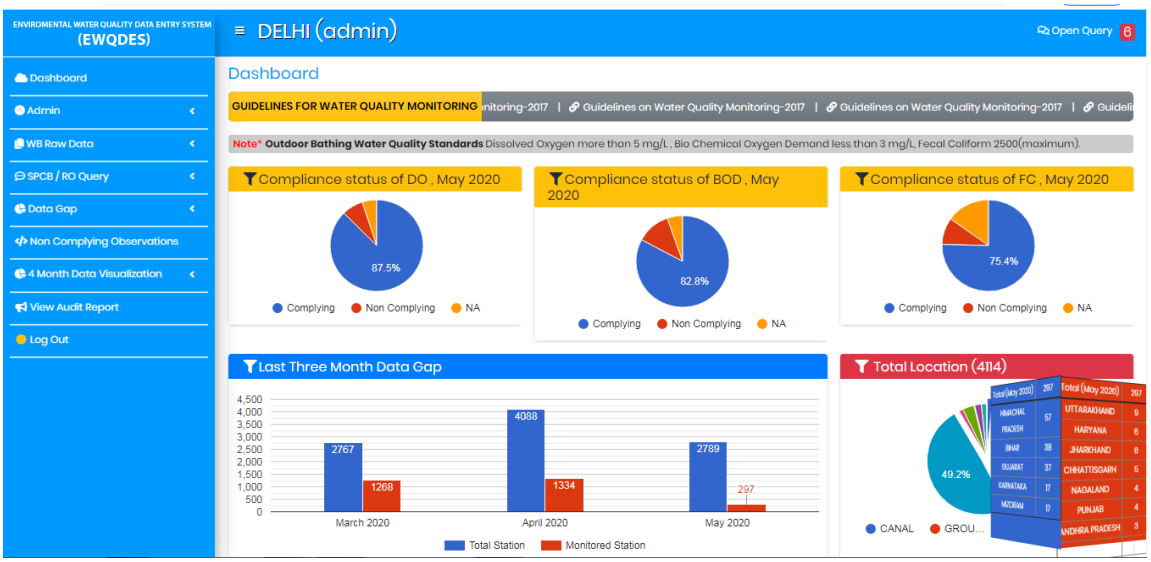
## vi) In-house IT Tools

**a) Recruitment Portal**:- For recruitment of candidates in CPCB an online mode of filling up of applications for various positions has been developed and tested successfully. A mobile App for senior officials has also been developed for internal assessment and monitoring of recruitment process. This App will be used in recruitment of various posts due for the financial year 2020-21.

**b) Water Quality Data**

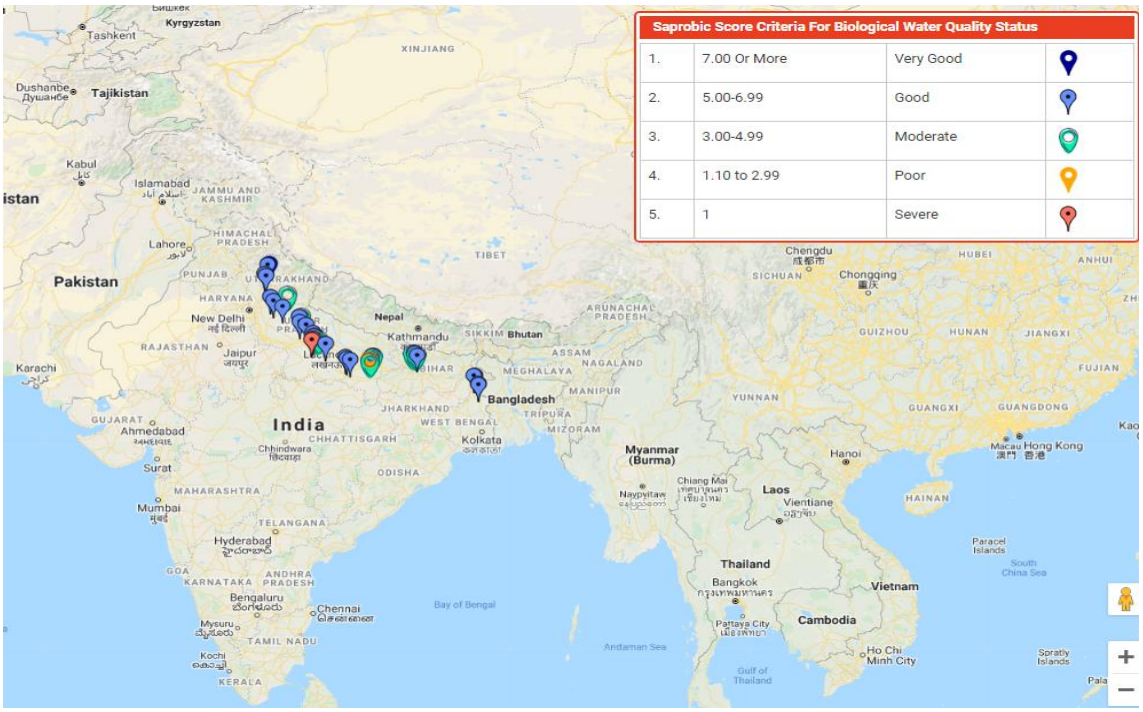
In-house IT team in CPCB has developed Dashboard for showing real-time data of 36 Real Time Water Quality Monitoring Stations installed in River Ganga and the status of data received under NWMP.

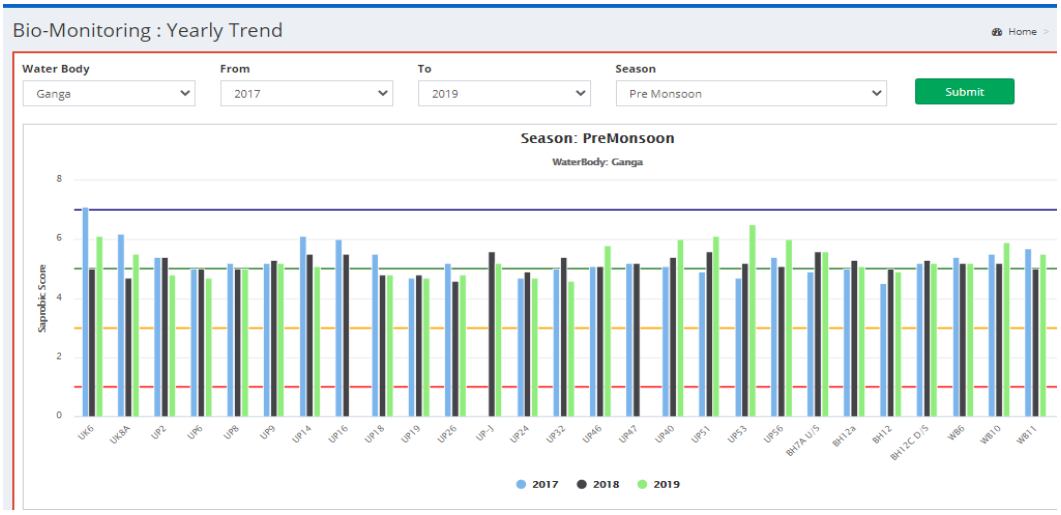


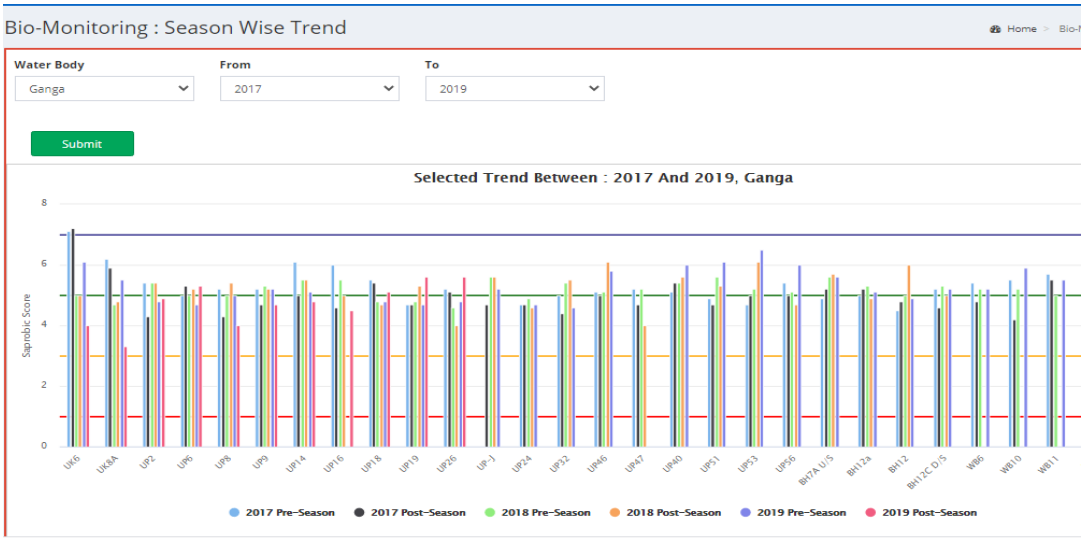




**c) Bio Monitoring Portal**:-

The bio-monitoring portal has been updated with add-on features to show Monitored locations on map with option to select season, year and selected water body to call data. Colour coded markers are used to show water quality as per the Saprobic Score Criteria.


Saprobic Score Criteria For Biological Water Quality Status
1. 7.00 Or More Very Good
2. 5.00-6.99 Good
3. 3.00-4.99 Moderate
4. 1.10 to 2.99 Poor
5. 1 Severe
Pakistan
India
Nepal
Bhutan
Bangladesh
Myanmar (Burma)
Thailand
Laos
Vietnam
Cambodia
China


Bio-Monitoring : Yearly Trend
Water Body
Ganga
From
2017
To
2019
Season
Pre Monsoon
Submit
Season: PreMonsoon
WaterBody: Ganga
Saprobic Score
2017
2018
2019


Bio-Monitoring : Season Wise Trend
Water Body
Ganga
From
2017
To
2019
Submit
Selected Trend Between : 2017 And 2019, Ganga
Saprobic Score
2017 Pre-Season
2017 Post-Season
2018 Pre-Season
2018 Post-Season
2019 Pre-Season
2019 Post-Season

# CHAPTER X

# ENVIRONMENTAL STANDARDS

## 10.1 Development of Environmental Standards

The Ministry of Environment, Forest and Climate Change (MoEF&CC) formulates and notifies standards for emission and discharge of environmental pollutants viz. air pollutants, water pollutants and noise limits, from industries, operations or processes with an aim to protect and improve the quality of the environment and abate environmental pollution. The standards are framed in consultation with all concerned stakeholders. The process of development of standards is based on the best practices and techno-economic viability. The notification of standards also involves formulation of load based standards i.e., emission / discharge limits of pollutants per unit of product obtained / processes performed to encourage and improve resource utilization efficiency and resource conservation.

The draft standards for any industrial process/ operation are recommended by Central Pollution Control Board (CPCB) in the form of 'Draft Notification'. The 'Draft Notification' is subjected to stakeholder consultation including general public. The comments are compiled and technically examined by CPCB and modifications if any, are carried out in the Draft Notification. The modified Draft Notification is placed before the 'Expert Committee (EC) of MoEF&CC for approval. Besides the MoEF&CC and CPCB officials, the Expert Committee of MoEF&CC comprises of representatives from industry associations, subject experts and concerned ministries. The EC recommended Draft Notification is placed for approval of Hon'ble MoEF&CC. after carrying out due legal vetting of the proposal; the final notification is published in Gazette of India.

Status of environmental standards development during 2019-20 is summarized below:

- The final standards were notified for three industrial sectors, namely, (i) Automobile Service Station, Bus Depot or Workshop, (ii) Tanneries (revision) and (iii) Coffee Industry notified vide G.S.R. 48 (E) dated 24.01.2020 under Environment Protection Rules, 2006.

- The draft standards were notified for public comments for three industrial sectors i.e. (i) Bulk Drug and Formulation (Pharmaceutical) Industry (ii) Water quality standards for coastal water marine outfalls in respect of primary water quality criteria for class SW-III waters and class SW-V water (amendments) and (iii) standards for Hot Mix Plants.

- The standards for Pulp and Paper Industry (revision) were presented before the Expert Committee of MoEF&CC for finalization.

- The draft emission standards for Hot Mix Plants were presented before the Expert Committee at MoEF&CC in its 18th meeting held on 9.8.2019, and after some modifications, the Committee agreed for draft notification, which were subsequently notified vide G.S.R. 16 (E), dated 08/01/2020 for inviting public comments.

- Environmental standards for Automobile Service Station / Bus depots / Workshops have been notified by MoEF&CC vide Gazette notification, G.S.R 952 (E), dated 26.12.2019, which was circulated to all SPCBs/PCCs and also uploaded in CPCB web site.

- Based on three meetings including hearing of stakeholders in the last meeting held on 13.02.2020 to review coal beneficiation notification, inputs were provided to MoEF&CC for amendment in the notification.

- Standards for Integrated Iron & Steel Plants were revised in the Expert Committee meeting held in October, 2019 and draft notification for Integrated Iron & Steel Plants was issued in January, 2020 by MoEF&CC.

- A proposal of revised standards for boilers for Particulate Matter (PM) parameter was prepared and forwarded to MoEF&CC in February, 2020.

- A proposal of standards for CPC units was prepared and forwarded to MoEF&CC in February, 2020.

# CHAPTER – XI

# PROSECUTIONS LAUNCHED, CONVICTIONS SECURED AND DIRECTIONS GIVEN FOR POLLUTING INDUSTRIES

- **Investigation in Sitarganj, Uttarakhand**

In compliance to Hon'ble NGT order dated 03/12/2019 in O.A. No. 123 of 2018, joint inspections of 21 industries were carried out by a team of CPCB RD Lucknow and Uttarakhand SPCB. Majority of the units were observed operating without obtaining the NOCs from Central Ground Water Authority (CGWA). Units were also found non-complying w.r.t. prescribed standard for Primary Effluent Treatment Plant (ETP) discharge.

Environmental Compensation for specific non-compliances and extraction of ground water without NOC from Central Ground Water Authority (CGWA) was recommended by the inspection team.

- **Inspection of Railway Stations**

In the matter of Saloni Singh Versus Union of India (OA No. 141/2019 of Hon'ble NGT order dated 26.03.2019), Railway Stations of Jhansi, Lucknow, Prayagraj, Manduadih and Varanasi Junction were inspected. Salient observations are summarised:

- Integration of wastewater streams and subjecting these for proper treatment is required.
- Provision for sewage treatment is to be ensured.
- Measures for minimisation of effluent generation through recycling of treated wastewater needed.
- Metering system for groundwater abstraction and NOC from CGWA be obtained for withdrawal.

- **M/s Grasim industries Limited, Renukut**

Hon'ble NGT constituted a Joint Committee comprising representative of the MoEF&CC, CPCB and the llT, BHU for assessment of Impact on surrounding environment due to storage and disposal practices of mercury bearing brine sludge and the muck comprising chlorinated chemicals in the factory premises and discharge of mercury. Salient issues observed based on inspection were as under:

- The SLF in the industry premises is used for storage of mercury bearing brine sludge and the muck contaminated with chlorinated chemicals.
- The provisions of leachate collection and its treatment was not installed.

- Environmental compensation on non-compliance on specific issue was calculated and detailed report submitted to the Hon'ble NGT.

- In the Execution App. No.05/2018 in OA No.40/2014, Hon'ble NGT has constituted committee of CPCB, NEERI and MPCB to coordinate monitoring, analysis and report preparation regarding the menace of Volatile Organic compound in Mahul, Chembur areas of Mumbai. NGT has directed concerned parties (Sea Lord Containers, Aegis Logistics, BPCL, HPCL etc.) to submit action plan based on the findings of the report. VOCs monitoring was carried out in detail with an objective to correlate with sources and suggestions given for control measures. The action plan has been reviewed. It is reported that the implementation of actions suggested by the committee has resulted in improvement by way of several measures taken by stakeholders in the area.

- The matter O.A. No. 125/2018 (Earlier OA No. 163/2017(WZ)) is related to discharge of effluents in river Kasardi by CETP managed by Taloja CETP Co-operative Society Ltd. A three (03) member monitoring committee under the Chairmanship of Retired Hon'ble Justice V. M. Kanade, Collector and Regional Director, CPCB was constituted. The action framework with technical inputs from Regional Directorate is being implemented and the committee is reviewing the progress from time to time. Remarkable improvement has been observed in the performance of CETP of Taloja.

- The matter, MA 369 of 2017 in OA 07 of 2014 is related to pollution caused by the industry presently known as Jubilant Life Science Ltd located near Nira village in Pune district of Maharashtra. Hon'ble NGT constituted a monitoring committee comprising of members from CPCB, MoEF&CC and IIT Bombay. The monitoring committee visited the area and carried out monitoring of soil, groundwater, surface water and ETP provided by the unit and the committee prepared a methodology for the calculation of compensation for the productivity loss. Further, Hon'ble NGT constituted a joint committee of CPCB and MPCB for carrying out monitoring and check the efficacy of ETP of the industry, monitoring of River Nira and soil quality.

- The matter OA no. 95 of 2018 is related to pollution in Vapi, River Damanganga and non-compliance of CETP Vapi & industries. CPCB carried out review meetings along with GPCB, Vapi Industrial Association & CETP. Reports were submitted through GPCB to Hon'ble NGT from time to time. As per order dated 11.01.2019, five member-committee (NEERI Nagpur, IIM Ahmedabad, IIT Gandhinagar, CPCB and GPCB) was constituted to assess the extent of damage, cost of restoration of environment, accountability and liability of defaulting industries and CETP Operator etc. The Expert Committee prepared "Report On Damage Assessment of River Damanganga, Cost of Restoration, Accountability & Liabilities of Defaulting Industries & CETP, Vapi, Gujarat" and

submitted in May 2019. NGT further directed to submit fresh report for five-years violations and Environmental Compensation (EC) calculation.

- The matter, OA No. 616 of 2019 (I.A. No.463 of 2019) in the Hon'ble National Green Tribunal (Ramdevbhai Samatbhai Sanjva Versus State of Gujarat) is related to pollution in Bhadar river caused by Dyeing & Printing industries in Jetpur. The Hon'ble NGT vide its order dated: 06.12.2019 ordered that a joint committee of CPCB and GPCB take action by way of carrying out monitoring of River Bhadar and polluting industries. The order also requested former Chief Justice (Rtd) of Delhi, Hon'ble Justice B.C. Patel to oversee the remedial action. Accordingly, a team of officials from Regional Directorate (West) of CPCB and GPCB carried out monitoring of Bhadar River, CETPs and STPs and Printing & Dyeing industries in Jetpur area and prepared the joint report for submission.

- OA no. 124 of 2018 (Ashok Kisan Khatri Vs Tata Powers Co. Ltd Trombay & Ors) is related to the issue of change of fuel and validity of Environmental Clearance (EC) granted vide dated 08.05.2014 for modernization of existing Unit 6 of M/s Tata Powers Co. Ltd, Trombay. The Hon'ble NGT vide its order dated 27.02.2019 constituted a joint committee of CPCB, IIT Delhi and IIT Kanpur. The Committee has carried out scenario analysis keeping in view the current base line of ambient air, additive impacts because of change of fuel type from LSHS/LSFO to imported coal and also if no such activity is taken at all in the area. The Committee was also entrusted to carry out carrying capacity study of the area, having regard to the nature of modernisation proposed, location of the unit and impact of its activity on the recipient environment i.e. air, water and land.

- **Environmental Compensation on Illegal Stone Quarry**

  In O.A. no. 24/ 2018 related to Rough Stone quarry activity in Maduranthagam, Tamil Nadu, Joint Committee inspected stone quarry site at Maduranthagam, Kancheepuram in which CPCB was the nodal agency. The joint committee worked out environmental compensation by quantifying the violations and penalty towards (i) illegal mined material, net value of the ecological services foregone and cost of damage to environment and pristine ecology, (ii) Cost of mitigation and restoration (iii) Penalty @ 15 times of royalty as per rule of Tamil Nadu Minor Mineral Concession Rules. Hon'ble NGT accepted the report and directed District Collector, Kancheepuram to collect the environmental compensation.

- **Remediation Work in Eloor Industrial Area, Kerala**

  In OA 396/ 2013 and 560/ 2018 related to contamination of Eloor industrial area, Cochin, Kerala, contaminated area supervised the joint committee constituted by NGT to prepare an action plan for remediation of contaminated site and stretches

of Periyar river. Detailed investigations carried out on the contamination of Periyar river, and initiated remediation in Eloor contaminated site based on DPR prepared by CPCB.

- **Carrying Capacity Study of Stone Mining and Crusher Units**

  In O.A. no. 337 of 2018 related to pollution due to stone crusher and mining activity in Neemakal village, Bommanahal, AP, Hon'ble NGT directed the Joint committee to carryout carrying capacity study of subject area to find out the number of stone mining and crushers units' activities which can be sustainable. Joint committee studied the carrying capacity of the subject area using the source-receptor based models in which the contaminant concentration is calculated using the source strength and appropriate mathematical algorithms. By using box model and source depletion model, the emission profile of the particulate matter was predicted and it was revealed that the impact of both mining and crushing activities in the study area is limited to maximum distance of 55 m considering the worst scenario.

- **Assessment of Environmental Damage due to Sand Mining in Krishna River**

  The Hon'ble NGT Principal Bench, Delhi in the matter of OA No 935/2018 directed Central Pollution Control Board (CPCB) and Andhra Pradesh Pollution Control Board (APPCB) to furnish a factual report on illegal sand mining in Krishna River, Vijayawada. The team observed that 'Free Sand Policy' was followed by Andhra Pradesh since March 04, 2016 and enormous quantity of sand extraction was being carried out using mechanical boats in upstream of Prakasam barrage at eight identified locations. Hon'ble NGT directed to constitute a Committee comprising CPCB, MoEF&CC, Indian School of Mines, Dhanbad, IIT Roorkee and Madras School of Economics and undertake environment damage assessment. Accordingly, a committee was constituted and environmental damage due to sand mining in River Krishna at Vijayawada in a stretch of 50 km upstream of the Prakasam Barrage to 25 km downstream of the barrage was assessed considering the factors of Morphological Changes in the River, Vulnerability of River Bank Slope, Safety of the Hydraulic Structures, Depletion of Ground Water Table, Deterioration in Water Quality and Ecological Impact.

- ***OA No. 45/2019/EZ (R.K. Singh Vs UOI),*** is related to pollution caused due to construction of various buildings in the cities of Ranchi, Jamshedpur, Bokaro, Deogarh without obtaining mandatory prior environmental clearance under the Environment Impact Assessment Notification, 2006. CPCB in compliance to the order of the Hon'ble NGT prepared and submitted the Report of Assessment of Environmental Compensation for the Proposed Assembly Building (Jharkhand Vidhan Sabha), New High Court Building of Ranchi and Residential Complex of M/s Greater Ranchi Development Agency Ltd. (GRADA).

Inspection reports and replies are submitted in the matters of ***OA No. 171/2016(EZ)*** (***Subhash Datta Vs State of West Bengal), O.A. No.473/2018 (M.A. No. 1181/2018, M.A. No. 1182/2018 & I.A. No. 48/2019) (Earlier O.A. No. 20/2014 (EZ,)*** (***Tribunal on its own Motion regarding Sundarbans Forests Vs. Union of India & Ors.), O.A. No. 55/2018 (EZ) (Sasee Bhoosan Patnaik & Ors Vs State of Odisha & Ors.), O.A. No. 41/2018(EZ) (Manoranjan Pradhan Vs State of Odisha),*** **Appeal No. 10/2019 (EZ)** (**Shamsher Ali Vs. West Bengal Pollution Control Board & Ors).**

- Progress of implementation of control system for achieving new norms of Thermal Power Plants reviewed on 31.01.2020 quarterly. Based on review, Show Cause Notice for closure and Environmental Compensation issued to 59 units within 300 km of Delhi and 6 other similar units elsewhere which did not comply by December, 2019. Regarding 10 old units which were identified for retirement, SPCBs were directed to ensure that these units do not operate after December, 2019.

- In OA-67/2019 and OA-138/2019 NGT issued directions to all states to formulate and implement policy for use of pet coke and Furnace Oil. Prepared comments on EPCA Report 107 on use of pet coke in integrated iron & steel plants for blending with coking coal in coke ovens based on a detailed analysis of sulphur balance in various processes - coke oven, blast furnace, and steel making shop and provided it to MoEF&CC.

- In OA-117/2014, OA-102/2014 and OA-499/2014 represented CPCB in the Committee constituted by NGT for fly ash utilization. Committee prepared two-year action plans for achieving 100% ash utilization from all power plants. A proposal for imposing EC to deal violation of fly ash notification was provided for submission to NGT. NGT has accepted report with modifications

- In OA-164/2018, NGT directed CPCB to recommend apportioning of de-silting cost for restoration of capacity of Rihand reservoir. In compliance to this order, detailed analysis of ash as well as ash slurry volume generation by power plants on the periphery of the reservoir done and report prepared for NGT. Report also detailed ash transportation and disposal methods, design features of ash ponds related to their safety from breaches, and actual design features of ash pond of power plants on the periphery of reservoir and utilization status of ash ponds.

# CHAPTER – XII

# FINANCE AND ACCOUNTS

# CHAPTER – XIII

# ANNUAL ACTION PLAN

The Central Pollution Control Board (CPCB) is coordinating with the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) on execution of nation-wide programmes relating to abatement of pollution. The activities mandated to CPCB are diversified in nature which includes; monitoring of ambient environment, formulation of standards and guidelines and providing implementation status reports to the Ministry of Environment, Forest & Climate Change (MoEF&CC) on rules framed under the Environment (Protection) Act, 1986.

The Annual Action Plan of CPCB for 2020-21 has laid emphasis on strengthening of environmental monitoring network, carrying out random checks of industries for compliance verification, review of existing standards and development of new standards and inventorisation of wastes. Capacity development of SPCBs through trainings and organizing/participation in mass awareness programmes will be the continued activity.

## 13.1 Reforms Measures and Policy Initiatives

- CPCB is focusing on strengthening of Ambient Air Quality Monitoring Network for assessment of air quality at National, Regional and Local level. National Air Monitoring Programme (NAMP) stations operated through State Pollution Control Boards (SPCBs) need further strengthening to monitor all notified parameters for ambient air, besides emphasis is being given for establishment of Continuous Ambient Air Quality Monitoring Stations (CAAQM) in all major cities.

- The Manual Water Quality Monitoring Network is being expanded further, realizing the need for establishment of a network of Real Time Water Quality Monitoring Stations on river Ganga to ensure that water quality is monitored continuously to see the impacts due to various initiatives taken.

- Efforts are being made for strengthening of the compliance mechanism, so that no untreated industrial effluent is discharged into the environment. Installation of online effluent and emission monitoring systems in 17 categories of polluting industries and data connectivity with SPCB/CPCB is a step towards self-monitoring and transparency.

- Efforts are being made for improving the performance of existing Sewage Treatment Plants (STPs) and adopting non-conventional technologies that are in synergy with the conventional methods for improving the water quality in

particular that of river Ganga and its tributaries.

- Initiatives are being taken for water conservation in Industries through process modification and adoption of state of art technology. Zero Liquid Discharge (ZLD) concepts shall be applied wherever possible to conserve the water and protect the environment.

- Challenges of Municipal Solid Waste Management and domestic sewage treatment would be given utmost attention.

## 13.2 Achievements during 2019-2020

Outcome of various activities of CPCB during financial year 2019-20 are briefed as below:

### i) Assessment and Monitoring of Pollution

- Operation and maintenance of 793 Manual Ambient Air Quality Monitoring Stations (AAQMS) in 344 cities.
- CPCB has developed a network of real time data from CAAQM stations being operated by CPCB, SPCBs and PCCs. This data is provided to all stakeholders and published in public domain for taking corrective measures in time. CPCB network has expanded to total 228 stations located in 128 cities during 2019-20.
- Operation of 4111 Water Quality Monitoring Stations (WQMS) at various aquatic resources.
- CPCB has installed Real Time Water Quality Monitoring Systems (RTWQMS) on river Ganga at 36 locations bringing the total number of RTWQMS to 44.
- 70 National Ambient Noise Monitoring Network stations have been installed spreading over 10 cities.

### ii) Industrial Pollution Control

- During the year 2019-20, standards for fermentation industry, coffee industry, tannery industry and automobile service stations & bus depots were recommended for final notification. The standard for industries using boilers ($SO_2$ and NOx) was recommended for amendment. However, water quality standards for coastal water marine outfalls in respect of primary water quality criteria for class SW-III waters and class SW-V water (amendments), standards for bulk drug and formulation (pharmaceutical) industry and standards for hot mix plants were recommended for draft notification.

- Standards for Pulp and Paper Industry (revision) and Iron & Steel Industry (revision), are under the process of finalization.
- Mechanism/policy was developed w.r.t. Stone Crushers**,** for assessment of Damage to Air Quality, health and Agricultural Product Loss.
- Development of Environmental standards including Antimicrobial residue standards in effluent for pharmaceutical sector.
- CPCB carried out assessment and evaluation of CEPI in 100 PIAs and submitted the details to MoEF&CC for consideration and appropriate action.
- Out of targeted 4251 industrial units, 3522 industries have installed and connected OCEMS to CPCB server. The closure direction has been issued to 731 industries.
- CPCB has inspected total 700 industries from 2016 to 03.03.2020, under SMS Alerts Scheme. Out of which, 342 industries were found non-complying. As per the provisions of Section 5 of Environment Protection Act, 1986, show-cause notices/technical directions to 159 units and closure directions to 181 units were issued for non-compliance. Further, one direction each to Assam and Maharashtra SPCB, was issued under section 18(1)(b) of the Water and Air Act. Out of 342 units found non-complying during inspection, 293 units are complying as on date. Directions/notices issued by CPCB for 49 non-complying units are still in force and units are taking appropriate actions for ensuring compliance of environmental norms.

**iii) Control of Pollution in Ganga**

- All the 726 Grossly Polluting Industries (GPIs) in the Ganga Basin have been inspected and action has been taken against 611 GPIs non - complying unit.

- Inspection of 122 sugar units conducted and Grossly Polluting Industries (GPIs) falling under Hindon sub basin also inventorized and inspected.

**iv) Waste Management**

- Prepared technical guidelines to help stakeholders in implementing the Bio-medical Waste Management Rules, 2016.

- CPCB has evolved Standard Operating Procedure (SOP) for processing the proposal received for utilization of hazardous waste. 54 SoPs for utilization of 40 different categories of Hazardous Waste have been developed and circulated to all SPCBs/PCCs. Also co-processing of waste promoted during this period and 1.09 Million Ton of waste has been co-processed. Presently, 39% of overall hazardous waste generated is being recycled.

- Standard Operating Procedures for evaluation, processing and disposal of applications seeking EPR Authorization under E-Waste (Management) Rules, 2016 were developed and placed on the web site of CPCB

- Guidelines for Producer Responsibility Organization (PRO) under E-Waste (Management) Rules, 2016 were prepared and placed on the web site of CPCB.

- Guidelines for legacy waste management has been prepared and being implemented.

- Bio-remediation of legacy waste dumpsites

**v) Training, Mass Awareness and Environment Data Bank**

- During the financial year 2019-20, 23 training programs in various priority areas related to environment were organized

- Implementation of Raj-Bhasha (Hindi) in CPCB and organized Hindi Diwas, Workshop and Training programs for CPCB officials.

- CPCB participated in 08 exhibitions to create mass awareness.

## 13.3 Opening of CPCB Regional Directorate during 2019-20 - Chennai, Chandigarh & Pune

**i)** Central Pollution Control Board initiated new Regional Directorates at Chennai in July, 2019. The Regional Director, Chennai identified office space of about 4080 sq. ft. at the O/o DEE, TNPCB located at 2nd Floor, 77-A, South Avenue Road, Ambattur Industrial Estate, Ambattur Taluk, Thiruvallur District, Chennai-600058. The Chairman, TNPCB vide letter no. TNPCB/EE©/F.000133/2020 dated 27.01.2020 has given acceptance in principle for providing office space on rental basis with minimum infrastructure.

On January 29, 2020 the office was inaugurated by the TNPCB Member Secretary Mr. D. Sekar in presence of CPCB, Regional Director, Chennai Dr. M. Madhusudhanan. During inauguration other senior officials of TNPCB Mr. Manoharan, JCEE, Mr. Malayandi, JCEE & Mrs. Indiragandi, DEE were present.

TNPCB MS has highlighted the need of mutual trust and cooperation among Boards and joint efforts will certainly help in mitigating pollution. The presence of Regional Directorate of CPCB will definitely help the States for better coordination.


**ii) Central Pollution Control Board started its Regional Directorate Chandigarh**

In June, 2019. A detailed study was carried out in association with Punjab Pollution Control Board to have obtained State of Environment of Budda Nala, Ludhiana. The matter was referred to CPCB by National Mission of Clean Ganga (NMCG) under the context of pollution being caused in the Nala by industries operating in its basin and there by impacting the water quality of rivers/canals in the State of Rajasthan. The findings, beside other include:

- Untreated discharges of the order of 120 Million Liters per Day (MLD) from Grossly Polluting Industries (GPI) such as Dyeing, Pickling and Electroplating units are considered to be major pollution load into the Nala.
- The Nala also carries untreated or partially treated sewage of the order of 640 MLD from city of Ludhiana.
- Common Effluent Treatment Plants (CETPs) are under construction to treat the effluents from dyeing units and one CETP is in operation for the effluent from Pickling and Electroplating units.
- The construction and commission of CETPs for Dyeing units have been inordinately delayed due to lack of supervision and enforcement.

The study report recommended use of Clean Technology (CT) in dyeing and Best Available Technology (BAT) in Pickling and Electroplating units. It has also suggested to expedite the construction/commission of CETPs through imposing of penalty towards Environmental Compensation.

In addition to the above, RD Chandigarh has undertaken investigation and monitoring of industrial units in the various matter referred by Hon'ble National Green Tribunal (NGT).

## 13.4 Thrust Areas for 2020-21

- Strengthening of Ambient Air, Water and Noise monitoring network.
- Development of Standards for industrial sectors.
- Rejuvenation of River Ganga.
- Action plan for polluted river stretches.
- Enhancement of IT infrastructure (E-Office, Hazardous waste tracking system).
- Implementation of Action plan for non-attainment area
- Special attention for Management of Delhi Air Quality
- Development of R&D center at CPCB.
- Surveillance of Sewage Treatment Plants (STPs), Common Effluent Treatment Plants (CETPs), Common Bio-Medical Waste Treatment Facilities (CBMWTF) and Treatment, Storage and Disposal Facility (TSDF) of Hazardous waste for checking the compliance of norms.
- Implementation of various waste management rules.
- Strengthening of Laboratory and Development of Laboratory Information System.
- Organizing Training program for the officials of SPCBs and CPCB.
- Establishment of Three new offices of CPCB (Chennai, Chandigarh and Pune)

## 13.5 Budget Allocation for 2020-21

The allocation made against each Project Head is summarized as under:

| Budget Head | Title of the Budget Head | Allocation (₹ in Lakh) | | |
|---|---|---|---|---|
| | | Head Office | Regional Directorate | Total |
| I | **Pollution Assessment (Survey and Monitoring)** | 37.00 | 67.50 | 104.50 |
| II | **Scientific, Technical and R&D Activities** | 767.00 | 508.50 | 1275.50 |
| III | **Industrial Pollution Control (Standards, Enforcements and Technologies)** | | | |
| | a) Standard Development | 36.00 | - | 36.00 |
| | b) Enforcement | 5957.00 | 2060.50 | 8017.50 |
| | c) Technology<br>d) | - | - | - |
| IV | **Training and Awareness:** | | | |
| | a) Training Programmes<br>b) | 85.00 | 13.00 | 98.00 |
| | c) Public Relation, Mass Awareness & Hindi | 54.00 | 6.50 | 60.50 |
| | d) Library | 16.00 | 6.00 | 22.00 |
| V | **Information (Database) Management** | 113.00 | 16.00 | 129.00 |
| VI | **Waste Management and Urban Pollution Control** | 243.00 | 14.00 | 257.00 |
| **Total** | | **7308.00** | **2692.00** | **10000.00** |
| | | **₹. 73.08 Cr.** | **₹. 26.92 Cr.** | **₹. 100.00 Cr.** |

# CHAPTER – XIV

# OTHER ACTIVITIES DEALT BY CPCB

## 14.1 Guidelines Formulated by CPCB

### i) Guidelines for Environmental Management of Dairy Farms and Gaushalas

In compliance to the Hon'ble National Green Tribunal (NGT), Principal Bench, New Delhi, in the matter of O.A. No. 46/2018, Nuggehalli Jayasimha Vs Government of NCT of Delhi dated 08.07.2019. The Guidelines focus on various environmental issues related to wastewater, air pollution and solid waste management in Dairy Farms & Gaushalas. Solid waste i.e. cattle dung and its handling is a major issue. The guidelines propose Composting/Vermicomposting, Biogas/Compressed biogas (CBG) production (anaerobic digestion) and Manufacture of dung wood to be used as fuel, as waste management options. It also proposes adequate infrastructure to ensure proper handling, treatment and disposal of solid wastes & wastewater by setting-up individual or common treatment facilities wherein clusters. It guides about proper ventilation and to follow BIS norms for animal housing in order to mitigate air emissions. Siting criteria has been suggested for setting up new dairy farms & gaushalas.

### ii) Guidelines for Utilisation of Treated Effluent in Irrigation

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. The Hon'ble NGT considered these guidelines and circulated to all SPCBs/PCCs for implementation. The guidelines define the protocol to be followed while using treated effluent for irrigation. It suggests formulation of irrigation management plan through agriculture universities.

### iii) Project on Review of Standards and Preparation of Comprehensive Industrial Document (COINDS) on Pesticide Industry

Central Pollution Control Board is working on Project on review of standards and preparation of comprehensive industrial document (COINDS) on pesticide industry. CPCB awarded the project of review of environmental standards and preparation of Comprehensive Industrial Document of Pesticide Industries to M/s Development Consultants Private Limited (DCPL), Kolkata. The draft final report including proposed effluent and emission discharge standards were uploaded on CPCB website for seeking comments from stakeholders. CPCB

had a couple of meetings with Pesticides Manufacturers & Formulators Association of India (PMFAI) and other representatives of pesticide industries for discussion over the issues regarding the proposed standards. Further, it was decided in the meeting on 23.01.2020 with Department of Chemicals & Petrochemicals and the representatives of pesticide industries that the Pesticide Industry Association will provide the requisite data of existing and new chemicals to Central Pollution Control Board (CPCB) to identify the problems and come up with possible solutions while revising proposed standard and executive summary of comprehensive industrial document of pesticide industry. PMFAI has informed to provide the requisite data by the last week of July, 2020. Further deliberations with stakeholders and Ministry of Environment, Forests and Climate Change are needed for finalization of the revised standards.

**iv) Project on "Development and Promotion of Non-POP Alternatives to DDT"**

CPCB has signed the Project Corporation Agreement with United Nations Environment Programme (UNEP) on 18.03.2019 to Global Environment Facility (GEF) funded Project. The project tenure is valid up to 31.12.2022. UNEP has also agreed to award the sub-contract to NEERI, Nagpur by CPCB. First Expert Group Meeting to develop frame work of IVPM training modules has been conducted on 17/12/2019. The training module have been developed in consultation with all the stakeholders such as UNEP, UNIDO, NVBDCP, MoEF&CC, MoH & FW, State vector control departments and their feedback has been incorporated The four training modules have been developed and sent to National Vector Borne Disease Control Programme (NVBDCP) for approval.

**v) Review of Environmental Standards of Caustic Soda industry and Preparation of COINDS on Caustic Soda**

The project on "Review of Environmental Standards of Caustic Soda industry (Membrane Cell) and Preparation of COINDS on Caustic Soda" has been awarded to M/s C. P. Consultant Pvt. Ltd., Delhi Ltd., in December, 2019. The duration of the project is 2 years. A questionnaire for collecting information from the industries has been prepared and forwarded to the industries.

**vi) Review of Norms related to Deep Sea Discharge**

Central Pollution Control Board has constituted a technical committee to review the norms related to deep sea discharge. The committee comprises of members of industrial association, Central Salt and Marine Chemicals Research Institute, National Environmental Engineering Research Institute, National Institute of Oceanography, State Pollution Control Boards and Ministry

of Environment, Forests and Climate Change. The review of norms may be decided after further technical deliberations.

**vii) Introduction and Enforcement of Chemical Regulation**

Department of Chemicals and Petrochemicals constituted a technical committee for Introduction and Enforcement of Chemical Regulation. The committee comprised of representatives from Petroleum & Explosive Safety Organization, Ministry of Environment, Forests and Climate Change, Confederation of Indian Industries etc.

Central Pollution Control Board being a member of technical committee participated in the meetings of the committee. The committee has finalized the draft of proposed regulations.

**viii) Solid Waste Management at Gwalior**

Eco green Energy Gwalior Private Limited (EEPL) set up an integrated Municipal Solid Waste management project in Gwalior on PPP mode. It includes door to door collection of Municipal Solid Waste in all the 16 urban local bodies of Gwalior, Morena and Datia districts. It has facility of segregation of waste into organic, inorganic & inert components and inorganic component is processed & converted to Refused Derived Fuel (RDF). Organic component is converted into compost. It has also facility of recovery of recyclable materials like big plastics, glass, metal, etc and inert component is scientifically disposed at Sanitary Land Fill. Domestic Hazardous waste is also segregated further and incinerable waste is sent to Kedarpur for incineration. Corporation has executed an agreement with third party for transportation of C&D waste from dedicated places within the city, for processing and reuse of waste. C&D waste is being crushed into different sized material and there after being processed and used for road construction, paver and tiles manufacturing. Solid waste generation in Gwalior is approximate 425-450 TPD and collection of solid waste is approximate 400 TPD. Garbage was being dumped in the Laxman Talaiya (Legacy Waste Dump site) and Barra region by the Gwalior Municipal Corporation since decades. This site is being capped with plantation.

**ix) Solid Waste Management Status at Kota and Udaipur**

In Kota, there are total 150 wards generating 300-350 TPD solid waste out of which around 330 TPD waste is collected daily by door-to-door collection system, but no proper management was observed as un-segregated waste is still being dumped to the old legacy waste site. In Udaipur, there are 70 wards generating 180 TPD solid wastes which were collected separately as dry and wet waste by door-to-door collection system. Nagar Nigam (Udaipur) has developed a Material Recovery Facility for dry waste and a bio-composting

facility for Wet waste on a land area of around 1.5 hectare at Titadi dump site, Udaipur.

**x) Assessment of Coffee Pulping Effluent and Solid Waste Treatment Technologies**

The study was conducted to assess the different technologies for treatment of effluent and solid waste generated from Coffee Processing units with an objective to develop guidelines. Based on the scale of Pulping units, process method and treatment technology implemented, 10 Coffee Pulping units in Chikmagaluru district, Karnataka were studied in detail during October, 2019 to February, 2020. In most of the plantations, lagoons are not provided with impervious lining as specified in the CPCB standards. The lagoon system is a failure due to improper operation and maintenance, as most of the time they get overloaded with accumulation of pollutants, filled with scum and become malodorous. In anaerobic bioreactor installed in a few large scale plantations, BOD, COD and TSS are removed up to 94%, 96% and 55%, respectively.

In small and medium scale wet pulpers, water consumption is 1.5-4 l/kg of coffee cherry processed. Due to implementation of dry pulpers in large scale plantations, water consumption for process is reduced to 0.3-0.5 l/kg of coffee cherry processed. The solid waste generated from wet pulping process consists of coffee skin/ husk and pulp. The quantity of waste generated in small scale wet pulpers is 15-22 tons/annum, for medium scale pulpers is 35- 48 tons/annum and large scale pulpers is 50-75 tons/annum. In dry pulpers, approximately 500-600 tons of solid waste is generated annually in the form of thick slurry consists of coffee skin/husk, pulp and mucilage. The solid waste generated are placed in heap in a designated location in the plantations and allowed for natural decomposition for 120-180 days to convert it to compost. Based on the study findings, guidelines were prepared and suggested for implementation in primary Coffee Processing units.

## 14.2 Guidelines issued by CPCB

- The “Guidelines for Pollution Control in Kolhus” was developed by CPCB and the same was forwarded to all State Pollution Control Boards and Pollution Control Committees to ensure pollution control in Kolhus. The Guidelines recommend siting criteria, fuel to be used, improving energy efficiency of furnace, stack height, emission limits of Particulate Matter (PM), etc for effective operation of kolhus. The Guidelines are kept on Public Domain on CPCB web site.

- The reports of 8 pilot studies in power plants for NOx control by Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR) were

examined by CPCB and comments provided to MoEF&CC regarding the efficacies of these technologies in Indian conditions of high ash content in coal and plants operation at low load.

- Guidelines for utilization of Power Plant ash in stowing in abandoned mines and reclamation of low lying areas were prepared. MoEF&CC adopted these guidelines and issued Office Memorandum to add a special condition for its compliance in Environmental. Clearances issued to Thermal Power Plants & Mines.

- A protocol for reuse of industrial effluent in irrigation was prepared by CPCB in compliance of NGT order. The final protocol was accepted by NGT and as directed by NGT it was circulated to all SPCBs.

- Preparation of guidelines for Red Mud initiated and the guidelines are under finalisation.

***Annexure-I***

**DELEGATION OF POWERS BY CENTRAL POLLUTION CONTROL BOARD TO POLLUTION CONTROL COMMITTEES**

| S. No | Union Territory | Pollution Control Committee | Gazette Notification No. for Power Delegation | Date of Notification |
|---|---|---|---|---|
| 1. | **Andaman & Nicobar Islands** | The Pollution Control Committee Andaman & Nicobar Islands | Gazette of India Extraordinary, Part-II, Section-3, Sub-section (ii) S. O. No. 33 Dated 16.01.1992 & Legal /156(4) 1990 dated 3.06.2004 | 16.01.1992 |
| 2. | **Chandigarh** | Chandigarh Pollution Control Committee | Gazette of India Extraordinary, Part-II, Section-3, Sub-section (ii) S. O. No. 199(E) dated 15.03.1991 & S.O. 1131 (E) dated 23.10.2002 | 15.03.1991 |
| 3. | **Daman Diu & Dadra Nagar Haveli** | Pollution Control Committee Daman Diu & Dadra Nagar Haveli | Gazette of India Extraordinary, Part-II, Section-3, Sub-section (ii) S. O. No. 862 (E) dated 26.11.1992; amended vide notification No. S.O. 384 (E) dated 19.2.1996 and S.O. 698(E) dated 03.07.1998 File No. B-12015/7/04/AS, dated 17.12.2004 | 26.11.1992 |
| 4. | **Delhi** | Delhi Pollution Control Committee | Gazette of India Extraordinary, Part-II, Section-3, Sub-section (ii) S. O. No. 198 (E) dated 15.03.1991; amended vide Notification No. S.O. 640 (E) dated14.06.2002 | 15.03.1991 |
| 5. | **Lakshadweep** | Lakshadweep Pollution Control Committee | Gazette of India Extraordinary, Part-II, Section-3, Sub-section (ii) S. O. No 842 (E) dated 31.08.1988 & legal /156(4) 1990 dated 23.03.2006 | 31.08.1988 |
| 6. | **Puducherry** | Puducherry Pollution Control Committee | Gazette of India Extraordinary, Part-II, Section-3, Sub-section (ii) S. O. No. 787 (E) dated 10.03.1992; amended vide Notification No. F.No.Legal/158/(4)/90 dated 01.05.2011 | 10.03.1992 |

***Annexure - II***

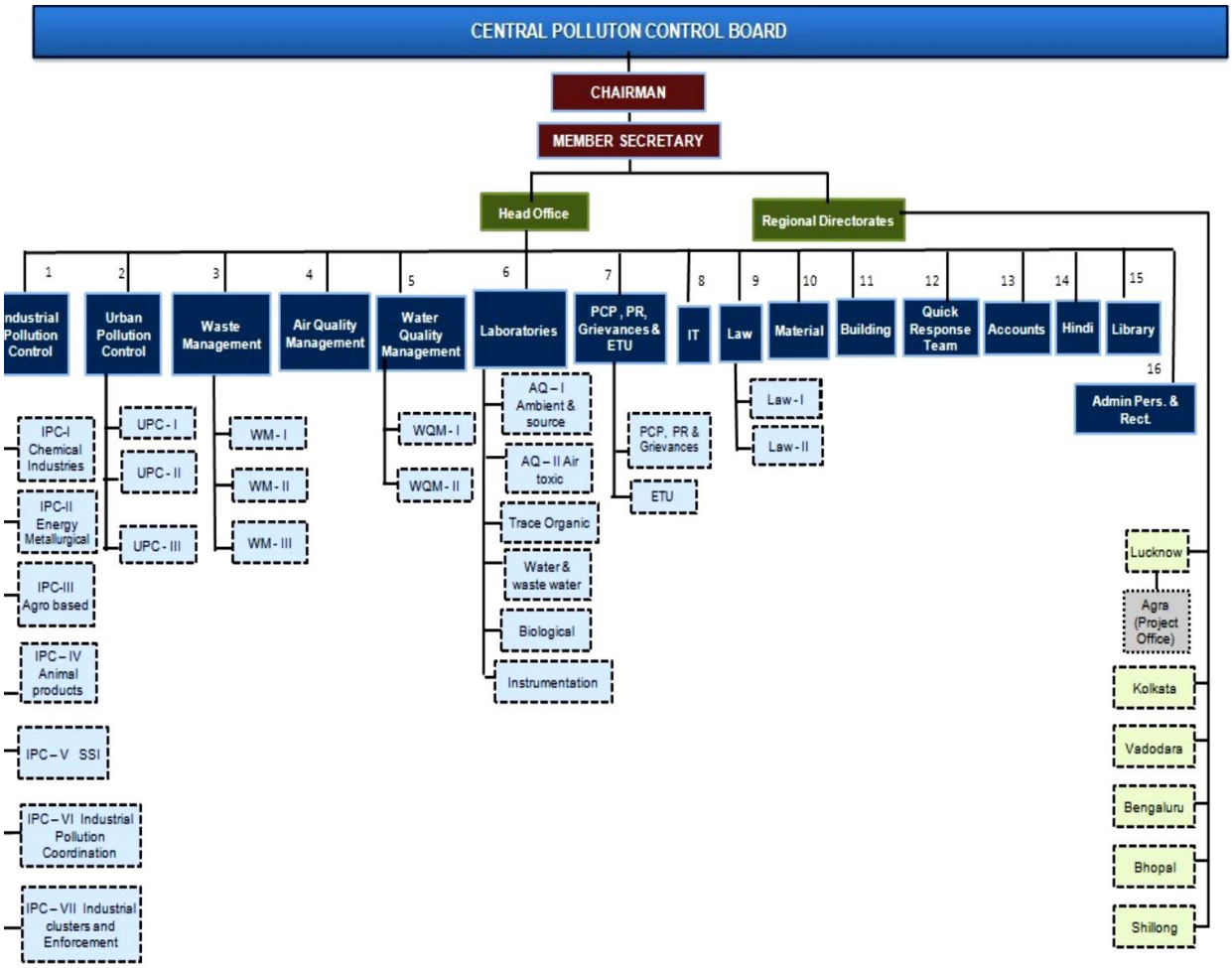
**LIST OF BOARD MEMBERS**

(As on 31.03.2020)

| S. No. | Name & Address |
|---|---|
| 1. | Shri Shiv Das Meena, IAS<br>Chairman, CPCB |
| | **Members nominated under clause (b) of sub-section (2) of section 3** |
| 2. | The Additional Secretary and Financial Adviser,<br>Ministry of Environment, Forest & Climate Change, New Delhi |
| 3. | The Joint Secretary (Swacch Bharat Mission and Public Health Engineering),<br>Ministry of Housing and Urban Affairs, New Delhi |
| 4. | The Joint Secretary (Thermal),<br>Ministry of Power, New Delhi |
| 5. | The Executive Director (Technical), National Mission for Clean Ganga,<br>Ministry of Water Resources, - River Development and Ganga Rejuvenation,<br>New Delhi |
| 6. | The Joint Secretary, CP Division,<br>Ministry of Environment, Forest and Climate Change, New Delhi |
| | **Nominated under clause (c) of sub-section (2) of section 3** |
| 7. | The Chairman,<br>Uttar Pradesh Pollution Control Board, Lucknow |
| 8. | The Chairman,<br>Maharashtra Pollution Control Board, Mumbai |
| 9. | The Chairman,<br>Tamil Nadu Pollution Control Board, Chennai |
| 10. | The Chairman,<br>Pollution Control Board of Assam, Guwahati |
| 11. | The Mayor,<br>Indore Municipal Corporation, Madhya Pradesh |
| | **Members nominated under clause (d) of sub-section (2) of section 3** |
| 12. | Shri Ashok Agarwal,<br>Director, GridLynk Solar LLP, Haryana |
| 13. | Dr Anil Kumar Gupta<br>Chairman, Jhilmil and Friends Colony Industrial Area, New Delhi |
| 14. | Dr T.K. Joshi,<br>Environmental Health Advisor |
| | **Nominated under clause (e) of sub-section (2) of section 3** |
| 15. | The Director (Operations),<br>National Thermal Power Corporation Ltd, New Delhi |
| 16. | The Director (Research and Development),<br>Indian Oil Corporation Limited, Haryana |
| | **Member nominated under clause (f) of sub-section (2) of section 3** |
| 17. | Dr. Prashant Gargava,<br>Member-Secretary, Central Pollution Control Board, Delhi |

***Annexure-III***

## ORGANIZATION STRUCTURE OF CENTRAL POLLUTION CONTROL BOARD



***Annexure – IV***

## SANCTIONED STAFF STRENGTH IN CPCB AND NUMBER OF VACANCIES IN EACH CADRE AS ON 31.03.2019

| S. No. | Name of the Post | Sanctioned Posts as on date | Deemed Abolished | Filled | Vacant Post |
|---|---|---|---|---|---|
| 1 | Scientist 'F' | 167 | - | 00 | 13 |
| 2 | Scientist 'E' | | | 43 | |
| 3 | Scientist 'D' | | | 64 | |
| 4 | Scientist 'C' | | | 24 | |
| 5 | Scientist 'B' | | | 23 | |
| 6 | Senior Law Officer | 01 | - | - | 01 |
| 7 | Sr. Administrative Officer | 01 | - | 01 | - |
| 8 | Administrative Officer | 07 | - | 07 | - |
| 9 | Law Officer | 02 | - | 02 | - |
| 10 | Assistant Law Officer | 02 | - | 02 | - |
| 11 | Assistant Director (OL) | 01 | - | 01 | - |
| 12 | Accounts Officer | 02 | - | 01 | 01 |
| 13 | Assistant Accounts Officer | 05 | - | 05 | - |
| 14 | Section Officer* | 07 | - | 06 | 01 |
| 15 | Private Secretary* | 18 | - | 09 | 09 |
| 16 | Senior Technical Supervisor | 09 | - | 08 | 01 |
| 17 | Draughting Supervisor | 01 | - | 01 | - |
| 18 | Senior Scientific Assistant | 32 | - | 32 | - |
| 19 | Senior Hindi Translator | 01 | - | 01 | - |
| 20 | Technical Supervisor | 01 | - | 01 | - |
| 21 | Assistant* | 20 | - | 20 | - |
| 22 | Data Processing Assistant | 04 | - | 04 | - |
| 23 | Senior Draughtsman | 01 | - | 01 | - |
| 24 | Personal Assistant * | 03 | - | 03 | - |
| 25 | Accounts Assistant | 08 | - | 08 | - |
| 26 | Junior Hindi Translator | 01 | - | 01 | - |
| 27 | Publication Assistant | 01 | - | 01 | - |
| 28 | Junior Scientific Assistant | 27 | - | 22 | 05 |
| 29 | Senior Technician | 13 | - | 07 | 06 |
| 30 | Junior Technician | 07 | - | 01 | 06 |
| 31 | Senior Laboratory Assistant | 29 | - | 29 | - |
| 32 | Junior Laboratory Assistant | 31 | - | 21 | 10 |
| 33 | Field Attendant | 07 | - | 06 | 01 |

| S. No. | Name of the Post | Sanctioned Posts as on date | Deemed Abolished | Filled | Vacant Post |
|---|---|---|---|---|---|
| 34 | Upper Division Clerk | 18 | 03 | 12 | 03 |
| 35 | Lower Division Clerk | 26 | 06 | 05 | 15 |
| 36 | Senior Attendant | 15 | - | 15 | - |
| 37 | Driver Special Grade | 01 | - | 01 | - |
| 38 | Driver Grade-I | 06 | - | 04 | 02 |
| 39 | Driver Grade-II* | 02 | - | 02 | - |
| 40 | Driver (Ordinary Grade)* | 10 | - | 10 | - |
| 41 | Data Entry Operator Grade-I | 02 | - | 02 | - |
| 42 | Data Entry Operator Grade-II | 06 | - | 04 | 02 |
| 43 | Stenographer | 03 | - | 03 | - |
| 44 | Pump & Wheel Valve Operator | 01 | - | 01 | - |
| 45 | Attendant (MTS) | 22 | - | 19 | 03 |
| 46 | **Total** | **521** | **09** | **433** | **79** |

*Sanctioned posts shown at Sl. No. 1 to 5 are scientific posts under Flexible Complementary Scheme in CPCB (Inter-changeable grade)*

*02 posts of PS downgraded to the lower post of PA (Sl. No. 15 & 24),*
*03 posts of Section Officer downgraded to the lower post of Assistant (Sl. No. 14 & 21),*
*02 posts of Driver Grade-II downgraded to lower post of Driver (OG) (Sl. No. 39 & 40),*
*06 Posts of TS downgraded to lower post of Senior Technician ( SI.No.20 & 29) &*
*06 Posts of UDC downgraded to lower post of LDC (SI.No.34 & 35).*