

MAHARASHTRA POLLUTION  
CONTROL BOARD



*Annual Report*  
2017-18





# **ANNUAL REPORT 2017-18**

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CONTROL BOARD**



## **FOREWORD**

*It gives me great pleasure to present the Annual Report of the Maharashtra Pollution Control Board for the year 2017-18. This annual report is a tool for providing wider information on activities carried out and services provided by the MPCB. The information in this report should allow stakeholders, the community and other public to assess how local authorities have performed during the year in relation to stewardship of community assets, and the efficiency, effectiveness and cost-effectiveness of operations. The annual report highlights regional environmental issues and a path forward. It also displays interesting ways of representing data and features technically sound reporting and scientific interpretation. For providing an analysis of performance, the MPCB possesses a set of appropriate measures and robust systems to collect the results that are interpreted and translated into action plans.*



*For effective implementation of environmental legislations, the Board has taken various steps such as fast clearance of Consents/Authorization, Joint Vigilance Sampling, Legal actions under Sec. 33A of Water Act and 31A of Air Act, environment improvement programs at religious places, conducting mass awareness, augmenting frequency of monitoring of point sources, fugitive sources, area sources for air and water, strengthening of laboratories, and development of infrastructure and decentralization of powers at the level of subordinate offices. An attempt has been highlighted for maximum information dissemination through website. With a view to provide ready information on the activities of MPCB, this report presents the relevant and latest statistics about key indicators and parameters.*

**Dr. P. Anbalagan,  
Member Secretary,  
Maharashtra Pollution Control Board.**



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## 1. INTRODUCTION

Maharashtra Pollution Control Board (MPCB) was established on 7<sup>th</sup> September, 1970 under the provisions of Maharashtra Prevention of Water Pollution Act, 1969. The Water (P & CP) Act, 1974 was adopted in Maharashtra on 1<sup>st</sup> June, 1981 and accordingly Maharashtra Pollution Control Board was formed under the provisions of Section 4 of Water (P & CP) Act, 1974. The Air (P & CP) Act 1981 was adopted in Maharashtra in 1983 and initially some areas were declared as Air Pollution Control Areas on 2<sup>nd</sup> May, 1983. The entire state of Maharashtra has been declared as Air Pollution Control Area since 6<sup>th</sup> November, 1996. The Board also functions as the State Board under Section 5 of the Air (P & CP) Act, 1981.

The MPCB implements various environmental legislations in the State of Maharashtra, including the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Water (Cess) Act, 1977 and some of the provisions under Environmental (Protection) Act, 1986 and Environment (Protection) Amendment Rules, 2016 and the rules framed there under such as, Bio-Medical Waste Management Rules, 2016, The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and The Solid Waste Management Rules, 2016. MPCB implements these environmental legislations via its 12 Regional Offices (ROs) in the State and functions under the administrative control of Environment Department, Government of Maharashtra. The Organizational structure of the Board and information of Regional and Sub-Regional offices and staff strength are provided in **Annexures 1A, 1B and 2**.

In order to deal with resource depletion and environmental degradation, prudent environmental management is necessary in the State. Since environmental problems are diverse, their solutions have to be Region-specific. Preparation of Annual Reports is a timely step, initiated by the Ministry of Environment, Forest and Climate Change (MoEF & CC), Government of India (GoI) and State Pollution Control Boards (SPCBs) aimed at producing an informative account of the environmental conditions so as to achieve sustainable growth in each state. MPCB has established twelve Regional offices and forty two Sub-Regional offices across the State to safeguard the natural environment and curb pollution with necessary control measures.

The Board has strengthened its monitoring network further for assessing ambient air and water quality. Data on ambient air quality is compiled under the National Ambient Air Monitoring Program (NAMP). Similarly, data on water quality of surface water and groundwater is monitored under the State Water Quality Monitoring Program (SWMP). All related data is compiled and updated regularly on the MPCB website. During festivals, noise levels are monitored regularly and the data analyzed is updated on the website so as to make information available to the public. Efforts are also being made to create awareness to celebrate all festivals in an eco-friendly manner.

In order to maintain transparency and increase its overall efficiency, the Board, through Integrated Management Information System (IMIS), has computerized its processes and operations. This system includes Consent Management, Cess collection, Laboratory Management, Waste Management, Human Resource and Financial Management. This information is used to determine if pollution control strategies as advised by implementing authority are giving acceptable values and are thereby lowering pollution levels and if new or additional controls are required to achieve acceptable levels. The Board has introduced a rapid disposal system for consent and authorization applications made by industries and other projects under environment protection legislations. These steps taken by MPCB have been widely appreciated by industries and developers as the status of their applications can now be easily tracked. Information related to consents and authorizations granted by the Board is also updated on the website in a timely manner.



In the State of Maharashtra there are a total of 262 local bodies, comprising of 27 Municipal Corporations out of which 24 Corporations have obtained authorization from MPCB for approved sites. 11 Municipal Corporations have processing and disposal facilities for solid waste and the same number of facilities is in operation. 62 Municipal Councils have partial processing and disposal facilities.

As a part of Common Infrastructure for Environment Protection, facilities have been established across the State for providing common facilities for treatment and disposal of Hazardous and Bio-Medical Waste. Common facilities for management of Hazardous Waste have been set up at Taloja, Mahape, Ranjangaon and Butibori. The Board also encourages local bodies to treat and dispose Municipal Solid Waste (MSW) in a scientific and legalized manner. The Board also motivates industries to adopt measures and cleaner technologies for controlling pollution.

For creating general awareness among the people regarding environmental issues, the Board constantly endeavors to conduct various awareness programs involving press, media, NGOs, artists and students throughout the State. As a part of environmental campaigns, street plays are also organized at schools, colleges, and public spaces such as railway stations and these are widely appreciated by the public.



## 2. CONSTITUTION OF THE BOARD

The Maharashtra Pollution Control Board comprises of Chairman, Members from the categories as shown below and a full time Member Secretary, as Chief Executive Officer as per the Rules under Water (P & CP) Act, 1974 notified by the State Government in 1983.

The composition of the Board is as under:

1. **Chairman:** (Part time or full time)
2. **Representatives of the State Government** (not exceeding five)
3. **Representatives of local bodies** (not exceeding five)
4. **Representatives of companies or corporations of the State Government** (two)
5. **Members representing interests of agriculture, fishery or industry or trade** (not exceeding three)
6. **Member Secretary** (full time)

Government of Maharashtra has powers under Section 4 of the Water (Prevention and Control of Pollution) Act, 1974 to constitute Maharashtra Pollution Control Board (MPCB). However, members representing the local bodies (not exceeding five) and members representing interests of agriculture, fishery, industry, trade or any other interest are not yet appointed as per the composition given under the Act.

**Table 2.1. Constitution of M.P.C. Board during 2017-18.**

<b>Mr. Satish Gawai, IAS</b> Additional Chief Secretary, Environment Department, Government of Maharashtra	<b>Chairman, (Additional Charge)</b> (from 01/04/2017 to 09/07/2017)
<b>Mr. Milind Mhaskar, IAS</b> Vice-President & CEO, MHADA, Government of Maharashtra,	<b>Chairman, (Additional Charge)</b> (From 10/07/2017 to 31/03/2018)
<b>Additional Chief Secretary</b> Public Health Department, Government of Maharashtra, Mantralaya, Mumbai	<b>Member</b>
<b>Principal Secretary-II</b> Urban Development Department, Government of Maharashtra, Mumbai	<b>Member</b>
<b>Principal Secretary</b> Water Supply and Sanitation, Government of Maharashtra, Mantralaya, Mumbai	<b>Member</b>



<b>Secretary</b> Home (Transport) Department, Government of Maharashtra, Mantralaya, Mumbai	<b>Member</b>
<b>Chief Executive Officer</b> M.I.D.C., Mahakali Caves Road, Andheri (E), Mumbai	<b>Member</b>
<b>Member Secretary (Technical)</b> Maharashtra Jeevan Pradhikaran, Express Towers, Nariman Point, Mumbai	<b>Member</b>
<b>Dr. P. Anbalagan</b> Member Secretary, M.P.C.B, Mumbai.	<b>Member Secretary</b> (from 07/01/2015)





### 3. MEETINGS OF THE BOARD

During the reporting year, the 168th meeting was held on 29th December, 2017. The major decisions taken in the meeting are as below.

**1. Enhancement of professional charges and fees of Panel Advocates appearing on behalf of the MPCB before the High Court of Judicature at Bombay, Bench at Mumbai/Aurangabad/Nagpur and Hon'ble National Green Tribunal, Principal Bench, New Delhi/Western Zone Bench, Pune.**

It has been observed that the matters filed before the Hon'ble High Court and National Green Tribunal takes proceeds for years and has multiple hearings. Hence it is required to enhance the payment of professional charges fees of Panel Advocates appearing on behalf of the MPCB before the High Court of Judicature at Bombay, Bench at Mumbai/Aurangabad/Nagpur and Hon'ble National Green Tribunal, Principal Bench, New Delhi/Western Zone Bench, Pune. After due deliberation, Board decided to enhance the professional charges fees. Accordingly, Standing Order for payment of professional charges to Panel Advocates appearing before Hon'ble High Court and National Green Tribunal with effect from **01/01/2018** will be issued.

**2. Strengthening and Augmentation of Air Quality Monitoring Activities in the State.**

Board has noted the above proposal envisaged for augmentation of air quality monitoring in the state of Maharashtra at additional 57 locations to strengthen air quality monitoring network as per fund allocation available for NAMP monitoring program by the Central Pollution Control Board (CPCB).

CPCB shall contribute 50% of capital and O & M cost of the proposed NAMP augmentation program with additional PM<sub>2.5</sub> parameters as per CPCB guidelines. For this project 50% balance of the capital and O & M costs need to be contributed by MPCB.

These additional stations shall be operated through educational institutes/local bodies/universities as per CPCB monitoring protocol. The expenditure (50 % contribution by MPCB) shall be met through Cess fund, as provision in this regard is available.

Board approved the installation of one CAAQMS in each District of Maharashtra and additional monitoring stations in major cities depending on the spatial distribution as well as CPCB Guidelines for monitoring ambient air quality to comply with parameters notified in NAAQMS-2009.

Fund allocation regarding NAMP program will be as per the prevailing procedure followed by the Board as per CPCB Guidelines. Member Secretary/Chairman have been authorized to take suitable decisions in the matter.

**3. Setting up of Continuous Automatic Ambient Air Quality (CAAQMS) in million plus cities (Vasai-Virar, Kalyan-Dombivali and Navi Mumbai area) under cost sharing basis project from CPCB, New Delhi.**

Board has noted the agenda item and principally approved MPCB's participation in the CPCB project "Setting up of Continuous Air Quality Monitoring Stations in million-plus cities under 50:50 cost sharing with CPCB". CPCB's procurement of CAAQMS has been approved by placing repeat order to the lowest bidder who has been recently selected by the Board in a similar procurement made for other projects. In this regard, the Board has placed a purchase order for procurement of 11 CAAQMS to M/S Chemtrols Industries Pvt. Ltd., 10 to be installed in Mumbai and one in Navi Mumbai. Further, The Chairman/Member Secretary, MPCB have been authorized to take suitable decision in the matter.



**4. To grant Combined Consent (under Green category) and BMW Authorization (Combined Consent Authorization- CCA) to all existing non-bedded Health Care Establishments.**

MPCB, in compliance of Bio-Medical Waste Management Rules, 2016 and CPCB directions vide dated 04/06/2012 (Revised Ind. Category – 07/03/2016), shall grant Combined Consent (under Green category) and BMW Authorization (Combined Consent Authorization - CCA) to all existing non-bedded Health Care Establishments, irrespective of date of commissioning and number of patients treated with effect from 01/04/2016.

CCA will be granted for a maximum period of two terms of three years on submission of online application through MPCB web portal with mandatory documents including self-certified Capital Investment (C.I.) Certificate and payment of Consent fees based on C.I. duly self-certified by the applicant, as applicable for Consent to Establish and Consent to Operate.

Member Secretary, MPCB will issue Public Notice prescribing procedure for application and grant of CCA twice in reputed newspapers across the State in Marathi and English, consecutively at an interval of 15 days with a caution regarding intention of Board to take legal action as per provision of EP (Act) and BMW Rules, if HCE fails to obtain online authorization within three months from the date of first issuance of such public notice.

**5. Regarding exemption of Consent to Establish to the industries/ Establishment those attracts the provision as per Environment Impact Assessment 2006 and amendments thereof.**

The Board hereby confirms that all the industrial projects have to obtain the Consent to Establish as per the prevailing procedure laid down under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 & under section 21 of the Air (Prevention & Control of Pollution) Act, 1981. Member Secretary empower to communicate the decision of the Board to CPCB for grant of consent to establish.



#### 4. COMMITTEES CONSTITUTED BY THE BOARD

With a view to have smooth functioning of the Board, as provided under section 9 of the Water (Prevention and Control of Pollution) Act 1974 and Section 11 of the Air (Prevention and Control of Pollution) Act 1981; the Board has constituted various committees for efficient and effective implementation of the Acts and Rules. During the year 2017-18, the following Committees were in existence.

##### 4.1 Consent Appraisal Committee (CAC)

During the reporting year, Consent Appraisal Committee is comprised of following members:

1.	Chairman, MPC Board, Mumbai	Chairman
2.	Secretary, Home (Transport) Dept., Mumbai	Member
3.	Technical Advisor, MIDC, Mumbai	Member
4.	Member Secretary, MPCB, Mumbai	Member Secretary
5.	Scientist & Head, NEERI, Mumbai	Special Invitee

##### ➤ Terms of Reference

The CAC considers the applications for consents/ authorizations under Water (P &CP) Act, 1974, Air (P & CP) Act, 1981 and Hazardous Wastes (M & H) Rules, 1989 as under;

'RED' Category: Projects with capital investment above Rs. 75 Crores

'ORANGE' Category: Projects with capital investment above Rs. 750 Crores

'GREEN' Category: All Projects beyond Rs. 2000 Crores / All Municipal Corporations.

There were 9 Meetings of Consent Appraisal Committee held during the year 2017-18 wherein 1212 CAC applications were discussed and 565 cases were granted.

##### 4.2 Appellate Committee

The Water (Prevention & Control of Pollution) Cess Act 1977 was enacted by the Parliament on December 7, 1977. The main object of the Act is to levy and collection of Cess on water consumed by persons carrying on certain industries and by local authorities and to augment the resources of Central Pollution Control Board and State Pollution Control Boards.

The Act provides for constitution of Appellate Authority comprising of Chairman (Chairman of the Board) and two members to be nominated by the Chairman from amongst the Board Members. The Appellate Authority is empowered to entertain appeal against the order of assessment of order imposing penalty. The Appellants are required to prefer an appeal within 30 days.

Accordingly, Appellate Authority has been reconstituted vide order No. E-319/2006 dated 8-12-2006 to hear an appeal. 15 Appeals were pending before the Appellate Authority since 1992. Out of 20 appeals and remaining 85 appeals are pending for final hearing. During the year 20 fresh appeal has been filed. The Appellate Committee constituted is comprised of following members:



1.	Chairman Maharashtra Pollution Control Board	Chairman
2.	Chief Executive Officer Maharashtra Industrial Development Corporation, Andheri (E), Mumbai 400093	Member
3.	Member-Secretary (Technical) Maharashtra Jeevan Pradhikaran, Nariman Point, Mumbai 400021	Member

#### 4.3 Consent Committee (CC)

The Consent Committee comprises of following members:

1.	Member Secretary, Maharashtra Pollution Control Board	Chairman
2.	Water Pollution Abatement Engineer, Maharashtra Pollution Control Board	Member
3.	Air Pollution Abatement Engineer, Maharashtra Pollution Control Board	Member
4.	Assistant Secretary (Technical), Maharashtra Pollution Control Board	Member

#### ➤ Terms of Reference

The Consent Committee considers the applications for consent/ authorization under water (P & CP) Act, 1974, Air (P & CP) Act, 1981 and Hazardous Wastes (M & H) Rules, 1989 as under;

‘RED’ Category : Projects with capital investment above Rs.25Crores and up to Rs.75 Crores

‘ORANGE’ Category : Projects with capital investment above Rs. 250 Crores and up to Rs. 750 Crores

‘Green’ Category : Projects with capital investment above Rs. 1000 Crores and up to Rs. 2000 Crores

‘Infrastructure Project’ : Project with capital investment above Rs. 25 Crores and up to Rs. 350 Crores

There were 10 meetings of Consent Committee held during the year 2017-18 and total 895 applications were discussed and 670 were disposed off.

#### 4.4. Committee for issuance of Grant/Renewal of Authorization of Industrial Units possessing environmentally sound management facilities for reprocessing/recycling and Actual Users/co-processing/Utilizations of the Hazardous Waste and recycling of electronic waste (e-waste).

In view of the newly notified Waste Rules, 2016 mentioned above, a committee consisting of the following members has been constituted to examine the proposals/applications received for grant of authorizations under the Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016 and E-Waste (Management) Rule, 2016 in the Maharashtra Pollution Control Board.



1.	Shri. R.K. Garg, Former Managing Director, Indian Rare Earths Ltd., 4, Vikram Jyoti, Deonar, Mumbai-400088	Chairman
2.	Scientist -1 or 2, Environment Department, Government of Maharashtra, Mumbai-400 032	Member
3.	Shri. B. R. Naidu, Regional Director, Central Pollution Control Board, Vadodara	Member
4.	Assistant Secretary (Technical), Maharashtra Pollution Control Board	Member
5.	Regional Officer (HQ), Maharashtra Pollution Control Board	Member Convener

#### **4.5. Committee for deciding guidelines for issuance of registrations to producers or brand owners.**

A committee consisting of the following members has been constituted to decide guidelines and line of action for issuance of registrations and to recommend the authority to grant registrations under Plastic Waste Management Rules, 2016 in the Maharashtra Pollution Control Board.

1.	Joint Director (WPC), Maharashtra Pollution Control Board	Chairman
2.	Representative of ITC, Mumbai – Prof. Shashank Mhaske, HOD, Polymer, ICT, Mumbai	Member
3.	Representative of Environment Department, GoM	Member
4.	Representative of Urban Development Department, GoM	Member
5.	Regional Officer (HQ), Maharashtra Pollution Control Board	Member Convener

#### **4.6. Constitution of Committee for scrutiny of authorization for all Corporations/Councils as per Municipal Solid Waste (M&H) Rules, 2000.**

The Board receives applications for authorization from various local bodies. These applications have to be scrutinized and processed for grant of authorization. The Board has now decided in the Consent Appraisal Committee meeting held on 04/12/2013 to constitute a committee for scrutiny of applications for authorization of Municipal Corporations/Councils and to make suitable recommendations to Consent Committee. The following committee is hereby situated for effective implementation of MSW (M&H) Rules, 2000.

1.	Shri. P.K. Mirashe, Assistant Secretary (Tech.) Maharashtra Pollution Control Board	Chairman
2.	Shri. D.T. Devale, Ex. Sr. Law Officer, Maharashtra Pollution Control Board	Expert Member
3.	Dr. Sneha Palnitkar or Representative, All India Institute of local Self Government	Expert Member
4.	Shri. Bhalchandra P. Patil, Ex. Dy. Municipal Commissioner, MCGM	Expert Member
5.	Shri. S. K. Purkar, Law Officer, Maharashtra Pollution Control Board	Member
6.	Regional Officer (HQ), Maharashtra Pollution Control Board	Member Convener



## 5. AIR AND WATER MONITORING NETWORK AND PRESENT STATUS OF THE ENVIRONMENT

Air pollution is caused mainly by transportation, fuel combustion in stationary sources, burning of fossil fuels like coal, wood, dry grass, and construction activities. Motor vehicles produce high levels of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NO). Construction activities, bad roads and burning of fossil fuels are responsible for dust (particulate matter) pollution. Residential and commercial activities also contribute to air pollution. Human health is affected due to poor air quality. Principally, air pollution affects the body's respiratory system and the cardiovascular system. Though the individual reactions to air pollutants depend on the type of pollutant a person is exposed to and the degree of exposure, air pollution may cause long term health problems. The health effects caused by air pollutants may range from biochemical and physiological changes like difficulty in breathing, wheezing, coughing and aggravation of existing respiratory and cardiac conditions.

Maharashtra Pollution Control Board has established Ambient Air Quality Network in Maharashtra covering major cities to comply with the mandate of Air (Prevention & Control) Act 1981 and to disseminate information regarding status of air quality prevailing in the State of Maharashtra. Also, monitoring is necessary for evaluation of the effectiveness of control programs and to identify areas in need of prioritization and long term air quality management. Air quality monitoring is carried out to understand natural scavenging or cleansing processes in the environment through pollution dilution, dispersion, wind movement, dry deposition, precipitation and chemical transformation of pollutants generated.

Water demand for various consumptive uses, such as drinking, agriculture and industries from groundwater and surface water resources is higher than the availability. Distribution of rainfall is highly uneven in the State and in many areas the soil conditions and topography are unfavorable to groundwater recharge through percolation. Further, over-use and misuse of resources is responsible for water scarcity. Wide disparities exist in sanitation facilities in urban and rural areas. Thus, meeting the increased needs for water supply and sanitation facilities is a challenge for authorities.

### 5.1. Monitoring Network and Region-wise Air Quality in Maharashtra

Central Pollution Control Board initiated National Ambient Air Quality Monitoring (NAAQM) program in the year 1984 to get spatial and temporal variation of ambient air concentrations for a wide range of pollutants that are considered relevant for evolving strategic management plans. The program was subsequently renamed as NAMP (National Air Quality Monitoring Program). Under NAMP, three air pollutants viz., Sulphur dioxide (SO<sub>2</sub>), nitrogen dioxides (NO<sub>2</sub>) and Respirable Suspended Particulate Matter (RSPM/PM<sub>10</sub>) have been identified for regular monitoring at all the locations. Monitoring of pollutants is carried out for 24 hours (4-hourly sampling for gaseous pollutants and 8-hourly sampling for particulate matter) with a frequency of twice a week, to have 104 observations in a year as per CPCB monitoring protocol.

As per CPCB monitoring protocol, locations are selected to represent different land use categories such as residential, industrial, and commercial, to capture air quality levels under different activity profiles. Under MPCB's Ambient Air Quality Monitoring program, there are presently 73 operational stations for air quality monitoring across 12 Regions in Maharashtra. These air quality monitoring stations are operated through educational institutes, local bodies which are having infrastructure to monitor air quality stations as per Central Pollution Control Board (CPCB) monitoring protocol. As these agencies have long agreement with MPCB for operation of monitoring stations their performance is reviewed by the Board. The data generated by these stations are verified at HQ level before forwarding it to CPCB. There is one operational station under the State Air Monitoring Program

(SAMP) and 63 under the National Air Monitoring program (NAMP). Also, 9 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are in operation to monitor the ambient air continuously for parameters which include NO<sub>x</sub>, SO<sub>2</sub> and RSPM. These stations are connected to the AQI server at CPCB, New Delhi.



**Fig. 5.1. Continuous Ambient Air Quality Monitoring Stations at Kurla (left) and Sion (right) in Mumbai.**

Air Quality Index (AQI) is a tool for effective communication on the status of the air quality to people. AQI transforms complex air quality data of various pollutants into a single index value which is easy to understand. The categories of AQI are usually expressed in terms of the air quality being Good, Bad, Poor or Very Poor based on the concentrations of various pollutants and their health impacts at various concentrations. AQI is useful for reporting daily air quality and to gauge the pollution load. Most of the AQI developed by various agencies are within a range of 0 to 500 and higher value of AQI indicates a high level of pollution. Depending upon 'doses of exposure' AQI is further divided into different classes of AQI, which present different health concerns. To make it easy to understand, the categories of AQI are assigned color codes which have been represented in **Table 5.24**. Various international environmental agencies such as US-EPA have developed their own set of mathematical algorithms to determine AQI, which are based on human exposure dose of air pollutants.

Air quality in the State is assessed through routine and specific monitoring. In order to assess the ambient air quality with respect to criteria pollutants as per National Ambient Air Quality standards, data has been collected for the year 2017-18. The data is analyzed for SO<sub>2</sub>, NO<sub>x</sub> and particulate matter (PM<sub>10</sub>) or respirable suspended particulate matter (RSPM). The locations under different class areas like industrial, residential and commercial were monitored Region-wise and the observations have been made using NAAQM standards as represented in following sections.

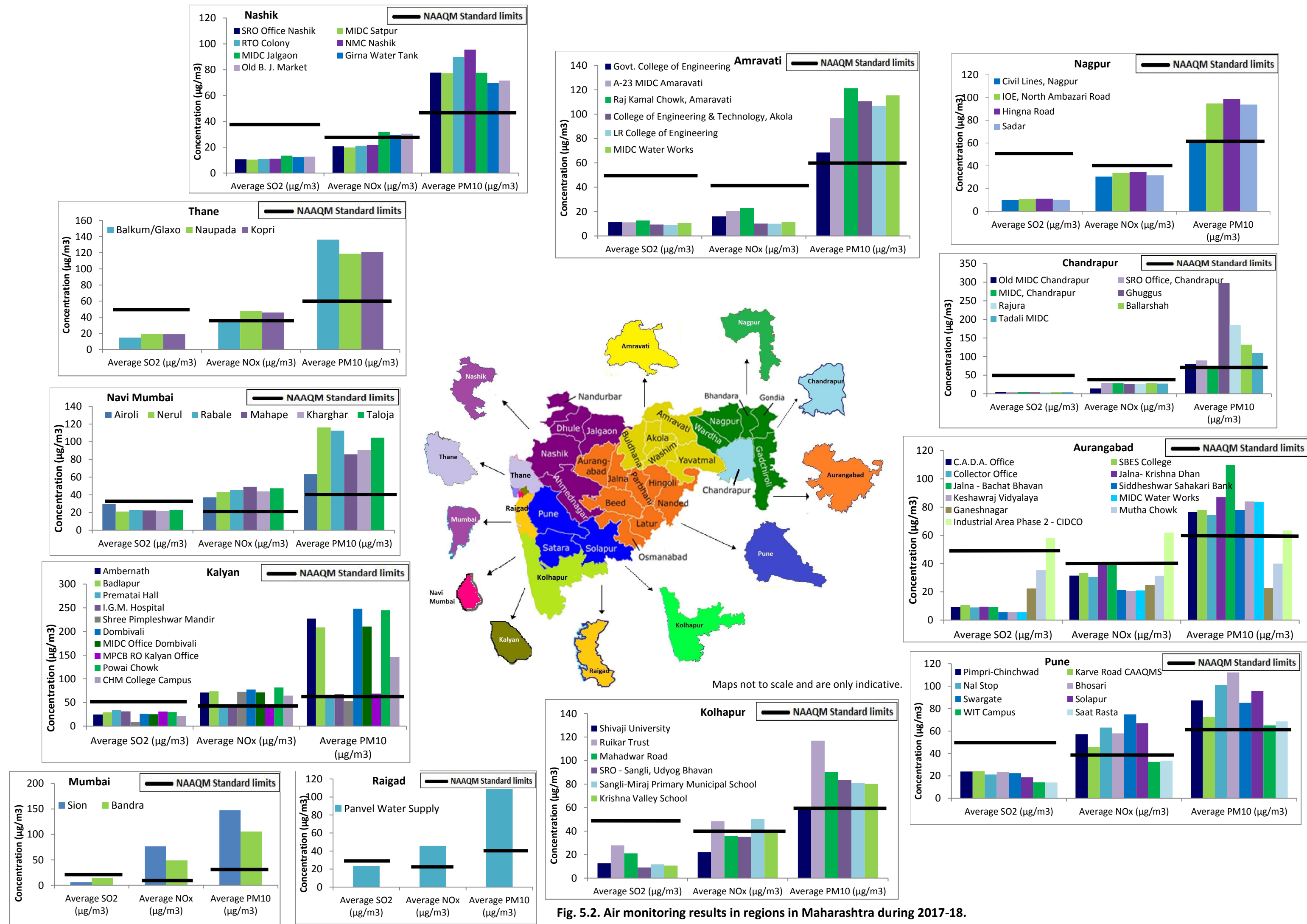


Fig. 5.2. Air monitoring results in regions in Maharashtra during 2017-18.



### 5.1.1. Amravati

There are 6 Ambient Air Monitoring Stations under in Amravati Region at industrial, residential, rural and commercial locations. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it can be observed that the average SO<sub>2</sub> and NO<sub>x</sub> concentrations at all locations were within the NAAQM standard limits. However, PM<sub>10</sub> concentrations at all locations were beyond the standards. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.1**.

**Table 5.1. Statistical Monitoring of Annual Average Air Quality in Amravati Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
Govt. College of Engineering	11	16	69
A-23 MIDC Amravati	11	21	97
Raj Kamal Chowk, Amravati	13	23	121
College of Engineering & Technology, Akola	9	10	111
LR College of Engineering	9	10	107
MIDC Water Works	11	11	116

It is observed from **Table 5.1**, that minimum SO<sub>2</sub> concentration of 9  $\mu\text{g}/\text{m}^3$  and minimum NO<sub>x</sub> concentration of 10  $\mu\text{g}/\text{m}^3$  was found at College of Engineering & Technology, Akola and LR College of Engineering. The maximum SO<sub>2</sub> concentration of 13  $\mu\text{g}/\text{m}^3$  and maximum NO<sub>x</sub> concentration of 23  $\mu\text{g}/\text{m}^3$  was found at Raj Kamal Chowk, Amravati. Minimum PM<sub>10</sub> concentration of 69  $\mu\text{g}/\text{m}^3$  was found at Govt. College of Engineering and the maximum concentration of 121  $\mu\text{g}/\text{m}^3$  was found at Raj Kamal Chowk, Amravati. The minimum and maximum exceedance factors for PM<sub>10</sub> are shown in **Table 5.2**.

**Table 5.2. Exceedance factors for PM<sub>10</sub> for Amravati Region.**

Exceedance factor - Amravati	
PM <sub>10</sub>	
Min	1.15
Max	2.01

### 5.1.2. Aurangabad

There are 11 Ambient Air Quality Monitoring stations in this Region which have been established under NAMP. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it is observed that SO<sub>2</sub> and NO<sub>x</sub> concentrations at all locations except Industrial Area-2 CIDCO were below NAAQM standard limits. Also, PM<sub>10</sub> concentrations at all locations except Ganeshnagar, Mutha Chowk and Industrial Area-2 CIDCO were above the standard limits. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.3**.

**Table 5.3. Statistical Monitoring of Annual Average Air Quality in Aurangabad Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
C.A.D.A. Office	9	31	76
SBES College	11	33	78
Collector Office	9	31	74
Jalna- Krishna Dhan	9	39	87
Jalna - Bachat Bhavan	9	40	110
Siddheshwar Sahakari Bank	6	21	78
Keshawraj Vidyalaya	6	21	84
MIDC Water Works	6	21	84
Ganeshnagar	22	25	23
Mutha Chowk	35	31	40
Industrial Area Phase 2 - CIDCO	58	62	63

From **Table 5.3.** it is observed that minimum SO<sub>2</sub> concentration of 6  $\mu\text{g}/\text{m}^3$  and minimum NO<sub>x</sub> concentration of 21  $\mu\text{g}/\text{m}^3$  were found at Siddheshwar Sahakari Bank, Keshawraj Vidyalaya and MIDC Water Works. Minimum PM<sub>10</sub> concentration of 23  $\mu\text{g}/\text{m}^3$  was found at Ganeshnagar. Maximum SO<sub>2</sub> concentration of 58  $\mu\text{g}/\text{m}^3$  and maximum NO<sub>x</sub> concentration of 62  $\mu\text{g}/\text{m}^3$  were found at Industrial Area Phase 2 - CIDCO. Maximum PM<sub>10</sub> concentration of 110  $\mu\text{g}/\text{m}^3$  was found at Jalna – Bachat Bhavan. The exceedance factors for PM<sub>10</sub> for this Region are shown in **Table 5.4.**

**Table 5.4. Exceedance factors for PM<sub>10</sub> for Aurangabad Region.**

Exceedance factor – Aurangabad	
PM <sub>10</sub>	
Min	1.05
Max	1.83

### 5.1.3. Chandrapur

There are 6 Ambient Air Monitoring stations under NAMP and one established under CAAQMS in Chandrapur Region. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2.**

From **Figure 5.2.** it is evident that concentrations of SO<sub>2</sub> and NO<sub>x</sub> were within the NAAQM standard limits at all locations whereas PM<sub>10</sub> concentrations at all locations were beyond the prescribed standards. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.5.**

**Table 5.5. Statistical Monitoring of Annual Average Air Quality in Chandrapur Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
Old MIDC Chandrapur	5	14	80
SRO Office, Chandrapur	4	29	90
MIDC, Chandrapur	4	28	74

Ghuggus	4	26	298
Rajura	4	27	185
Ballarshah	4	29	132
Tadali MIDC	4	27	110

It can be observed from **Table 5.5.** that minimum SO<sub>2</sub> concentration of 4 µg/m<sup>3</sup> was recorded at all locations except Old MIDC Chandrapur where the maximum SO<sub>2</sub> concentration of 5 µg/m<sup>3</sup> was found. Minimum NO<sub>x</sub> concentration of 14 µg/m<sup>3</sup> was recorded at Old MIDC Chandrapur. Minimum PM<sub>10</sub> concentration of 74 µg/m<sup>3</sup> was found at MIDC, Chandrapur. Maximum NO<sub>x</sub> concentration of 29 µg/m<sup>3</sup> was found at SRO Office, Chandrapur and Ballarshah. Maximum PM<sub>10</sub> concentration of 298 µg/m<sup>3</sup> was recorded at Ghuggus. The exceedance factors for PM<sub>10</sub> for Chandrapur Region are shown in **Table 5.6.**

**Table 5.6. Exceedance factors for PM<sub>10</sub> for Chandrapur Region.**

Exceedance factor – Chandrapur	
PM <sub>10</sub>	
Min	<b>1.23</b>
Max	<b>4.96</b>

#### 5.1.4. Kalyan

Out of the 10 AAQMS in this Region, 8 have been established under NAMP, one under SAMP and one has been established under CAAQMS. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2.**

From **Figure 5.2.** it is evident that concentrations of SO<sub>2</sub> at all locations was within the NAAQM standard limits. Concentrations of NO<sub>x</sub> at all locations were beyond the limits and PM<sub>10</sub> concentrations at all locations except Shree Pimpleshwar Mandir were beyond the standard limits. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.7.**

**Table 5.7. Statistical Monitoring of Annual Average Air Quality in Kalyan Region.**

Location	Parameters [µg/m <sup>3</sup> ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards (µg/m <sup>3</sup> )		
	<b>50</b>	<b>40</b>	<b>60</b>
Ambernath	25	71	227
Badlapur	29	73	209
Prematai Hall	34	43	66
I.G.M. Hospital	31	42	68
Shree Pimpleshwar Mandir	9	73	53
Dombivali	26	77	248
MIDC Office Dombivali	25	71	210
MPCB RO Kalyan Office	31	41	69
Powai Chowk	30	82	245
CHM College Campus	22	64	146

From **Table 5.7.** it is observed that minimum SO<sub>2</sub> concentration of 9 µg/m<sup>3</sup> was found at Shree Pimpleshwar Mandir. The minimum NO<sub>x</sub> concentration of 41 µg/m<sup>3</sup> was found at MPCB RO Kalyan Office. The minimum PM<sub>10</sub> concentration of 66 µg/m<sup>3</sup> was found at Prematai Hall. The maximum SO<sub>2</sub> concentration of 34 µg/m<sup>3</sup> was found at Prematai Hall. The maximum NO<sub>x</sub> concentration of 82 µg/m<sup>3</sup>

was found at Powai Chowk. Maximum PM<sub>10</sub> concentration of 248 µg/m<sup>3</sup> was found at Dombivali. The exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Kalyan Region are shown in **Table 5.8**.

**Table 5.8. Exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Kalyan Region.**

Exceedance factor – Kalvan		
	NO <sub>x</sub>	PM <sub>10</sub>
Min	<b>1.02</b>	<b>1.1</b>
Max	<b>1.92</b>	<b>4.13</b>

#### 5.1.5. Kolhapur

There are 6 AAQMS in this Region which have been established under NAMP. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it can be observed that SO<sub>2</sub> concentrations at all locations was within the NAAQM standard limits. NO<sub>x</sub> concentrations at all locations except Krishna Valley School were beyond the prescribed limits. PM<sub>10</sub> concentrations at all locations except Shivaji University were beyond the prescribed standards. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.9**.

**Table 5.9. Statistical Monitoring of Annual Average Air Quality in Kolhapur Region.**

Location	Parameters [µg/m <sup>3</sup> ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards (µg/m <sup>3</sup> )		
	<b>50</b>	<b>40</b>	<b>60</b>
Shivaji University	13	22	60
Ruikar Trust	28	48	117
Mahadwar Road	21	36	90
SRO - Sangli, Udyog Bhavan	9	35	83
Sangli-Miraj Primary Municipal School	12	50	81
Krishna Valley School	11	40	80

It is evident from **Table 5.9**, that minimum SO<sub>2</sub> concentration of 9 µg/m<sup>3</sup> was found at SRO-Sangli, Udyog Bhavan. Minimum NO<sub>x</sub> concentration of 22 µg/m<sup>3</sup> and the minimum PM<sub>10</sub> concentration of 60 µg/m<sup>3</sup> was found at Shivaji University. The maximum SO<sub>2</sub> concentration of 28 µg/m<sup>3</sup> and maximum PM<sub>10</sub> concentration of 117 µg/m<sup>3</sup> was found at Ruikar Trust. The maximum NO<sub>x</sub> concentration of 50 µg/m<sup>3</sup> was found at Sangli-Miraj Primary Municipal School. The exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Kolhapur Region are shown in **Table 5.10**.

**Table 5.10. Exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Kolhapur Region.**

Exceedance factor – Kolhapur		
	NO <sub>x</sub>	PM <sub>10</sub>
Min	<b>1.2</b>	<b>1.33</b>
Max	<b>1.25</b>	<b>1.95</b>

### 5.1.6. Mumbai

There are two Ambient Air Monitoring Stations installed under CAAQMS in this Region at two different residential locations at Sion and Bandra. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it can be observed that the average SO<sub>2</sub> concentrations at Sion and Bandra were well within the NAAQM standard limits whereas concentrations of NO<sub>x</sub> and PM<sub>10</sub> at both locations were beyond the standards. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.11**.

**Table 5.11. Statistical Monitoring of Annual Average Air Quality in Mumbai Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
Sion	6	77	148
Bandra	14	49	106

From **Table 5.11**, it is observed that minimum SO<sub>2</sub> concentration of 6  $\mu\text{g}/\text{m}^3$  was found at Sion and a maximum of 14  $\mu\text{g}/\text{m}^3$  was found at Bandra. Minimum NO<sub>x</sub> concentration of 49  $\mu\text{g}/\text{m}^3$  was found at Bandra and a maximum of 77  $\mu\text{g}/\text{m}^3$  was found at Sion. Minimum PM<sub>10</sub> concentration of 106  $\mu\text{g}/\text{m}^3$  was found at Bandra whereas maximum PM<sub>10</sub> concentration of 148  $\mu\text{g}/\text{m}^3$  was found at Sion. The exceedance factors for PM<sub>10</sub> for Mumbai Region are shown in **Table 5.12**.

**Table 5.12. Exceedance factors for PM<sub>10</sub> for Mumbai Region.**

Exceedance factor – Mumbai	
PM <sub>10</sub>	
Min	1.76
Max	2.46

### 5.1.7. Nagpur

Out of the five AAQMS in this Region, 4 have been established under NAMP and one has been established under CAAQMS. However air quality data from the CAAQMS at Divisional Commissioner Officer is not available. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it can be observed that SO<sub>2</sub> and NO<sub>x</sub> concentrations at all locations are within the NAAQM standard limits. PM<sub>10</sub> concentrations at all locations are beyond the prescribed limits. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.13**.

**Table 5.13. Statistical Monitoring of Annual Average Air Quality in Nagpur Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
Civil Lines, Nagpur	10	31	61
IOE, North Ambazari Road	11	34	95
Hingna Road	11	35	99
Sadar	10	32	94

From **Table 5.13.** it can be observed that minimum SO<sub>2</sub> concentration of 10  $\mu\text{g}/\text{m}^3$  was recorded at Civil Lines, Nagpur and Sadar. Minimum NO<sub>x</sub> concentration of 31  $\mu\text{g}/\text{m}^3$  and minimum PM<sub>10</sub> concentration of 61  $\mu\text{g}/\text{m}^3$  was recorded at Civil Lines, Nagpur. Maximum SO<sub>2</sub> concentration of 11  $\mu\text{g}/\text{m}^3$  was recorded at IOE, North Ambazari Road and Hingna Road. Maximum NO<sub>x</sub> concentration of 35  $\mu\text{g}/\text{m}^3$  and maximum PM<sub>10</sub> concentration of 99  $\mu\text{g}/\text{m}^3$  was recorded at Hingna Road. The exceedance factors for PM<sub>10</sub> for Nagpur Region are shown in **Table 5.14.**

**Table 5.14. Exceedance factors for PM<sub>10</sub> for Nagpur Region.**

Exceedance factor – Nagpur	
PM <sub>10</sub>	
Min	<b>1.01</b>
Max	<b>1.65</b>

#### 5.1.8. Nashik

There are 8 AAQMS in this Region of which 7 have been established under NAMP and one has been established under CAAQMS. However, the air quality data from the CAAQMS at KTHM College Campus is not available. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2.**

From **Figure 5.2.** it can be observed that SO<sub>2</sub> and NO<sub>x</sub> concentrations at all locations are within the NAAQM standard limits. PM<sub>10</sub> concentrations at all locations are beyond the prescribed limits. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.15.**

**Table 5.15. Statistical Monitoring of Annual Average Air Quality in Nashik Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
SRO Office Nashik	11	21	78
MIDC Satpur	10	20	77
RTO Colony	11	21	90
NMC Nashik	11	22	96
MIDC Jalgaon	14	32	78
Girna Water Tank	12	29	70
Old B. J. Market	13	31	72

From **Table 5.15**, it can be observed that minimum SO<sub>2</sub> concentration of 10 µg/m<sup>3</sup> and minimum NO<sub>x</sub> concentration of 20 µg/m<sup>3</sup> was recorded at MIDC Satpur. Minimum PM<sub>10</sub> concentration of 70 µg/m<sup>3</sup> was recorded at Girna Water Tank. Maximum SO<sub>2</sub> concentration of 14 µg/m<sup>3</sup> and maximum NO<sub>x</sub> concentration of 32 µg/m<sup>3</sup> was recorded at MIDC Jalgaon. Maximum PM<sub>10</sub> concentration of 96 µg/m<sup>3</sup> was recorded at NMC Nashik. The exceedance factors for PM<sub>10</sub> for Nashik Region are shown in **Table 5.16**.

**Table 5.16. Exceedance factors for PM<sub>10</sub> for Nashik Region.**

Exceedance factor – Nashik	
PM <sub>10</sub>	
Min	1.16
Max	1.6

#### 5.1.9. Navi Mumbai

Out of the 6 AAQMS in Navi Mumbai Region, one has been established under CAAQMS and 5 have been established under NAMP. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it can be observed that the average SO<sub>2</sub> concentrations at all locations are within the NAAQM standard limits. NO<sub>x</sub> concentrations at all locations except Airoli are beyond the standard limits. PM<sub>10</sub> concentrations at all locations were beyond the prescribed standards. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.17**.

**Table 5.17. Statistical Monitoring of Annual Average Air Quality in Navi Mumbai Region.**

Location	Parameters [µg/m <sup>3</sup> ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards (µg/m <sup>3</sup> )		
	50	40	60
Airoli	30	37	63
Nerul	21	43	116
Rabale	23	46	112
Mahape	23	49	86
Kharghar	22	44	91
Taloja	23	47	105

From **Table 5.17**, it can be observed that minimum SO<sub>2</sub> concentration of 21 µg/m<sup>3</sup> was found at Nerul. Minimum NO<sub>x</sub> concentration of 37 µg/m<sup>3</sup> and minimum PM<sub>10</sub> concentration of 63 µg/m<sup>3</sup> was found at Airoli. Maximum SO<sub>2</sub> concentration of 30 µg/m<sup>3</sup> was found at Airoli. Maximum NO<sub>x</sub> concentration of 49 µg/m<sup>3</sup> was found at Mahape. Maximum PM<sub>10</sub> concentration of 116 µg/m<sup>3</sup> was found at Nerul. The exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Navi Mumbai Region are shown in **Table 5.18**.

**Table 5.18. Exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Navi Mumbai Region.**

Exceedance factor – Navi Mumbai		
	NO <sub>x</sub>	PM <sub>10</sub>
Min	1.07	1.05
Max	1.22	1.93

### 5.1.10. Pune

There are 8 AAQMS in this Region of which 6 are under NAMP, and one is under SAMP. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it can be observed that the SO<sub>2</sub> concentrations at all locations are within the NAAQM standard limits. NO<sub>x</sub> concentrations at all locations except WIT Campus and Saat Rasta are beyond the standard limits. PM<sub>10</sub> concentrations at all locations are beyond the standard limits. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.19**.

**Table 5.19. Statistical Monitoring of Annual Average Air Quality in Pune Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
Pimpri-Chinchwad	24	57	87
Karve Road CAAQMS	24	46	73
Nal Stop	21	63	101
Bhosari	24	58	112
Swargate	22	75	85
Solapur	19	67	96
WIT Campus	14	33	65
Saat Rasta	14	34	69

From **Table 5.19**, it can be observed that minimum SO<sub>2</sub> concentration of 14  $\mu\text{g}/\text{m}^3$  was found at WIT Campus and Saat Rasta. Minimum NO<sub>x</sub> concentration of 33  $\mu\text{g}/\text{m}^3$  and minimum PM<sub>10</sub> concentration of 65  $\mu\text{g}/\text{m}^3$  was found at WIT Campus. Maximum SO<sub>2</sub> concentration of 24  $\mu\text{g}/\text{m}^3$  was found at Pimpri-Chinchwad and Karve Road CAAQMS. Maximum NO<sub>x</sub> concentration of 75  $\mu\text{g}/\text{m}^3$  was found at Swargate. Maximum PM<sub>10</sub> concentration of 112  $\mu\text{g}/\text{m}^3$  was found at Bhosari. The exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Pune Region are shown in **Table 5.20**.

**Table 5.20. Exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Pune Region.**

Exceedance factor – Pune		
	NO <sub>x</sub>	PM <sub>10</sub>
Min	1.15	1.08
Max	1.87	1.86

### 5.1.11. Raigad

The AAQMS at Panvel Water Supply Plant in this Region has been established under NAMP. The annual average concentration of all the parameters analyzed at this location is represented in **Figure 5.2**.

From **Figure 5.2**, it can be observed that the concentration of SO<sub>2</sub> was within the NAAQM standard limits whereas the concentrations of NO<sub>x</sub> and PM<sub>10</sub> were beyond the standard limits at this AAQMS. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.21**. The exceedance factor for PM<sub>10</sub> for Raigad Region is **1.81**.



**Table 5.21. Statistical Monitoring of Annual Average Air Quality in Raigad Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
Panvel Water Supply Plant	23	46	109

#### 5.1.12. Thane

There are 3 AAQMS established under NAMP in this Region. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2**, it is evident that SO<sub>2</sub> concentrations at all locations are within the NAAQM prescribed standards. NO<sub>x</sub> concentrations at only Balkum/Glaxo are within the standard limits. PM<sub>10</sub> concentrations at all locations are beyond the standard limits. Details of annual average statistical data recorded throughout the year 2017-18 are represented in **Table 5.22**.

**Table 5.22. Statistical Monitoring of Annual Average Air Quality in Thane Region.**

Location	Parameters [ $\mu\text{g}/\text{m}^3$ ]		
	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>
	Standards ( $\mu\text{g}/\text{m}^3$ )		
	50	40	60
Balkum/Glaxo	15	35	136
Naupada	19	48	119
Kopri	19	46	121

It can be observed from **Table 5.22**, that minimum SO<sub>2</sub> concentration of 15  $\mu\text{g}/\text{m}^3$  was found at Balkum/Glaxo while the maximum SO<sub>2</sub> concentration of 19  $\mu\text{g}/\text{m}^3$  was found at Naupada and Kopri. Minimum NO<sub>x</sub> concentration of 35  $\mu\text{g}/\text{m}^3$  was found at Balkum/Glaxo while the maximum NO<sub>x</sub> concentration of 48  $\mu\text{g}/\text{m}^3$  was found at Naupada. Minimum PM<sub>10</sub> concentration of 119  $\mu\text{g}/\text{m}^3$  was found at Naupada while the maximum PM<sub>10</sub> concentration of 136  $\mu\text{g}/\text{m}^3$  was found at Balkum/Glaxo. The exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Thane Region are shown in **Table 5.23**.

**Table 5.23. Exceedance factors for NO<sub>x</sub> and PM<sub>10</sub> for Thane Region.**

Exceedance factor – Thane		
	NO <sub>x</sub>	PM <sub>10</sub>
Min	1.15	1.98
Max	1.2	2.26

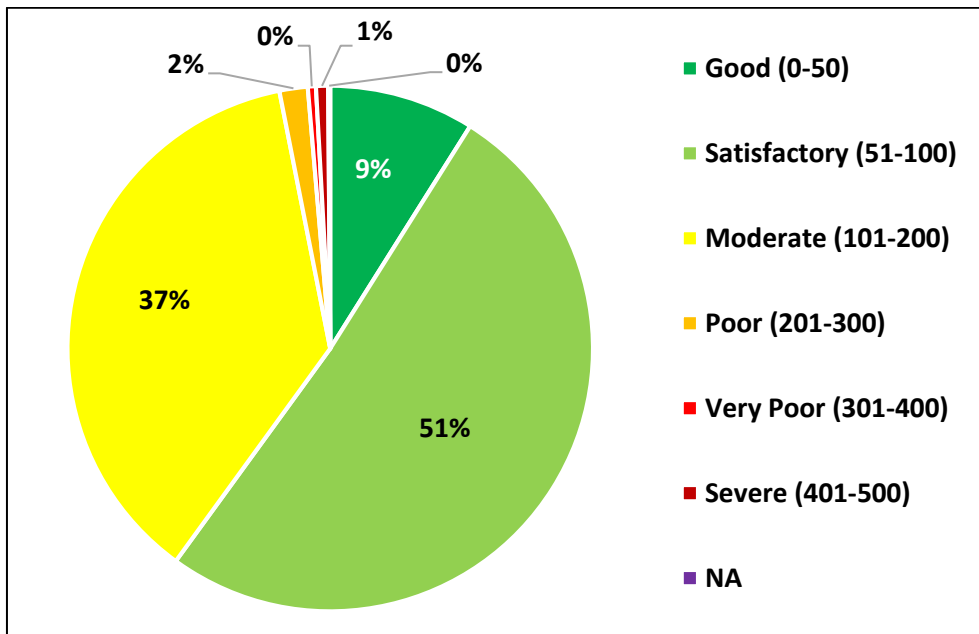
## 5.2. Conclusion for Air Quality in the State of Maharashtra

An overview of the AQI for observations recorded by the AAQMS in Maharashtra has been calculated using three parameters viz. SO<sub>2</sub>, NO<sub>x</sub> and RSPM (PM<sub>10</sub>) as per the calculation and AQI categories released by CPCB and IIT Kanpur in October 2014. After determining the sub-indices for a region the highest sub-index from that AAQMS has been considered as the AQI for the area represented by that AAQMS. From **Figure 5.3**, it is evident that 60% of daily observations were in the 'Good' to 'Satisfactory' category which is similar to the share of these categories during the year 2016-17. This shows that the number of non-polluted days in Maharashtra has neither improved nor reduced. The share of 'Moderate' (37%) air quality days has increased during 2017-18 as compared to last year's

share of 35% whereas the share of the 'Poor' (2%) air quality days has reduced as compared to 4% recorded during the year 2017-18. In terms of polluted categories, about 1% of observation days were recorded as 'Very Poor' and 'Severe'. **Table 5.24.** represents colour codes for various ranges of AQI.

**Table 5.24. Legend for reading AQI.**

AQI	0-50	51-100	101-200	201-300	301-400	401-500
Remarks	Good	Satisfactory	Moderate	Poor	Very Poor	Severe



**Figure 5.3. Share of AQI categories for air quality of monitored observations across all AAQMS in Maharashtra (2017-18).**

### 5.3. Ambient Noise Quality at Various Locations in the State of Maharashtra.

Sound is usually made up of a wide range of different frequencies. The spread of sound energy across the audible frequency "spectrum" (about 20Hz – 20 kHz) is one factor that helps to make it identifiable to the human ear. The human ear is a very sensitive system with an extensive dynamic range. To accommodate this very large range, sound levels are measured using the decibel (dB) scale.

The sound level limits specified by CPCB represent the general limitation on noise produced by noise sources. Some noises however, are annoying no matter where or in what kind of environment they exist. High level impulsive noises represent a special category and consequently are restricted by an absolute limitation.

The Central Pollution Control Board (CPCB) constituted a National Committee of Experts on Noise Pollution Control. The Committee recommended noise standards for ambient air and for automobiles, domestic appliances and construction equipment, which were later notified under The Environment (Protection) Act, 1986 as given in **Table 5.25.**

**Table 5.25. Standards of Noise Levels under EPA (1986) Noise Pollution (Regulation & Control) Rules, 2000.**

Category of Area	Limits in dB(A) Leq	
	Day time	Night time
Industrial	75	70



Commercial	65	55
Residential	55	45
Silence	50	40

In order to assess the ambient noise levels in the environment during a working and a non-working day, Maharashtra Pollution Control Board (MPCB) has taken initiative to carry out noise monitoring at 99 locations under 25 Municipal Corporations all over Maharashtra for 2 days period, on 24<sup>th</sup> and 26<sup>th</sup> December, 2017 for 24 hours at various locations in different cities in Maharashtra. The duration of monitoring during day time was between 6 AM and 10 PM. Night time monitoring was carried out between 10 PM and 6 AM. The main aim of the project is to determine the trends and variations of noise levels at various areas in the city with different land uses and to create awareness about noise pollution through availability of scientific data on noise levels.

Noise measurements were done using calibrated Sound Level Meters (Type II) kept at fast response mode keeping considering the rapidly changing nature of noise levels, using 'A' filter. The present study covered locations comprising of mixed area categories such as residential, commercial and silence zone.

#### 5.3.1. Amravati

The highest noise levels of 74.1 dB(A) and 73.8 dB(A) were recorded during day time of the first and second day of monitoring respectively at Raj Kamal Chowk. The highest noise levels of 57.2 dB(A) and 57.3 dB(A) during night time on the first and second day of noise monitoring respectively were recorded at Collector Office. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

#### 5.3.2. Aurangabad

The highest noise level of 70.8 dB(A) during day time of the first day of monitoring was recorded at CJM Court. During night time on the first monitoring day, 57 dB(A) was the highest noise level which was recorded at Shahu College. On the second day of noise monitoring the highest noise level of 69.2 dB(A) was recorded at Shaniwar Bazar during day time. During night time, 57.1 dB(A) was the highest noise level and was recorded at Nirala Bazaar. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

#### 5.3.3. Chandrapur

The highest noise levels of 85 dB(A) and 66.9 dB(A) during day time and night time on the first day of monitoring and during day time on the second day at 77.4 dB(A) were observed at Gandhi Chowk. On the second day of noise monitoring, the highest level of 65.6 dB(A) was found at Jetpura Gate at night time. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

#### 5.3.4. Kalyan

In this Region the highest noise level of 79.2 dB(A) was found at Goal Maidan during day time on the first day of monitoring while 72.3 dB(A) was the highest noise level recorded during night time at Katemanivali. On the second day of noise monitoring the highest noise level recorded was 73.5 dB(A) at Birla College during day time. At night time the highest noise level of 68.4 dB(A) was found at Goal Maidan and Doodh Naka. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

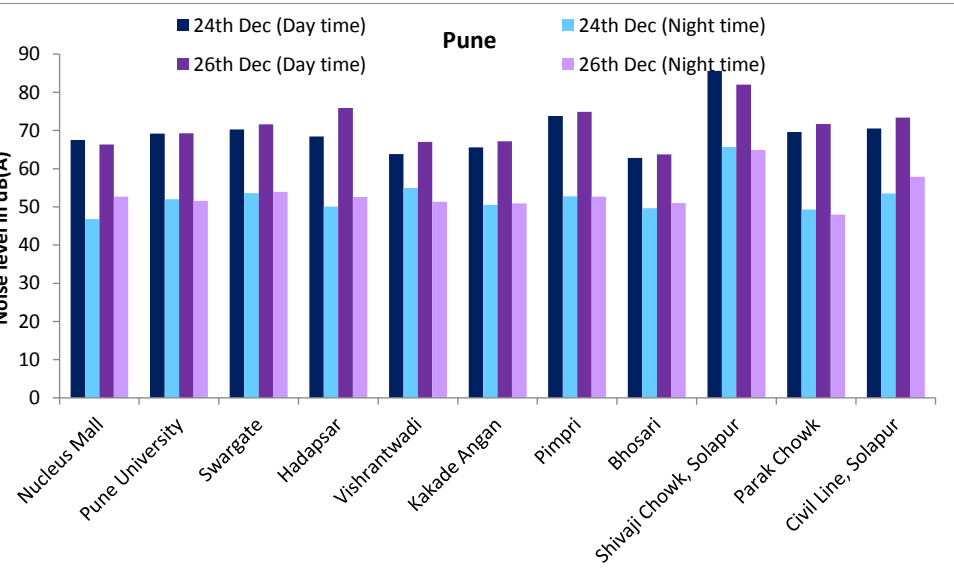
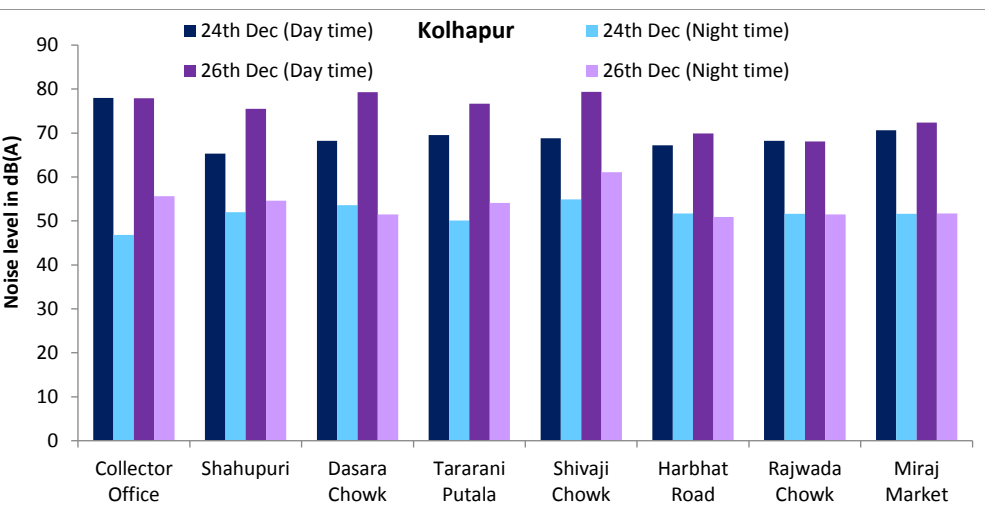
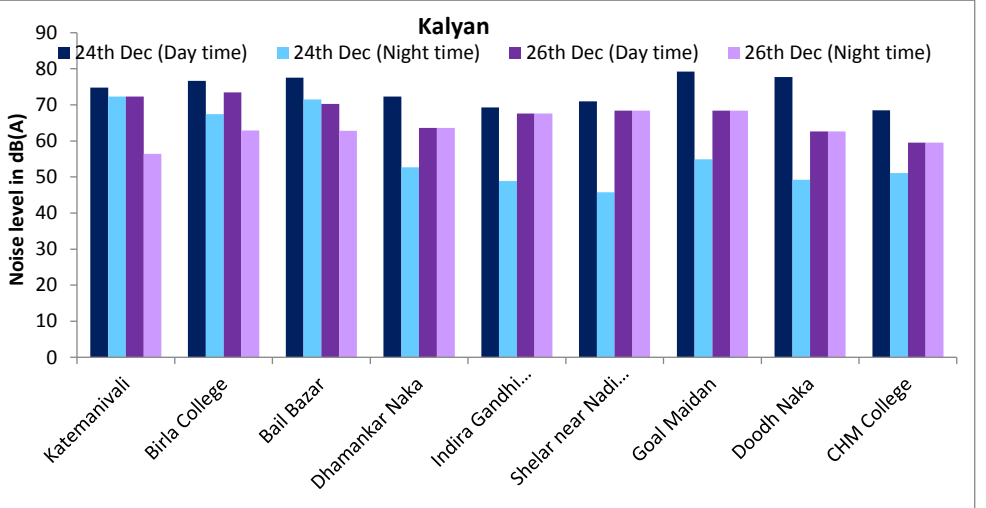
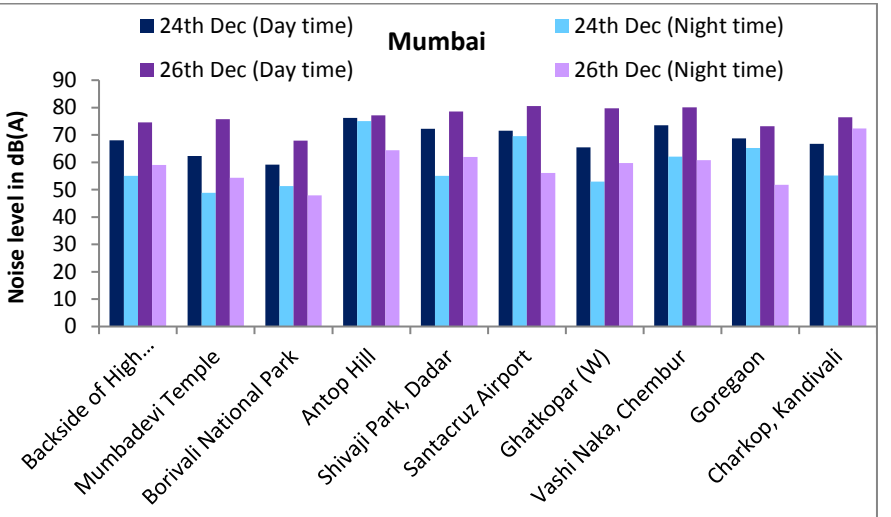
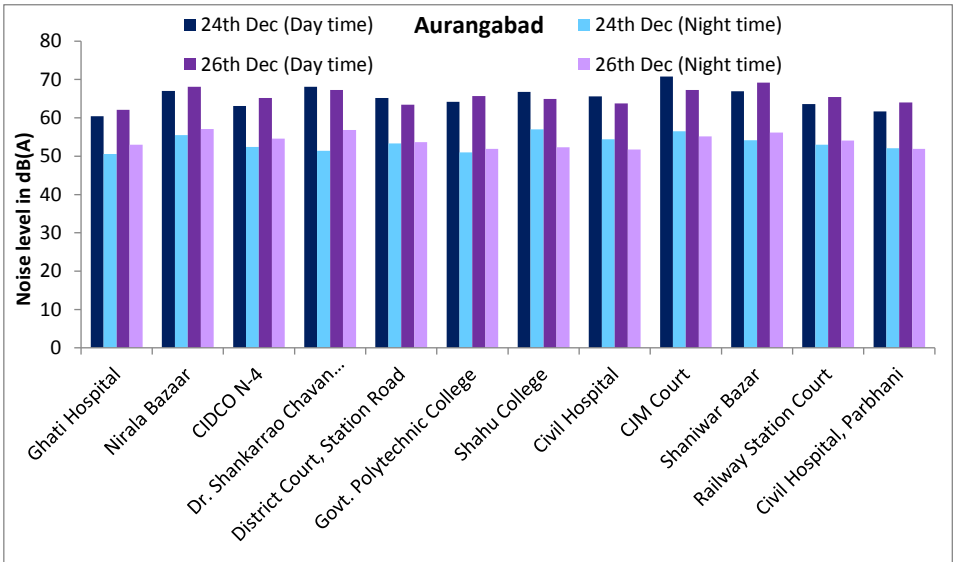
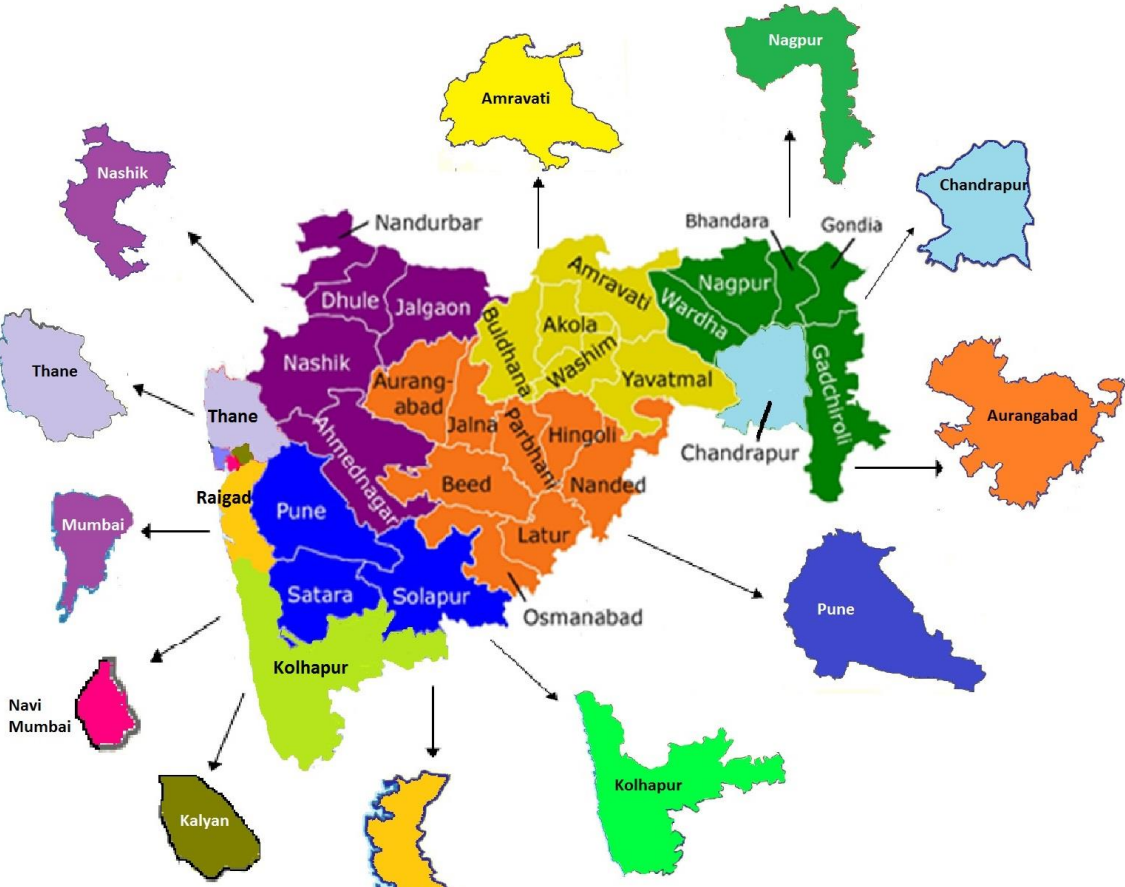
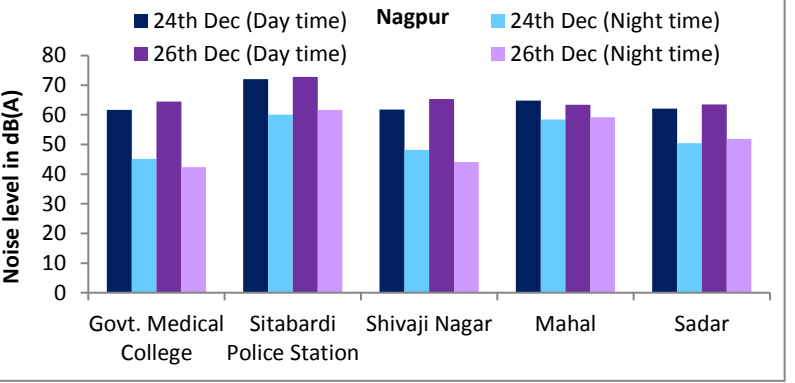
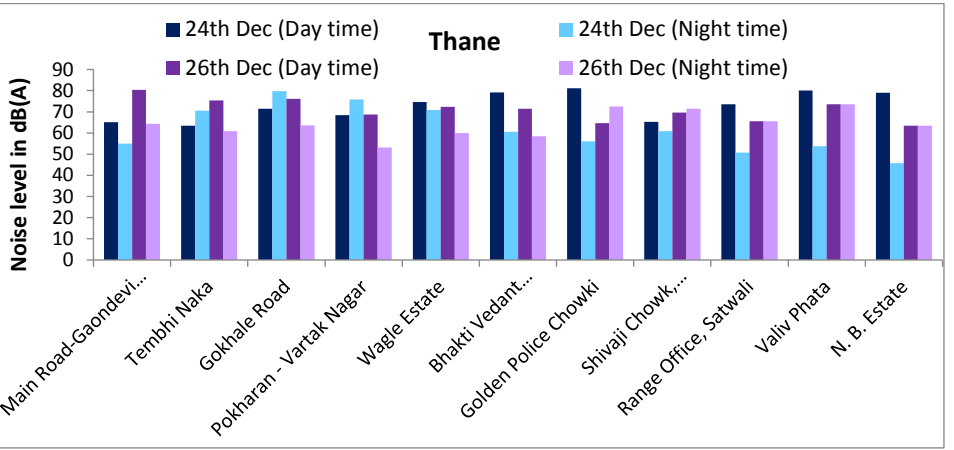
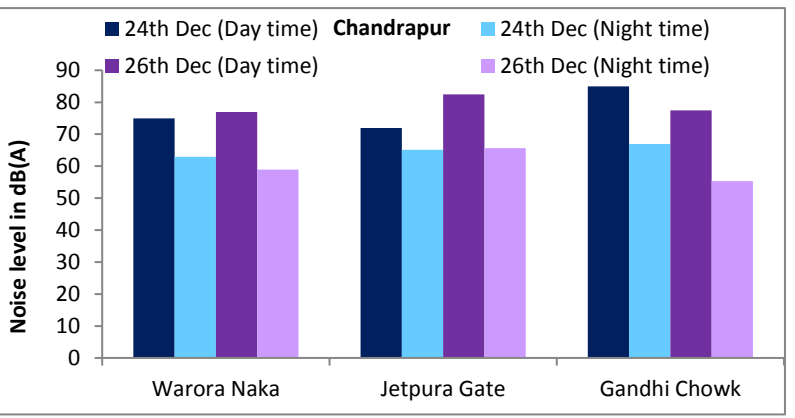
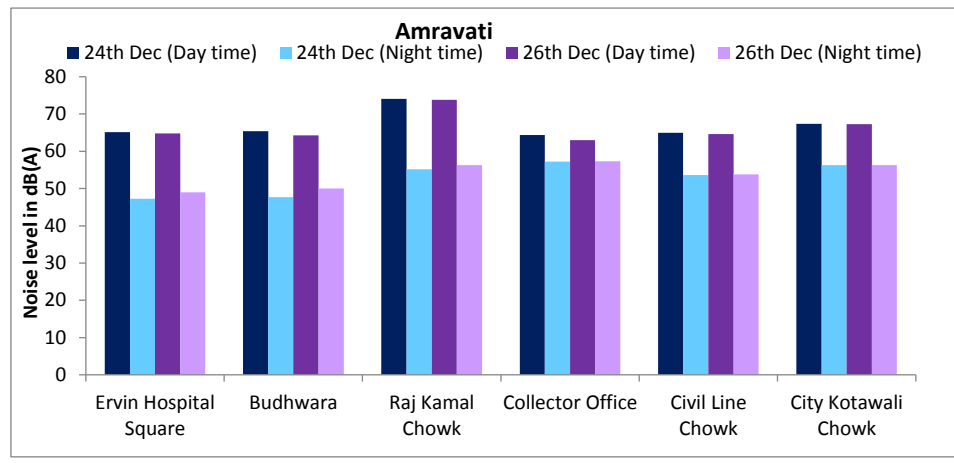
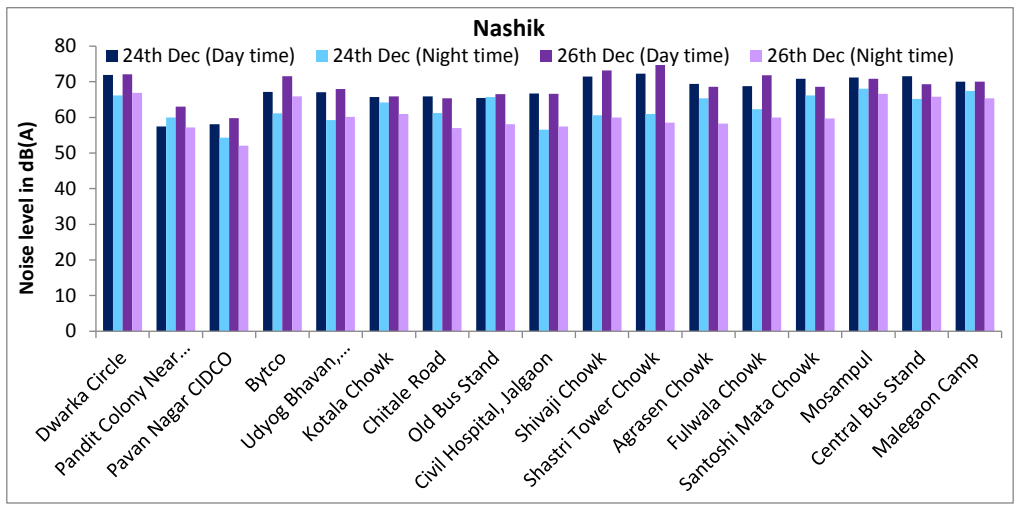


Fig. 5.4. Noise levels in regions in Maharashtra during December 2017

### 5.3.5. Kolhapur

In Kolhapur, Collector Office had the highest noise level of 78 dB(A) during day time on the first day of noise monitoring. The highest noise level during night time on the first day and during day time and night time on the second day was observed at Shivaji Chowk with 54.9 dB(A), 79.4 dB(A) and 61.1 dB(A) respectively. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

### 5.3.6. Mumbai

The noise level at Antop hill was high on both day time and night time on the first day of noise monitoring with 76.2 dB(A) and 75.1 dB(A) respectively. During the second day of monitoring the highest noise level of 80.1 dB(A) was found at Vashi Naka, Chembur during day time whereas the highest noise level of 72.4 dB(A) during night time was recorded at Charkop, Kandivali. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

### 5.3.7. Nagpur

In Nagpur the highest noise level on both the days for day time and night time was observed at Sitabardi Police Station with 69.3 dB(A) on the first day at day time and 64.3 dB(A) during night time on the first day. During the second day noise levels of 70.9 dB(A) and 66.5 dB(A) were recorded at the same location at day time and night time respectively. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

### 5.3.8. Nashik

In this Region, the highest noise level of 72.3 dB(A) was recorded at Shastri Tower Chowk during day time of the first day of monitoring. During night time of the first day 68.1 dB(A) was the highest noise level and was recorded at Mosampul. 74.7 dB(A) was the highest noise level found during day time at Shastri Tower Chowk on the second day of noise monitoring whereas the highest noise level of 66.9 dB(A) was found at Dwarka Circle during night time. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

### 5.3.9. Pune

85.6 dB(A), 65.7 dB(A), 82 dB(A) and 64.9 dB(A) were the highest noise levels observed at Shivaji Chowk, Solapur during day time and night time of the first and second days of noise monitoring respectively in Pune Region. **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

### 5.3.10. Thane

The highest noise level of 81.1 dB(A) during day time on the first day of noise monitoring was observed at Golden Police Chowki. Gokhale road was found to have high noise level of 79.7 dB(A) during night time. On the second day the highest noise levels of 80.3 dB(A) during day time was observed at Gaondevi Mandir, Naupada. 73.6 dB(A) was the highest noise level found at Valiv Phata during night time of the second day of monitoring **Figure 5.4.** summarizes the average day time and night time noise levels of 2 days.

## 5.4. Conclusion for Ambient Noise Quality Monitoring

Noise pollution not only causes environmental damage but it also has a negative impact on human health as it can cause conditions such as aggression, hypertension, high stress levels, hearing loss and sleep disturbances. The noise levels measured during the noise monitoring project by Maharashtra Pollution Control Board exceeded the limits provided in Noise Pollution (R & C) Rules, 2000



amendment dated 21st April, 2009. Various line sources and other vehicles were a major reason for the increase in noise range.

Noise pollution can take a severe toll on human health in the long run. These effects will not become apparent immediately, but there could be repercussions later on. The effects include a deterioration of mental health; inability to hear things clearly, dilation of the pupils in the eyes and an impact on the functioning of the heart. Governments should make efforts to restrict old and non-complying vehicles and planting trees all over the city. The world without excessive noise pollution coming from human sources would be a much quieter and more beautiful place to live in.

### **5.5. Water Quality in Maharashtra**

In 1997, the World Health Organization (WHO) defined water pollution as any change in the physical, chemical and biological properties of water that has a harmful effect on living things. Water pollution results from various point sources such as industrial effluents and domestic waste, and non-point sources such as fertilizer and pesticide run-offs in rural areas from the agricultural fields. Along with human activities, various microbiological agents also cause water pollution which may cause various water-borne diseases. When toxic substances enter lakes, streams, oceans, and other water bodies, they get dissolved or lie suspended in water or get deposited on the bed. This results in the pollution of water whereby the quality of the water deteriorates, affecting aquatic ecosystems. Further the pollutants can also seep down and affect the groundwater deposits and aquifers.

The effects of water pollution are not only devastating to humans but also to flora and fauna. Water pollution can also significantly increase the rate of algal blooms which can cause depletion of oxygen in the water affecting the aquatic life. The consumption of water contaminated with pesticides can result in cellular and Deoxyribonucleic Acid (DNA) damage, suppression of immune system, cancers, tumours and lesions on fish and animals, and physical deformities such as hooked beaks in birds and thinning of egg shell can occur in avifauna. The consumption of polluted water may lead to not only poisoning of humans, animals, birds, but also disturbs the fragile aquatic and riparian ecosystem.

Dumping of solid wastes is also an important factor resulting in deterioration of the groundwater quality. Solid waste includes all the discarded solid materials from commercial, municipal, industrial, and agricultural activities.

The quality of water is affected by various factors like rate of monsoon, dilution during monsoon, high evaporation rate during the summers, sporadic pollution loads from various anthropogenic activities, flow rate of water and so on. Hence, there could be varied fluctuations in the quality of water at the same monitoring location leading to seasonal variations.

The Maharashtra Pollution Control Board (MPCB) regularly monitors the water quality across 250 Water Quality Monitoring Stations (WQMS) for both surface and ground water (200 for surface water and 50 for groundwater) under Central Pollution Control Board's project of NWMP. Surface water samples are monitored every month whereas the ground water samples are monitored every six months.

### 5.5.1. Water Quality Index.

A water quality index provides a single number (like a grade) that expresses overall water quality of a certain water sample (location and time specific) for several water quality parameters. The objective of developing an index is to simplify the complex water quality parametric data into comprehensive information for easy understanding. A water quality index based on important parameters provides a simple indicator of water quality and a general idea of the possible problems with the water in the region. Upon determining the Water Quality Index (WQI), water quality is described for easy understanding and interpretation. The modified weights as per Central Pollution Control Board are given in **Table 5.26.** and the equations used to determine the sub-index values are given **Table 5.27.**

In 1970, the National Sanitation Foundation, USA developed the Water Quality Index (NSFWQI), a standardized method for comparing the water quality of various water bodies. NSFWQI is one of the most respected and utilized water quality index in the United States. Nine water quality parameters selected for calculating the index include dissolved oxygen (DO), fecal coliforms (FC), pH, biochemical oxygen demand (BOD), temperature change, total phosphate, nitrate, turbidity and total solids.

#### 5.5.1.1. WQI for Surface Water

Given the parameters monitored in India under the NWMP and to maintain the uniformity while comparing the WQI across the nation, the NSF WQI has been modified and relative weights been assigned by CPCB. The modified weights as per CPCB are given in **Table 5.26.** and the equations used to determine the sub-index values are given **Table 5.27.** Upon determining the Water Quality Index, water quality is described for easy understanding and interpretation. The description used in the report for classifying and the describing the water quality is presented in **Table 5.28.**

**Table 5.26. Modified Weights for Computation of WQI Based on DO, FC, pH and BOD.**

Parameters	Original Weights from NSF WQI	Modified Weights by CPCB
Dissolved Oxygen (DO)	0.17	0.31
Fecal Coliform (FC)	0.15	0.28
pH	0.12	0.22
BOD	0.1	0.19
<b>Total</b>	<b>0.54</b>	<b>1</b>

**Table 5.27. Sub-Index Equation Used to Calculate NSF WQI for DO, FC, pH and BOD.**

Water Quality Parameters (units)	Range Applicable	Equation
Dissolved Oxygen (DO)(% Saturation)	0-40	$0.18 + 0.66 \times \% \text{ Saturation DO}$
	40-100	$(-13.55) + 1.17 \times \% \text{ Saturation DO}$
	100-140	$163.34 - 0.62 \times \% \text{ Saturation DO}$
Fecal Coliform (FC) (counts/100 ml)	1 - 103	$97.2 - 26.6 \times \log \text{ FC}$
	103 - 105	$42.33 - 7.75 \times \log \text{ FC}$
	>105	2
pH	02 - 05	$16.1 + 7.35 \times (\text{pH})$
	05 - 7.3	$(-142.67) + 33.5 \times (\text{pH})$
	7.3 - 10	$316.96 - 29.85 \times (\text{pH})$
	10 – 12	$96.17 - 8.0 \times (\text{pH})$
	<2, >12	0
BOD (mg/l)	0 – 10	$96.67 - 7 \times (\text{BOD})$
	10 – 30	$38.9 - 1.23 \times (\text{BOD})$
	>30	2

**Table 5.28. Surface Water Classification based on Water Quality Index.**

WQI Value	Water Quality	Class by CPCB	Class by MPCB	Remarks	Colour code used in this report
63 – 100	Good - Excellent	A	A -I	Non Polluted	
50 – 63	Good water	B	Not Prescribed	Non Polluted	
38 - 50	Poor Water	C	A –II	Polluted	
38 & less	Very Poor water	D, E	A – III, A- IV	Heavily Polluted	

#### 5.5.1.2. WQI for Groundwater

MPCB monitors ground water quality for parameters like pH, total hardness, calcium, magnesium, chloride, total dissolved solids, fluoride, manganese, nitrates and sulphates once in six months. Based on the stringency of the parameters and its relative importance in the overall quality of water for drinking purposes each parameter has been assigned specific weight by CPCB. These weights indicate the relative harmfulness when present in water. The relative weights of the nine parameters (pH, Total Hardness, Calcium Hardness, Magnesium Hardness, Chloride, Total Dissolved Solids, Fluoride, Nitrate, Sulphate) have been determined and presented in **Table 5.29.** for water samples monitored by MPCB in the year 2017-18. Based on the absolute value of the index determined from calculations, water quality is classified as presented in **Table 5.30.**



**Table 5.29. Relative Weights of Each Parameter for WQI of Groundwater.**

Chemical Parameters	Indian Standards for Drinking Water Quality		Weight (Wi)			
	Acceptable Limit	Permissible Limits	Weight	Relative Weight	Weight w/o Iron, Manganese & Bicarbonate	Relative Weight w/o Iron, Manganese & Bicarbonate
pH	6.5-8.5	No relaxation	4	0.09756	4	0.13333
Total Hardness (TH)	300	600	2	0.04878	2	0.06667
Calcium	75	200	2	0.04878	2	0.06667
Magnesium	30	No relaxation	2	0.04878	2	0.06667
Bicarbonate	244	732	3	0.07317	-	-
Chloride	250	1000	3	0.07317	3	0.10000
Total Dissolved Solids (TDS)	500	2000	4	0.09756	4	0.13333
Fluoride	1	1.5	4	0.09756	4	0.13333
Manganese	0.1	0.3	4	0.09756	-	-
Nitrate	45	No relaxation	5	0.12195	5	0.16667
Sulphate	200	400	4	0.09756	4	0.13333
<b>Total</b>			<b>41</b>	<b>1</b>	<b>30</b>	<b>1</b>

**Table 5.30. Groundwater Classification Based on Water Quality Index.**

WQI Value	Water Quality	Colour code used in this report
<50	Excellent	
50-100	Good water	
100-200	Poor Water	
200-300	Very Poor water	
>300	Water Unsuitable for drinking	

### 5.5.2. Analysis of Surface Water Quality with Statistical details

As per provisions made by Water Quality Assessment Authority constituted under Sub-Sections (1) and (3) of Section 3 of the Environment (Protection) Act, 1986 (Act No. 29 of 1986) water quality in Maharashtra is monitored by various agencies namely Hydrology Project (SW), Groundwater Surveys & Development Agency (GSDA), Central Pollution Control Board (CPCB), Maharashtra Pollution Control Board (MPCB), Central Water Commission (CWC) and Central Ground Water Board (CGWB). Water quality testing under CPCB's NWMP in Maharashtra is monitored by MPCB (State nodal agency). Maharashtra has the highest number of monitoring stations under NWMP across all states in India. MPCB possesses infrastructure to monitor 44 parameters covering field observations, general

parameters, core parameters and trace metals. The samples are monitored at monthly and six monthly frequencies for surface water and groundwater stations respectively. In order to have continuous vigilance check on water quality, MPCB has installed WQMS (Water Quality Monitoring Stations) across the State.

Quality of surface water is monitored per month across all stations. The spatial presence of the stations is presented basin wise in the respective sections below. Basin-wise water quality index is presented in this section for the basins of Tapi, Krishna, Godavari and Coastal basin.

#### **5.5.2.1. Tapi Basin**

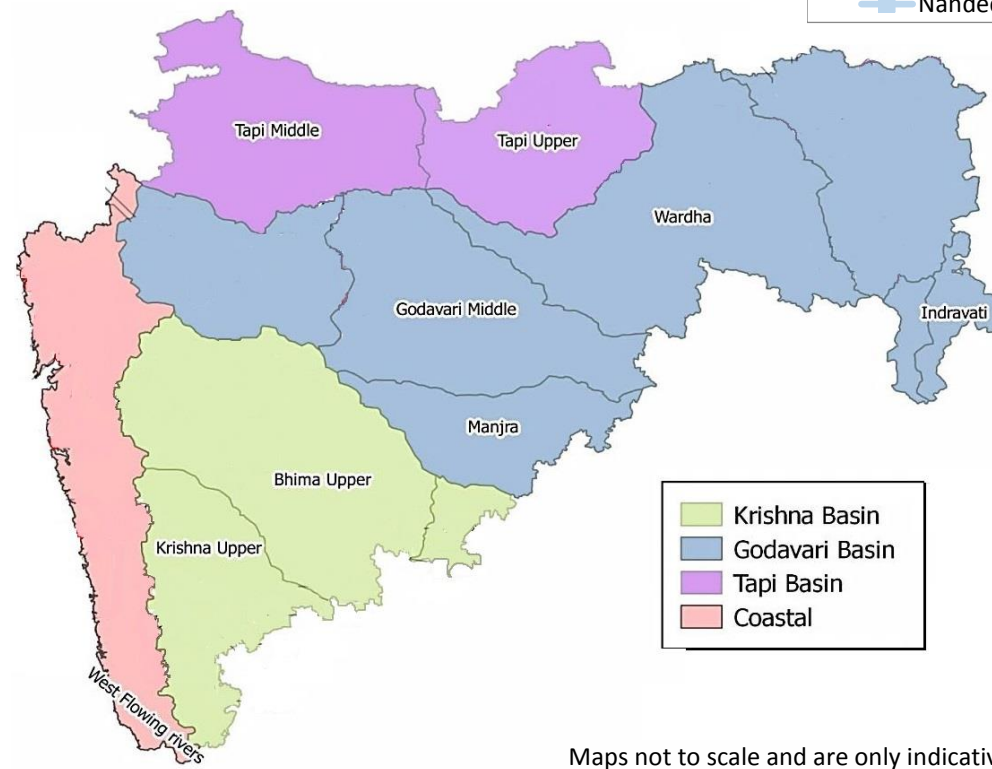
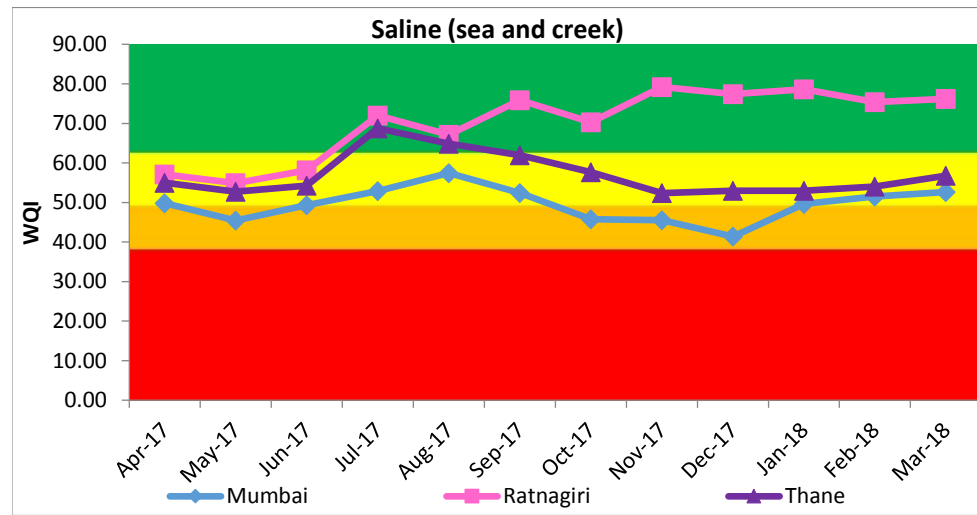
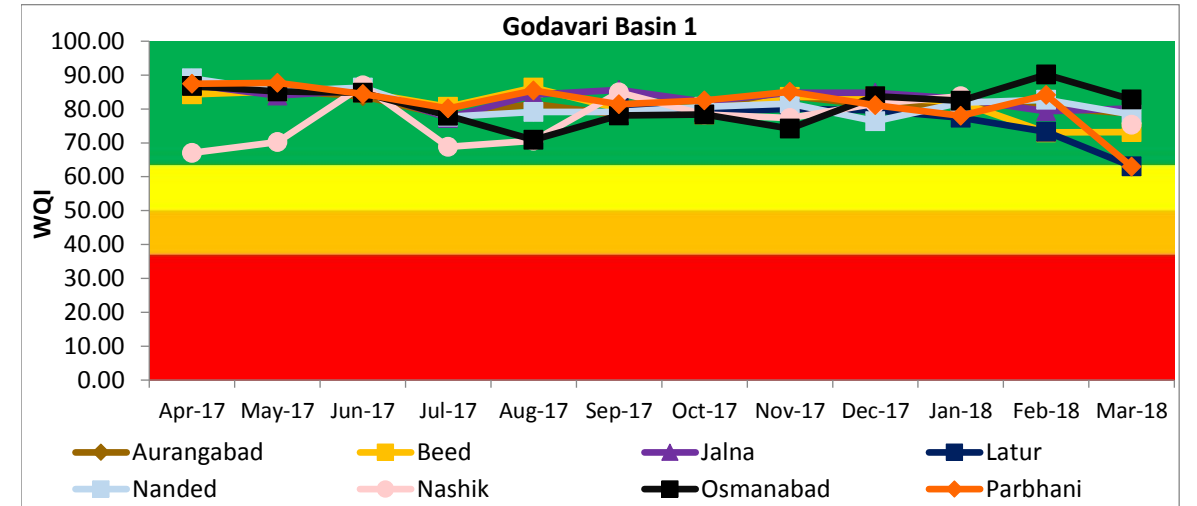
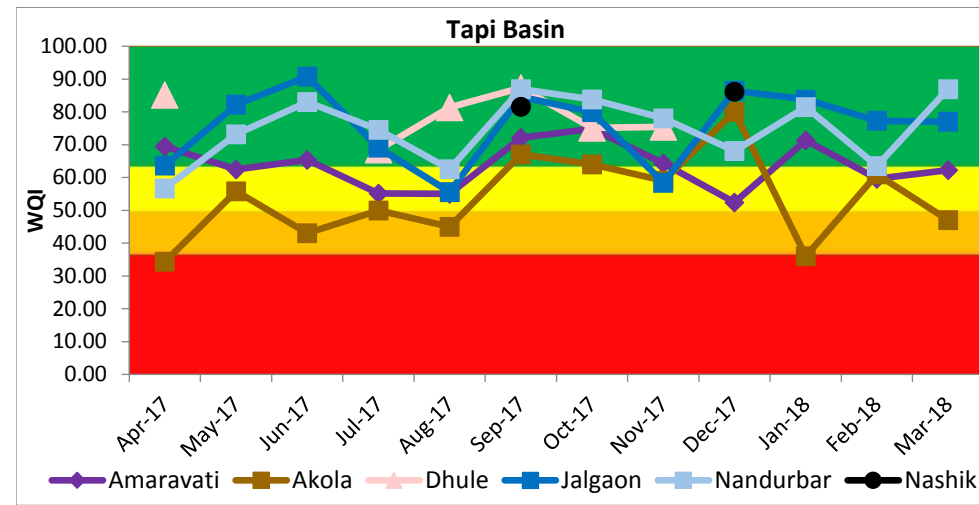
The intra-basin performance of Tapi Basin across six districts in the Maharashtra is depicted in **Figure 5.5**. It can be observed that the water quality index (WQI) in Dhule district was excellent during the months of April, July, August, September, October and November 2017 and the water was not polluted. In Amravati district, the WQI was recorded as good and the water was not polluted in the months of May, July, August, December 2017 and February and March 2018. During the months of April, June, September, October, November 2017 and January 2018, the WQI was excellent and the water was not polluted.

In Akola district, the WQI was recorded as excellent only during the months of September, October and December 2017 and the water was not polluted. The WQI was very poor during the months of April 2017 and January 2018 and the water was heavily polluted during these months. The WQI was recorded as poor in the months of June, July, August 2017 and March 2018 and the water was polluted. The WQI during May, November 2017 and February 2018 was good with unpolluted water.

In Jalgaon the WQI was excellent and the water unpolluted during all months except August and November 2017. During these two months the WQI was recorded as good and the water was unpolluted. In Nandurbar district, the WQI was excellent during all months except April and August 2017 during which the WQI was recorded as good and the water was unpolluted throughout the year. In Nashik district the WQI was recorded for only September and December 2017. The WQI was recorded as excellent and the water was not polluted. About 54% observations were recorded as dry.

#### **5.5.2.2. Godavari Basin 1**

**Figure 5.5**. shows the monthly trend in WQI along Godavari Basin 1 across 8 districts during the year 2017-18. From the figure it is evident that the WQI of all districts in this basin was recorded as excellent during the year 2017-18 and the water was unpolluted throughout the year. About only 8% observations were recorded as dry in this basin.



Maps not to scale and are only indicative.

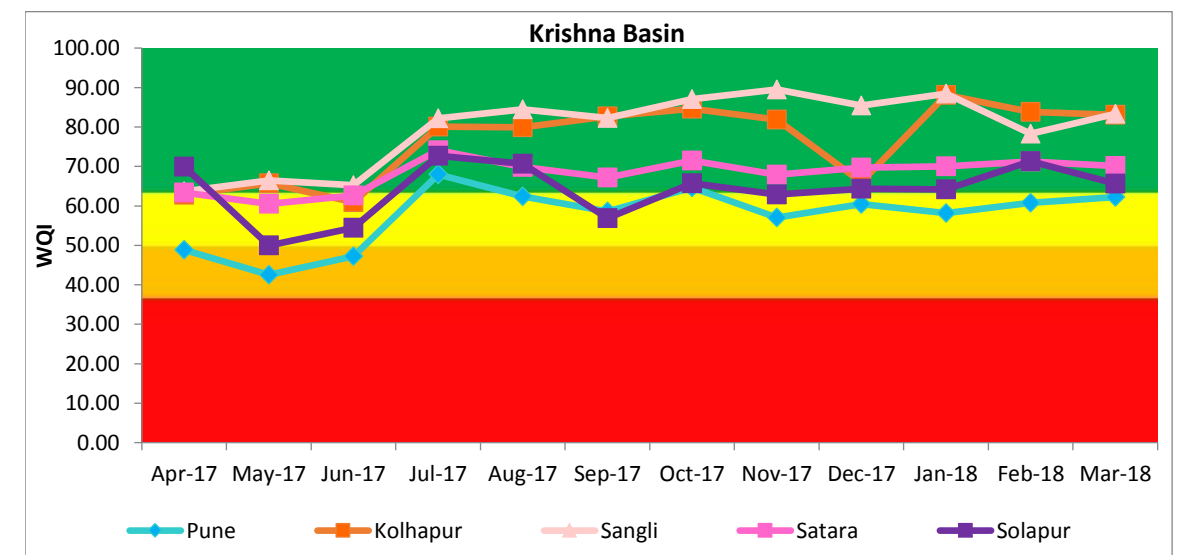
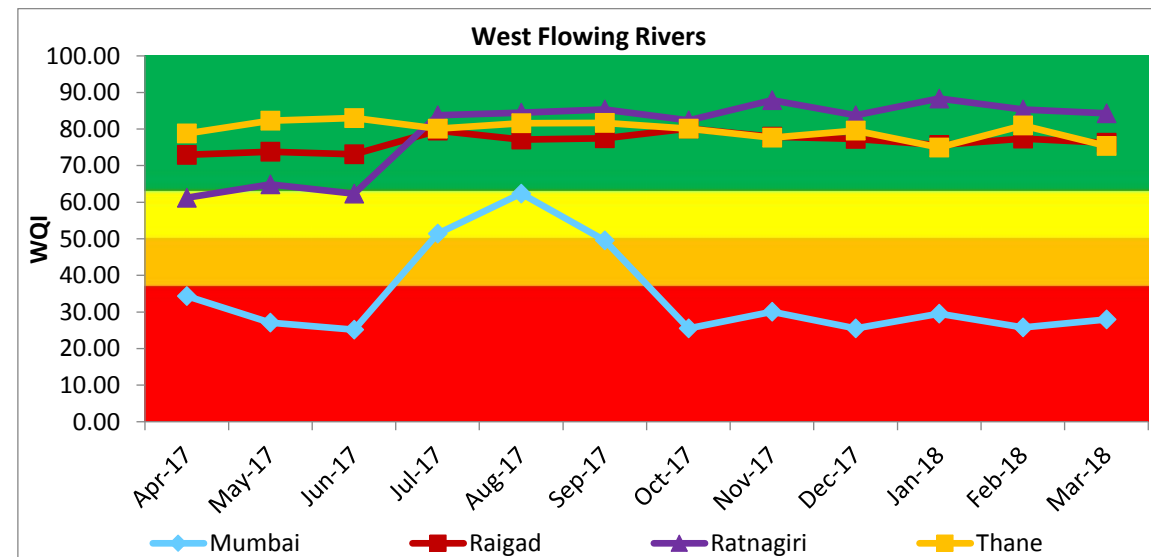
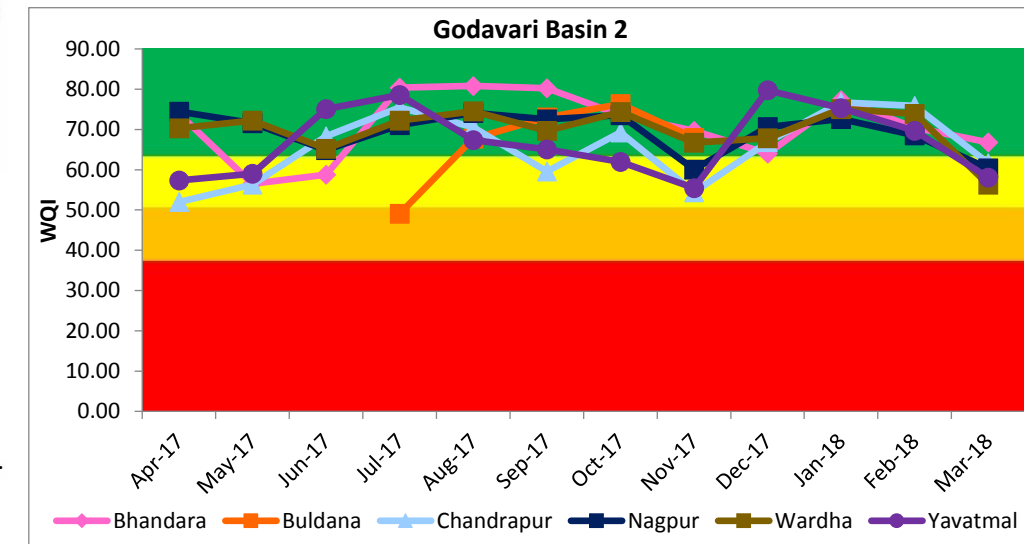


Fig. 5.5. Monthly trends of WQI across districts in sub-basins of Maharashtra.

### 5.5.2.3. Godavari Basin 2

**Figure 5.5.** shows the monthly trend in WQI along Godavari Basin 2 across six districts during the year 2017-18. The water quality along this basin has been recorded as mostly unpolluted throughout the year. In Bhandara district, the WQI was recorded as excellent during all months except May and June 2017 when it was recorded as good although the water quality was non-polluted. In Buldana district the WQI was recorded as poor only during July 2017 and the water was polluted during this month. During August to November 2017 when WQI was recorded, it was observed to be excellent and the water was unpolluted. In the district of Chandrapur, the WQI was recorded as excellent during June to August 2017, October 2017 and December 2017 to February 2018 and the water quality to unpolluted. During the months of April, May, September, November 2017 and March 2018, the WQI was categorized as good and the water was not polluted.

In the months of November 2017 and March 2018, the WQI was recorded as good and during the remaining year the WQI was recorded as excellent. In Wardha the water was unpolluted throughout the year. The WQI was recorded as excellent during all months except March 2018 when it was recorded as good. In the district of Yavatmal, the water was unpolluted throughout the year. The WQI was recorded as excellent during June to September 2017 and December 2017 to February 2018. During April, May, October and November 2017 and March 2018, the WQI was recorded as good. During this year only 3% observations were recorded as dry.

### 5.5.2.4. Krishna Basin

**Figure 5.5.** shows the monthly trend in WQI along Krishna basin across five districts during the year 2017-18. In Pune, the WQI was excellent only during July and October 2017 when the water was not polluted. During August and September 2017 and from November 2017 to March 2018, the WQI was recorded as good and the water was not polluted. From April to June 2017 the WQI was recorded as poor and the water was polluted during these months. In Kolhapur, water was unpolluted throughout the year with WQI recorded as excellent during all months except April and June 2017 when it was recorded as good.

In the district of Sangli, the WQI was recorded as excellent during all months of water quality monitoring and the water was unpolluted throughout the year. In Satara district the water was unpolluted throughout the year and the WQI was recorded as excellent during all months of monitoring except during May and June 2017 when the WQI was recorded as good. In Solapur district, the WQI was recorded as excellent during April, July, August, October 2017 and from December 2017 to March 2018. The WQI was recorded as good during June, September and November 2017. During these months the water was unpolluted. The WQI was recorded as poor during May 2017 and the water polluted. In the year 2017-18 only about 4% observations were recorded as dry.

### 5.5.2.5. Coastal Basin

#### 5.5.2.5.1. West Flowing rivers

The monthly trend of WQI along the basin of west flowing rivers across four districts in Maharashtra during the year 2017-18 is shown in **Figure 5.5.** In the districts of Raigad and Thane, the water was unpolluted during all months of water quality monitoring and the WQI was recorded as excellent throughout the year. In Ratnagiri district the water was unpolluted throughout the year and the WQI was recorded as excellent during all months except April and June 2017 when it was recorded as good.

The water quality in Mumbai district was unpolluted only during July and August 2017 when the WQI was recorded as good. The WQI was recorded as poor during September 2017 and very poor during

the remaining months. The water quality ranged from polluted to highly polluted during the months of April to June 2017, September to December 2017, and January to March 2018. During 2017-18 no observations were recorded as dry.

#### 5.5.2.5.2. Saline (Sea and Creek)

Figure 5.5. shows the monthly trend in WQI along the Saline (sea & creek) basin across three districts during the year 2017-18. In Mumbai, the WQI was recorded as good during July to September 2017 and February and March 2018. The water was unpolluted. The WQI was recorded as poor during the months of April to June 2017 and October 2017 to January 2018 and the water was polluted.

In Ratnagiri district, the WQI was recorded as excellent from July 2017 to March 2018. The WQI was recorded as good from April to June 2017. The water quality was unpolluted throughout the year. In Thane the WQI was recorded as excellent during July and August 2017. The WQI was categorized as good during April to June 2017 and from September 2017 to March 2018. During the year 2017-18, no dry observations were recorded.

#### 5.5.3. Analysis of Groundwater Quality with Statistical details

In Maharashtra, CGWB (Central Ground Water Board), GSDA (Groundwater Survey and Development Agency) and MPCB monitor the ground water quality across various districts of the State. MPCB has 66 ground water monitoring stations which monitor water quality twice a year for parameters like pH, Nitrate, TDS, Hardness, Fluoride, microbial content, and sulphates. The water quality for groundwater across various Regions in the State is represented in Table 5.31.

Legend for WQI for Ground Water in Various Regions.

Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	No Data
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Table 5.31. WQI for Ground Water in Various Regions.

Apr-17	98	90			7			295		
Oct-17	138	137	86	17	163			153	18	85
Station Code	2001	2002	2003	1993	2200	2201	2824	2825	211	2828
Region	Amravati			Aurangabad				Chandrapur		

Apr-17	25	23	14	79	72	24	215	7	64	84		38	37	189	32
Oct-17	8	21	151	127	44	151	211	22	67	17	119	24	35	37	24
Station Code	219	220	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2933	2834	2835
Region	Kolhapur														

Apr-17	13	130	8	78		11	126	48	97	60		44	45	
Oct-17	114	124	99	133	97	118	13	75	19	13		1	97	
Station Code	209	210	212	213	1994	1995	1996	1997	1998	1999	2000	2203	2826	2827
Region	Nagpur													



Apr-17	74							19
Oct-17								94
Station Code	221	1990	1991	2204	2816	2817	214	215
Region	Nashik						Navi Mumbai	

Apr-17	117	423	12	42	257	167
Oct-17	133	243	25	91	648	129
Station Code	1992	2819	2820	2821	2822	2823
Region	Pune					

Apr-17			128		324		185	
Oct-17					150	83	173	197
Station Code	217	218	1989	1984	1985	1986	1987	1988
Region	Raigad			Thane				

#### 5.5.4. Conclusion for WQI for Surface Water and Groundwater

In terms of overall Basins, West Flowing Rivers recorded major portion of observations (around 84%) in 'Non-polluted' category followed by Godavari basin (> 68%) and Krishna basin (> 67%) during the year 2017-18. As compared to other Sub-Basins, Manjra Sub-Basin of Godavari Basin recorded reduction in number of observations recorded under 'Good to Excellent' category compared to the previous year. Pollution is a major concern in the Saline (Sea and Creek) sub-basin of Maharashtra with more than 54% of the observations recorded under 'Polluted' category.

In the year 2017-18, Mithi River was polluted throughout the year. Rivers such as Chandrabhaga, Mor, Patalganga and Waghur which were observed in Priority V last year were recorded under Priority IV during the current year. The Kan River which was recorded under non-polluted category in year 2016-17 has shifted to Priority V in the year 2017-18, thereby showing a decline in water quality. It is important to note that the number of non-polluted rivers has increased to 15 in the current year as compared to the previous year (which recorded only 5 rivers). This indicates an improvement in water quality.

The number of groundwater WQMS recorded WQI in the category 'Water Unsuitable for Drinking' have reduced from 5 (2016-17) to 3 in 2017-18. These 2 WQMS (2819, 2822 and 1985) recorded WQI under category 'Water Unsuitable for Drinking' category due to high levels of TDS, hardness, calcium and chlorides.

## 5.6. Industrial Pollution

The Ministry of Environment, Forest and Climate Change (MoEF & CC) had brought out notifications in 1989, with the purpose of prohibiting/restricting operations of certain industries to protect ecologically sensitive areas. The notifications have introduced the concept of categorization of industries as "Red", "Orange", "Green" and "White" with the purpose of facilitating decisions related to the location of these industries. Subsequently, the application of this concept was extended in other parts of the country not only for the purpose of location of industries, but also for the purpose of Consent management and formulation of norms related to the surveillance/inspection of industries. The process of categorization thus far was primarily based on the size of the industries and consumption of resources. Pollution due to discharge of emissions and effluents and its likely impact on health was not considered as the primary criterion.

Based on brain storming sessions among CPCB, SPCBs and MoEF & CC, the following criteria on "Range of Pollution Index" for the purpose of categorization of industrial sectors have been finalized.

- Industrial Sectors having Pollution Index score of 60 and above - Red category
- Industrial Sectors having Pollution Index score of 41 to 59 - Orange category
- Industrial Sectors having Pollution Index score of 21 to 40 - Green category
- Industrial Sectors having Pollution Index score including and up to 20 - White category

Maharashtra is one of the most highly industrialized states in India. With a rise in industrial estates in the State, areas like Mumbai, Thane, Navi Mumbai, Kalyan, Nashik, Pune and Pimpri-Chinchwad that have a large number of pollution-prone industries are facing chronic industrial pollution. In order to maintain a safe distance between industrial units and rivers to avoid discharge of effluent into water bodies, the State has its policy which also states that no industry will be allowed to establish along a river bank. Industries are being encouraged to recycle and reuse waste.

Maharashtra Pollution Control Board has 12 Regions viz. Mumbai, Navi Mumbai, Raigad, Thane, Kalyan, Pune, Nashik, Aurangabad, Nagpur, Amravati, Kolhapur and Chandrapur. The total number of industries under these categories in Maharashtra is 89,738. These industries are categorized as red, orange, green and white, and are further divided into small, large and medium based on their pollution index. The total number of red industries in Maharashtra is 20,166, orange is 25,002 and green is 43,688. The total number of large industries is 9,635, medium, 2,933, and small, 76,288. The total number of white industries in the State is 882. The categorization as well as size of industries within Maharashtra is given in **Table 5.32**.

**Table 5.32. Categorization of industries in Maharashtra.**

	Large	Medium	Small
Red	4135	1033	14998
Orange	3160	1342	20500
Green	2340	558	40790
White	882		

To monitor compliance of Consent conditions, performance of ETP, ECS and other measures, the Board officials inspect industries regularly. There are 489 industries identified under "Highly Polluting Industries". **Table 5.33** shows region-wise details of these highly polluting industries.

**Table 5.33. Highly Polluting Industries as on 31/3/2018.**

Industry	Amravati	Aurangabad	Chandrapur	Kalyan	Kolhapur	Mumbai	Nagpur	Nashik	Navi Mumbai	Pune	Raigad	Thane	Grand Total
Cement	-	-	5	-	1	-	1	-	-	-	-	-	7
Distillery	1	15		-	17	-	1	22	-	36	-	-	92
Dyes and Dye-intermediates	-	-	2	3	2	-	1	-	1	-	7	2	18
Fertilizer	1	2	-	-	-	1	1	4	-	1	3	-	13
Integrated Iron and Steel	-	-	1	-	1	-	4	-	-	1	2	-	9
Oil Refinery	-	-	-	-	-	2	-	-	-	-	-	-	2
Pesticide	-	-	-	1	5	-	-	1	3	-	3	3	16
Pharmaceuticals	-	13	-	12	4	-	-	2	15	9	14	23	92
Pulp & Paper	-	-	1	-	-	-	-	-	-	1	-	-	2
Sugar	1	55	2	-	41	-	5	35	-	63	-	-	202
Tannery		1	-	-	-	-	-	-	-	-	-	-	1
Thermal Power Plant	2	1	7	-	2	1	12	3	-	-	-	1	29
Petro-chemical	-	-	-	-	-	-	-	-	1	-	5	-	6
<b>Grand Total</b>	<b>5</b>	<b>87</b>	<b>18</b>	<b>16</b>	<b>73</b>	<b>4</b>	<b>25</b>	<b>67</b>	<b>20</b>	<b>111</b>	<b>34</b>	<b>29</b>	<b>489</b>

### 5.6.1. Analysis of performance of CETP with Statistical Details

Common Effluent Treatment Plants not only help industries to control pollution with ease but also act as a step towards a cleaner environment and service to the society at large. The concept of CETP has many advantages. Waste water from few industries often contains a significant concentration of pollutants and to reduce it to the desired concentration becomes techno-economically difficult. The total number of operational CETPs in Maharashtra is 24.

Region-wise information regarding the number of industries under each category as well as the amount of effluent generated and amount treated along with the performance of CETPs operating in these regions is illustrated below. Standards of 100 mg/l for BOD and 250 mg/l for COD as determined by the CPCB have been considered for evaluation of performance of CETPs. The total industrial effluent generated in the State of Maharashtra during the year 2017-18 was 27,440 MLD and the same quantity was treated by industries in the regions in consideration. The tables in the following paragraphs show the minimum and maximum values recorded by individual CETPs for BOD and COD during the year 2017-18 along with the annual mean as well as standard deviation (SD).



Amravati		
LSI	MSI	SSI
220	6	4315
94	10	1920
80	42	321
White - 122		

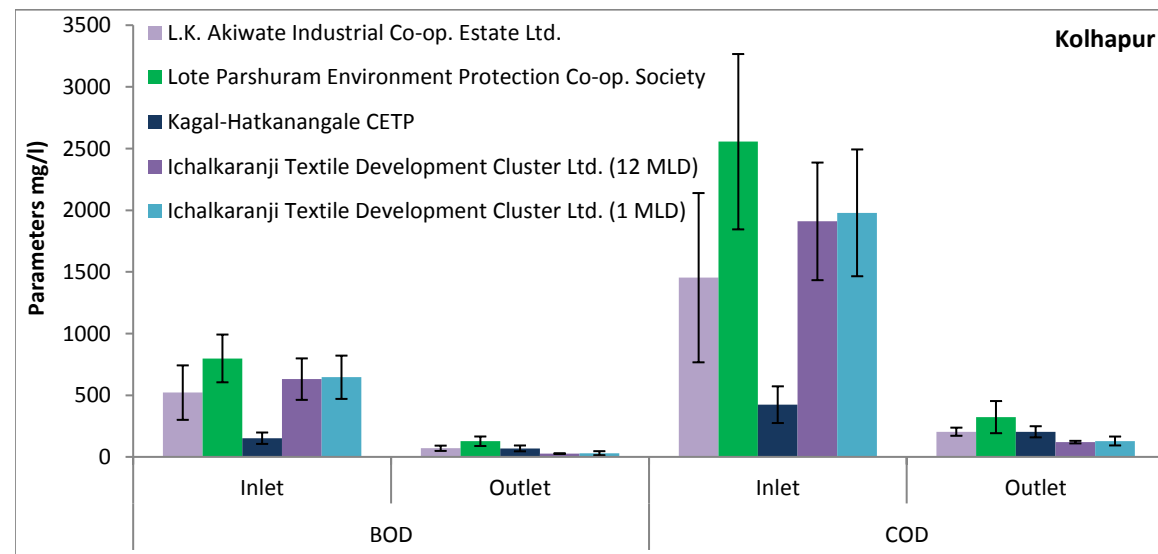
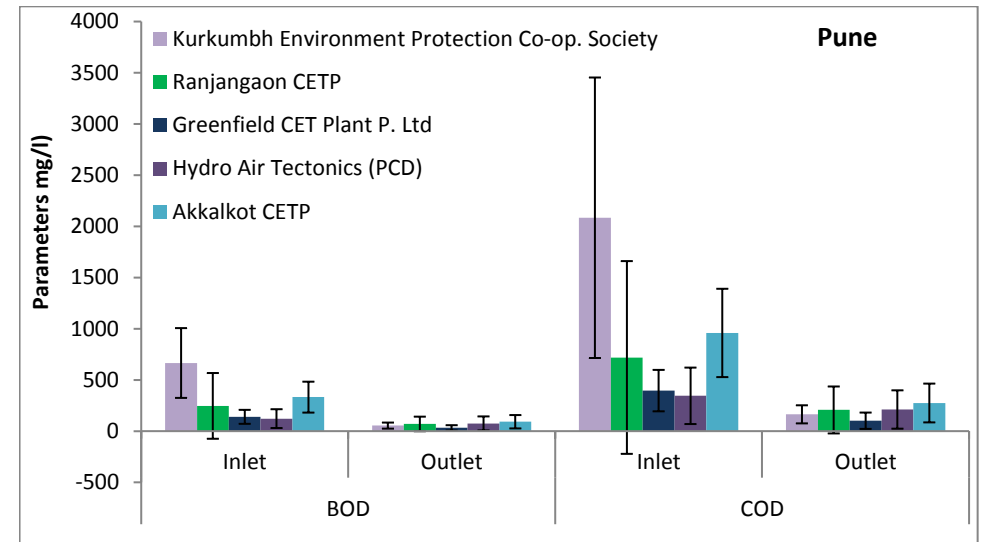
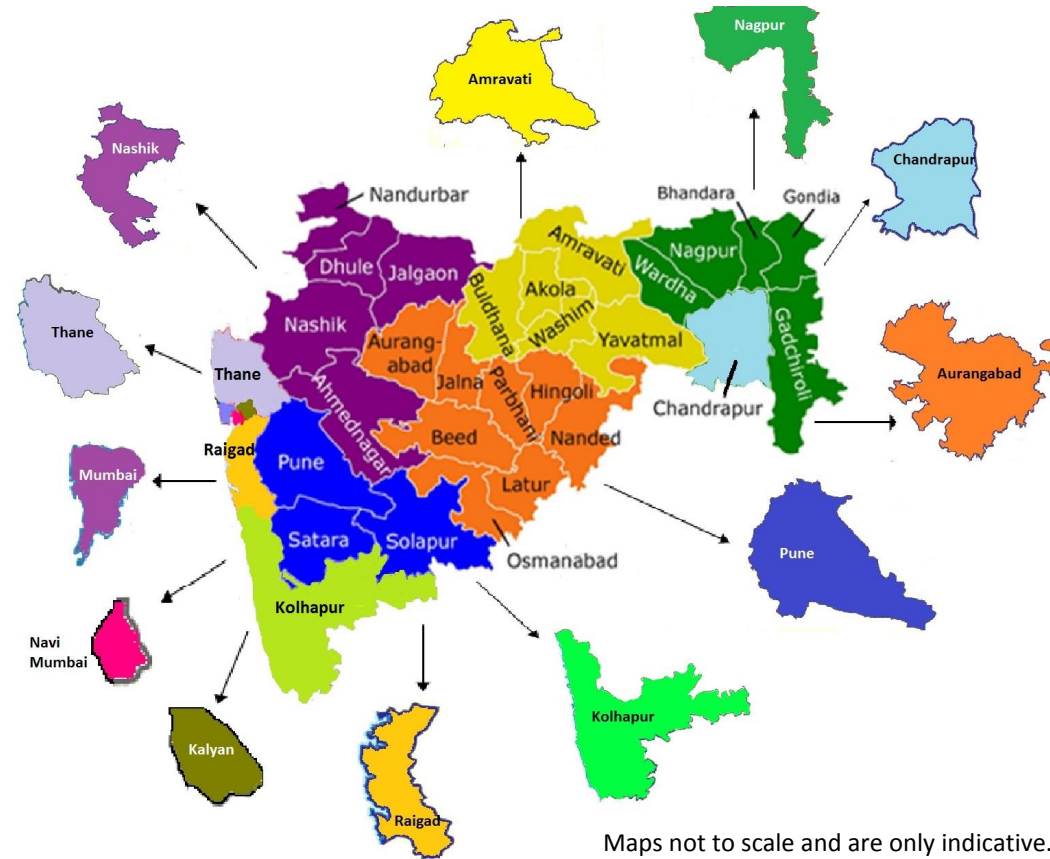
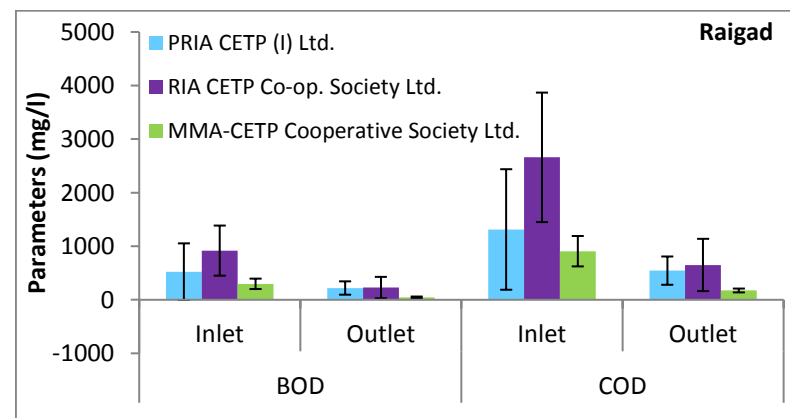
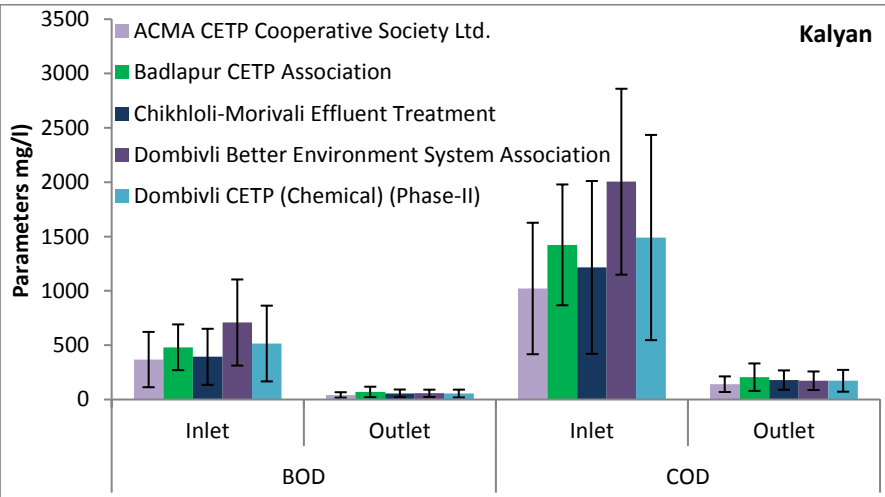
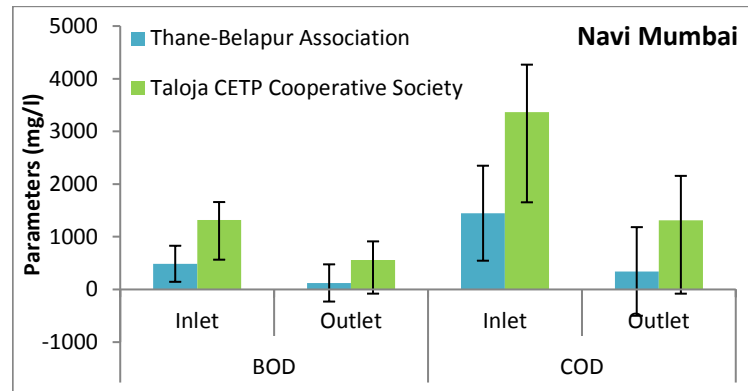
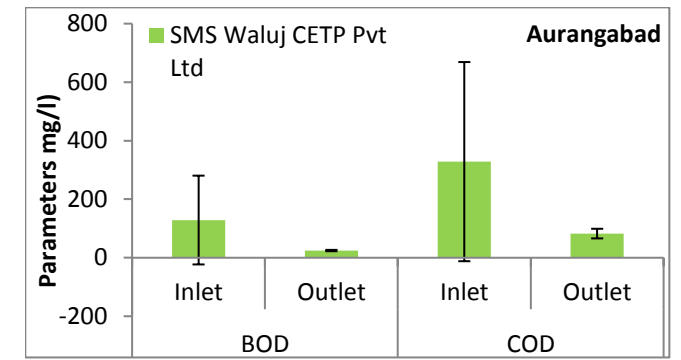
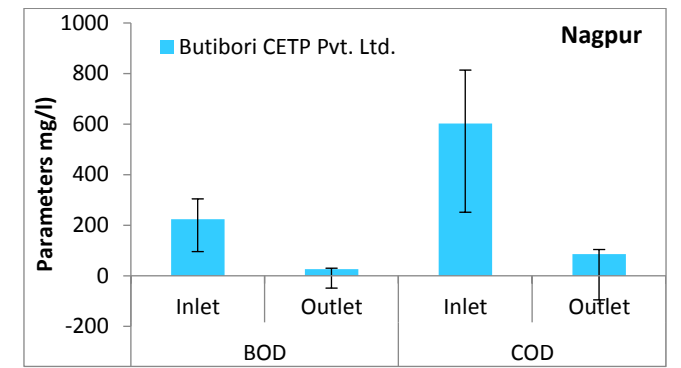
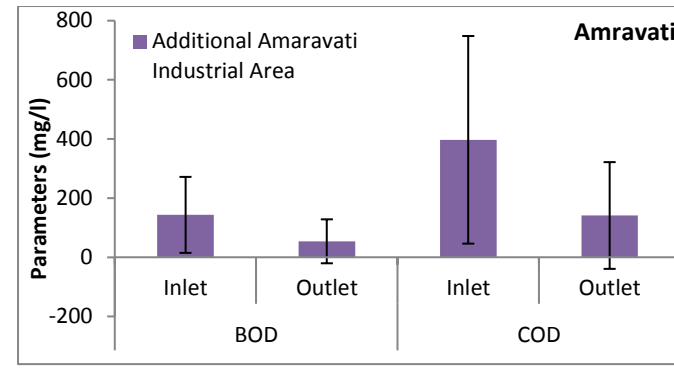
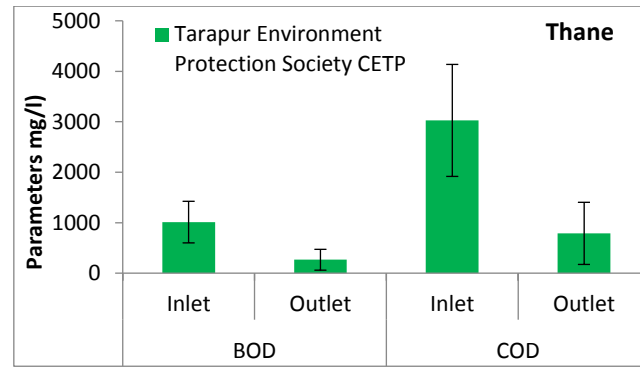
Aurangabad		
LSI	MSI	SSI
269	22	5378
136	80	2004
208	105	854
White - 26		

Chandrapur		
LSI	MSI	SSI
44	3	430
40	4	410
149	5	268
White - 35		

Kalyan		
LSI	MSI	SSI
148	24	1472
103	64	933
213	129	1782
White - 47		

Kolhapur		
LSI	MSI	SSI
340	31	9101
117	52	3656
242	97	1680
White - 187		

Mumbai		
LSI	MSI	SSI
38	30	1956
526	232	686
444	79	640
White - 9		



Nagpur		
LSI	MSI	SSI
127	7	1665
126	26	2216
441	34	1280
White - 42		

Nashik		
LSI	MSI	SSI
337	45	6117
173	61	2312
458	112	2056
White - 93		

Navi Mumbai		
LSI	MSI	SSI
173	63	1540
158	180	952
195	34	1101
White - 92		

Pune		
LSI	MSI	SSI
493	291	7101
1270	563	4608
1323	322	3637
White - 203		

Raigad		
LSI	MSI	SSI
55	21	442
118	37	352
220	33	420
White - 13		

Thane		
LSI	MSI	SSI
96	15	1273
299	33	451
162	41	959
White - 13		

Fig. 5.6. Industrial statistics for regions in Maharashtra in 2017-18.

### 5.6.1.1. Amravati

Total amount of effluent generated and treated in this Region during the year 2017-18 is 21.4 MLD. There is one CETP in Amravati Region. The treatment capacity of this CETP is 5 MLD. Data on the quantity of effluent treated by this CETP is not currently available. The annual performance of the CETP for the year 2017-18 is represented in **Table 5.34**. The total number of industries in Amravati under each category is demonstrated in **Figure 5.6**.

**Table 5.34. Statistical Analysis Data for CETP Performance in Amravati Region.**

Parameters (mg/l)			Location
			Additional Amravati Industrial Area
Inlet	BOD (mg/l)	Min.	0
		Max.	384
		Mean	143
		SD.	128
	COD (mg/l)	Min.	NA
		Max.	1064
		Mean	397
		SD.	351
Outlet	BOD (mg/l)	Min.	4
		Max.	222
		Mean	54
		SD.	74
	COD (mg/l)	Min.	12
		Max.	556
		Mean	141
		SD.	180

From **Table 5.34**, it can be observed that the reduction in BOD at the CETP at Additional Amravati Industrial Area was 62% whereas the COD was being reduced with 64% efficiency. The parameters for the treated effluent were within the prescribed discharge standards of 100 mg/l and 250 mg/l for BOD and COD respectively. At present the CETP is not discharging treated industrial effluent on land. The CETP is being operated on ZLD principle.

### 5.6.1.2. Aurangabad

There is one operational CETP provided viz. M/s. Waluj CETP Pvt. Ltd. located at MIDC Area, Waluj with a treatment capacity of 10 MLD. The collective amount of effluent generated by industries in Aurangabad was 63 MLD. However, data on quantity of industrial being treated at this CETP is not currently available. The total number of industries in Aurangabad under each category is presented in **Figure 5.6**, and performance of the CETP is presented in **Table 5.35**.

**Table 5.35. Statistical Analysis Data for CETP Performance in Aurangabad Region.**

Parameters (mg/l)			Location
			SMS Waluj CETP Pvt. Ltd.
Inlet	BOD (mg/l)	Min.	0
		Max.	1750
		Mean	187
		SD.	152
	COD (mg/l)	Min.	0
		Max.	4320

		<b>Mean</b>	474
		<b>SD.</b>	340
<b>Outlet</b>	<b>BOD (mg/l)</b>	<b>Min.</b>	27
		<b>Max.</b>	170
		<b>Mean</b>	38
		<b>SD.</b>	2
	<b>COD (mg/l)</b>	<b>Min.</b>	88
		<b>Max.</b>	520
		<b>Mean</b>	116
		<b>SD.</b>	16

From **Table 5.35**, it is evident that the CETP at Aurangabad was performing well with more than 80% efficiency in reducing BOD and more than 74% efficiency in reducing COD. Also the post treatment concentrations of BOD and COD were within the prescribed discharge limits of 100 mg/l and 250 mg/l respectively.

### 5.6.1.3. Chandrapur

The total amount of effluent generated from industries in this Region was 254.24 MLD and there is no CETP provided in this Region. However industries are treating their effluent individually within the premises. Therefore all the effluent generated was treated during the year 2017-18. The total number of industries in Chandrapur under each of the category is demonstrated in **Figure 5.6**.

### 5.6.1.4. Kalyan

There are 5 operational CETPs in this Region. The collective treatment capacity of these CETPs is 26.55 MLD. The total effluent generated by industries during the year 2017-18 was 74.64 MLD of which 24.5 MLD was being treated by these CETPs. The minimum SD. was found at ACMA-CETP Cooperative Society Ltd. The maximum SD. was found at Dombivli CETP (Chemical) (Phase-II). The total number of industries in Kalyan under each of the categories is demonstrated in **Figure 5.6**, and the performance of these CETPs during the year 2017-18 is presented in **Table 5.36**.

**Table 5.36. Statistical Analysis Data for CETP Performance in Kalyan Region.**

Parameters (mg/l)		Location					
		ACMA CETP Cooperative Society Ltd.	Badlapur CETP Association	Chikhli-Morivali Effluent Treatment	Dombivli Better Environment System Association	Dombivli CETP (Chemical) (Phase-II)	
<b>Inlet</b>	<b>BOD (mg/l)</b>	<b>Min.</b>	65	155	110	240	115
		<b>Max.</b>	1250	1250	1050	2500	875
		<b>Mean</b>	363	494	390	721	519
		<b>SD.</b>	255	211	258	396	349
	<b>COD (mg/l)</b>	<b>Min.</b>	216	508	380	500	320
		<b>Max.</b>	2688	3640	3072	5320	2432
		<b>Mean</b>	1002	1452	1204	2005	1490
		<b>SD.</b>	605	556	795	856	944
<b>Outlet</b>	<b>BOD (mg/l)</b>	<b>Min.</b>	7	16	20	16	14
		<b>Max.</b>	165	230	210	190	150
		<b>Mean</b>	41	68	59	55	60

	<b>SD.</b>	25	48	35	34	36
<b>COD (mg/l)</b>	<b>Min.</b>	28	56	68	56	52
	<b>Max.</b>	588	684	582	658	412
	<b>Mean</b>	139	201	187	168	184
	<b>SD.</b>	72	126	89	85	100

From **Table 5.36.** it can be observed that the CETP at Dombivali Better Environment System Association was performing at more than 91% efficiency in reducing BOD and COD whereas the performance of the rest of the CETPs was more than 85% in BOD and COD reduction. Also, the outlet values were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

#### 5.6.1.5. Kolhapur

There are 5 operational CETPs in this Region. The collective treatment capacity of these CETPs is 29.8 MLD. The total effluent generated and treated by industries in this Region was 121.59 MLD. The total number of industries in Kolhapur under each of the categories is demonstrated in **Figure 5.6** and performance of CETPs is presented in **Table 5.37.** The minimum SD. was found at Ichalkaranji Textile Development Cluster Ltd. (12 MLD) whereas the maximum SD. was found at Lote Parshuram Environment Protection Co-op. Society.

**Table 5.37. Statistical Analysis Data for CETP Performance in Kolhapur Region.**

Parameters (mg/l)			Location				
			L.K. Akiwate Industrial Co-op. Estate Ltd.	Lote Parshuram Environment Protection Co-op Society	Kagal-Hatkanangale C.E.T.P.	Ichalkaranji Textile Development Cluster Ltd. (12 MLD)	Ichalkaranji Textile Development Cluster Ltd. (1 MLD)
Inlet	BOD (mg/l)	Min.	220	220	10	140	90
		Max.	1250	3600	680	1000	960
		Mean	559	804	152	670	654
		SD.	221	194	46	168	176
	COD (mg/l)	Min.	584	224	184	528	264
		Max.	4560	11840	2176	4240	3264
		Mean	1651	2594	444	2094	2082
		SD.	686	711	149	477	514
Outlet	BOD (mg/l)	Min.	28	38	20	18	20
		Max.	625	390	130	100	60
		Mean	70	127	70	26	29
		SD.	21	39	24	3	16
	COD (mg/l)	Min.	136	128	80	64	88
		Max.	1440	1328	408	284	204
		Mean	207	326	217	116	126
		SD.	33	130	45	10	36

It is evident from **Table 5.37.** that Kagal-Hatkanangale CETP was performing with the least efficiency of about 53% in BOD and COD reduction. The CETPs at L.K. Akiwate Industrial Co-op. Estate Ltd. and

Lote Parshuram Environment Protection Co-op. Society were performing very well with more than 84% efficiency. Both the CETPs at Ichalkaranji Textile Development Cluster Ltd operated at more than 93% efficiency in BOD and COD reduction. The prescribed discharge limits were met at all CETPs except at Lote Parshuram Environment Protection Co-op. Society.

#### 5.6.1.6. Mumbai

There is no CETP in this Region at present. The total effluent generated and treated by industries in Mumbai Region was 8.9 MLD during the year 2017-18. Categorization of industries in this Region is given in **Figure 5.6**.

#### 5.6.1.7. Nagpur

There is one CETP provided in Nagpur Region. The treatment capacity of this CETP is 5 MLD. The total industrial effluent generated in this Region during the year 2017-18 was 25875.5 MLD of which 4.9 MLD was being treated at this CETP. Total number of industries in Nagpur under each category is presented in **Figure 5.6**. and performance of the CETP is presented in **Table 5.38**.

**Table 5.38. Statistical Analysis Data for CETP Performance in Nagpur Region.**

Parameters (mg/l)			Location
			Butibori CETP Pvt. Ltd.
Inlet	BOD (mg/l)	Min.	88
		Max.	475
		Mean	227
		SD.	80
	COD (mg/l)	Min.	224
		Max.	1328
		Mean	613
		SD.	211
Outlet	BOD (mg/l)	Min.	11
		Max.	36
		Mean	26
		SD.	4
	COD (mg/l)	Min.	36
		Max.	164
		Mean	86
		SD.	19

From the table it is clear that the CETP at Butibori is performing with more than 88% efficiency in BOD reduction and more than 85% efficiency in COD reduction. The BOD and COD outlet values after treatment are well within the prescribed limits.

#### 5.6.1.8. Nashik

There presently exists no CETP in this Region. However, Consent to Establish a CETP at Nashik Metal Finishers Ltd., Plot No. P30, MIDC, Taluka Ahmedabad, District – Nashik has been obtained. Total number of industries in Nashik under each category is demonstrated in **Figure 5.6**. The total industrial effluent generated in Nashik Region during 2017-18 was 133.03 MLD and the same quantity was being treated at respective industries.

### 5.6.1.9. Navi Mumbai

There are two operational CETPs in this Region with a collective treatment capacity of 49.5 MLD. The total effluent generated in Navi Mumbai Region during the year 2017-18 was 48.5 MLD of which 43 MLD was being treated in these CETPs. The minimum SD. was found at Thane Belapur Association and the maximum SD. was found at Taloja CETP Cooperative Society. The total number of industries under each category in this Region are shown in **Figure 5.6.** and performance of the CETPs is shown in **Table 5.39.**

**Table 5.39. Statistical Analysis Data for CETP Performance in Navi Mumbai Region.**

Parameters (mg/l)			Location	
			Thane-Belapur Association	Taloja CETP Cooperative Society
Inlet	BOD (mg/l)	Min.	46	145
		Max.	2800	6000
		Mean	490	1317
		SD.	342	752
	COD (mg/l)	Min.	128	416
		Max.	7600	11200
		Mean	1448	3465
		SD.	902	1711
Outlet	BOD (mg/l)	Min.	7	110
		Max.	240	2800
		Mean	102	600
		SD.	353	638
	COD (mg/l)	Min.	24	344
		Max.	760	6200
		Mean	240	1398
		SD.	841	1395

It can be observed from **Table 5.39.** that the CETP at Thane-Belapur Association is performing well with more than 75% efficiency while Taloja CETP Cooperative Society has about 57% efficiency in reducing BOD and COD. The outlet values of BOD and COD post treatment were beyond the prescribed limits of 100 mg/l and 250 mg/l respectively at both CETPs.

### 5.6.1.10. Pune

There are 5 operational CETPs in Pune Region. Their collective treatment capacity is 12.5 MLD. The total industrial effluent generated in this Region during the year 2017-18 was 379.62 MLD. Data on the quantity of effluent treated by these CETPs during this year is not currently available. The minimum SD. was found at Greenfield CET Plant P. Ltd. while the maximum SD. was found at Kurkumbh Environment Protection Co-op. Society. The total number of industries under each category in this Region is shown in **Figure 5.6.** and performance of the CETPs is shown in **Table 5.40.**

**Table 5.40. Statistical Analysis Data for CETP Performance in Pune Region.**

Parameters (mg/l)			Location				
			Kurkumbh Environment Protection Co-op. Society	Ranjangaon CETP	Greenfield CET Plant P. Ltd	Hydro Air Tectonics (PCD)	Akkalkot CETP
Inlet	BOD (mg/l)	Min.	52	2	70	11	88
		Max.	1200	2650	490	1550	865
		Mean	660	475	138	135	335
		SD.	341	321	68	92	151
	COD (mg/l)	Min.	504	44	132	32	264
		Max.	3520	8240	1488	620	2592
		Mean	2067	1416	392	378	967
		SD.	1370	941	202	275	431
Outlet	BOD (mg/l)	Min.	17	13	11	32	38
		Max.	80	775	130	450	320
		Mean	54	111	32	159	95
		SD.	30	71	26	68	65
	COD (mg/l)	Min.	56	36	40	100	116
		Max.	272	2192	328	1360	952
		Mean	163	250	101	465	282
		SD.	88	229	80	187	189

From **Table 5.40.** it is evident that the CETP at Kurkumbh Environment Protection Co-op. Society is performing very well at about 92% efficiency. The CETP at Hydro Air Tectonics (PCD) had the lowest performance with about 38% efficiency. The remaining CETPs were performing at about 71% efficiency in BOD and COD reduction. The discharge limit for BOD were being met at all CETPs and the limit for COD was being attained at all CETPs except Akkalkot CETP.

#### 5.6.1.11. Raigad

There are 3 operational CETPs in this Region with a collective treatment capacity of 32.5 MLD. The total amount of effluent generated by industries in this Region during the year 2017-18 was 95.38 MLD of which 29.2 MLD was being treated by these CETPs. The total number of industries under each category in this Region is shown in **Figure 5.6.** and performance of the CETPs is shown in **Table 5.41.** The minimum SD. was found at MMA-CETP Cooperative Society Ltd. while the maximum SD. was found at RIA CETP Co-op. Society Ltd.

**Table 5.41. Statistical Analysis Data for CETP Performance in Raigad Region.**

Parameters (mg/l)			Location		
			PRIA CETP (I) Ltd.	RIA CETP Co-op. Society Ltd.	MMA-CETP Cooperative Society Ltd.
Inlet	BOD (mg/l)	Min.	70	320	60
		Max.	3000	2800	480
		Mean	578	910	299
		SD.	529	468	97

Outlet	COD (mg/l)	Min.	168	1104	232
		Max.	5920	7240	2336
		Mean	1416	2625	915
		SD.	1125	1209	284
	BOD (mg/l)	Min.	45	78	10
		Max.	575	1050	180
		Mean	244	229	44
		SD.	125	199	17
	COD (mg/l)	Min.	124	228	32
		Max.	1328	2912	496
		Mean	588	732	175
		SD.	264	488	36

From **Table 5.41.** it is evident that PRIA CETP (I) Ltd. is performing at 58% efficiency in reducing BOD and COD. RIA CETP Co-op. Society Ltd. had an efficiency of 75% while MMA-CETP Cooperative Society Ltd. was performing at more than 80% efficiency. The discharge limits of 100 mg/l and 250 mg/l for BOD and COD respectively were being attained only at MMA-CETP Cooperative Society Ltd.

#### 5.6.1.12. Thane

There is one CETP in Thane Region. The total industrial effluent generated during the year 2017-18 was 364.45 MLD of which 25 MLD was treated at this CETP. The total number of industries under each category in this Region is shown in **Figure 5.6.** and performance of the CETP is shown in **Table 5.42.**

**Table 5.42. Statistical Analysis Data for CETP Performance in Thane Region.**

Parameters (mg/l)		Location	
		Tarapur Environment Protection Society CETP	
Inlet	BOD (mg/l)	Min.	420
		Max.	4800
		Mean	1070
		SD.	412
	COD (mg/l)	Min.	1224
		Max.	18240
		Mean	3137
		SD.	1110
Outlet	BOD (mg/l)	Min.	80
		Max.	1600
		Mean	305
		SD.	206
	COD (mg/l)	Min.	204
		Max.	3424
		Mean	890
		SD.	615

From **Table 5.42.** it is observed that the Tarapur Environment Protection Society CETP was performing very well with about 73% efficiency in reducing BOD and COD. However, the outlet values of BOD and COD were beyond the prescribed discharge limits of 100 mg/l and 250 mg/l.



## 5.7. Domestic Wastewater Treatment

### 5.7.1. Analysis of Performance of Sewage Treatment Plants with Statistical Details

Details of STPs according to Regions in the State of Maharashtra are presented in the following sections and the performance of STPs is analyzed based on standards of 20 mg/l for Biochemical Oxygen Demand (BOD) and 50 mg/l for Total Suspended Solids (TSS) as prescribed by CPCB in the Environment (Protection) Rules, 1986 in Schedule – VI. Currently there are 89 operational STPs in the State of Maharashtra. The total quantity of domestic effluent received by STPs during the year 2017-18 was 7296.98 MLD while the total quantity of domestic effluent treated by STPs during this year was 3994.29 MLD. Standard deviation for STP performance has not been included in this report on account of unavailability of flow values corresponding to the outlet values for each STP.

#### 5.7.1.1. Amravati

There are two STPs under Amravati Municipal Corporation with respective treatment capacities of 30.5 MLD and 44 MLD. The STP with a treatment capacity of 30.5 MLD is under maintenance while the other STP is in operation. There is one STP operational under the Municipal Council of Shegaon with a treatment capacity of 7 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 97.7 MLD and the total quantity of effluent treated was 79 MLD. The mean of annual performance and analysis of all STPs provided in Amravati Region are represented in **Table 5.43**.

**Table 5.43. Mean of Annual Performance of STPs in Amravati Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Amravati Municipal Corporation STP at Lalkhadi, Taluka & District Amravati.	7.06	7.04	13	6.8	18	16
Municipal Council, Shegaon Taluka Shegaon, District Buldana.	7.77	7.38	80.5	23.65	257	33

It can be observed from **Table 5.43**, that outlet value of BOD at the STP under Amravati Municipal Corporation was within the standards for domestic effluent discharge prescribed in the E (P) Rules, 1986 in Schedule – VI. However, the BOD value of the STP provided by Municipal Council, Shegaon exceeded the prescribed standards. Outlet values for suspended solids (S.S.) were not beyond the prescribed standards at all locations.

#### 5.7.1.2. Aurangabad

There are 4 STPs in this Region, two of which have been provided by Aurangabad Municipal Corporation. The other two have been provided by the Nanded-Waghala City Municipal Corporation. The total treatment capacity of these STPs is 128.5 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 51 MLD and all of it was treated by these STPs. The mean of annual performance and analysis of all STPs provided in Aurangabad Region are represented in **Table 5.44**.

**Table 5.44. Mean of Annual Performance of STPs in Aurangabad Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
CIDCO STP near Chikalthana Airport, Aurangabad	-	8.02	-	48.75	-	-
STP at Saleem Ali Sarovar, HUDCO, Aurangabad	-	7.5	-	39.63	-	-

Nanded Waghala City Municipal Corporation, Bondar STP, Nanded (87 MLD)	-	7.83	-	97	-	57
Nanded Waghala City Municipal Corporation, Elichpur STP Nanded (30 MLD)	-	7.8	-	95.14	-	53.14

It can be observed from **Table 5.44.** that the outlet values of BOD and suspended solids were not within the prescribed discharge standards at all locations.

### 5.7.1.3. Chandrapur

There are two operational STPs in this Region provided by Chandrapur Municipal Corporation. The collective treatment capacity of these STPs is 70 MLD. The total quantity of domestic effluent received at these STPs during the year 2017-18 was 60 MLD. The quantity of effluent treated at these STPs is not available. The mean of annual performance and analysis of all STPs provided in Chandrapur Region are represented in **Table 5.45.**

**Table 5.45. Mean of Annual Performance of STPs in Chandrapur Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Pathanpura, Chandrapur	7.7	7.02	14	12.8	22	18
Rehmat Nagar, Chandrapur	7.85	6.82	21.2	13.2	26	20

It is evident from **Table 5.45.** that the outlet values of BOD and suspended solids at both STPs did not exceed the prescribed standards.

### 5.7.1.4. Kalyan

There are 11 STPs in this Region of which 9 are operational. The STP at Motgaon is not yet commissioned while the STP provided by Ulhasnagar is not in operation since the drainage system flooded in the year 2005 and has been restored till date. The collective treatment capacity of the operational STPs is 229 MLD and the total domestic effluent received at these STPs was 418 MLD. The total domestic effluent treated at these STPs during the year 2017-18 was 81.5 MLD. The mean of annual performance and analysis of all STPs provided in Kalyan Region are represented in **Table 5.46.**

**Table 5.46. Mean of Annual Performance of STPs in Kalyan Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Adharwadi STP	-	6.8	-	9.6	-	16.8
Barve STP	-	7	-	5.7	-	16.8
Chinchpada STP	-	7.2	-	5.6	-	17.3
Titwala East STP	-	7	-	4.7	-	10.5
Titwala West STP	-	7	-	7.4	-	12.8
Ambarnath Municipal Council - Wadalgaoon	-	7.7	-	14.5	-	28
Ambarnath Municipal Council - Chikholi	-	7	-	4	-	17
Badlapur Municipal Council	-	7	-	20	-	27
Bhiwandi Nizampur City Municipal Corporation, Bhiwandi, Tal.-Bhiwandi, Dist.-Thane	-	-	-	-	-	-

From **Table 5.46**, it can be seen that the outlet values of BOD and suspended solids at all STPs were within the prescribed standards of 20 mg/l and 50 mg/l respectively.

#### 5.7.1.5. Kolhapur

There are two STPs in operation in Kolhapur with a collective treatment capacity of 96 MLD. One STP has been provided by Kolhapur Municipal Corporation whereas the other is operational under Ichalkaranji Municipal Corporation. There was one STP at 100 Foot Road, Vishrambaug, Taluka – Miraj. However, details are not available as Sangli-Miraj and Kupwad City Municipal Corporation has not yet applied for the same. The total quantity of domestic effluent received at these STPs during the year 2017-18 was 69 MLD and the same quantity was treated by these STPs. The mean of annual performance and analysis of all STPs provided in Kolhapur Region are represented in **Table 5.47**.

**Table 5.47. Mean of Annual Performance of STPs in Kolhapur Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Kolhapur Municipal Corporation (76 MLD)	-	6.26	-	50.6	-	67.5
Ichalkaranji Municipal Corporation (20 MLD)	-	7.63	-	20	-	27.33

It can be observed from **Table 5.47**, that the BOD outlet value for the STP provided by Kolhapur Municipal Corporation exceeded prescribed standards. The BOD outlet value for the STP provided by Ichalkaranji Municipal Corporation was within the standard limits. The outlet values for suspended solids exceeded the prescribed standards of 50 mg/l at the STP provided by Kolhapur Municipal Corporation.

#### 5.7.1.6. Mumbai

There are 8 operational STPs in this Region with a collective treatment capacity of 2686.9 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 6725 MLD while the quantity treated at these STPs was 6627.9 MLD. The mean of annual performance and analysis of all STPs provided in Mumbai Region are represented in **Table 5.48**.

**Table 5.48. Mean of Annual Performance of STPs in Mumbai Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Worli STP	7.4	7.06	114	87.142	142	98
Colaba STP	7.2	7.16	59.14	42	46	37.71
Bandra STP	-	7.2	-	42	-	28
Versova STP	7.2	7.1	60	32	55	31
Ghatkopar STP	-	6.8	-	40	-	30
Bhandup STP	-	7.3	-	15	-	22
Malad STP	7	6.9	250	90	35	18
Charkop STP	7.5	7.3	80	78	115	16

It is evident from **Table 5.48**, that the BOD outlet values exceeded the prescribed standards at all locations except Bhandup STP while outlet values for suspended solids were beyond the standards only at Worli STP.

### 5.7.1.7. Nagpur

There are three operational STPs in this Region provided by Nagpur Municipal Corporation (NMC). The collective treatment capacity of these STPs is 340 MLD. The total effluent received at these STPs was 450 MLD of which 340 MLD was treated during the year 2017-18. The mean of annual performance and analysis of all STPs provided in Nagpur Region are represented in **Table 5.49**.

**Table 5.49. Mean of Annual Performance of STPs in Nagpur Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
NMC - Nagpur	-	7.2	-	10.5	-	-
	-	6.7	-	13	-	18

From **Table 5.49**, it can be observed that outlet values for BOD and suspended solids at all STPs provided by NMC – Nagpur were within the prescribed standards of 20 mg/l and 50 mg/l.

### 5.7.1.8. Nashik

There are 10 STPs in this Region of which one STP at Nandurbar is not operational as it has been commissioned only recently. The collective treatment capacity of eight of the remaining STPs is 220.8 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 409.14 MLD, and the total quantity of domestic effluent treated at these STPs was 302.74 MLD. The mean of annual performance and analysis of all STPs provided in Nashik Region are represented in **Table 5.50**.

**Table 5.50. Mean of Annual Performance of STPs in Nashik Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Trimbakeshwar	7.8	7.6	101	98	NA	NA
Panchak (7.5 MLD)	7.65	7.59	118.56	46.65	NA	NA
Panchak (21 MLD)	7.59	7.46	202.78	58.85	NA	NA
Chehedi (20 MLD)	7.71	7.6	134.55	26.93	NA	NA
Chehedi (22 MLD)	7.84	7.82	97.2	35.2	NA	NA
Tapowan (78 MLD)	7.62	7.56	101.22	48.52	NA	NA
Tapowan (52 MLD)	7.69	7.67	93.78	41.08	NA	NA
Shirdi Nagar Panchyat	7.8	7.7	25	15	NA	NA
Shirpur Municipal Council, Taluka Shirpur, District Dhule	7.3	7.26	38	12	140	122

It can be seen from **Table 5.50**, that the BOD outlet values exceeded the prescribed standard at all locations except Shirdi and Shirpur, while the outlet value of suspended solids at Shirpur was beyond the prescribed standard.

### 5.7.1.9. Navi Mumbai

There are 8 operational STPs in this Region with a collective treatment capacity of 464 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 464 MLD of which 290 MLD was the total quantity of effluent treated. The mean of annual performance and analysis of all STPs provided in Navi Mumbai Region are represented in **Table 5.51**.

**Table 5.51. Mean of Annual Performance of STPs in Navi Mumbai Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
STP - Sector 12, CBD - Belapur, Navi Mumbai	-	6.40	-	16.00	-	14.00
STP - Sector 50, Nerul, Navi Mumbai	-	6.50	-	14.00	-	16.00
STP - Sector 20, Sanpada, Navi Mumbai	-	6.50	-	12.00	-	20.00
STP - Sector 18, Vashi, Navi Mumbai	-	6.40	-	6.00	-	12.00
STP - Sector 2, Nerul, Navi Mumbai	-	6.30	-	42.00	-	36.00
Ghansoli STP, Sector 15	-	7.0	-	4	-	14.30
Airoli STP, Sector 18	-	7.0	-	7.3	-	11.3
Koparkhairane STP	-	7.20	-	4.20	-	15.60

It can be observed from **Table 5.51.** that all BOD outlet values were within the prescribed standard of 20 mg/l except at Sector 2 - Nerul. All outlet values for suspended solids were within the prescribed standards of 50 mg/l.

#### 5.7.1.10. Pune

There are 28 operational STPs out of 36 in this Region with a collective treatment capacity of 1168.89 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 1052.5 MLD while the total quantity of domestic effluent treated was 834.6 MLD. The mean of annual performance and analysis of all STPs provided in Pune Region are represented in **Table 5.52.**

**Table 5.52. Mean of Annual Performance of STPs in Pune Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
PMC STP at Tanajiwadi	-	6.9	-	14	-	-
PMC STP at New Naidu	-	7	-	9.5	-	-
PMC STP at Old Naidu	-	7	-	4.2	-	-
PMC STP at Vittalwadi	-	7.1	-	8.6	-	-
PMC STP at Erandwana	-	7.1	-	15	-	-
PMC STP at Baner	-	7.3	-	3.8	-	-
PCMC Akurdi	-	7.9	-	11.6	-	10.3
PCMC Charholi	-	7.9	-	19.5	-	29
PCMC Chikhali Phase-I	-	7.4	-	12.4	-	15.2
PCMC Chikhali Phase-II	-	7.7	-	8.9	-	11.6
PCMC Chinchwad	-	7.5	-	17.3	-	12.3
PCMC Kasarwadi -I	-	9.1	-	7.5	-	14.3
PCMC Kasarwadi -II	-	7.3	-	12	-	16.2
PCMC Kasarwadi -III	-	7.6	-	14.7	-	14.9
PCMC Pimple Nilakh	-	7.8	-	10.2	-	32.3

PCMC Ravet	-	7.6	-	10.5	-	13.2
PCMC Sanghavi	-	7	-	5.8	-	11
PCMC Dapodi	-	7.8	-	10.1	-	17
PCMC Bhat Nagar	-	7.6	-	12.7	-	32
Mahabaleshwar Municipal Council-STP No.1- at Compartment No. 79 (City Survey No. 257/1) Behind Karmachari Vasahat, at Mahabaleshwar, Taluka- Mahabaleshwar, District-Satara	-	7.25	-	10.75	-	28
	-	7.65	-	147.5	-	640.5
Panchgani Municipal Council (0.65 MLD)	-	7.65	-	27	-	51
Panchgani Municipal Council (0.35 MLD)	-	7.5	-	8.55	-	27.5
Panchgani Municipal Council (1.5 MLD)	-	7.6	-	78	-	123
Karad Municipal Council	-	7.3	-	32.83	-	31.33
Malkapur City	-	8.5	-	7	-	24
Solapur Municipal Corporation, Solapur Kumathe STP	-	8.1	-	4.95	-	13
Solapur Municipal Corporation, Solapur Degaon STP	-	8.1	-	5.5	-	12
Solapur Municipal Corporation, Solapur Pratap Nagar STP	-	8.2	-	4.05	-	11.5
Pandharpur Municipal Corporation, Solapur Pandharpur STP	7.8	7.4	-	85	-	21.25

From **Table 5.52**, it can be observed that the BOD outlet values exceeded the prescribed standard of 20 mg/l at the STP provided by Mahabaleshwar Municipal Council, and those at Panchgani, Karad and Pandharpur. Outlet values of suspended solids were within the prescribed standard of 50 mg/l at all locations except at the STP provided by Mahabaleshwar Municipal Council and at Panchgani.

#### 5.7.1.11. Raigad

There are 5 operational STPs in this Region with a collective treatment capacity of 244 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 190 MLD and the entire quantity was treated by these STPs. The mean of annual performance and analysis of all STPs provided in Raigad Region are represented in **Table 5.53**.

**Table 5.53. Mean of Annual Performance of STPs in Raigad Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
CIDCO STP, Sector - 16, Kharghar	6.9	6.9	40	10	26	18
CIDCO STP, Sector - 16, Kharghar	6.9	6.7	21	5	18	16
CIDCO STP, Sector - 12, Kalamboli	6.7	6.5	110	9	112	14
CIDCO STP, Sector - 32, Kamothe	6.5	6.5	110	16	70	16
PMC STP, Panvel	7.1	6.7	58	8	98	12

From **Table 5.53**, it can be seen that the outlet values of BOD and suspended solids were within the prescribed standards at all STPs.

### 5.7.1.12. Thane

There are 9 operational STPs in this Region with a collective treatment capacity of 209.4 MLD. The total domestic effluent received at these STPs during the year 2017-18 was 209.4 MLD and the quantity treated by these STPs was 155.4. The mean of annual performance and analysis of all STPs provided in Thane Region are represented in **Table 5.54**.

**Table 5.54. Mean of Annual Performance of STPs in Thane Region.**

Location	Parameters (mg/l)					
	pH		BOD (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Zone - 4 STP, MBMC - Golden Nest	-	7.4	-	9	-	7
Jessal Park STP - MBMC	-	7.4	-	4	-	10
Shruti STP - MBMC	-	7.3	-	5	-	9
6-C STP MBMC Shanti Nagar	-	7.3	-	4	-	8
6-A STP MBMC Shanti Park	-	7.4	-	5	-	9
Zone-5 STP, MBMC - Kanakiya	-	7.4	-	8	-	9
Mumbra	7.23	6.85	114.2	8.91	124.66	17.5
Kopri	6.9	6.71	64	10.9	46.2	16.28
Vartak Nagar	6.75	6.5	77.5	20.66	52.5	21.33

It is observed from **Table 5.54** that the BOD outlet value exceeded the prescribed standard only marginally at the STP Vartak Nagar. All outlet values for suspended solids were within the prescribed standards.

## 5.8. Solid Waste Management in Maharashtra

Solid waste is classified into four different types depending on their source. The first category of solid waste is Municipal Solid Waste (MSW). It consists of household waste, construction and demolition debris (C & D), sanitation residue, and waste from streets, generated mainly from residential and commercial complexes. As per MoEF & CC it includes commercial and residential waste generated in municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated Bio-Medical Wastes. The second category of solid waste is Hazardous Solid Waste (HSW) which is also termed as industrial waste. It may contain toxic substances which are corrosive, highly inflammable, or which react when exposed to certain elements e.g. gases. The third category of solid waste is biomedical waste (BMW) or hospital waste. It is usually infectious waste that may include waste like sharps, soiled waste, disposables, anatomical waste, cultures, discarded medicines, chemical wastes usually in the form of disposable syringes, swabs, bandages, body fluids, human excreta, etc. These can be a serious threat to human health if not managed in a scientific and discriminate manner. The fourth category of waste is electronic waste or e-waste and includes discarded electrical or electronic devices. Used electronics which are destined for reuse, resale, salvage, recycling or disposal are also considered e-waste.

Major waste treatment and disposal methods for MSW include thermal treatment, dumps and landfills, and biological waste treatment. There are various processes used to treat BMW viz. chemical processes, thermal processes, mechanical processes, irradiation processes and biological processes. Treatment technologies for HSW have been categorized as physical, chemical, biological, thermal, or

stabilization/fixation. The two methods for proper treatment of e-waste are recycling and refurbishing.

Municipal Solid Waste generated in Maharashtra State is treated in 56 common facilities provided by either Corporations or Municipal Councils. 4 Common Hazardous Waste Treatment Facilities are provided to treat hazardous waste generated in the State. 3 Common Waste Treatment Facilities are provided to treat biomedical waste generated. Details of waste generation, facilities and treatment provided are elaborated in the following sections of the report.

### **5.8.1. Analysis of Waste Management with Statistical details**

The detailed report on the quantity of different categories of solid waste generated and treated in all the Regions in Maharashtra during the year 2017-18 is given below.

#### **5.8.1.1. Amravati**

- Quantity of Municipal Solid Waste generated – 729.5 MT/day

#### **5.8.1.2. Aurangabad**

- Quantity of Municipal Solid Waste generated – 1623.94 MT/day of which 235.79 MT/day was treated.
- Only about 14% of Municipal Solid Waste was treated.

#### **5.8.1.3. Chandrapur**

- Quantity of Municipal Solid Waste generated – 419.62 MT/day of which 123.82 MT/day was treated.
- Only 29% of Municipal Solid municipal solid waste was treated.

#### **5.8.1.4. Kalyan**

- Quantity of Municipal Solid Waste generated – 1795.5 MT/day of which 77 MT/day was treated.
- Only about 4% of Municipal Solid Waste was treated.

#### **5.8.1.5. Kolhapur**

- Quantity of Municipal Solid Waste generated – 784.75 MT/day of which 289.9 MT/day was treated.
- About 37% Municipal Solid Waste was treated.

#### **5.8.1.6. Mumbai**

- Quantity of Municipal Solid Waste generated – 7,500 MT/day of which 3000 MT/day was treated.
- Almost 40% Municipal Solid Waste was treated.

#### **5.8.1.7. Nagpur**

- Quantity of Municipal Solid Waste generated – 1374 MT/day of which 276.5 MT/day was treated.
- Only 20.1% of Municipal Solid Waste was treated.

#### **5.8.1.8. Nashik**

- Quantity of Municipal Solid Waste generated – 1897.58 MT/day of which 997.12 MT/day was treated.
- 78.7% of Municipal Solid Waste was treated.

#### **5.8.1.9. Navi Mumbai**

- Quantity of Municipal Solid Waste generated – 761 MT/day of which 752 MT/day was treated.



- 98% of Municipal Solid Waste was treated.

#### 5.8.1.10. Pune

- Quantity of Municipal Solid Waste generated – 3902.75 MT/day of which 1983.61 MT/day was treated.
- About 51% of Municipal Solid Waste was treated.

#### 5.8.1.11. Raigad

- Quantity of Municipal Solid Waste generated – 179.96 MT/day of which 109.8 MT/day was treated.
- 61% of Municipal Solid Waste was treated.

#### 5.8.1.12. Thane

- Quantity of Municipal Solid Waste generated – 1929 MT/day of which 100 MT/day was treated.
- Only 5% of Municipal Solid Waste was treated.

### 5.9. Hazardous Waste Generation during the year 2017-18.

Details on total generation and treatment of Hazardous Waste during the year 2017-18 in the State of Maharashtra is shown below in **Table 5.55**.

**Table 5.55. Total Generation and Treatment of Hazardous Waste in the State during 2017-18.**

Hazardous Waste Generation as per Consent (MT/annum)			
Landfillable	Incinerable	Recyclable	Utilizable
725444.35	353286.72	1091514.03	276429.20
Hazardous Waste Generation as per Annual Returns of Industries for the year 2017-18 (MT/annum)			
Landfillable	Incinerable	Recyclable	Utilizable
299138.37	51198.39	301496.53	45147.55
Hazardous Waste Treated (MT/annum)			
Landfillable	Incinerable	Recyclable	Utilizable
299138.37	51198.39	301496.53	45147.55

#### 5.9.1. Status of Common Hazardous Waste Treatment, Storage & Disposal Facility

There are 4 Common Hazardous Waste Treatment, Storage & Disposal Facilities (CHWTSDF) installed and operating successfully in the State of Maharashtra. 2 facilities namely Mumbai Waste Management (MWM), Taloja and Trans Thane Waste Management Association (TTCWMA), Mahape, are located under Navi Mumbai Region; 1 facility namely Maharashtra Enviro Power Ltd (MEPL), Ranjangaon is located in Pune Region and Vidharbha Enviro Protection Ltd. (VEPL), Butibori Industrial Area is located in Nagpur Region. Presently 6353 industries are members of these 4 facilities and are disposing their hazardous waste. Individual capacities of CHWTSDFs have been shown in **Table 5.56**. Summary of hazardous waste received and individual capacities of CHWTSDFs are presented in **Table 5.57**.

**Table 5.56. Summary of Individual Capacities of CHWTSDFs.**

Name of Facility	M/s. Mumbai Waste Management Limited	M/s. Trans Thane Waste Management Association	M/s. Maharashtra Enviro Power Ltd.	M/s. Vidharbha Enviro Protection Ltd.
Address of Facility	Plot No. P-32, MIDC, Taloja	P-128, Shil-Mahape Road, next to L&T Infotech Ltd.	Ranjangaon	SPV of M/s. Shaktikumar M. Sancheti Ltd., Butibori
Capacity of the Facility	<b>SLF - 1,20,000 MT/Year</b>	<b>SLF - 21,600 MT/Year</b>	<b>SLF - 60,000 MT/Year</b>	<b>SLF - 60,000 MT/Year</b>
	<b>1. INC - 2.5 TPH.</b>	<b>INC - No Facility</b>	<b>INC - 3.0 TPH</b>	<b>INC - 3.0 TPH</b>
	<b>2. INC- 2.5 TPH</b>	<b>(Incinerable HW sent to Taloja)</b>		

**Table 5.57. Summary of Hazardous Waste Received at disposal sites during 2017-18.**

Site	DLF* (MT/A)	LAT* (MT/A)	INC* (MT/A)	Total (MT/A)
<b>Total participant industries – 6,353</b>				
MWML, Taloja, Navi Mumbai	31343	120739.00	27091	<b>179173</b>
TTCWMA, Mahape, Navi Mumbai	25973.07	7785.34	---	<b>33758.41</b>
MEPL, Ranjangaon, Pune	46491.10	38752.51	24235.69	<b>109479.30</b>
VEPL, Butibori, Nagpur	12065	10906	2492	<b>25463</b>
<b>Total</b>	<b>115872.17</b>	<b>178182.85</b>	<b>53818.69</b>	<b>347873.71</b>

\* DLF- Direct Land Filling, LAT- Landfilling After Treatment, INC- Incineration

There are 6,353 industries that generate hazardous waste. Various methods such as DLF, LAT, INC and onsite hydroclave are used for the treatment of hazardous waste. 115872.17 MT/A HW was treated with DLF method, 178182.85 MT/A by LAT method and 53818.69 MT/A by INC method. **Table 5.58.** shows the number of units in each Region that has been granted authorization to generate HSW.

**Table 5.58. No. of units in each Region that is given authorization to generate HSW.**

Region	Total No. of Units
Amravati	80
Aurangabad	361
Chandrapur	127
Kalyan	905
Kolhapur	374
Mumbai	404
Nagpur	367
Nashik	514
Navi Mumbai	722
Pune	1311
Raigad	391
Thane	797
<b>Total</b>	<b>6353</b>

### 5.10. Implementation of Biomedical Waste Management Rules, 2016

- The MoEF & CC has notified Biomedical Waste Management Rules, 2016 on 28<sup>th</sup> March, 2016.
- As per new Biomedical Waste Management Rules, 2016, all hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, clinical establishments, research or educational institutions, health camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms in schools, forensic laboratories and research laboratories are include under the purview of these rules.
- It is mandatory for all non-bedded HCEs to obtain one time BMW authorization from the Board.
- Under the Government mission of 'Ease of Doing Business' and on account of efforts taken to ensure transparent operation, this office has developed a protocol for an online Consent and BMW authorization. Real-time grant of provisional authorization is subject to online submission of application with necessary documents and fees.
- The Board has been implementing Biomedical Waste Management Rules, 2016 in the State. Presently, there are 30 Common Waste Treatment and Disposal Facilities in operation in the State of Maharashtra.

#### ➤ **Status of Bio-medical Waste Treatment Facilities:**

(1) Total number of BMW CTFs authorized by Board in the Maharashtra:	30
(2) Number of incineration based operational facilities:	28
(3) Number of deep burial based operational facilities:	2
(4) Total number of HCEs covered under BMW Rules, 2016:	63,824
a) Bedded:	20,487
b) Non-bedded:	43,337
(5) Total number of beds served by BMW CTFs:	2,93,345
(6) Total quantity of BMW collected and treated:	1857.3 Tons/month.

### 5.11. Electronic Waste

Electronic waste or e-waste consists of discarded electrical or electronic devices. Used electronics which are destined for reuse, resale, salvage, recycling, or disposal are also considered e-waste. Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution. Electronic scrap components, such as CPUs contain potentially harmful components such as lead, cadmium, beryllium, or brominated flame retardants. Recycling and disposal of e-waste may involve significant risk to health of workers and communities in developed countries and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfills and incinerator ashes.

#### ➤ **Implementation of E-waste (Management and Handling) Rules, 2011**

- E-Waste (Management) Rules, 2016 were notified on 23<sup>rd</sup> March, 2016 and came into force from 1st October, 2016.
- Applicability of these newly modified rules have been expanded to manufacturers, dealers, refurbishers and Producer Responsibility Organizations (PRO).
- Producers are responsible for setting up collection centers individually or in association.
- Obtaining authorization for producers from multiple SPCs is no longer in practice. Single Extended Producer Responsibility (EPR) authorization for producers from CPCB has been introduced.
- Target based approach for collection under EPR has been introduced.

• E-Waste Collection Target (Weight):

Sr. No.	Year	E-Waste Collection Target (Weight)
(i)	2017-2018	10% of the quantity of waste generation as indicated in Extended Producer Responsibility Plan.
(ii)	2018-2019	20% of the quantity of waste generation as indicated in Extended Producer Responsibility Plan.
(iii)	2019-2020	30% of the quantity of waste generation as indicated in Extended Producer Responsibility Plan.
(iv)	2020-2021	40% of the quantity of waste generation as indicated in Extended Producer Responsibility Plan.
(v)	2021-2022	50% of the quantity of waste generation as indicated in Extended Producer Responsibility Plan.
(vi)	2022-2023	60% of the quantity of waste generation as indicated in Extended Producer Responsibility Plan.
(vii)	2023 onwards	70% of the quantity of waste generation as indicated in Extended Producer Responsibility Plan.

- Simplification of permissions by giving only authorizations instead of authorization and registrations.
- Responsibility is fixed on manufacturers to collect E-Waste and channelize it for recycling at authorized site.
- Responsibility is fixed on dealers and refurbishers.
- Responsibility is of the State Industry Department to earmark or allocate industrial space for E-Waste dismantling and recycling facilities.
- Department of Labour is responsible for recognition and registration of workers in dismantling and recycling. Annual monitoring and ensuring safety and health of workers is also the responsibility of the Department.
- State Government to prepare integrated plan for effective implementation of these rules and to submit annual report to MoEF & CC.
- Concept of manifest system for transportation of E-Waste is introduced.
- Concept of liability provisions is introduced.
- Maharashtra Pollution Control Board has constituted a Technical Committee for scrutiny of Applications received for grant / renewal of Authorization for dismantling / recycling / refurbishing of E-Waste under the Chairmanship of Shri R. K. Garg.

Details of authorizations issued under the E-waste (M & H) Rules, 2011 to dismantlers/recyclers/ collection/producers are as shown in **Table 5.59**.

**Table 5.59. Status of E-Waste Generation and Recycling in Maharashtra State**

Types of Authorizations/Registrations granted by the Board	Authorizations/Registrations granted by the Board (number)	Capacity of E-Waste generation/collection/dismantling/recycling (MT/A)
Recyclers	8	77,525
Dismantlers	70	

### 5.12. Plastic Waste Management

- On 3<sup>rd</sup> March, 2006, the Government of Maharashtra published the Maharashtra Plastic Carry Bags (Manufacture and Usage) Rules, 2006 issued on the background of floods in the State in 2005. The said notification has restricted manufacturing, usage, sale of plastic carry bags made of virgin or recycled plastic of size not less than 8 x 12 inches and thickness not less than 50 microns.
- The Plastic Waste (Management and Handling) Rules, 2011 published vide notification number S.O 249(E), dated 4<sup>th</sup> February, 2011 by the Government of India has been superseded by the Plastic Waste Management Rules, 2016. The said notification is applicable to every waste generator, local body, Gram Panchayat, manufacturer, importer and producer and also to restricted manufacture, importer stocking, distribution, sale and use of carry bags, plastic sheets or covers made from plastic sheets and multi-layered packaging subject to certain conditions such as carry bags made of virgin or recycled plastic shall not be less than fifty microns in thickness. Producers, importers and brand-owners are imposed with the responsibility of preparation and execution of Extended Producer's Responsibility for collection and disposal of post-consumer plastic waste.
- Despite the ban on plastic bags lesser than 50 microns in thickness, there is an increase in non-biodegradable plastic waste which is causing damage to environmental health. The Government of Maharashtra, in exercise of Clause 1 and 2 of Section 4 of Maharashtra Non-biodegradable Garbage (Control) Act, 2006, notified the Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018 on 23<sup>rd</sup> March, 2018.
- As per the said notification, the manufacture, usage, transport, distribution, wholesale and retail sale and storage, import of plastic bags with handle and without handle, and disposable products manufactured from plastic and thermocol (polystyrene), such as single use disposable dishes, cups, plates, glasses, forks, bowls, containers, disposable dishes/bowls used for packaging food in hotels; spoons, straws, non-woven polypropylene bags, cups/pouches to store liquid are banned. Also the use of plastic and thermocol for decoration purposes is banned.
- Plastic used for packaging of medicines, medical equipment and medical products for export purposes is exempted. Also plastic used for packaging of goods and food is exempted subject to certain conditions which majorly include preparation and execution of Extended Producer's Responsibility plan. Only compostable plastic bags or materials used for plant nurseries, horticulture, agriculture, handling of solid waste are also exempted from the ban.
- For implementation of the notification, authorities from various departments such as Local Bodies, Revenue, Administrative, Industries, Health, Education, Tourism, Environment, Forest, and Transport have been empowered to take necessary legal action under powers conferred under Section 12 of the provisions of the Maharashtra Non-biodegradable (Control) Act, 2006, as per their jurisdiction.



A meeting was held on 23<sup>rd</sup> November, 2017 at Aurangabad to understand divisional level views and suggestions regarding proposed plastic ban. Hon'ble Shri Ramdas Kadam, Environment Minister, GoM, addressing Government and Local Body Officers with regard to action plan for Plastic Ban. Dr. P. Anbalagan (IAS) Member Secretary, MPCB and Collector, Aurangabad participated in the discussion.



A meeting was held on 23<sup>rd</sup> November, 2017 at District Collector Office, Aurangabad to understand divisional level views and suggestions with respect to proposed plastic ban. Hon'ble Shri Ramdas Kadam, Environment Minister, GoM addressing Government and Local Body Officers with regard to action plan for Plastic Ban.



**A meeting was held on 29<sup>th</sup> November, 2017 at Divisional Commissioner Office, Pune, Revenue Divisional level regarding views and suggestions on proposed plastic ban. Hon'ble Shri Ramdas Kadam, Environment Minister, GoM, addressing Government and Local Body Officers with regard to action plan for Plastic Ban.**

**Dr. P. Anbalagan (IAS), Member Secretary of MPCB, Divisional Commissioner, District Collector, Chief Executive Officer, Zilla Parishad and Chief Officer, Municipal Council, Commissioner, Municipal Corporation and officials of MPCB participated in the discussion.**



**A meeting was held on 19<sup>th</sup> December, 2017 at Divisional Commissioner Office, Nagpur, Revenue Divisional level regarding views and suggestions on proposed plastic ban. Hon'ble Shri Ramdas Kadam Environment Minister, GoM, addressing Government and Local Body Officers with regard to action plan for Plastic Ban.**

**Shri Satish Gavai, Principal Secretary, Environment Department, GoM, Dr. P. Anbalagan (IAS), Member Secretary of MPCB, Divisional Commissioner, District Collector, Chief Executive Officer, Zilla Parishad and Chief Officer, Municipal Council, Commissioner, Municipal Corporation & officials of MPCB participated in the discussion.**

### 5.13. Performance of MPCB Laboratories

Maharashtra Pollution Control Board has established a Central Laboratory at Mahape, Navi Mumbai and seven Regional Laboratories at Pune, Nashik, Aurangabad, Nagpur, Chiplun, Thane and Chandrapur, under Sub-Section 2 of Section 17 of the Water (P & CP) Act, 1974 and the Air (P & CP) Act, 1981. These laboratories are equipped and approved by Ministry of Environment Forest and Climate Change (MoEF & CC), Government of India, Delhi under E (P) Act, 1986. The Laboratories are ISO 9001:2015 and OHSAS 18001:2007 certified since 2014.

All MPCB laboratories functions as 'Board laboratories' as defined under Water and Air Act; and Environment (Protection) Act, 1986 and rules made there under to analyze the samples collected by officers authorized to collect samples from respective jurisdictions for analysis of water, air and hazardous waste, Municipal Solid Waste, biomedical waste samples and submit the reports to the respective authorities for further actions. Regional Laboratory - Chandrapur has a facility to analyze only air samples.

MPCB laboratories are well equipped with modern sophisticated instruments and equipment such as UV Spectrophotometer, Gas Chromatograph (GC), Mass Spectrophotometer, Atomic Absorption Spectrophotometer (AAS), Ion Chromatography (IC) Inductive Couple Plasma (ICP), Absorbable Organic Halide Analyzer (AOx), CHNS Analyzer and others. Analysis of performance of Board laboratories for the year 2017-18 is as shown in **Table 5.60.** and is represented graphically in **Figures 5.8., 5.9. and 5.10.**

**Table 5.60. Analysis of Performance of Board Laboratories (2017-18)**

Sr. No	Laboratory	Total No. of Samples Analyzed				Total	Total No. of Parameters Analyzed				Total
		Water	Air	H.W	Coal		Water	Air	H.W	Coal	
1	C. Lab.*, Mahape, Navi Mumbai	6967	983	86	0	8036	89877	7010	609	0	97496
2	R. Lab.*, Nagpur	2598	743	37	35	3413	36423	1923	332	70	38748
3	R. Lab., Pune	3994	385	17	0	4396	49086	1940	136	0	51162
4	R. Lab., Nashik	2203	557	47	0	2807	28849	2413	368	0	31630
5	R. Lab., Aurangabad	1868	795	26	0	2689	20847	2668	119	0	23634
6	R. Lab., Chiplun	3298	637	42	0	3977	40216	1428	250	0	41894
7	R. Lab., Thane	1818	681	-	0	2499	12566	2153	-	0	14719
8	R. Lab., Chandrapur	-	801	-	1	802	-	2172	-	2	2174
<b>TOTAL</b>		<b>22746</b>	<b>5582</b>	<b>255</b>	<b>36</b>	<b>28619</b>	<b>277864</b>	<b>21707</b>	<b>1814</b>	<b>72</b>	<b>301457</b>

\*C. Lab – Central laboratory, R. Lab - Regional Laboratory



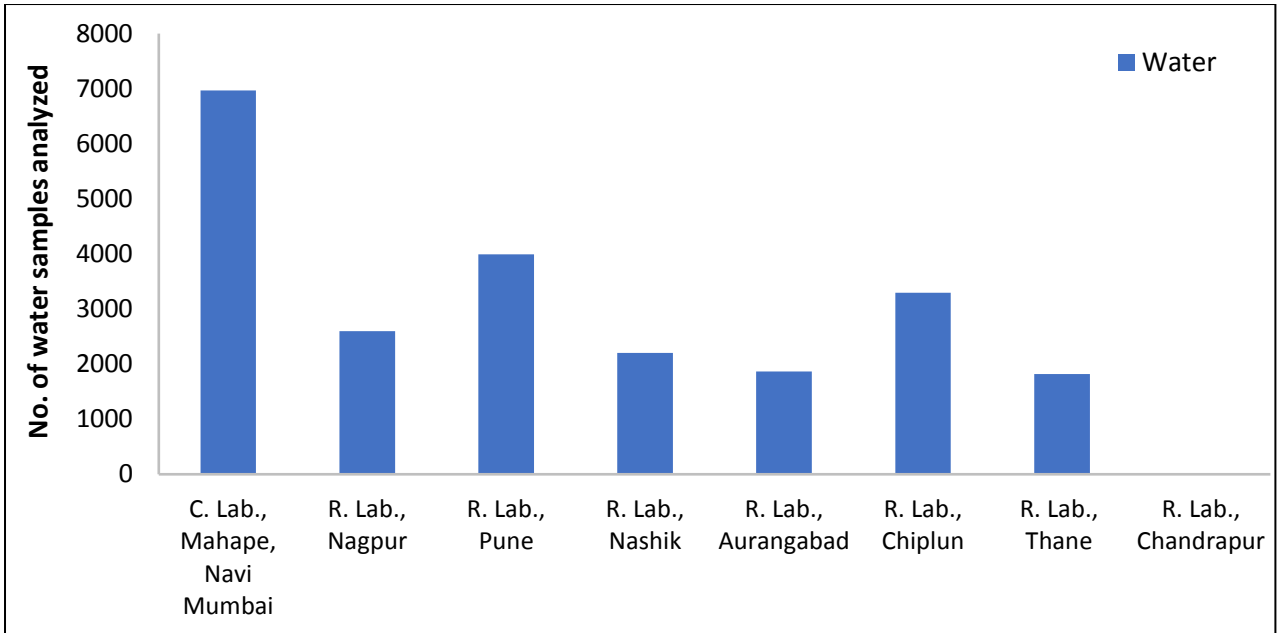


Fig 5.8. Annual total of water samples analyzed at each MPCB laboratory (2017-18).

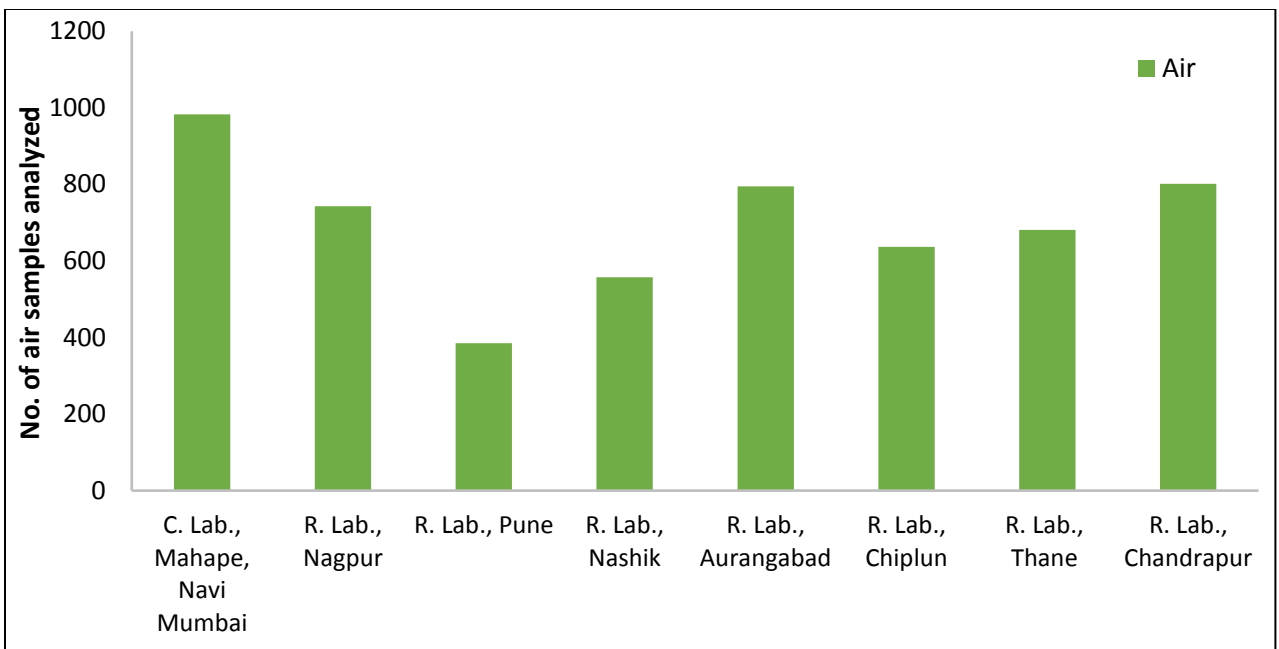


Fig 5.9. Annual total of air samples analyzed at each MPCB laboratory (2017-18).

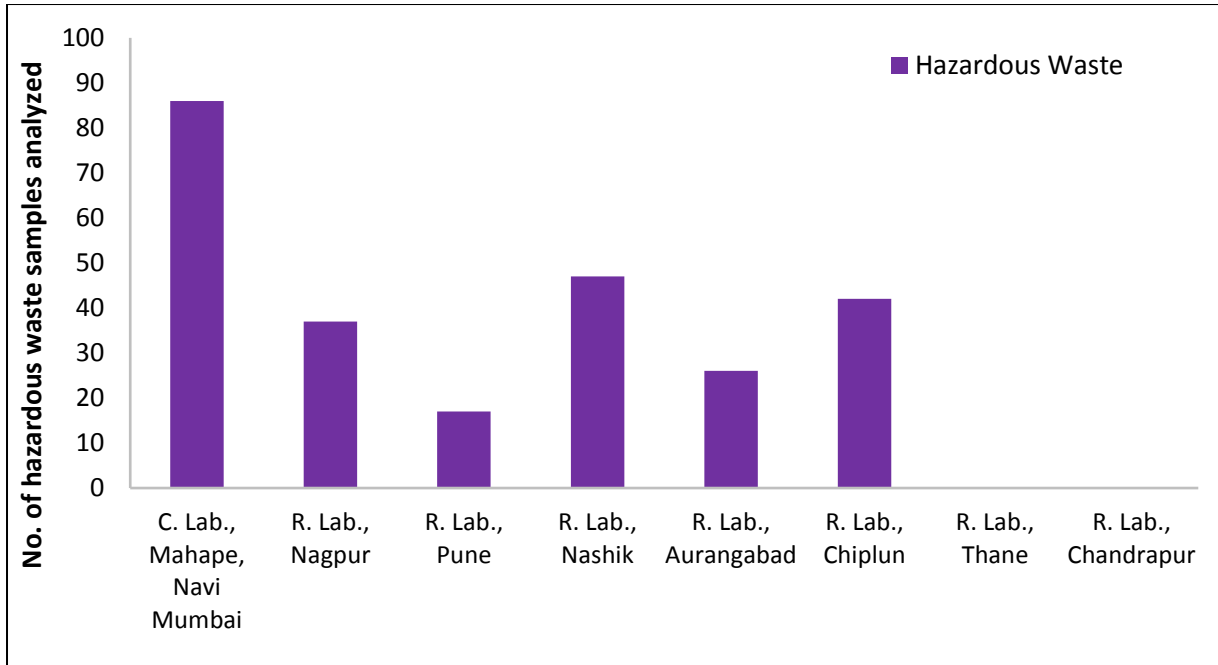


Fig 5.10. Annual total of hazardous waste samples analyzed at each MPCB laboratory (2017-18).



## 6. REGIONAL ENVIRONMENTAL PROBLEMS & CONTROL MEASURES TAKEN IN RESPECTIVE REGIONS

### Issues related to air and noise pollution in the State of Maharashtra:

- CPCB has identified 17 cities in Maharashtra as Non-Attainment cities with respect to Particulate Matter where exceedance of RSPM was observed. The main sources identified were vehicular emissions, suspension of road dust and other fugitive emissions, emission from biomass/garbage burning, emissions from industries, and emission from construction activities.
- Ambient noise level increase was mainly due to traffic movement and celebration of festivals.

### Actions initiated:

- The Board has issued directions to all stakeholders for preparation of action plans for improvement of air quality in their city.
- Workshops were conducted for all stakeholders for sensing issues related to air pollution and training was conducted for preparing action plans as per templates of CPCB.
- The Board is also in the process of conducting Source Apportionment Study for 10 non-attainment cities through IIT (B), Mumbai and NEERI. This study will assess the sources contributing to ambient air pollution.
- The Board regularly monitors ambient noise levels during festival period at selected locations to assess the impact of festival celebration. The findings are made public through the website for creating awareness.
- Firecracker testing was conducted to assess their compliance with manufacturing standards under Noise Rules, 2000. The list of violating crackers was communicated to PESO for initiating action.

**The environmental issues faced by different regions in the State of Maharashtra and the control measures implemented by the Board are described below.**

### 6.1. Aurangabad

#### 6.1.1. Issues

- A matter before the Hon'ble National Green Tribunal WZ, Pune has been filed by Raghunath Rakhmaji Lohakare regarding contamination of groundwater in MIDC Area, Waluj, District Aurangabad.
- It has been observed that heavy metals were removed in the treated water and TDS was found to have increased due to addition of calcium polysulphide solution.

#### 6.1.2. Control Measures Adopted

- The Hon'ble NGT has directed remediation of contaminated groundwater. Accordingly, the M.S. University of Baroda has been appointed to suggest technology for the said work. On the basis of technology suggested by the M.S. University of Baroda, the Pilot Plant was operated in Waluj MIDC Area.
- To overcome this issue the operating agency has suggested EMIRON Technology. By adopting this technology, removal of heavy metals can be achieved without increasing TDS levels in treated water quality.

- In meetings of Core Committee and Technical Committee, it has been concluded that the said technology is not cost effective. Therefore it has been decided to find alternative solutions.
- Presently, a technical sub-committee has been constituted as per the directives of the Collectorate, Aurangabad, in which one of the members, Dr. Nemade, Indian Chemical Technology, Jalna, has suggested the use of nano particles of FeS (Ferrous Sulphide) for removal of chromium. At present the said matter is under consideration for demonstration.

## **6.2. Chandrapur**

### **6.2.1. Issues**

- River water pollution is being caused to discharge of untreated sewage generated from Municipal Councils and Corporation into nearby nallas and rivers.
- Mine water is being discharged by various NCL mines into Erai and Zarpat rivers in Chandrapur district and Vidarbha river in Wani, District Yavatmal.
- Air pollution is being caused due to process units of air polluting industries such as coal mines, cement, sponge iron, coal wateries and thermal power plants.
- Air pollution is being caused due to heavy commercial/coal transportation, coal depots, domestic coal burning, and vehicular transportation.
- Heavy transportation of coal, iron ore, cements and overloading of trucks, railway siding is being carried out at Ghuggus, Wani, Tadali, Majri areas thereby giving rise to coal depot issues in Yavatmal and Chandrapur districts.

### **6.2.2. Control Measures Adopted**

- Directions have been issued to all Municipal Corporations/Councils under Section 33A of Water (P & CP) Act, 1974.
- No action plan is proposed in environmental status report of local bodies.
- Specific Directions have been issued to water polluting industries along with Municipal Corporation, Chandrapur and Municipal Council, Ballarpur.
- This office has collected law evidence samples from Municipal Corporation/Councils and submitted prosecution proposal with respect to Chandrapur Municipal Corporation, Municipal Council- Warora, Municipal Council- Ballarpur, Municipal Council- Bhadrawati to HQ, Mumbai for approval.
- Central Pollution Control Board has carried out water sampling in CEPI area.
- Board has given directions to air polluting industries for upgradation of their APCs. Sponge iron units have been provided with WHRB. Major polluting industries such as CSTPS have provided ammonia dosing system for improvement of ESP efficiency.
- The Board has given directions to all industries to carry minerals under closed conditions and has further directed all coal based industries to use washed coal in majority.
- The work of connection of CAAQM at industries is also under progress.
- Board has issued guidelines for coal stack and railway siding. For implementation of said guidelines, Board has issued proposed direction and taken personal hearing of coal depot located at Wani area.
- Board has conducted meeting regarding review of CEPI under the Chairmanship of Additional Chief Secretary, Environment Department at Collector Office, Chandrapur to reduce score of CEPI and implementation action plan of CEPI.

### 6.3. Kalyan

#### 6.3.1. Issues

- STP provided by Ulhasnagar Municipal Corporation (UMC) is not in operation since heavy floods in July 2005. Despite confirmation from UMC to start full-fledged operation before December 2014, STP is yet to be made operational.
- Water pollution is being caused due to effluent generation arising from industrial development in Dombivali (Phase I & II) and KDMC area.
- Smell nuisance in Khambalpada and Bhopar Nallah is being caused due to broken untreated effluent carrying pipeline and chamber in nearby industrial area.
- Demarcation of industrial and residential areas is not proper.
- Noise pollution is being caused due to illegal jeans sewing industries in Ulhasnagar residential area.
- Industries have altered fuel pattern to coal fired boilers which has led to complaints from residents.
- Air pollution is being caused due to steel units, rolling and re-rolling mills, cupola furnaces, lead acid battery scrap recycling units, asbestos cement sheet manufacturing units, waste/used oil re-refining units and other small chemical industries in Wada Tehsil.
- Air and noise pollution are being caused due to burning of coal as a fuel for boilers in loom industries located at Bhiwandi and transportation of goods by heavy vehicles to godowns. Operation of APC systems is improper.

#### 6.3.2. Control Measures Adopted

- Due to non-compliance of consent conditions, MPCB has issued Conditional Directions to UMC.
- This office is carrying out regular monitoring of water quality of Kalu river at Atale Village and Ulhas Creek at Reti bunder.
- The Board has informed MIDC for installation of pipeline from the outlet of DBESA, CETP up to the discharge point in Ulhas creek. Internal damage repair of industrial effluent carrying pipelines in MIDC area is under progress.
- 6 Closure Directions, 58 Proposed Directions, 50 Show Cause Notices, 72 Interim Directions, 8 VCDs have been issued to industries.
- Identification of such units is in progress. Monitoring of identified units is in progress.
- Prima facie dust collector followed by wet scrubber has been provided.
- This office is regularly carrying out vigilance of industries to check compliance of Consent conditions. Most industries are operating their APC systems.
- It seems necessary to install separate electric meters to pollution control systems to access continuous operations.
- It is necessary to formulate guidelines regarding location of industries from nearby habitation, population and nearby roads. It also seems necessary to carry out zoning of area so that further growth of industries shall be viewed according to existing pollution loads.

### 6.4. Kolhapur

#### 6.4.1. Issues

- Water pollution is being caused due to discharge of untreated sewage from Kolhapur Municipal Corporation and Ichalkaranji Municipal Corporation and 173 Gram Panchayats to Panchganga river through various nallas.
- Operation and maintenance of oxidation ponds in Miraj city is very poor. Therefore treated sewage is disposed on nearby agricultural land.

- Domestic pollution is being caused due to sewage and sullage generated from human habitations in Ratnagiri district.
- Treatment of most domestic effluent is partially carried out by housing societies, bungalows and hotels through their own septic tanks or soak pits.
- There is a lack of funds for provision of full-fledged STP in the area.
- Noise pollution is being caused during festive season i.e. Ganesh festival, Diwali and Navratri as well as due to generators and industrial operations.
- Air pollution is being caused due to fuel combustion in industries located at Chiplun.

#### **6.4.2. Control Measures Adopted**

- The Board has issued various notices and has initiated legal actions and filed a court case against Kolhapur Municipal Corporation and Ichalkaranji Municipal Council. Kolhapur Municipal Corporation has received funds under various government schemes for collection and treatment of sewage generated in Corporation area.
- The Zilla Parishad has taken initiatives for the implementation of the sewage treatment plant in 39 villages and appointed an agency for the same after the follow up by the Board.
- “Panchganga River Action Plan” has been prepared as per instructions of Environment Department – GoM. Regular monitoring of river water quality is being carried out by Sub-Regional Office, Kolhapur.
- SRO Kolhapur has carried out water quality monitoring of water bodies pre- and post- immersion of Ganesh idols at various places. Awareness campaigns and meetings with Ganesh Mandals and various organizations have been carried out to avoid the pollution of water bodies during the festival.
- Corporation has already started civil work of new STP with capacity of 22.5 MLD at Miraj based on SBR technology. Corporation has proposed provision of additional STP for Kupwad with capacity of 15 MLD.
- MPCB has communicated with local bodies on number of occasions informing them about provision of proper transportation, treatment and disposal facilities for domestic sewage and Municipal Solid Waste. As per instructions from Urban Development Department, Municipal Councils have been requested to switch over to bio-methanization for treatment of MSW.
- Most industries have installed acoustic enclosures for DG sets. Industrial operations have been designed with low sound generation.
- All industries have provided adequate APC systems for control of air pollution.

### **6.5. Nashik**

#### **6.5.1. Air Pollution at Malegaon City**

##### **6.5.1.1. Issues**

- In the jurisdiction of this office NGT No. 16/2018 has been issued regarding air pollution caused due to waste plastic which is being used as fuel in boiler in Malegaon Corporation Area.

##### **6.5.1.2. Control Measures Adopted**

- The MPCB has issued 25 of Closure Directions to sizing units and 5 Closure Directions to plastic gitti/lumbs manufacturing units.
- The Board has issued Not To Start Directions to 141 plastic units. Related to this, 24 sizing units have installed air pollution control systems such as mechanical dust collector and cyclone.
- Restart orders have been issued to 24 industries.

- Directions have been issued for installation of wet scrubbers in 141 plastic gitti units.

## 6.5.2. Godavari River Pollution Problem

### 6.5.2.1. Issues

- As per complaint received from MIDC Authority and Municipal Corporation Nashik, Sub-Regional Officer - Nashik has issued Warning Notices to all 43 units located in MIDC Satpur.

Total number of industries visited	43
Warning Notices issued	43
Show Cause Notices	43
Proposed Directions	3
Closure Directions	8
Restart orders issued to	7

### 6.5.2.2. Control Measures Adopted

- This office has issued letter on 24/04/2018 to Deputy Engineer, Municipal Corporation, Nashik and Executive Engineer (Sewage Treatment) MIDC, Nashik for non-provision of underground drainage systems in the MIDC Area.
- This office has conducted joint meeting on 28/06/2018 with Divisional Officer, Satpur, Amad of Nashik Municipal Corporation, Deputy Engineer, MIDC and Chairman of NIMA, Nashik regarding joint inspection to resolve the complaint received from MIDC and Nashik Municipal Corporation.
- Hon'ble HC has passed judgment on 18/12/2018 in respect of PIL No. 176/2012. In the said judgement no specific direction has been issued to the MPCB.
- In this connection this office has issued letter to MIDC and Nashik CETP Foundation for completion of the work of CETP in the stipulated time period as per the direction given by Hon'ble HC dated 18/12/2018.
- Letter is also issued to Municipal Corporation, Nashik for submission of compliance report of existing and proposed STP as per the direction given by Hon'ble HC on dated 18/12/2018.

## 6.6. Navi Mumbai

### 6.6.1. Issues

- Mr. Arvind Pundalik Mhatre has filed Original Application No. 125/2018 Vs. Ministry of Environment, Forest and Climate Change & Others before the Hon'ble National Green Tribunal, Principal Bench, New Delhi.
- The grievance raised in these proceedings relates to discharge of effluents in river Kasardi which has an adverse impact on the environment. The problem continues despite a Common Effluent Treatment Plant (CETP) being managed by the Taloja CETP Cooperative Society Limited since 2013.
- Frequent complaints from residents of Sector 11 - Koparkhairane with respect to pollution in this area are an environmental issue in the Navi Mumbai region.
- Pollution of Alok Nalla is being caused due to overflow of chambers provided along the pipeline which carries effluent from MIDC, discharge of untreated domestic effluent from slum areas into nallas and CETP.
- Hydrogen sulphide has been noticed to be present while monitoring along the nalla, which causes smell nuisance in that area.
- There may be an increase in SPM levels due to heavy traffic on Thane - Belapur Road and construction activities.

### **6.6.2. Control Measures Adopted**

- This office has issued directions to textile industries which use coal as a fuel, to provide proper dust collection system. Accordingly they have provided the same.
- Also, directions have been issued to concerned industries for provision of leak detection systems.
- Directions have been issued to MIDC to avoid chamber overflow.
- Directions have also been issued to CETP to take necessary precautions to avoid smell nuisance. It has been insisted that industries change fuel pattern to PNG. This area is also included in CEPI area.
- A monitoring committee has been constituted under the chairmanship of Hon'ble Justice Shri Vidysagar Kanade (Retired High Court Judge).
- The Regional Officer has issued directions to textile industries which are using coal as a fuel, to provide proper dust collection system accordingly they have provided same.

## **6.7. Pune**

### **6.7.1. Issues**

- Domestic pollution is being caused due to discharge of untreated sewage into the river from PCMC area.
- Water pollution is being caused due to discharge of domestic untreated sewage from the PCMC area and part of seepage from treated/partially treated industrial effluent.
- Pollution of groundwater is being caused due to improper handling and discharge of polluted water, and high levels of sulphates and total hardness in groundwater.
- Air pollution is being caused due to high number of two wheelers and higher resuspension rate of dust on account of adverse road conditions and rapid rate of construction.

### **6.7.2. Control measures adopted**

- Local bodies from Pune region have been given directives from time to time.
- RO Pune has prosecuted Pune Municipal Corporation and Pimpri Chinchwad Municipal Corporation for treatment of total sewage generated.
- MPCB regularly monitors compliances made by various industries and corporations and action is accordingly being taken against defaulters.
- Sampling network needs to be reviewed and amended in order to have good representation of the study area.
- Open wells and bore wells need to be monitored and analysed regularly at all possible locations based on the potential of that area for groundwater extraction and use, as well as environmental hazards.

## **6.8. Thane**

### **6.8.1. Issues**

- Sub-standard domestic effluent from urban local bodies meets creek which eventually is released into the sea thereby leading to sea water pollution.
- Air pollution is being caused due to vehicles, construction projects, industries, road construction activities, stationary pollution at commercial places, fuel used for cooking.
- Air pollution is being caused due to traffic in city and industries. Boiler and stone crushers are also major sources besides vehicular pollution.
- Noise pollution is being caused due to vehicles, industrial activities and other human activities. Traffic jams, bad roads, festivals and other types of celebrations also contribute to noise pollution.





### **6.8.2. Control Measures Adopted**

- Monthly monitoring of creek water and nalla water is carried out under NWMP project. Regular samples of sea and creek at 5 different locations are collected periodically.
- Regular monitoring and observations/inspections/visits are being carried out. Regular ambient monitoring and observations/inspections/visits are also being carried out.
- Concerned authorities have been directed to take necessary steps to limit air pollution.
- Industries in MIDC Tarapur using coal as fuel have been directed to switch to clean fuel to minimize air pollution.
- Industries have adopted advanced air pollution control measures in the form of scrubbers, mechanical cyclones and bag house assembly.

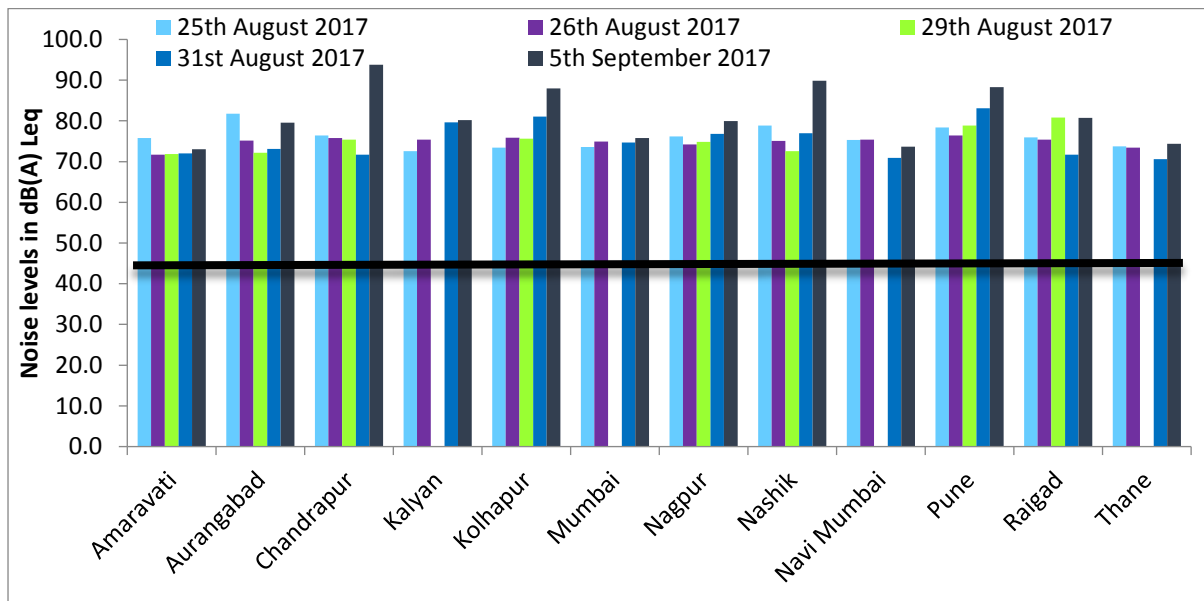
## 7. ENVIRONMENTAL STUDIES AND SURVEYS

### 7.1. Noise Monitoring during Ganesh Festival 2017.

Maharashtra Pollution Control Board has been carrying out study on ambient noise levels in the State of Maharashtra during Ganesh Festival for more than 10 years as a continuous process. Noise monitoring was carried out at 135 locations under 27 Municipal Corporations in the State over a period of 5 days during Ganesh Festival i.e. on 25<sup>th</sup>, 26<sup>th</sup>, 29<sup>th</sup> and 31<sup>st</sup> August and 5<sup>th</sup> September 2017 from 6 PM to 12 AM for each location which comprises of residential, commercial and silence zone. **Table 7.1.** depicts the number of noise monitoring locations in each region in the State. **Figure 7.1.** graphically represents noise levels recorded in certain regions of Maharashtra during Ganesh Festival 2017.

**Table 7.1. Noise monitoring locations in Maharashtra during Ganesh Festival 2017.**

Region	Number of locations
Amravati	6
Aurangabad	14
Chandrapur	3
Kalyan	9
Kolhapur	6
Mumbai	25
Nagpur	5
Nashik	17
Navi Mumbai	5
Pune	27
Raigad	3
Thane	15
<b>Total</b>	<b>135</b>



**Fig 7.1. Noise levels during Ganesh festival 2017 at different locations in Maharashtra.**

From **Figure 7.1.**, it can be observed that the highest mean noise level recorded on 25<sup>th</sup> August 2017 was at Aurangabad at 81.8 dB(A). On the second day of noise monitoring, that is on 26<sup>th</sup> August 2017, 76.4 dB(A) was the highest mean noise level and was recorded at Pune. On 29<sup>th</sup> August, on account of

heavy rainfall of more than 100 mm in many regions such as Mumbai, Thane, Kalyan and Navi Mumbai, noise levels were not recorded due to lack of accessibility to noise monitoring locations. The highest mean noise level recorded among regions where noise levels were recorded on 29<sup>th</sup> August was 80.8 dB(A) at Raigad. Pune recorded the highest mean noise level of 83.1 dB(A) on 31<sup>st</sup> August. The highest noise level recorded during monitoring in Ganesh Festival 2017 was 93.8 dB(A) on 5<sup>th</sup> September, 2017 at Chandrapur.

The lowest mean noise level of 72.6 dB(A) was recorded at Kalyan on 25<sup>th</sup> August while the lowest mean noise levels of 71.7 dB(A) and 71.9 dB(A) were found at Amravati on 26<sup>th</sup> and 29<sup>th</sup> August respectively. On 31<sup>st</sup> August 2017, the minimum mean noise level recorded was 70.6 dB(A) at Thane. 73 dB(A) was the lowest mean noise level recorded on 5<sup>th</sup> September at Amravati.

### **7.1.1. Conclusion**

During 2017-18, noise levels were monitored at 135 locations under 27 Municipal Corporation in Maharashtra over 5 days during Ganesh Festival on the dates 25<sup>th</sup>, 26<sup>th</sup>, 29<sup>th</sup>, 31<sup>st</sup> August and 5<sup>th</sup> September 2017 for a duration of 6 hours between 6 PM and midnight for each location comprising of residential, commercial and silence zones. There was a significant decrease in the noise levels recorded in almost all areas.

Municipal Corporations such as those in Mumbai, Pune, Thane, Kalyan and Nagpur showed a considerable decrease in noise levels. Increase in noise levels was more due to increase in traffic and less due to the festival. People have become more aware about the ill-effects of noise pollution. It should also be noted that police were also very active in controlling noise levels this year.

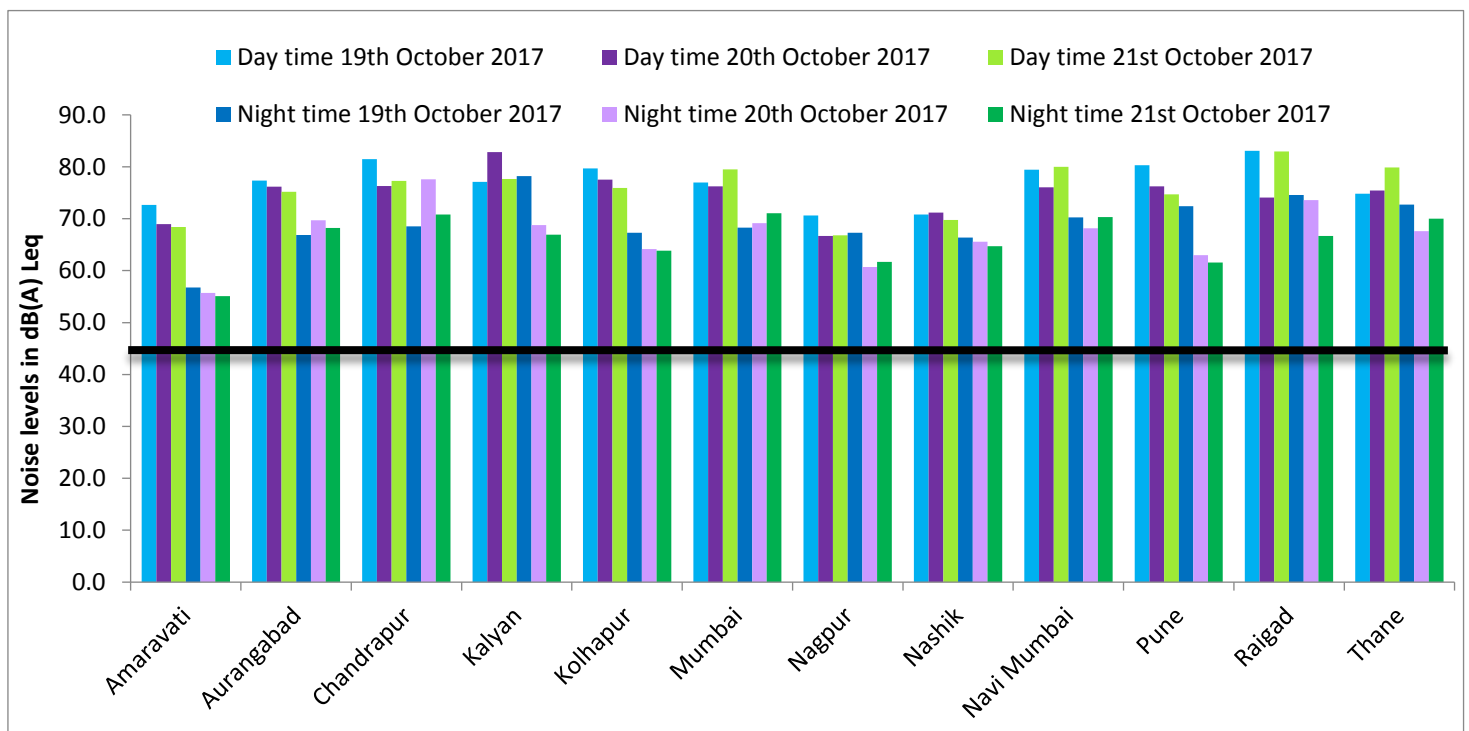
Awareness about noise pollution has increased within the public through different media like newspaper and television. Many people celebrate an eco-friendly Ganesh Festival to control environmental pollution. The decrease in noise pollution observed this year is also a result of this awareness.

### **7.2. Noise Monitoring during Diwali 2017.**

MPCB has been carrying out study of ambient noise levels in the State of Maharashtra during Diwali Festival for more than 10 years as a continuous process. Noise monitoring was carried out at 158 locations from 27 Municipal Corporation in Maharashtra for a period of 3 days during Diwali Festival on 19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup> October 2017 for 24 hours at each location which comprises of residential, commercial and silence zone. **Table 7.2.** depicts the number of noise monitoring in each region in the State. **Figure 7.2.** graphically represents noise levels recorded in certain regions of Maharashtra during Diwali 2017.

**Table 7.2. Noise Monitoring Locations in Maharashtra during Diwali 2017.**

Region	Number of locations
Amravati	6
Aurangabad	14
Chandrapur	3
Kalyan	9
Kolhapur	10
Mumbai	45
Nagpur	10
Nashik	17
Navi Mumbai	9
Pune	21
Raigad	3
Thane	11
<b>Total</b>	<b>158</b>



**Fig 7.2. Noise levels during Diwali 2017 at different locations in Maharashtra.**

From **Figure 7.2.** it is observed that the mean highest noise level of 83.1 dB(A) was recorded at Raigad on the first day of noise monitoring (19<sup>th</sup> October, 2017) during day time and 78.2 dB(A) at Kalyan during night time. On 20<sup>th</sup> October, 2017 the mean highest noise level of 82.8 dB(A) was recorded at Kalyan during day time and the mean highest noise level of 77.6 dB(A) was recorded at Chandrapur during night time. The mean highest noise level of 82.9 dB(A) was recorded during day time at Kalyan, and Mumbai recorded the mean highest noise level of 71 dB(A) during night time on 21<sup>st</sup> October. During noise monitoring carried out in Diwali 2017, the mean highest noise level recorded was 83.1 dB(A) in Raigad region.

The lowest mean noise levels of 70.6 dB(A), 66.7 dB(A) and 66.8 dB(A) were found at Nagpur during day time on 19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup> October respectively. The lowest noise levels of 56.8 dB(A), 55.7 dB(A) and 55.1 dB(A) during night time on these three days were found at Amravati.

### 7.2.1. Conclusion

During the year 2017-18, noise levels were monitored at 158 locations under 27 Municipal Corporation in Maharashtra over 3 days during Diwali on 19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup> October 2017 for a duration of 24 hours at each location comprising of residential, commercial and silence zones. The average noise levels observed were higher than the prescribed standards. Fire crackers were significant contributors over the short span of festivities which increased noise levels. However, the increase in noise levels are a cumulative effect of various noise sources including traffic, domestic activities and crowd. The peak values observed during this study are directly linked to the use of fire crackers.

Municipal Corporations in Nashik, Jalgaon, Malegaon, Parbhani and Akola showed a decrease in noise levels this year and the remaining 22 Municipal Corporations recorded high levels of noise due to the festival.

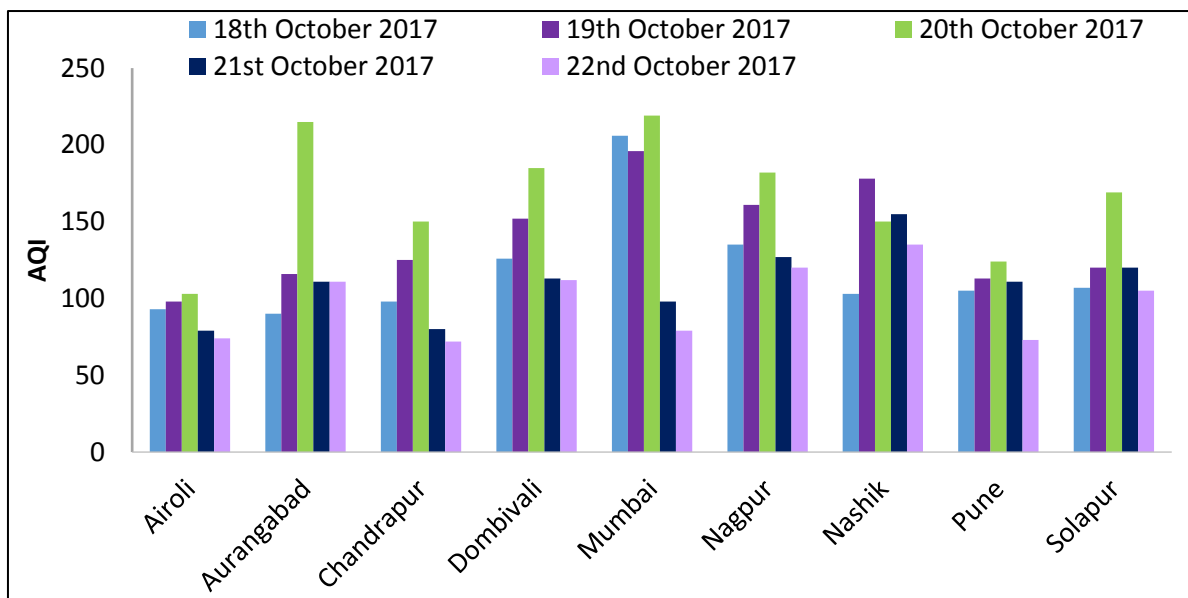
Despite the awareness regarding the environmental pollution caused due to the festival, there is an increase in the air, water and noise pollution during the festive period. There is a continuous need to create more awareness about pollution brought about by bursting fire crackers. Urban local bodies and non-governmental organizations can also take initiative in urban areas.

### 7.3. Air Quality Index during Diwali Festival 2017.

Monitoring of ambient air quality during Diwali Festival was carried out by MPCB at selected locations. The data of ambient air quality in the form of Air Quality Index (AQI) during pre-Diwali (18<sup>th</sup> October, 2017), Diwali (19<sup>th</sup> – 21<sup>st</sup> October, 2017) and post-Diwali (22<sup>nd</sup> October, 2017) was compiled and the results are shown graphically in **Figure 7.3**. The legend for reading AQI values is provided in **Table 7.3**.

**Table 7.3. Legend for AQI.**

AQI	0-50	51-100	101-200	201-300	301-400	401-500
Remarks	Good	Satisfactory	Moderate	Poor	Very Poor	Severe



**Fig 7.3. AQI during Diwali 2017 at different locations in Maharashtra.**

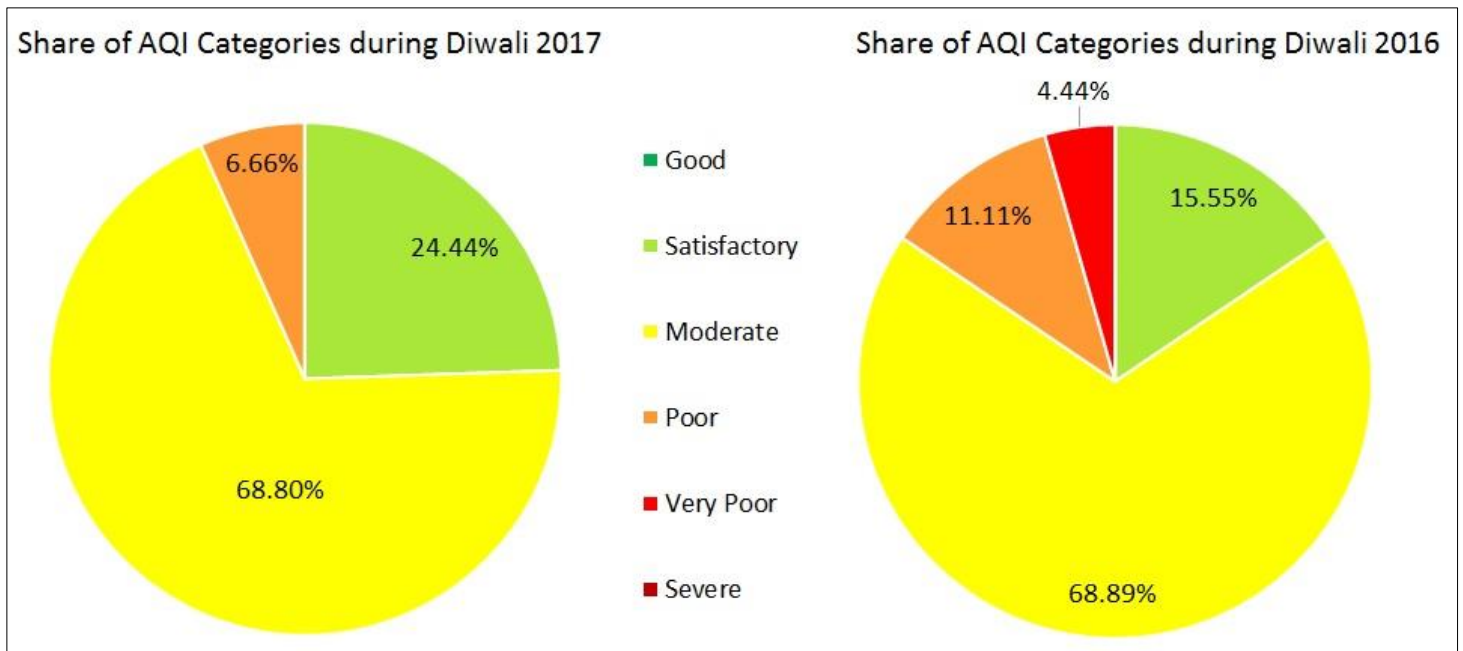
From **Figure 7.3**, it can be seen that the greatest AQI recorded on 18<sup>th</sup> October, 2017 pre-Diwali was 206 at Mumbai. Therefore the air quality on this day was ‘Poor’. The greatest AQI observed during the three day long Diwali period was 219 at Mumbai on 20<sup>th</sup> October, 2017 and the air quality was recorded as ‘Poor’. The maximum AQI recorded on 22<sup>nd</sup> October, 2017 post-Diwali was 135 at Nashik. Therefore the air quality was recorded as ‘Moderate’. The maximum Air Quality Indices were recorded at Mumbai during 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> October while the highest indices were recorded at Nashik on 21<sup>st</sup> and 22<sup>nd</sup> October.

The minimum AQI of 90 was recorded pre-Diwali on 18<sup>th</sup> October at Aurangabad. The air quality on this day was therefore recorded as ‘Satisfactory’. During the three day long Diwali festival, the minimum AQI of 79 was recorded on 21<sup>st</sup> October at Airoli and the air quality on this day was ‘Satisfactory’. Post-Diwali, the lowest AQI of 72 dB(A) was recorded on 22<sup>nd</sup> October at Chandrapur and the air quality was recorded as ‘Satisfactory’.

The average air quality in Airoli was ‘Satisfactory’ while that in the remaining regions was recorded as ‘Moderate’. This shows that celebrations and bursting of fire crackers made a lesser impact as compared to other sources of air pollution in the cities where air quality was monitored. The overall range of AQI during Diwali 2017 in these regions in Maharashtra shows that the air quality during Diwali Festival 2017 ranged from ‘Satisfactory’ to ‘Poor’.

### 7.3.1. Comparison between AQI during Diwali 2016 and Diwali 2017.

The share of categories of AQI during Diwali festival 2016 and 2017 are shown diagrammatically in **Figure 7.4**.



**Fig. 7.4. Comparison between percentage share of AQI during Diwali Festival 2016 and 2017.**

From **Figure 7.4**, it can be observed that during Diwali Festival 2017, the highest share of the “Moderate” category of AQI was 68.8%, whereas during Diwali festival of 2016, the share of the same category was 68.89%, which is almost similar to this year’s share. This was followed by 24.44% contribution of the “Satisfactory” category in the AQI during Diwali 2017. This share is higher than the share during Diwali 2016, where it was 15.55%. The share of the “Poor” category was only 6.66%



during Diwali 2017, while during Diwali festival 2016, it was slightly higher with a share of 11.11%. During Diwali 2016, the share of the “Very Poor” category of AQI was 4.44% while during Diwali 2017, AQI under this category was not recorded.

Therefore from this comparison it can be inferred that the air quality during Diwali 2017 was slightly better than during Diwali 2016. Although the share of the “Moderate” category in both the years during Diwali was similar, the share of “Satisfactory” category during Diwali 2017 was higher than in Diwali 2016. Also, the share of the “Poor” category of AQI was lesser during Diwali 2017 than that during Diwali 2016. While the “Very Poor” category of AQI contributed to 4.44% during Diwali 2016, AQI in this category was not recorded during Diwali 2017.

## 8. ENVIRONMENTAL TRAINING

Training constitutes an integral and continuous process for any learning and development. Understanding advancements in technology and new provisions in environmental aspects, quality of work, responsibilities in respective fields and overall development in the field of environment and work all boils down to effective training programs imparted to each accountable member of the Staff and Officers of the Board.

It is therefore one of the primary functions of the Board to plan and organize these training programs of varied capacities in different aspects of prevention, abatement and control of pollution. The Board deposes its staff and officers for training of different aspects for knowledge in environment protection and pollution control, cleaner technologies, waste minimization and amendments in respective Acts and Rules to adequately equip them to perform their duties with highest efficiency.

During the year 2017-18, the Board had deputed 676 officers to attend training in technical, scientific and administrative courses organizing 44 training programs during the year. **Table 8.1.** shows the total number of training programs conducted with the total number of participants and fees. The various training courses/workshops/seminars/lectures attended by the Staff and the Officers of the Board conducted during this year are summarized in **Annexure 5.**

**Table 8.1. Training Abstract for the year 2017-18.**

Total Training Programs Conducted	Total Participants
44	676



Justice D. Y. Chandrachud lighting the lamp at inaugural function of National Conference on Environment 2017 organized by National Green Tribunal (NGT) in association with MPCB at NCPA Auditorium, Mumbai. (L-R): Dr. P. Anbalagan (IAS), Member Secretary, MPCB, Hon'ble Shri Swatanter Kumar, Chairman, NGT, Justice Shri D. Y. Chandrachud, Supreme Court of India, Smt. Manjula Chellur, Chief Justice of Bombay High Court, Hon'ble Shri Devendra Fadnavis, Chief Minister, GoM and Hon'ble Shri Ramdasji Kadam, Minister for Environment, GoM.





**Dignitaries at inaugural function of National Conference on Environment 2017 organized by National Green Tribunal (NGT) in association with MPCB at NCPA Auditorium, Mumbai. (L-R): Hon'ble Shri Swatanter Kumar, Chairman, NGT, Justice Shri D. Y. Chandrachud, Supreme Court of India, Hon'ble Shri Devendra Fadnavis, Chief Minister, GoM, Smt. Manjula Chellur, Chief Justice of Bombay High Court, and Hon'ble Shri Ramdasji Kadam, Minister for Environment, GoM.**



**Hon'ble Shri Devendra Fadnavis, Chief Minister, GoM addressing Maharashtra Legislators on the eve of Climate Change Conference organized by MPCB, Environment Dept., GoM and V. S. Page Parliamentary Training Institute, Maharashtra Vidhan Mandal, Sachivalaya on 21<sup>st</sup> March 2018 at Vidhan Sabha Auditorium, Mumbai.**



Hon'ble Shri Ramdasji Kadam, Minister for Environment, GoM addressing Maharashtra Legislators on the eve of Climate Change Conference. (L-R): Dr. P. Anbalagan, Hon'ble Shri Ramraje Naik Nimbalkar, Speaker, Legislative Council, Hon'ble Haribhau Bagade, Speaker, Legislative Council, Shri Aditya Thakare, Chief, Yuva Sena, Shri Satish Gavai (IAS), Additional Chief Secretary, Environment Department, GoM and Shri Ajinkya Rahane, Cricketer.



## 9. FINANCE AND ACCOUNTS

Annual Accounts of Maharashtra Pollution Control Board for the Financial Year 2017-18 are prepared as per section 40 of the Water (P & CP) Act, 1974 and as per the guidelines given in the Water (P & CP) Rule 1983, in the form Receipt & Payments, Income & Expenditure and Balance Sheet along with schedule of Fixed Assets.

The Comptroller & Auditor General of India (CAG) have allotted the statutory audit work of Board to M/s. Om Prakash S. Chaplot & Co., Chartered Accountant. The Audit of Final Accounts was done by M/s. Om Prakash S. Chaplot & Co., Chartered Accountant for the Financial Year 2017-18.

The Audited Final Accounts submitted to the Board for approval and adoption. After approval of the Board same will be submitted to Environment Department, Govt. of Maharashtra and Account General Maharashtra.

The gist of annual Receipts and Payment Accounts, Income and Expenditure Accounts and Balance Sheet for the year 2017-18 is given in this chapter.

- A) Total Income of Board for the year 2017-18 is Rs.336.77 Crores.
- |                           |                    |
|---------------------------|--------------------|
| 1. Consent Fees           | Rs. 210.22 Crores. |
| 2. Analysis Charges       | Rs. 4.98 Crores.   |
| 3. Interest on Investment | Rs. 101.25 Crores. |
| 4. Reimbursement of Cess  | Rs. 11.02 Crores.  |
| 5. Other Income           | Rs. 9.30 Crores.   |
- B) Total Expenditure of Board for the year 2017-18 is Rs. 88.08 Crores.
- |  |                   |
|--|-------------------|
| 1. Salary Expenditure                  | Rs. 34.64 Crores. |
| 2. Expenditure from Cess Fund          | Rs. 3.43 Crores.  |
| 3. Expenses on Projects from Cess Fund | Rs. 19.36 Crores. |
| 4. Office Administration Expenditure   | Rs. 30.65 Crores. |
- C) Excess of Income over expenditure for the year Rs. 248.69 Crores.
- D) Capital Expenditure Rs. 4.16 Crores.
- E) Term Deposit as on 31/03/18 Rs. 1843.83 Crores.

Details of accounts for the year 2017-18 are attached as **Annexure 6**.



## 10. IMPLEMENTATION OF ACTS & RULES

Maharashtra Pollution Control Board (MPCB) implements various environmental legislations in Maharashtra, including Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Water (Prevention and Control of Pollution) Cess Act, 1977 and some of the provisions under Environmental (Protection) Act 1986. MPCB functions under the administrative control of Environment Department, Govt. of Maharashtra. The list of various Acts and Rules implemented by MPCB is as follows:

1. Water (Prevention & Control of Pollution) Act, 1974.
2. Air (Prevention & Control of Pollution) Act, 1981.
3. Maharashtra Water (Prevention & Control of Pollution) Rules, 1983.
4. Maharashtra Air (Prevention & Control of Pollution) Rules, 1983.
5. Maharashtra Biodegradable and Non-biodegradable Waste (Control) Act, 2006 and Maharashtra Plastic Carry Bags (Production and Usage) Rules, 2006.
6. Environment (Protection) Act, 1986 and Rules & Amended Rules made thereunder, which are as under
  - (i) The Environment (Protection) Rules, 1986 and Environment (Protection) Amendment Rules, 2016.
  - (ii) The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
  - (iii) The Bio-Medical Waste Management Rules, 2016.
  - (iv) The Solid Waste Management Rules, 2016.
  - (v) The Construction and Demolition Waste Management Rules, 2016.
  - (vi) The Plastic Waste Management Rules 2016
  - (vii) The E-waste (Management) Rules, 2016
  - (viii) The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
  - (ix) The Noise Pollution (Regulation and Control) Rules, 2000.
  - (x) The Batteries (Management and Handling) Rules, 2001
  - (xi) The Wetlands (Conservation and Management) Rules, 2010
7. **Notifications :**
  - (i) Environment Impact Assessment Notification, 2006.
  - (ii) Coastal Regulation Zone Notification, 2011.
  - (iii) Maharashtra Plastic and Thermal Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018.

As per these Acts and Rules the following prosecutions have been launched and convictions have been accordingly secured for the year 2017-18.

**10.1. Status of Legal Enforcement up to March, 2018**

**I) Status of cases filed before Trial Courts**

A)	Name of the Act	No. of cases filed	No. of cases disposed off	No. of cases pending
1.	Water (Prevention & Control of Pollution) Act, 1974	14	1	13
2.	Air (Prevention & Control of Pollution) Act, 1981	Nil	Nil	Nil
3.	Environment (Protection) Act, 1986 and Rules made thereunder	27	1	26

**II) Status of Writ Petitions / PILs filed before Hon'ble High Court of Judicature at Bombay Bench at Mumbai/Aurangabad/Nagpur**

Sr. No.	No. of Writ Petitions/PILs filed	No. of Writ Petitions/PILS disposed off	No. of Writ Petitions pending
1.	45	23	22

**III) Status of cases before the Hon'ble Supreme Court of India**

Sr. No.	No. of Special Leave Petitions/PILs filed	No. of Special Leave Petitions/PILS disposed off	No. of Special Leave Petitions pending
1.	23	2	21

**IV) Status of Appeal/Application filed before the National Green Tribunal, New Delhi and Pune**

Sr. no.	No. of Appeals/Applications filed	No. of Appeals/Applications disposed off	No. of Appeals/Applications pending
1.	127	29	98

**V) Status of applications / appeals filed before the Public Information Officer / Appellate Authority under the Right to Information Act 2005 during the period from April, 2017 to March, 2018**

Sr. No.	Particulars	No. of Applications / Appeals filed	No. of Applications / Appeals disposed off	No. of Applications / Appeals pending
1.	Applications	24	23	1
2.	Appeals	3	3	-



**VI) Brief Notes on important matters pending before the National Green Tribunal:**

**(i) Application No. 179/2015 before Hon'ble NGT, Pune filed by Uttamrao V. Bhondwe v/s State of Maharashtra and Others:** Shri Uttamrao V. Bhondwe has filed the said Application against the State of Maharashtra & Others before Hon'ble NGT, Pune regarding air pollution caused in the villages of Wagholi, Perane, Bhavadi & Lonikand caused by the stone crushers and stone quarries situated in the nearby area.

In compliance of various orders passed by Hon'ble NGT, the Board has initiated various actions against the defaulting stone crusher units and the Board has filed various affidavits from time to time.

The matter is listed for final hearing before Hon'ble NGT.

**(ii) Application No. 64/2016 before Hon'ble NGT, Pune filed by Akhil Bharat Mangela Samaj V/s Maharashtra Pollution Control Board & Others:** The Akhil Bharat Mangela Samaj has filed the said application against MPCB & Others before Hon'ble NGT, Pune regarding discharge of untreated effluent into Arabian Sea at Navapur and the water bodies in the vicinity of Tarapur MIDC from CETP.

The Board is initiating various actions against the Member Industries of Tarapur CETP. The Board has filed various Affidavits from time to time before the Hon'ble NGT.

The matter is listed for final hearing before Hon'ble NGT.



## 11. ENVIRONMENTAL AWARENESS & PUBLIC PARTICIPATION

For sustainable development it is necessary to promote and create environmental awareness among communities, businesses and governments. Therefore the Board organizes various environmental awareness programs across the State of Maharashtra. During the year 2017-18 the following programs on environmental awareness were conducted by the Board.

Month	Subject	Details
22 <sup>nd</sup> April 2017	World Earth Day	Public awareness messages published in leading newspapers namely Dainik Samna, Sakaal, Divya Marathi, Loksatta, Indian Express, Lokmat, Maharashtra Times of India, DNS, Hindustan Times and Midday on the occasion of World Earth Day.
5 <sup>th</sup> June 2017	World Environment Day celebration	<p>The main event was organized at the Yashwantrao Chavan Auditorium, Mumbai on 5<sup>th</sup> June, 2017 on occasion of World Environment Day. Hon'ble Chief Minister of Maharashtra, Shri Devendra Fadnavis, Hon'ble Minister of Environment, Shri Ramdas Kadam and Member Secretary of MPCB, Dr. P. Anbalagan attended this event. During this event, award ceremony for Vasundhara Award competition organized for industries, municipal corporations and CETPs was carried out. On the occasion of World Environment Day, Vasundhara Short Film Competition based on the environment was announced by Hon'ble Chief Minister of Maharashtra at the main event. This competition will be organized for professionals as well as amateurs.</p> <p>During this event, the award ceremony for Photothon 2017 took place. This ceremony was presented by Member Secretary of MPCB, Dr. P. Anbalagan. Villages which had participated in the water conservation activity 'Jalsanvardhan Panchayat – Ek Lok Chalwal' organized by Maharashtra Pollution Control Board, Vanrai Pune and Zee 24 Taas were awarded at the hands of Hon'ble Chief Minister of Maharashtra for their exceptional performance. During this event, a short film festival related to the environment was organized for three days at Yashwantrao Chavan Centre, Mumbai with assistance from Enviro-Vigil and as a joint effort by MPCB and Environment Department, Government of Maharashtra. A large number of environmentalists attended this festival. At this time, discussion sessions with directors, producers, environment experts and analysts were also organized.</p>



Hon'ble Shri Devendra Fadnavis, Chief Minister, GoM lighting the lamp during inauguration of the World Environment Day program held at Y. B. Chavan Auditorium, Mumbai on 5<sup>th</sup> June 2017. Hon'ble Shri Ramdasji Kadam, Minister for Environment, GoM, Shri Sumit Mallik (IAS), Chief Secretary, GoM and Dr. P. Anbalagan (IAS), Member Secretary graced the occasion with their august presence.



On the eve of World Environment Day on 5<sup>th</sup> June 2017, Hon'ble Shri Devendra Fadnavis, Chief Minister, GoM giving away Vasundhara Awards to the entrepreneurs who have introduced best environment-friendly practices in their industry, at Y. B. Chavan Auditorium, Mumbai.

5 <sup>th</sup> June 2017	World Environment Day	On the occasion of World Environment Day (5 <sup>th</sup> June, 2017) public awareness messages were published in Maharashtra Times, Time of India, Loksatta, Indian Express, DNA, Hindustan Times, Midday (Gujarati, Urdu and English), Lokmat, Dainik Sakaal, Samna, Divya Marathi and in other leading newspapers. Information about various control measures adopted for pollution control was published in this section on behalf of MPCB.
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5 <sup>th</sup> June 2017	World Environment Day	On the occasion of World Environment Day (5 <sup>th</sup> June, 2017) public awareness programs related to the environment, canvas paintings with messages about the environment, brainstorming on public awareness and various other activities were organized by We Love India on 5 <sup>th</sup> June, 2017 at Bandra. Famous movie artists, sportspersons and Hon'ble Environment Minister for State were present during these activities.
4 <sup>th</sup> July 2017	'Paryavaranachi Vaari Pandharichya Daari'	An environmental public awareness campaign namely 'Paryavaranachi Vaari Pandharichya Daari' was organized on the occasion of Aashadhi Ekadashi and the foot pilgrimage to Pandharpur. As environmental issues are equally detrimental to urban and rural areas, fundamental messages such as plastic waste removal, proper use of water, electricity and natural resources, use of limited electrical power for agriculture, use of organic fertilizers, proper waste management of wet waste and dry waste were spread among the 10 lakh devotees who had gathered for the Pandharpur pilgrimage. These messages were made public through folk art, popularly known as Kirtan, Bharud, and Povada. In this 15 day long pilgrimage, Sangeet Natak Academy award winner, Smt. Chandabai Tiwari, famous Shahir Shree Devanand Mali and Hari Bhakta Parayan Shri Dnyaneshwar Maharaj Wabale created public awareness through Bharud, Povada and Kirtan respectively. This year's Pandharpur pilgrimage was inaugurated at Pune by Hon'ble Minister of State of Environment, Shri Ramdas Kadam. Honorable dignitaries such as Member Secretary of MPCB, Dr. P. Anbalagan and Hon'ble Mayor of Pune were present at this event. Guidance for this pilgrimage was sought from Dr. Prakash Khandge, a well-known researcher of folk arts. The conclusion of this pilgrimage was organized on the eve of Aashadhi Ekadashi in the presence of Hon'ble Chief Minister, Shri Devendra Fadnavis, Mrs. Amruta Fadnavis, Cabinet Minister (Solapur), Shri Vijay Deshmukh, Minister of Water and Sanitation, Shri Babanrao Lonikar, Senior Cabinet Minister, Shri Mahadev Jankar, Member Secretary of MPCB, Dr. P. Anbalagan and other honorable dignitaries.



**Hon'ble Shri Devendra Fadnavis, Chief Minister addressing pilgrims on the eve of environment public awareness campaign at Pandharpur on 4<sup>th</sup> July 2017, in the presence of Dr. P. Anbalagan (IAS), Member Secretary, GoM.**

August 2017	92.7 Big FM Big Green Ganesha	The Big Green Ganesha activity was co-organized by 92.7 Big FM and MPCB in the city of Mumbai. During this activity, the Big Green Ganesha van encouraged citizens at various locations to celebrate an eco-friendly Ganesh festival and to donate newspaper scrap for the even. During Ganesh festival a special studio was set up at Lalbaghcha Raja in Mumbai city for 10 days. At this time, Hon'ble Chief Minister of Maharashtra, Hon'ble Minister for Environment, Hon'ble State Minister for Environment and film celebrities spread messages for public awareness.
August 2017	Zee 24 Taas Eco-Friendly Household Ganesh Festival Competition	The Household Eco-friendly Ganesh Festival Competition was organized at the state level as a joint venture by MPCB and Zee 24 Taas. This competition has a large number of participants. Citizens celebrating household in a unique way had participated in this competition from all over the state. Response to this competition has been increasing over the years.
August 2017	ABP Maza Eco-Friendly Ganesh Festival Competition	A special public awareness campaign regarding celebrating an eco-friendly Ganesh festival in housing societies in major cities in the State was organized by MPCB and ABP Maza, a news channel. News about eco-friendly Ganesh festival celebrated in housing societies at cities such as Mumbai, Pune, Nashik and Nagpur was broadcast through the channel. Special programs on eco-friendly Ganesh festival celebrations at housing societies were also broadcast on the ABP Maza television channel. Well-known celebrities from Marathi film industry, Sayali Sanjeev and Rushi Saxema advertised the competition organized for celebrating an eco-friendly Ganesh festival through promos. Winners in this competition were awarded certificates by MPCB and Prasad. Public relations officer of MPCB was present at this time. These celebrities visited MPCB's Mantralaya. Special news regarding the event was broadcast by ABP Maza television channel.
August 2017	Household Eco-Friendly Ganesh Festival Competition 2017 organized by Loksatta and MPCB.	Eco-friendly household Ganesh festival decoration competition was organized jointly by MPCB and Loksatta at 6 divisions of Loksatta newspaper at Mumbai, Pune, Nashik, Nagpur, Ahmednagar and Aurangabad. More than 2000 people competed in this event. Prize distribution of this competition took place at Yashwantrao Chavan Pratishthan at the hands of Hon'ble Minister for Environment, Shri Ramdas Kadam, State Minister for Environment, Shri Pravin Pote-Patil and Member Secretary of MPCB, Dr. P. Anbalagan. A special column regarding this event was published in all editions of Loksatta newspaper.
August 2017	Eco-Friendly Ganesh Festival UFO Digital Movies financial assistance.	Public awareness messages by celebrities from Marathi and Hindi film industry were publicized at 205 digital theatres by UFO Digital Movies for two weeks to promote an eco-friendly Ganesh festival.
August 2017	Financial assistance for DNA Eco Ganesha public awareness campaign organized by DNA and MPCB.	To celebrate an environment friendly Ganesh festival, eco-friendly Ganesh idols based on the five natural elements were installed in selected malls in Mumbai city on behalf of the MPCB and DNA. MPCB played the role of co-convenor in this campaign organized by DNA. Prominent celebrities from the Hindi film industry participated in this campaign.
August 2017	Financial assistance for public awareness activity, Times Green Ganesha.	Eco-Green Ganesha competition was organized jointly by Environment Department of MPCB, Government of Maharashtra and Times of India group for public Ganesh festival organizations and housing societies in Mumbai and Pune. During this campaign, public awareness activities were conducted in various malls, movie theatres and colleges. Eco-friendly

		<p>Ganesh festival workshops were conducted for school students. Various activities and cleanliness campaigns were conducted by college students for the eco-friendly Ganesh ambassador during Ganesh idol immersion at Girgaon Chowpati, Juhu beach and Versova beach at Mumbai. This campaign was launched by popular actor, Vidyut Jammwal and Hollywood Director, Chuck Russel at Lala Lajpat Rai College. A special film for public awareness had been created by Times group for this campaign. A dedicated column for this campaign was published for 10 consecutive days in the newspaper, Times of India.</p>
August 2017	Eco-Ganesh Public awareness campaign organized by Dainik Samna and MPCB.	<p>Eco-friendly public Ganesh festival was organized at Mumbai, Pune and Aurangabad with assistance from the newspaper, Dainik Samna. The prize distribution event was conducted in the presence of Hon'ble Minister for Environment, Shri Ramdasbhai Kadam and Member Secretary, MPCB, Dr. P. Anbalagan.</p>
		
<p><b>Hon'ble Shri Ramdasji Kadam, Minister for Environment, GoM giving away prizes to the participants on the eve of Eco-friendly Ganesh Public awareness campaign in the presence of Dr. P. Anbalagan (IAS), Member Secretary, MPCB</b></p>		
August 2017	Public awareness messages about eco-friendly Ganesh festival displayed on Times OOH BEST bus stop shelters.	<p>Public awareness message of 'Celebrate a pollution-free Diwali' by Hon'ble Chief Minister, Hon'ble Minister for Environment and Hon'ble State Minister for Environment were displayed on bus stops in Mumbai city for a period of 15 days.</p>
August 2017	Eco-friendly Dahi Handi 2017.	<p>Eco Friendly Dahi Handi Festival 2017 was organized in association with IDEAL Book Company and MPCB. In this program, anti-noise pollution awareness rally was organized by famous Marathi film industry celebrities on the Open Deck Bus Service of Best Transport Service. Notable film and TV celebrities were present at this rally. On the eve of Dahi Handi, this rally was organized in the presence of street-play celebrities in Dadar, Lalbagh area. Eco-friendly Dahi Handi was smashed in the presence of young celebrities from Zee TV and ETV. At the time, in front of Chhabildas High School in Dadar, the noise-free eco-friendly Dahi Handi was smashed along with celebrities from the film and theatre industry. Public Relations Officer, MPCB was present during this event.</p>



Anti-noise pollution awareness rally on the eve of Dahi-handi (Gopalkala) festival was organized with participation of famous Marathi film industry celebrities on the Open Deck Bus Service of Best Transport Service in the month of August 2017.



Anti-noise pollution awareness rally on the eve of Dahi-handi (Gopalkala) festival was organized with participation of famous Marathi film industry celebrities on the Open Deck Bus Service of Best Transport Service in the month of August 2017.

October 2017	Public Awareness	A public awareness message for Diwali on television.	A public awareness message saying 'Celebrate a pollution-free Diwali' by celebrities from the film industry was broadcast by the television channels Zee 24 Taas, ABP Maza, IBN Lokmat, Star Pravah, Mi Marathi, TV9 Maharashtra, Saam TV, Jay Maharashtra and Maharashtra One.
October 2017	Public Awareness	A public awareness message for Diwali on FM radio.	A public awareness message saying 'Celebrate a pollution-free Diwali' was broadcast on leading FM Radio channels in the State.

October 2017	Diwali Bus Stop messages in Mumbai, Pune and Nagpur.	A public awareness message saying 'Celebrate a pollution-free Diwali' by Hon'ble Chief Minister of Maharashtra, Hon'ble Minister for Environment and Hon'ble State Minister for Environment were displayed on bus stops in the cities of Mumbai, Nagpur and Pune for a period of 15 days.
October 2017	Pollution-free Diwali Resolution Campaign Pledge 2017.	Pollution-free Diwali Resolution Campaign Pledge 2017 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Shri Devendra Fadnavis. Hon'ble Minister for Environment, Shri Ramdas Kadam, Hon'ble Minister of Water Resources & Irrigation, Shri Girish Mahajan, Hon'ble State Tourism Minister, Shri Jaykumar Rawal, Hon'ble Additional Chief Secretary of Environment Department, Shri Satish Gavai, Hon'ble Chairman of Maharashtra Pollution Control Board, Shri Milind Mhaiskar and Hon'ble Member Secretary of MPCB, Dr. P. Anbalagan attended this event. Students from various colleges in Mumbai also attended this event. Live telecast of this event was broadcast on leading news channels in the State. News about this event was published in leading newspapers in the State.
March 2018	Eco-Friendly Holi.	From the last few years, the widespread public awareness campaigns organized by Maharashtra Pollution Control Board to promote the celebration of an eco-friendly Holi have been receiving an increasing response. This year on behalf of the MPCB, eco-friendly colours were distributed for free to employees and officers from MPCB, Hon'ble Ministers from Mantralaya, Hon'ble Secretaries, Hon'ble Chairman, Hon'ble Speaker and Members of Legislative Assembly and Legislative Councils. Messages to promote the celebration of an eco-friendly Holi were broadcast on television and radio channels.



## 12. IMPORTANT MATTERS DEALT WITH BY THE BOARD

### 1. Implementation of Bio-Medical Waste management project entitled 'Environmentally Sound Management of Medical Waste in India' in the State of Maharashtra, supported by MoEF & CC.

Maharashtra Pollution Control Board with approval of State Government is implementing a Bio-Medical Waste management project entitled 'Environmentally Sound Management of Medical Waste in India' in the State of Maharashtra, supported by MoEF & CC and co-financed by Public Health Department, Government of Maharashtra.

The project envisages reduction of emissions of dioxins and furans during Bio-Medical Waste incineration process. The project further intends to provide technical assistants to shortlisted hospitals in the State for scientific management and handling of Bio-Medical Waste, and demonstration of non-burn technology for treatment and disposal of Bio-Medical Waste within select categories at hospital sites.

One of the important activities under this project is development of Model District for implementation of Bio-Medical Waste (Management), Rule 2016. As per Guidelines of MoEF & CC/UNIDO, Maharashtra Pollution Control Board has selected Nashik District as a "Model District" for implementation of UNIDO Project and the selected 9 hospitals (one large hospital - above 500 Beds, 2 medium hospitals - below 500 beds and above 100 beds, and 6 small hospitals – less than 100 beds) from model district, Nashik have obtained MoU from all hospitals and also carried out baseline survey of these hospitals. Training was conducted for technical capacity building of 9 HCFs within Model District Nashik under UNIDO project by M. S. Ramaiah Medical College.

During inauguration function of Model District, the following activities were carried out for effective implementation of the project:

- Release of Marathi version of Bio-Medical Waste Management Rules, 2016. Vide notification dated. 28<sup>th</sup> March, 2016, Ministry of Environment, Forest & Climate Change (MoEF & CC) has published Bio-Medical Waste Management Rule, 2016 at national level in English/Hindi languages.
- Release of training and awareness material of Bio-Medical Waste Management Rules to strengthen technical capabilities for environmentally sound management of medical wastes in hospitals. The MPCB has converted the said document in Marathi. Also, the MPCB has prepared BMW chart/hoardings for awareness.
- Distribution of color coded bins to model hospital under BMW Project of GEF-UNIDO- MoEF & CC was carried out for enhancement of effectiveness and efficient segregation of medical wastes at source of selected model hospitals with financial assistance from UNIDO.
- Launching of mobile app for waste collection and GPS-enabled tracking of Bio-Medical Waste Transport Vehicles of BMW CTFs to ensure no pilferage of waste happens from the point of generation up to final disposal was mandated in Bio Medical Waste Management Rules, 2016.
- A short documentary on Bio-Medical Waste management was released for better understanding of Bio-Medical Waste management at hospital level and its hazardous effects.



## **2. ISO/OHSAS certification for MPCB Laboratories.**

In compliance to MoEF vide office memorandum dated 12/08/2011 that all laboratories of State Pollution Control Board need to acquire either ISO 17025 (NABL accreditation) or ISO 9001:2008 along with OHSAS 18001:2007 certification.

Central laboratory and seven Regional laboratories of the Board located at Pune, Nashik, Aurangabad, Nagpur, Chandrapur, Thane and Chiplun have qualified for award of certification for Quality and Management Standard (QMS) ISO 9001:2015 and Occupational Health and Safety Assessment Standard OHSAS 18001:2007 from Vincotte International India Assessment Services Pvt. Ltd.

## **3. Launch of online BMW authorization for non-bedded HCEs on MPCB website.**

Under “Ease of Doing Business” MPCB has developed an online authorization application system for health care establishments. Bio-Medical Waste Management Rule, 2016 has been mandated to obtain authorization for non-bedded hospitals for easy possessing and obtaining authorization to non-bedded hospitals.

MPCB has prepared online application system and instant auto-generated authorization for non-bedded HCEs which was launched on the occasion of 5<sup>th</sup> June, “World Environment Day” by Hon’ble Environment Minister, GoM.

## **4. Product Mix Change**

MoEF & CC, GoI published Notification on 23/11/2016 for product mix, the highlights of which are as below:

- Prior Environmental Clearance (EC) process for expansion or modernization or change of product mix in existing projects.
- Any change in configuration of the plant from environmental clearance conditions during execution of the project after detailed engineering shall be exempt from the requirement of environmental clearance, if there is no change in production and pollution load. The project proponent shall inform the Ministry of Environment, Forest and Climate Change / State Level Environment Impact Assessment Authority and the concerned State Pollution Control Board.
- Any change in product mix, change in quantities within products or number of products in the same category for which environmental clearance has been granted shall be exempt from the requirement of prior environmental clearance provided that there is no change in the total capacity sanctioned in prior environmental clearance granted under this notification and there is no increase in pollution load. The project proponent shall follow the procedure for obtaining ‘No Increase in Pollution Load’ certificate from the concerned State Pollution Control Board.

### **MPC Board status for product mix:**

- Constituted expert technical committee for certification about “No Increase in Pollution” for getting exemption from going through the EIA process vide office memorandum dated 10/7/2017.
- Finalized procedure for obtaining permission for change in product mix under the EIA Notification dated 23rd November, 2016 vide office memorandum dated 11/7/2017.



- Empanelled Environmental Auditors as per the Amendment to EIA Notification of MoEF & CC dated 23/11/2016.
- Four meetings took place during 2017-18.
- The Agenda & MoM of Technical Committee hosted on Board's website.

### **5. Namami Chandrabhaga Clean-up Project**

The CPCB had organized a conference on 'Restoration of Polluted River Stretches' on 08/01/2018 and presented efforts taken by Government of Maharashtra and MPCB for minimizing sewage disposal as well as industrial effluent disposal through the dream project, Maharashtra Namami Chandrabhaga. The pollution of polluted river stretches has come down by 65-75%. The said presentation satisfied the CPCB and efforts taken by Maharashtra have been requested to be made known to other SPCBs/PCCs. MPCB may organize a conference in Mumbai which was proposed to be hosted in the month of April, 2018.

Chief Secretary - GoM, Additional Chief Secretary - Environment Department, and CM Office were briefed about the implementation of Namami Chandrabhaga through various meetings. The website prepared for Namami Chandrabhaga is for ready reference of work done and work to be carried out by technocrats and stake holders.

### **6. Sewage and Solid Waste Management by Local Bodies**

The MPCB has started compelling all Urban Local Bodies to reserve 25% amount from their annual budgets to be utilized for sewage and solid waste management. Accordingly, Rs. 7472.3 crores in the year 2016-17 were reserved and Rs. 2572.7 crore were utilized. However, for the year 2017-18 Rs. 5085 crore is reserved and Rs. 1947.65 crore were utilized. The gap is due to reservation of funds for projects to be implemented and final sanctions are awaited. However, this has resulted in reduction in pollution.

### **7. Maharashtra Star Rating Program – Innovative approach to reduce air pollution from stationary sources**

The Maharashtra Pollution Control Board (MPCB) launched India's first star-rating program for industries in the year 2017. The Star-rating program is a distinctive transparency initiative which leverages existing regulatory data on emissions to increase industrial compliance towards norms by making these data readily available to industries and the public in a comprehensible format. 300 industries have been included in this program.

The Board averages emissions data that it already collects for regulatory purposes, and is assigning ratings to industries on a 5-star scale. Industries with low pollution levels are rated with 5 stars, whereas highly polluting industries are rated with one star. The public can now easily see the best and worst industries in terms of environmental performance on the Star Rating website.

Maharashtra Pollution Control Board also hosts Star Rating report card distribution workshops regularly to interact with industries about the issue of air pollution and to discuss how best practices adopted for mitigation of air pollution can be implemented.

To increase public awareness about the program, the Star Rating team conducts regular awareness workshops in different cities across Maharashtra. Additionally, 12 different newspaper publications in 3 languages have covered the Star Rating Programme. The Star Rating programme has also been presented in several prestigious platforms such as Niti Aayog, University of Chicago Centre in Delhi.





## **8. Noise mapping of 27 Cities in Maharashtra**

The Hon'ble High Court vide order dated 10/11/2012 and 16/08/2016 in the Public Interest Litigation No.173/2010 filed by Mahesh Bedekar v/s State of Maharashtra, has directed the State Government to undertake noise mapping, which will help all the concerned Authorities to discharge their duties under Sub-Rule 4 of Rule 3 of the Noise Pollution (Regulation & Control) Rules, 2000.

In compliance of orders passed by the Hon'ble High Court, the Maharashtra Pollution Control Board has decided to carry out noise mapping in coordination with the concerned Municipal Corporations in the following 27 cities namely Mumbai, Navi Mumbai, Thane, Kalyan-Dombivli, Nashik, Pune, Solapur, Nagpur, Aurangabad, Kolhapur, Amravati, Chandrapur, Vasai-Virar, Bhiwandi-Nizampur, Nanded-Waghala, Ulhasnagar, Sangli-Miraj, Malegaon, Jalgaon, Latur, Dhule, Parbhani, and Panvel, in the State of Maharashtra. Accordingly MPCB has issued work order to National Environmental Engineering Research Institute (NEERI) vide letter dated 22/12/2016 for noise mapping.

NEERI Nagpur has carried out noise monitoring and submitted final report on 'Noise Mapping in Major Cities (27) of Maharashtra'. This report contains monitoring, analysis of noise levels and noise mapping of 27 Cities considering working and non-working days. Based on noise monitoring and mapping, recommendations and measures to control noise pollution in respective cities were submitted to Hon'ble High Court and also communicated to respective city Municipal Corporations/Councils for implementation.

## **9. Few air quality control measures initiated by the Board**

- 14 CAAQMS were proposed in Maharashtra State and are now in the commissioning stage.
- Installed wing augmentation unit - WAYU at 4 locations on pilot basis to control vehicular air pollution at traffic junctions.
- Prepared Policy Guidelines for disposal of bottom ash generated from thermal power plants.
- Completed Health Assessment Study of Wani and Arni area of Yavatmal District in association with NEERI.
- Undertaken study of impact of thermal effluent discharge from power plants located at coastal zone on flora and fauna of marine ecosystem.
- Board has started implementation of action plan prepared for 5 CEPI areas and 3 SPAs area.

## **10. IT Initiative**

- Modernization of Data Center with virtualization and latest state-of-art infrastructure.
- Under Ease of Doing Business (EoDB) Project, physical verification of documents requiring one time visit to field office has been discontinued and the process has been fully automated by introducing one time password (OTP) mobile verification.
- Under EoDB Project all online applications for the Board are routed through State Government's MAITRI portal.
- Under EoDB Project, MPCB complies with all recommendations received from DIPP, GoI which helps state ranking to a great extent.
- Under EoDB Project, MPCB has introduced 'Central Inspection System (CIS)', which is automated visit scheduler which assigns combined or individual inspection to four departments namely – MPCB, Labour Directorate, Directorate of Industrial Safety and Health (DISH), and Maharashtra Labour Welfare Board (MLWB).
- Board's entire IMIS Project (e-Governance Project) is compliant with Security Audit with almost 99% vulnerabilities identified by MPCB. The Board has implemented latest state-of-art firewall for

its Data Center. Board ensures 100% data protection with the help of latest automated back-up appliance.

- MPCB's initiative to implement IT Security has been recognized by Computer Society of India (CSI Mumbai Chapter) by giving Best Implementation of IT Security in Government Sector.
- Passive components of Data Center at MPCB have been revamped with latest technology.
- Common software for online monitoring emission and effluent data dissemination and report generation project implemented from August 2017 which helps MPCB monitor real-time emission and effluent data of the Industries.



MPCB Team lead by Shri P.K. Mirashe, Assistant Secretary (Technical) and I/c EIC along with Assistant Systems Officer, Shri Dinesh Sonawane and IT Manager, Dr. Rajiv Desai receiving the "Computer Society of India, Mumbai Chapter, CSI Special Mention Award for Best Government Organization Implementing Information Security Category at the IT Innovation & Excellence Awards 2017" from CSI Fellow, Prof. Dr. Pradeep Pendse (Dean - IT, Welingkar Institute of Management) on 7<sup>th</sup> October, 2017 at the CSI Awards Function held at VMCC Auditorium , IIT Bombay , Powai, Mumbai.

#### **11. Sponsorship awarded to various educational institutes and organizations to work jointly in the field of environment.**

MPCB is mandated to encourage and promote research in the field of environmental technologies and pollution control as a core function. Accordingly, the Board has sponsored various educational institutes and organizations to work jointly in the field of environment for prevention and control of pollution, advanced technology identification and public awareness.

- The Board has sponsored and organized eight conferences during the year 2017-18.



- The Board has sponsored three institutes for the Environmental Awareness program in the society.
- The Board has awarded sponsorship for Ph.D. fellowship to one candidate from Institute of Chemical Technology, Matunga, Mumbai. Sponsorship details are as below:

Sr. No.	Sponsorship	No. of Sponsorships
1	Ph.D. Fellowship	01
2	Conference	08

## 12. Achievements of MPC Board Laboratories:

### A. ISO 9001:2015 and OHSAS 18001:2007 Accreditation:

Maharashtra Pollution control Board's Central Laboratory and Seven Regional laboratories located at Pune, Nashik, Aurangabad, Nagpur, Chandrapur, Thane and Chiplun have qualified for award of certification for Quality and Management Standard (QMS) ISO 9001:2015 and Occupational Health and Safety Assessment Standard OHSAS 18001:2007 from Vincotte International India Assessment Services Pvt. Ltd.

### B. Performance in CPCB-conducted Inter Laboratory Proficiency Testing in analysis:

Central Pollution Control Board, Delhi conducts exercise through "Inter Laboratory Proficiency Testing" program across the country for EPA approved laboratories including State Pollution Control Board's laboratories for Chemical, Biological and Microbiological analysis. During the year 2017-18 the Board's Central Laboratory and Regional Laboratories at Nagpur, Pune, Nashik, Aurangabad and Chiplun participated in these program and scored 85 to 100% success among State Pollution Control Boards and EPA approved laboratories.

### C. Strong support in Judicial matters:

- As per direction of High Court Bombay (No. PIL 17/2011 dated 01/03/2011) and order vide No. MPCB/PSO/B-27 dated 02.03.2011, MPCB laboratories are completing weekly analysis of CETP Joint Vigilance Sample analysis across the state and submitting analysis report well within time for hoisting the performance of CETPs on MPCB website.
- All laboratories are equipped for Coal Analysis (ash content).

### D. Time bound completion of analysis of samples collected under special projects:

During Ganesh Festival MPCB laboratories analyze the environmental samples collected from lakes, rivers, sea and creeks pre- and post-immersion of the idol and submit analysis report well within time for hoisting on MPCB website.

### E. Special Training to Scientific Officials:

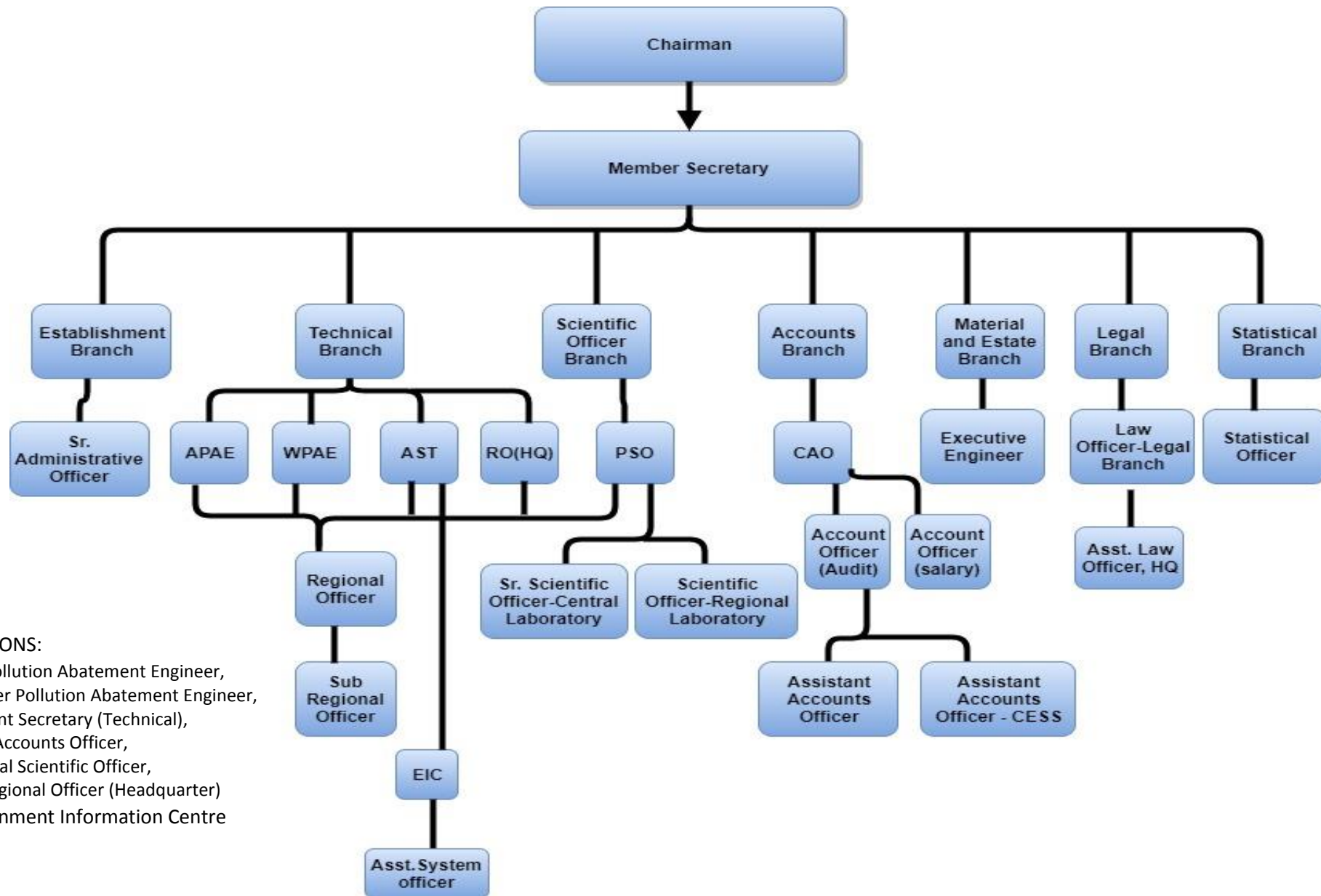
- Officers and Scientists from Central & Regional Laboratory participated in Awareness Training Programme for ISO 9001:2015.
- ISO 9001:2015, "Internal Auditor Training" imparted to 25 Scientists across all laboratories of MPCB.
- 'Awareness Training of ISO/IEC 17025 & Measurement Uncertainty' imparted to 25 Scientists across all the laboratories of Board.



# **ANNEXURES**



### ANNEXURE 1A – ORGANIZATIONAL STRUCTURE OF THE BOARD

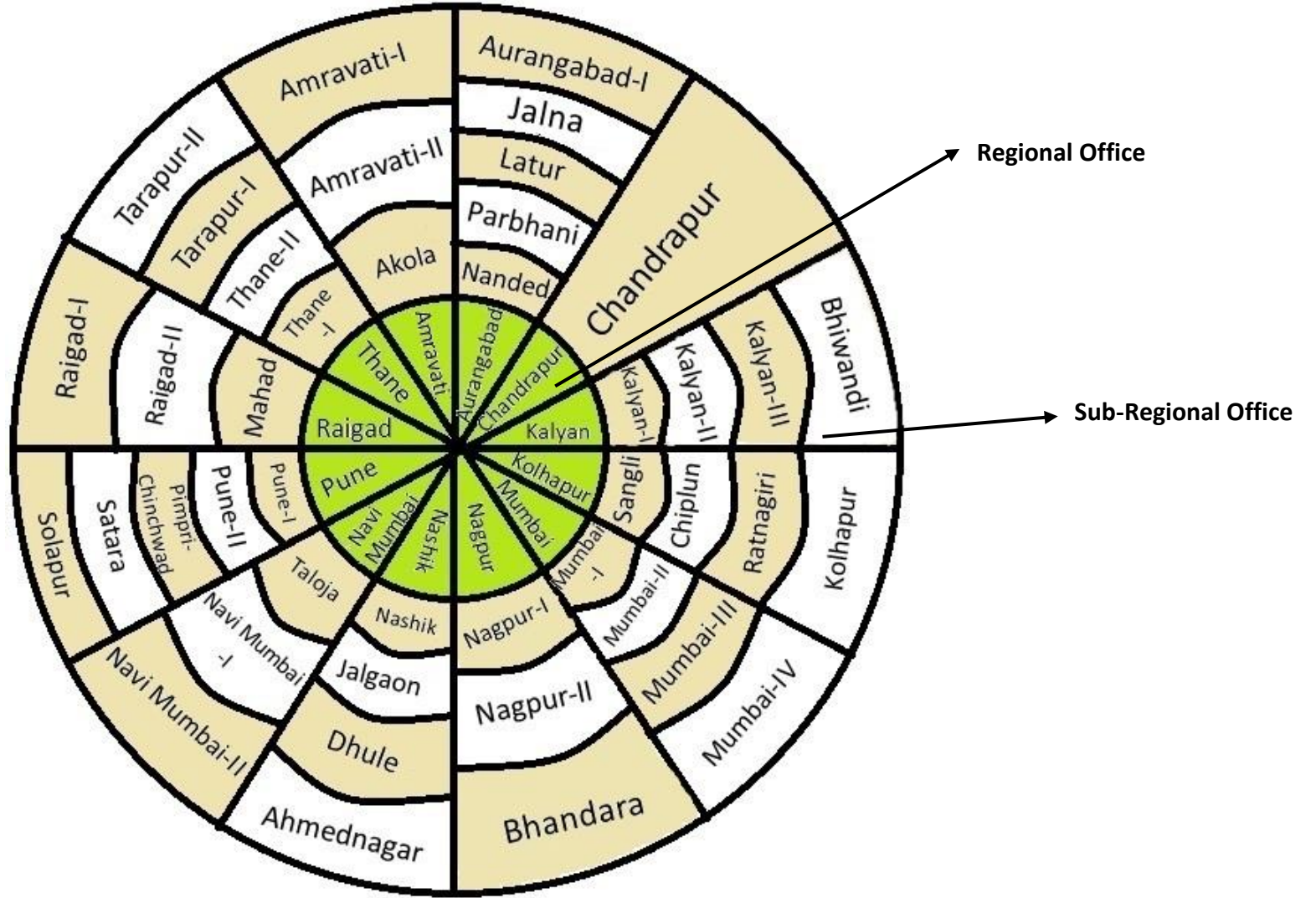


#### ABBREVIATIONS:

- APAE – Air Pollution Abatement Engineer,
- WPAE – Water Pollution Abatement Engineer,
- AST – Assistant Secretary (Technical),
- CAO – Chief Accounts Officer,
- PSO – Principal Scientific Officer,
- RO (HQ) – Regional Officer (Headquarter)
- EIC – Environment Information Centre

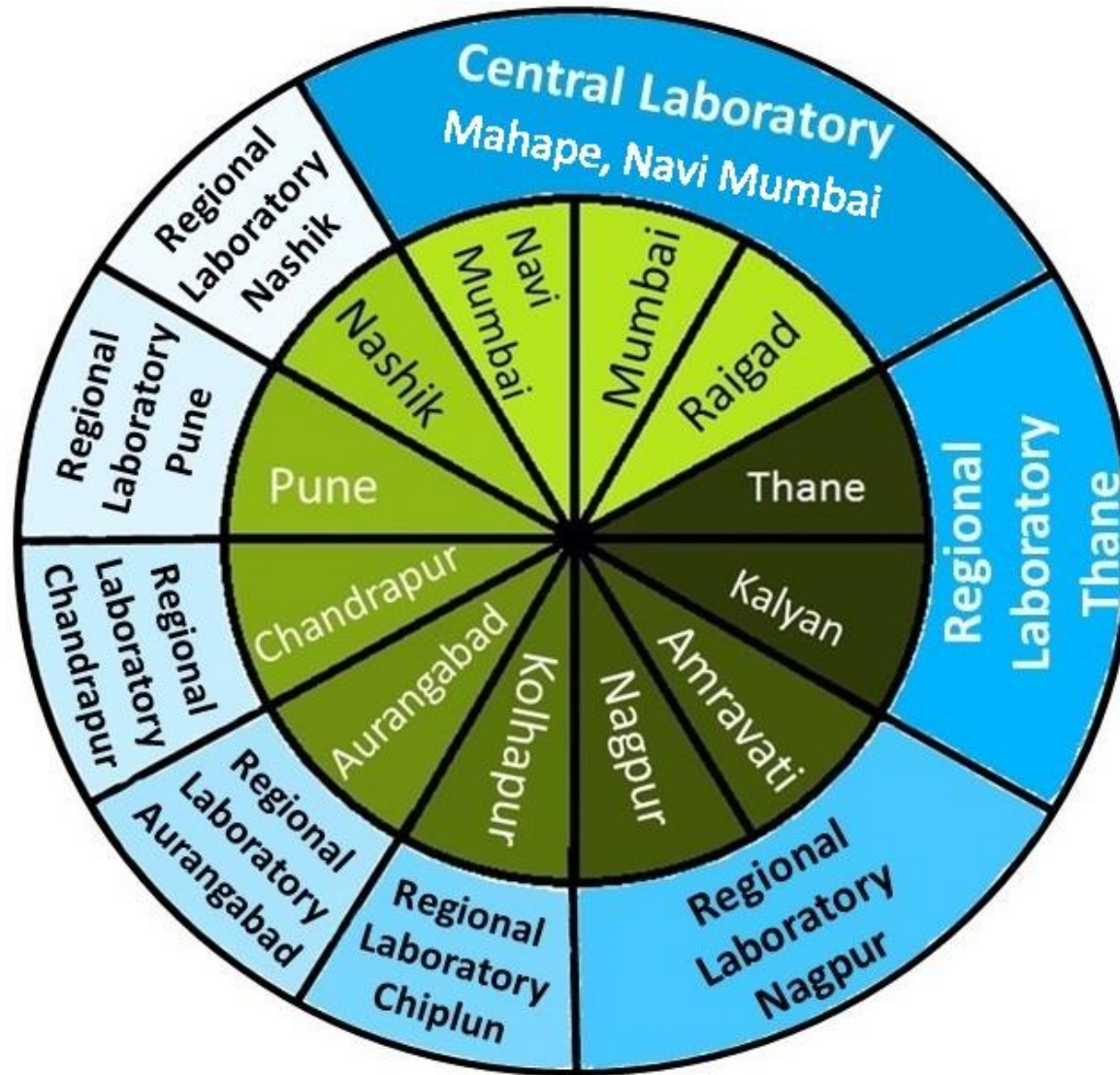
ANNEXURE 1B –CHARTS OF FIELD OFFICES AND BOARD LABORATORIES

FIELD OFFICES CHART





BOARD LABORATORIES CHART





## ANNEXURE 2 - STAFF STRENGTH AS ON 31/03/2018

Sr. No.	Posts	Sanction	Filled In	Vacant
1	Chairman	1	1	0
2	Member Secretary	1	1	0
3	Water Pollution Abatement Engineer	1	1	0
4	Air Pollution Abatement Engineer	1	1	0
5	Principal Scientific Officer	1	1	0
6	Chief Accounts Officer	1	1	0
7	Assistant Secretary (Technical)	1	1	0
8	Senior Law Officer	2	0	2
9	Senior Administrative Officer	1	0	1
10	Executive Engineer	1	1	0
11	Material Officer	1	0	1
12	Regional Officer	14	10	4
13	Law Officer	2	2	0
14	Senior Scientific Officer	3	2	1
15	Sub-Regional Officer	54	37	17
16	Statistical Officer	1	0	1
17	Assistant Secretary (EB)	1	0	1
18	Private Secretary	2	0	2
19	Administrative Officer	1	1	0
20	Scientific Officer	9	5	4
21	Account Officer	2	1	1
22	Junior Scientific Officer	26	23	3
23	Assistant Accounts Officer	11	4	7
24	Assistant Law Officer	3	0	3
25	Deputy Engineer	1	0	1
26	Senior Steno	5	4	1
27	Junior Steno	27	15	12
28	Field Officer	204	168	36
29	Head Accountant	20	14	6
30	Legal Assistant	4	0	4
31	Junior Scientific Assistant	40	28	12
32	First Clerk	17	13	4
33	Statistical Assistant	1	0	1
34	Draftsman	1	0	1
35	Field Inspector	42	7	35
36	Senior Clerk	50	44	6
37	Assistant Draftsman	2	0	2
38	Electrician	2	1	1
39	Tracer	6	2	4
40	Laboratory Assistant	7	4	3
41	Junior Clerk	64	49	15
42	Driver	74	58	16
43	Instrument Fitter	1	1	0
44	Daftari	14	2	12
45	Naik	2	0	2





46	Roneo Operator	1	0	1
47	Peons	88	51	37
48	Chowkidar	20	11	9
49	Sweeper	3	3	0
	<b>Total</b>	<b>837</b>	<b>568</b>	<b>269</b>
Posts filled in subject to the official approval of the government				
50	Assistant. System Officer	1	1	0
51	Assistant Law Officer	2	2	0
52	MPCB Total Staff	<b>840</b>	<b>571</b>	<b>269</b>



**ANNEXURE 3 - DETAILS OF REGIONAL & SUB-REGIONAL OFFICES WITH THEIR JURISDICTIONS**

Sr. No.	Name of the Region	Name and address	Jurisdiction	Telephone & Fax No.
1	Head Office	Environmental Information Centre, Maharashtra Pollution Control Board Kalpataru Point, 3rd and 4th floor, Opp. CineMax Theatre, Sion (E), Mumbai-400 022		Tel - 022-24010437/24020781
2	Central Lab	Central Laboratory, Maharashtra Pollution Control Board, "Nirmal Bhavan", P-3, MIDC Industrial Area, Mahape, Navi Mumbai- 400 701.		Tel - 02267195031/67195032
<b>Regional Offices, Sub-Regional Offices and Regional Laboratories of the Board</b>				
3	Regional Office Mumbai	Maharashtra Pollution Control Board, Raikar Chambers, "A" wing, 216, 2nd floor, Deonar Gaon Road, Near Jain Mandir, Govandi (E), Mumbai-400 088.	Mumbai Municipal Corporation Area	Tel - 25505928
I)	SRO Mumbai - I	201-202, Raikar Chambers, Govandi Station Road, near Jain Temple, Govandi, Mumbai 400 088.	Mumbai Island, Ward No. A.B.C. D.F F(South) F(North) G(South) and G(North)	Tel – 25505926
II)	SRO Mumbai - II	201-202, Raikar Chambers, Govandi Station Road, near Jain Temple, Govandi, Mumbai 400 088.	Part Of Mumbai Suburb, Ward No. M(East) M(West), H(East) H(West) and L.	Tel – 25505926
III)	SRO Mumbai - III	201-202, Raikar Chambers, Govandi Station Road, near Jain Temple, Govandi, Mumbai 400 088.	Part Of Mumbai Suburb, Ward No. (East) K(West), S, N, and P (South).	Tel – 25505926
IV)	SRO Mumbai - IV	201-202, Raikar Chambers, Govandi Station Road, near Jain Temple, Govandi, Mumbai 400 088.	Suburb of Mumbai, Ward No. P(North), R(North), R(South) and T.	Tel – 22640345
4	Regional Office Thane	Maharashtra Pollution Control Board, Plot No P-30, 5 <sup>th</sup> floor Office Complex Building, Near Mulund Checknaka, Thane- 400604.	Part of Thane district as mentioned against the Sub-Regional Offices.	Tel –022 -25802272
	Thane Lab	Plot No. P-30, 5th floor, Office Complex Building Mulund Checknaka, Thane.		Tel - 022- 25829582



I)	SRO Thane - I	Maharashtra Pollution Control Board, Plot No P-30, 5 <sup>th</sup> floor Office Complex Building, Near Mulund Checknaka, Thane	Thane Municipal Corporation Area	Tel – 022 25829582
II)	SRO Thane - II	Maharashtra Pollution Control Board, Plot No P-30, 5 <sup>th</sup> floor Office Complex Building, Near Mulund Checknaka, Thane	Thane taluka excluding Thane Municipal Corporation Area) Vasai taluka	Tel –022 25829582
III)	SRO Tarapur - I	MIDC Office Building, Boisar Station, Post Taps, Tarapur, Dist.Thane	Tarapur MIDC and related area.	Tel - 02525 -273314
IV)	SRO Tarapur - II	MIDC Office Building Boisar Station, Post Taps, Tarapur, Dist. Thane	Dahanu, Talasari, Mokhada, Javhar and Vikramgad Taluka and Palghar taluka (Except SRO - Tarapur I jurisdiction).	Tel - 02525 -261581
<b>5</b>	<b>Regional Office Navi Mumbai</b>	<b>Maharashtra Pollution Control Board, Raigad Bhavan, 7<sup>th</sup> floor, Sector - 11, C.B.D Belapur, Navi Mumbai</b>	<b>Part of Thane and Raigad district as mentioned against the Sub-Regional Offices</b>	<b>Tel – 022-27572739</b>
I)	SRO Navi Mumbai - I	Raigad Bhavan, 7 <sup>th</sup> floor Sector - 11, C.B.D Belapur, Navi Mumbai	Southward direction of Road in front of CETP (Hills to Pune Highway). The following areas Mahape, Koparkhairne, Sarvali, Ghansoli, Rabale, Dive, Airoli, Dighe (NMMC) AAQM stations, TTC (WMA) activities + Diva Creek	Tel – 022-27572740
II)	SRO Navi Mumbai - II	Raigad Bhavan, 7 <sup>th</sup> floor, Sector - 11, C.B.D Belapur, Navi Mumbai	North limit Navi Mumbai Municipal Corporation (NMMC) starting with village-Dighe. The areas of Vashi, Borivli, Ravane, Turbhe, Sanpada, Belapur + CETP activities + Vashi Creek.	Tel – 022-27572740
III)	SRO Taloja	Raigad Bhavan, 7 <sup>th</sup> floor, Sector - 11, C.B.D Belapur, Navi Mumbai	MIDC Taloja and Uran Taluka.	Tel – 022-27572740
<b>6</b>	<b>Regional Office Raigad</b>	<b>Maharashtra Pollution Control Board, Raigad Bhavan, 6<sup>th</sup> floor, Sector – 11, C.B.D Belapur, Navi Mumbai</b>	<b>Part of Raigad district as mentioned against the Sub-Regional Offices under him.</b>	<b>Tel – 022-27572620</b>
I)	SRO Raigad - I	Raigad Bhavan, 6 <sup>th</sup> floor, Sector – 11, C.B.D Belapur, Navi Mumbai	Khalapur taluka and Panvel taluka (Except MIDC)	Tel -022-27572739
II)	SRO Raigad - II	Raigad Bhavan, 6 <sup>th</sup> floor, Sector – 11, C.B.D Belapur, Navi Mumbai	Pen, Karjat, Sudhagad taluka.	Tel – 022-27572739



III)	SRO Mahad	Samaik Suvidha Kendra Bldg., MIDC - Mahad, District Raigad - 402 309	Mahad, Mhasla, Mangaon, Shriwardhan and Poladpur taluka.	Tel – 02145-232372
7	<b>Regional Office Kalyan</b>	<b>Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th Floor, Station Road, Kalyan (West) - 421301</b>	<b>Kalyan, Bhiwandi, Ulhasnagar, Badlapur, Wada, Murbad and Shahapur talukas of Thane district.</b>	<b>Tel – 0251-2027343/0251-2310212</b>
I)	SRO Kalyan - I	Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th Floor, Station Road, Kalyan (West) - 421301	Kalyan taluka.	Tel - 0251 - 2310167
II)	SRO Kalyan - II	Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th Floor, Station Road, Kalyan (West) - 421301	Ulhasnagar, Badlapur taluka.	Tel - 0251 - 2310167
III)	SRO Kalyan - III	Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th Floor, Station Road, Kalyan (West) - 421301	Wada, Murbad, Shahapur Taluka	Tel - 0251 - 2310167
IV)	SRO Bhiwandi	Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th Floor, Station Road, Kalyan (West) - 421301	Bhiwandi taluka.	Tel – 0251 - 2310167
8	<b>Regional Office Pune</b>	<b>Jog Center, 3<sup>rd</sup> floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.</b>	<b>Pune, Satara and Solapur district.</b>	<b>Tel – 020-25811627</b>
	<b>Pune Lab</b>	<b>Jog Center, 3<sup>rd</sup> floor, Mumbai Pune Road, Wakadewadi, Pune - 411003.</b>		<b>Tel - 020-25811694</b>
I)	SRO Pune - I	Jog Center, 3 <sup>rd</sup> floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Pune corporation area, Daund, Indapur, Baramati, Purandar, Bhore and Velhe taluka of Pune district.	Tel - 020 -25811694
II)	SRO Pune - II	Jog Center, 3 <sup>rd</sup> floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Haveli taluka: (excluding Pimpri Chinchwad Corporation Area) Khed, Mulshi, Ambegaon, Junnar, Maval and Shirur taluka of Pune district.	Tel – 020-25816451
III)	SRO Pimpri - Chinchwad	Jog Center, 3 <sup>rd</sup> floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Pimpri Chinchwad Municipal Corporation area including MIDC Pimpri, Bhosari and Akurdi.	Tel - 020-25810222
IV)	SRO Satara	Sub-Regional Office, Satara New Government Bhavan, 2nd Floor, Near S.T. Sand, Sadar Bazar, Satara - 415 001	Satara district.	Tel - 02162-233527/237789



V)	SRO Solapur	4/B, Bali Block, Civil Lines, Opp. Government Milk Scheme, Saat Rasta, Dist. Solapur - 413003	Solapur district.	Tel - 0217- 2319850
9	<b>Regional Office Nashik</b>	<b>Udyog Bhavan, First floor, Trimbak Road, Near ITI, Satpur, Nashik - 422 007</b>	<b>Nashik, Ahmednagar, Jalgaon, Dhule, Nandurbar district.</b>	<b>Tel - 0253-2365150</b>
	<b>Nashik Lab</b>	<b>Udyog Bhavan, First Floor, Trimbak Road, Near ITI, Satpur, Nashik - 422007</b>		<b>Tel - 0253-2365161</b>
I)	SRO Nashik	Udyog Bhavan, first floor, Trimbak Road, Near ITI, Satpur, Nashik - 422 007	Nashik distrct.	Tel - 0253-2365161
II)	SRO Jalgaon	Old Shri Bhikamchand Jain Municipal Market Building, Hall No. A, 3rd floor, Jalgaon - 425 001	Jalgaon district.	Tel - 0257-2221288
III)	SRO Dhule	2 <sup>nd</sup> floor, Fulchand Plaza, B.C. College Road, Near S.S.V.P.S. Engineering College, Near Vidya Nagari, Devpur, Dhule – 424 001.	Dhule district	Tel - 07184-260629
IV)	SRO Ahmednagar	Savitribai Fule Vyapari Sankul, 1st Floor, Hall No. 2 & 3, Near TV Center, Savedi, Ahmednagar- 414003	Ahmednagar district.	Tel - 0241-2470852
10	<b>Regional Office Aurangabad</b>	<b>Paryavaran Bhavan, A - 4/1, MIDC Area, Chikalthana, Near Seth Nandlal Dhoot Hospital, Jalna Road, Aurangabad - 431 210</b>	<b>Aurangabad, Jalna, Parbhani, Hingoli, Nanded, Beed, Latur, Osmanabad district of Marathawada</b>	<b>Tel - 0240-2473462</b>
	<b>Aurangabad Lab</b>	<b>Paryavaran Bhavan, A - 4/1 , MIDC Area , Chikalthana,Near Seth Nandlal Dhoot Hospital , Jalna Road , Aurangabad - 431 210</b>		<b>Tel - 0240-2473463</b>
I)	SRO Aurangabad - I	Paryavaran Bhavan, A - 4/1, MIDC Area, Chikalthana, Near Seth Nandlal Dhoot Hospital, Jalna Road, Aurangabad - 431 210	Aurangabad district	Tel - 0240-2473463
II)	SRO Latur	Sub-Regional Office Latur, Dev Towers, Opposite Tahasil Office, Plot No. RL-2045, Main Road, Latur - 413512	Latur, Osmanabad district	Tel - 02382-252672



III)	SRO Parbhani	Sub-Regional Office Parbhani, Devkripa Building, 1st Floor, Rangnath Maharaj Nagar, Nandkheda Road, Parbhani - 431401	Parbhani district (part), Hingoli and Parli	Tel - 02452-226687
IV)	SRO Nanded	Sub-Regional Office Nanded, Lahuti Complex, 2nd Floor, Near Shivaji Statue, Vajirabad Nanded- 431601	Nanded District	Tel - 02462-242492
V)	SRO Jalna	Sub-Regional Office, Jalna, plot no. p 3/1 and p 3/2, Phase-2, MIDC Jalna, Near Hotel Aadarsh Palace, Jalna Aurangabad Road - 431203	Jalna District	Tel - 02482-220120
11	<b>Regional Office Nagpur</b>	<b>Maharashtra Pollution Control Board, Udyog Bhavan, 6th floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001</b>	<b>Nagpur, Wardha, Bhandara, Gondia, Chandrapur, and Gadchiroli district.</b>	<b>Tel - 0712-2565308</b>
	<b>Nagpur Lab</b>	<b>Udyog Bhavan , 5<sup>th</sup> floor , Near Sales Tax Office, Civil Line , Nagpur - 440 001</b>		<b>Tel - 0712-2560152</b>
I)	SRO Nagpur - I	Udyog Bhavan, 5 <sup>th</sup> floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001	Nagpur Municipal Corporation area, Kamati Katol, Kalmeshwar, Ramtek and Parshivani, Narkhed talukas of Nagpur district.	Tel - 0712-2560152
II)	SRO Nagpur - II	Udyog Bhavan, 5 <sup>th</sup> floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001	Wardha district, Hingana taluka, (excluding Nagpur Municipal Corporation area) Umred Bhivapur, Kuhi and Nagpur Gramin taluka of Nagpur district.	Tel - 0712-2560152
III)	SRO Bhandara	Sub-Regional Office, Bhandara, Taty Tope ward near city petrol pump, Miskin Mhal Road, Bhandara-441 904	Bhandara and Gondia District.	Tel - 07184-260629
12	<b>Regional Office Amravati</b>	<b>"Sahakar Surbhi" Bapatwadi near Vevekanand Colony, Amravati - 444606</b>	<b>Amravati, Akola, Buldhana, Vashim and Yavatmal District.</b>	<b>Tel - 0721-2563592/93/94/97</b>
I)	SRO Amravati - I	Sahakar Surbhi Bapatwadi near Vevekanand Colony, Amravati - 444606	Amravati District.	Tel - 0721-2563592/93/94/97
II)	SRO Amravati - II	Sahakar Surbhi Bapatwadi near Vevekanand Colony, Amravati - 444606	Yavatmal district, Vashim District.	Tel - 0721-2563592/93/94/97
III)	SRO Akola	ALSI Plot, in front of Hutatma Statue, Nehru Park Square, Akola - 444001	Akola and Buldhana District.	Tel - 0724-2402344



<b>13</b>	<b>Regional Office Kolhapur</b>	<b>Maharashtra Pollution Control Board, Udyog Bhavan Building, Near Collector Office, Kolhapur - 416 002</b>	<b>Sangli, Kolhapur and Sindhudurg district</b>	<b>Tel - 0231-2652952</b>
	<b>Chiplun Lab</b>	<b>Parkar Complex, 1st floor, Behind Nagar Parishad Office, Chiplun Taluka. Chiplun Dist. Ratnagiri - 415 605</b>		<b>Tel - 02355 -261570</b>
<b>I)</b>	SRO Kolhapur	Udyog Bhavan Building, Near Collectorate Office, Kolhapur - 416 002	Kolhapur district.	Tel - 0231 -2652952
<b>II)</b>	SRO Sangli	300/2, Udyog Bhavan, Near Government Rest House, Vishrambaug, Sangli - 416 416	Sangli district.	Tel - 0233-2672032
<b>III)</b>	SRO Ratnagiri	Central Administrative Building No. 2, 2nd Floor, Collectors Office Compound, Ratnagiri – 415 612	Sindhudurga district and Rajapur, Lanja, Ratnagiri, Deorukh and Sangmeshwar taluka	Tel - 02352-220813
<b>IV)</b>	SRO Chiplun	Parkar Complex, 1 <sup>st</sup> floor, Behind Nagpur Parishad Office, Chiplun Taluka, Chiplun Dist. Ratnagiri	Chiplun, Guhagar, Khed, Dapoli and Mandangad taluka of Ratnagiri district.	Tel - 02355-261570
<b>14</b>	<b>Regional Office Chandrapur</b>	<b>Udyog Bhavan, 1<sup>st</sup> Floor, Opp. Buss Stand, Railway Station Road, Chandrapur - 442401</b>	<b>Chandrapur, Yavatmal, Gadchiroli district.</b>	<b>Tel -07172-251965</b>
	<b>Chandrapur Lab</b>	<b>Regional Laboratory, MPCB, Block No 13 &amp; 14 New Administrative Building. Mul Road, Chandrapur- 442 401</b>		<b>Tel – (07172) 272416</b>
<b>I)</b>	SRO Chandrapur - I	Udyog Bhavan, 1st Floor, Opp. Buss Stand, Railway Station Road, Chandrapur - 442401	Chandrapur, Yavatmal district.	Tel - 07172-251965



**ANNEXURE 4 – INDUSTRY STATISTICS FOR THE YEAR 2017-18**

RO Office	Green			Green Total	Orange			Orange Total	Red			Red Total	White	Grand Total
	LSI	MSI	SSI		LSI	MSI	SSI		LSI	MSI	SSI			
RO Amravati	220	6	4315	4541	94	10	1920	2024	80	42	321	443	122	7130
RO Aurangabad	269	22	5378	5669	136	80	2004	2220	208	105	854	1167	26	9082
RO Chandrapur	44	3	430	477	40	4	410	454	149	5	268	422	35	1388
RO Kalyan	148	24	1472	1644	103	64	933	1100	213	129	1782	2124	47	4915
RO Kolhapur	340	31	9101	9472	117	52	3656	3825	242	97	1680	2019	187	15503
RO Mumbai	38	30	1956	2024	526	232	686	1444	444	79	640	1163	9	4640
RO Nagpur	127	7	1665	1799	126	26	2216	2368	441	34	1280	1755	42	5964
RO Nashik	337	45	6117	6499	173	61	2312	2546	458	112	2056	2626	93	11764
RO Navi Mumbai	173	63	1540	1776	158	180	952	1290	195	34	1101	1330	92	4488
RO Pune	493	291	7101	7885	1270	563	4608	6441	1323	322	3637	5282	203	19811
RO Raigad	55	21	442	518	118	37	352	507	220	33	420	673	13	1711
RO Thane	96	15	1273	1384	299	33	451	783	162	41	959	1162	13	3342
<b>Grand Total</b>	<b>2340</b>	<b>558</b>	<b>40790</b>	<b>43688</b>	<b>3160</b>	<b>1342</b>	<b>20500</b>	<b>25002</b>	<b>4135</b>	<b>1033</b>	<b>14998</b>	<b>20166</b>	<b>882</b>	<b>89738</b>

**Note –**

- LSI: Large Scale Industries
- MSI: Medium Scale Industries
- SSI: Small Scale Industries



**ANNEXURE 5 - DETAILS OF TRAINING PROGRAMS ATTENDED BY MPCB OFFICIALS DURING THE YEAR 2017-18.**

Sr. No.	Training/ Workshop date	Location	Subject	Name of Participant
<b>1</b>	18 <sup>th</sup> – 20 <sup>th</sup> May, 2017	CIDCO Exhibition Centre, Navi Mumbai, Good Governance India Foundation and Municipal Corporation	14th International Exhibition and Conference Municipalika Smart and Sustainable Cities 2017	1. Mr. A. D. Mohekar, RO-Navi Mumbai 2. Mr. A. N. Harshvardhan, RO-Raigad 3. Mr. Sanjay Bhosale, SRO-Mumbai-1 4. Mr. Nitin Shinde, SRO-Mumbai-2 5. Mr. V. V. Killedar, SRO-Thane-2 6. Mr. Manchak Jadhav, SRO-Kalyan-2 7. Mr. Raju Vasave, SRO-Navi Mumbai-1 8. Mr. Tanaji Yadav, SRO-Navi Mumbai-2 9. Mr. Yogesh Deshmukh, FO-Taloja 10. Mr. Uday Yadav, FO-Navi Mumbai-2 11. Mr. Nandkumar Lomte, FO, RO-Raigad 12. Mr. Darshan Mhatre, FO Kalyan-1
<b>2</b>	7 <sup>th</sup> - 11 <sup>th</sup> June, 2017	IIT (ISM) Industry Institute Interaction Facility, NBCC Shopping Centre (2 <sup>nd</sup> Floor), New Town, Rajarhat, Kolkata	Environmental Clearance Procedures and Impact Assessment for Mining Projects	1. Mr. Atul Satphale, FO, RO-Chandrapur 2. Mr. Ashok Jadhav, FO, JD (APC) Section 3. Mr. Jaydeep J. Kumbhar, FO, RO-Kolhapur 4. Mr. Santosh D. Mohare, FO SRO-Nagpur- 1
<b>3</b>	25 <sup>th</sup> July, 2017	Conference Hall, All India Institute of Local Self Government, GoM, Andheri, Mumbai, Organized by C- FAQM, New Delhi	Seminar on Present and New Technologies for Treatment & Disposal of Effluent & Project View.	1. Mr. N. N. Gurav, RO-HQ, 2. Mrs. N.H Shivangi, RO-Thane, 3. Sh. A. D. Mohekar, RO-Navi Mumbai, 4. Mr. A. N. Harshvardhan, RO-Raigad, 5. Mr. D. B. Patil, RO-Kalyan 6. Mr. M. R. Lad, RO-Mumbai

4	17 <sup>th</sup> - 28 <sup>th</sup> July, 2017	Centre for Science and Environment, 38, Tughlakabad Institutional Area, New Delhi.	Environmental Regulators- 2016-17, Compliance Monitoring & Enforcement	<ol style="list-style-type: none"> <li>1. Mr. Amar Durgule, SRO-Kalyan-1,</li> <li>2. Mr. Ravi B. Andhale, SRO-Mumbai-2,</li> <li>3. Mr. Ajay D. Chavan, FO, SRO-Thane-1,</li> <li>4. Mr. Ajitkumar T. Deshmukh, FO, SRO-Mumbai-2</li> </ol>
5	2 <sup>nd</sup> - 4 <sup>th</sup> August, 2017	CPCB, Parivesh Bhavan, East Arjun Nagar, Delhi-11 032		<ol style="list-style-type: none"> <li>1. Mr. Kishor Gavankar, JSO, C-Lab, Mahape</li> <li>2. Mr. Anil R. Raut, JSA, C-Lab, Mahape</li> </ol>
6	8 <sup>th</sup> -11 <sup>th</sup> August, 2017	CSIR-NEERI, Nagpur	Assessment of Water Quality & Sedimentation Analysis to understand the Special Properties of Ganga River from Gumukh to Hooghly	<ol style="list-style-type: none"> <li>1. Smt. Rekha M. T, FO, SRO-Pune-2,</li> <li>2. Smt. Jyoti S. Sutar, FO, SRO-Pune-1</li> <li>3. Mr. Raviraj B. Patil, FO, SRO-Aurangabad</li> <li>4. Mr. Prashant M. Mehre, FO, SRO-Latur</li> </ol>
7	19 <sup>th</sup> -21 <sup>st</sup> August, 2017	Environment & Nature Conservation, Dept. of Zoology, Patna University, Patna, Sponsored by CPCB	Water Quality Monitoring of Surface, Ground, Waste Water, Effluent and Quality Assurance	<ol style="list-style-type: none"> <li>1. Smt. Yamini Chachad, JSO, JD (WPC),</li> <li>2. Smt. Sumitra Mahajan, JSO, R-Lab, Thane</li> </ol>
8	28 <sup>th</sup> August-1 <sup>st</sup> September, 2017	Engineering Staff College of India, Gachi Bowli, Hyderabad	ISO 14001:2016, EMS Lead Auditor Training	<ol style="list-style-type: none"> <li>1. Mr. V.R Thakur, SSO, C-Lab, Mahape,</li> <li>2. Mr. Kartikeya Langote, FO, SRO-Thane-2</li> </ol>
9	29 <sup>th</sup> August -2 <sup>nd</sup> September, 2017	International Institute of Waste Management (IIWM), Bengaluru.	Effective Management of HW including E-Waste, Co-Processing and Co-Incineration - HW Rules & Field Visit.	<ol style="list-style-type: none"> <li>1. Mr. Sagar Warhekar, FO, RO-HQ</li> </ol>
10	13 <sup>th</sup> -15 <sup>th</sup> September, 2017	CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur.	Advanced Instrumental Analytical Techniques (CAAS, XRF, ICP-OES, ICP-MS, GC-MS, HPLC, IC & TOC)	<ol style="list-style-type: none"> <li>1. Mr. Bhimraj Chavan, JSA, C-Lab, Mahape</li> <li>2. Mr. Vinod Deshmukh, JSA, C-Lab, Mahape</li> <li>3. Smt. Archana Lendait, JSA, R-Lab, Thane</li> <li>4. Mr. Ravindra Raut, JSO, R-Lab, Pune</li> <li>5. Vaibhavi Kadam, JSA, R-Lab, Chiplun</li> <li>6. Mr. Abhijit Wagh, JSA, R-Lab, Nagpur</li> <li>7. Smt. Mrudula Ingale, JSA, R-Lab, Nagpur</li> </ol>

11	18 <sup>th</sup> September, 2017	Jointly Organized by CPCB & NABL at GPCB, Gujarat.	One Day Awareness Program about NABL Accreditation, meet with Laboratory Heads of PCBs/PCCs	<ol style="list-style-type: none"> <li>1. Dr. A. R. Supate, PSO</li> <li>2. Mr. V. R. Thakur, SSO</li> <li>3. Mr. R. S. Sorte, SSO</li> <li>4. Mr. S. V. Bhosale, SO</li> <li>5. Mr. B. S. Gadhari, SO</li> <li>6. Smt. R. S. Butale, SO</li> <li>7. Smt. V. D. Pednekar, SO</li> <li>8. Mr. S. H. Nagare, SO</li> <li>9. Smt. S. S. Mahajan, JSO</li> <li>10. Mr. A. V Mandavkar, JSO,</li> <li>11. Dr. P. D Khadkikar, JSO,</li> <li>12. Mr. D. V Nehe, JSO,</li> <li>13. Smt. Meeta R. Deshmukh, JSA,</li> <li>14. Mr. B. U. Bhandare, JSO,</li> <li>15. Mr. B. N. Sangale, JSO</li> </ol>
12	18 <sup>th</sup> -20 <sup>th</sup> September, 2017	Centre for Science and Environment, 41, Tughlakabad Institutional Area, New Delhi – 110 062	Orientation Program on Urban Air Quality Management Strategies-CSE	<ol style="list-style-type: none"> <li>1. Mr. Manish Holkar, SRO Tarapur-I</li> <li>2. Smt. Hema Deshpande, SRO Chandrapur,</li> <li>3. Mr. Tanaji Yadav, SRO Navi Mumbai-II</li> </ol>
13	20 <sup>th</sup> -22 <sup>nd</sup> September, 2017	ITD, CPCB, Delhi.	Real Time Data of Online Monitoring Systems (Ambient, Emission & Effluent)	<ol style="list-style-type: none"> <li>1. Mr. Raju R. Vasave, SRO Ahmednagar,</li> <li>2. Mr. Abhijeet Kasbe, FO, RO Pune,</li> <li>3. Mr. Vyankat Bhatane, FO, Kalyan-II,</li> <li>4. Mr. Padmakar Hajare, FO, RO Navi Mumbai.</li> </ol>
14	27 <sup>th</sup> -29 <sup>th</sup> September, 2017	Indian Institute of Public Administration, I.P Estate, Ring Road, New Delhi.	Calibration, QA/QC Inter-Lab Comparison and Proficiency Testing in Air	Mr. Salil Save, JSA, JD (APC) Section, Mumbai

<b>15</b>	5 <sup>th</sup> October, 2017	Ramada Hotel & Convention Centre, Powai, Mumbai.	"One day Conference on Pollution Prevention at Source- Green Chemistry & Engineering Approach" for SPCBs.	<ol style="list-style-type: none"> <li>1. Dr. Amar R. Supate</li> <li>2. Dr. Y. B. Sontakke</li> <li>3. Dr. A. N. Harshvardhan</li> <li>4. Mr. A. D. Mohekar</li> <li>5. Mr. D. B. Patil</li> <li>6. Mr. V. V. Killedar</li> <li>7. Mr. Shankar R. Said</li> <li>8. Mr. Manish Holkar</li> <li>9. Mr. Sachin Adkar</li> <li>10. Mr. Shankar Waghmare</li> <li>11. Mr. Pradeep Wankhede</li> <li>12. Mr. Amar Durgule</li> <li>13. Mr. Manchak Jadhav</li> <li>14. Mr. Sujit Dholam</li> <li>15. Mr. Anirudha P.Varale</li> <li>16. Mr. Rajaram Injulkar</li> <li>17. Mr. Yogesh Deshmukh</li> <li>18. Mr. Sangram Nimbalkar</li> </ol>
<b>16</b>	8 <sup>th</sup> -15 <sup>th</sup> October, 2017	Sweden & CSE- Delhi	Best Practices in Environmental Governance	<ol style="list-style-type: none"> <li>1. Mr. Jayavant S. Hajare, SRO Taloja, Navi Mumbai</li> <li>2. Mr. Kiran Malbhage, FO, SRO-Akola.</li> </ol>
<b>17</b>	12 <sup>th</sup> -14 <sup>th</sup> October, 2017	Punjab University, Chandigarh.	Biological Monitoring, Analysis and Testing	<ol style="list-style-type: none"> <li>1. Mrs. Vaibhavi V. Welinkar, JSA, C-Lab Mahape</li> <li>2. Mr. Shirish N. Misal, JSA, R-Lab, Pune</li> </ol>
<b>18</b>	14 <sup>th</sup> October, 2017	GPCB, GPCB Auditorium, Parayvaran Bhavan, Gandhinagar.	One day program on Responsible Care, Symposium.	<ol style="list-style-type: none"> <li>1. Mr. A.D. Mohekar, RO-Navi Mumbai,</li> <li>2. Mr. D. B. Patil, RO-Kalyan,</li> <li>3. Mr. V. V. Killedar, I/c. RO-Thane</li> </ol>

<b>19</b>	1 <sup>st</sup> , 2 <sup>nd</sup> & 3 <sup>rd</sup> November, 2017	Ganesh Kala Krida, Swargate, Pune.	Swachh Pune Abhiyan - Exhibition & Conference on Solid Waste Management, Waste Water Treatment, Sewage, Recycling, and Pollution Control.	<ol style="list-style-type: none"> <li>1. Mr. Nitin Shinde, SRO-Pune-I</li> <li>2. Mr. H.D. Gandhe, SRO-Pune-II</li> <li>3. Mr. Raju R. Vasave, SRO-Ahmednagar</li> <li>4. Mr. Jayant Kadam, SRO-Aurangabad</li> <li>5. Mr. Limbaji Bhad, SRO-Sangli</li> <li>6. Mr. Manchak Jadhav, SRO-Kalyan-II</li> <li>7. Mr. S. J. Adkar, SRO-Raigad-I</li> </ol>
<b>20</b>	3 <sup>rd</sup> - 4 <sup>th</sup> November, 2017	Mavalankar Auditorium, Constitutional Club, New Delhi.	International Conference on Environment- 2017	<ol style="list-style-type: none"> <li>1. Mr. P.K. Mirashe, AST</li> <li>2. Mr. N. N. Gurav, RO-HQ</li> </ol>
<b>21</b>	9 <sup>th</sup> November, 2017	Chhatrapati Shahu Institute of Business Education and Research (CSIBER), Kolhapur	National Conference on Solid Waste Management & Sustainable Development.	<ol style="list-style-type: none"> <li>1. Mr. Amar Durgule, SRO-Kalyan-I</li> <li>2. Mr. B.M. Kukade, SRO-Satara</li> <li>3. Mr. Upendra Kulkarni, FO, Pune-I</li> <li>4. Mr. Prashant Gaikwad, FO, RO-Pune</li> <li>5. Mr. Sandeep Patil, FO, SRO-Pune-II</li> <li>6. Mrs. Sushma Kumbhar, FO, SRO-Primpri Chinchwad</li> <li>7. Mr. Jaydeep Kumbhar, FO, RO-Kolhapur</li> <li>8. Mr. Avinash Kadale, FO, SRO-Kolhapur</li> <li>9. Mr. Ketan Patil, FO, SRO-Navi Mumbai-1</li> </ol>
<b>22</b>	9 <sup>th</sup> November, 2017	Chhatrapati Shahu Institute of Business Education and Research (CSIBER), Kolhapur	National Conference on Solid Waste Management & Sustainable Development.	<ol style="list-style-type: none"> <li>1. Dr. Y. B. Sontakke, JD (WPC)</li> <li>2. Mr. N. N. Gurav, RO-HQ</li> </ol>
<b>23</b>	13 <sup>th</sup> November, 2017	Administrative Staff College of India, Bella Vista, Hyderabad.	One day Workshop on Faecal Sludge Septage Management (FSSM) in Urban Areas.	<ol style="list-style-type: none"> <li>1. Dr. A. N. Harshvardhan, RO-Raigad</li> <li>2. Dr. J. B. Sangewar, RO-Aurangabad</li> </ol>
<b>24</b>	13 <sup>th</sup> - 17 <sup>th</sup> November, 2017	Hotel Pride Sun Village Resort & Spa, Calangute, Goa.	Good Governance & Transparency through RTI	<ol style="list-style-type: none"> <li>1. Mr. Raju Injulkar, FO, AST Section</li> <li>2. Mr. Ketan Patil, FO, SRO-Navi Mumbai-I</li> </ol>

				3. Mr. Sachin Desai, FO, Raigad-I 4. Mr. Pramod Lone, FO, JD (APC) Section
<b>25</b>	20 <sup>th</sup> -22 <sup>nd</sup> November, 2017	Dept. of Hydrology, Indian Institute of Technology, Roorkee, Uttarakhand.	Investigation Remediation and Management of Soil and Ground Water Contamination sites.	1. Mr. V. V. Killedar, SRO-Thane-II 2. Mr. Rajesh Auti, FO, SRO-Kolhapur
<b>26</b>	21 <sup>st</sup> - 25 <sup>th</sup> November, 2017	National Institute of Occupational Health, Ahmedabad.	Occupational Health & Safety Assessment System (OHSAS) 18001, 2007 and Risk Management.	1. Mr. Sanjay Nanavare, FO, SRO-Mumbai-II 2. Mr. Padmanabh Khadkikar, JSO, C-Lab, Mahape
<b>27</b>	22 <sup>nd</sup> November, 2017	Bombay Exhibition Centre, Goregaon, Mumbai	One day conference on Waste Management Sector	All HoDs, ROs, SROs, and FOs
<b>28</b>	27 <sup>th</sup> - 29 <sup>th</sup> November, 2017	Environmental Protection Training and Research Institute, Hyderabad.	Clean Development Mechanism (CDM): CDM Project Implementation for Industrial Sector, Mining Sector and Carbon Trading.	1. Mr. Kushal Aucharmal, FO, RO-Chandrapur 2. Mr. Yogesh Patil, FO, JD (APC) Section
<b>29</b>	29 <sup>th</sup> November-1 <sup>st</sup> December, 2017	TERI University, 10, Institutional Area, Vasant Kunj, New Delhi – 110 070.	Air Quality Management – Plans using Decision Support System, UrbAir India	1. Mr. Amit Latey, SRO Tarapur-II, 2. Mr. Darshan Mhatre, FO, SRO Kalyan1,
<b>30</b>	2 <sup>nd</sup> & 3 <sup>rd</sup> December, 2017	National Centre for the Performing Arts (NCPA), Nariman Point, Mumbai.	National Conference on Environmental-2017 (National Green Tribunal).	All HoDs, ROs, SROs, FOs and Non-Technical Staff.
<b>31</b>	4 <sup>th</sup> - 6 <sup>th</sup> December, 2017	Pollution Control Research Institute, BHEL, Ranipur, Haridwar – 249 493.	Source Emission Monitoring for Parameters Notified under Source Emission	1. Mr. Nandkumar Lomate, FO, RO-Raigad 2. Mr. Sushilkumar Shinde, FO, SRO-Kolhapur
<b>32</b>	7 <sup>th</sup> -9 <sup>th</sup> December, 2017	School of Public Health, Post Graduate Institute of Medical Education & Research, Chandigarh-160 012	Indoor & Outdoor Air Pollution Standards and Impact on Human Health – Case Studies	1. Mr. Vikram Mane, FO JD (WPC) 2. Mr. Pradeep Khuspe, FO, SRO-Navi Mumbai-1 3. Mr. Utkarsh Shingare, FO, SRO-Pimpri Chinchwad

				4. Mr. Samir Vastre, FO, SRO-Raigad-2
<b>33</b>	11 <sup>th</sup> December, 2017	Anil Agarwal Environment Training Institute (a Centre for Science and Environment initiative), Nimli (near Alwar), Tijara, Rajasthan. Sponsored by CPCB, New Delhi.	Training Program for the Environment Regulators 2017-18 - Cleaner Brick Production	1. Mr. Pratap Jagtap, FO, R-Lab, Nashik 2. Mr. Nilesh J. Patil, FO, R-Lab, Chandrapur 3. Mr. Rahul Nimbalkar, FO, R-Lab, Chandrapur
<b>34</b>	13 <sup>th</sup> - 15 <sup>th</sup> December, 2017	National Productivity Council, Utpadakta Bhavan, 5-6, Institutional Area, Lodi Road, New Delhi – 110 003.	Cleaner Technologies & Waste Minimization for Prevention of Industrial Pollution and Four R's - Reduce, Reuse, Recycle and Recover - Case Studies	1. Smt. Shubhangi M. Jadhav, FO, SRO-Taloja 2. Smt. Poonam S. Poyrekar, FO, CAC Cell
<b>35</b>	2 <sup>nd</sup> - 5 <sup>th</sup> January, 2018	National Environmental Engineering Research Institute, Delhi Zonal Centre, A-93/94, Naraina Industrial Area, Phase-I, New Delhi – 110 028	Air Quality Monitoring (Ambient, Source, Noise). Analysis Data Interpretation and Quality Assurance	1. Smt. Sharmila C. Bhirud, JSO, C-Lab, Mahape 2. Mr. Annappa Kurale, JSA, R-Lab, Pune
<b>36</b>	8 <sup>th</sup> January, 2018	Indian Habitat Centre, New Delhi	"Restoration of Polluted River Stretch- Concept and Plan"	1. Dr. Y. B. Sontakke, JD, WPC
<b>37</b>	15 <sup>th</sup> -19 <sup>th</sup> January, 2018	At Anil Agarwal Environment Institute (a CSE initiative), Nimli, Rajasthan.	"Environment Monitoring and Data Monitoring"	1. Mr. Hemant Kulkarni, FO, RO-Aurangabad 2. Mr. Salil Save, JSA, JD, APC
<b>38</b>	23 <sup>th</sup> -25 <sup>th</sup> January, 2018	UK Water Centre, Pune sponsored training at Kochi, Kerala.	"Improving Fresh water monitoring Frame work and data for research and management"	1. Mr.Y. B. Sontakke, JD WPC 2. Mr. D. B. Patil, RO-Kalyan

<b>39</b>	5 <sup>th</sup> - 9 <sup>th</sup> February, 2018	Indian Statistical Institute, 7, S.J.S., Sansanwail Marg, New Delhi – 110 016.	Environmental Data Interpretation, Compilation, Analysis, Presentation and Reporting – Hands on Training and Case Studies	1. Mr. Amar B. Durgule, SRO-Kalyan-1 2. Mr. Sachin Desai, FO, SRO-Raigad-1
<b>40</b>	5 <sup>th</sup> - 9 <sup>th</sup> February, 2018	National Law School of India University, Nagarbhavi, Bangalore – 500 072.	Environmental Legislations Interpretation, Enforcement, Legal and Statutory Requirements – Case Studies	Mr. Salil Save, JSA, JD (APC) Section, Mumbai
<b>41</b>	5 <sup>th</sup> – 9 <sup>th</sup> February, 2018	National Productive Council organized paid training program at Hotel Pride Sun Village Resort & Spa, Goa	"Innovation & Creativity through knowledge Management.	1. Mr. Dinesh Sonawane, ASO, EIC 2. Mr. Yogesh Deshmukh, FO, AST Section 3. Mr. Umesh Jadhav, FO, SRO-Navi Mumbai-I
<b>42</b>	7 <sup>th</sup> - 9 <sup>th</sup> February, 2018	TERI (The Energy & Resources Institute), Delhi Venue: Gwal Pahari, Gurugaon	Vehicular Emission and Exhaust Monitoring (Receptor and Dispersion Modelling)	1. Mr. Sachin J. Adkar, SRO, Raigad-1
<b>43</b>	20 <sup>th</sup> -22 <sup>th</sup> February, 2018	Indian Institute of Public Administration, Delhi	Real Time monitoring of Continuous Ambient Air.	1. Mr. Bhagwan M. Maknikar, FO, SRO-Pune-II 2. Mr. Prakash S. Tate, FO, SRO-Mahad 3. Mr. Bajirao V. Malvekar, FO, SRO-Raigad-II
<b>44</b>	21 <sup>st</sup> March, 2018	One day conference jointly organized by Maharashtra Legislature, GoM and MPCB	"Tackling Climate Change in Maharashtra"	All HoDs, ROs, SROs, FOs and Non-Technical Staff.




**ANNEXURE 6 - FINANCE AND ACCOUNTS FOR THE YEAR 2017-18.**

1

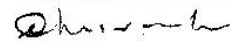
**MAHARASHTRA POLLUTION CONTROL BOARD  
Receipt & Payment Account for the Year 2017-18**

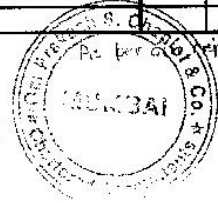
Previous Year 2016-17		Receipt	Schedule No.	Current Year 2017-18		Previous Year 2016-17		Payment	Schedule No.	Current Year 2017-18	
Major Head	Sub Head			Amount	Amount	Major Head	Sub Head			Amount	Amount
262798178.95		<b>OPENING BALANCE</b>		158020427.50	158120095.95	57090455.00		<b>II CAPITAL EXPENDITURE</b>			
	260442826.13	i) Cash at Bank		158020427.50				<b>Fixed Assets Purchased</b>	J		41601438.00
	240110.82	ii) Cash in Hand		99668.45							
	2115242.00	iii) Cash Balance Imprest Account		0.00							
0.00		<b>1) GRANT RECEIVED</b>			0.00	323047148.00		<b>III REVENUE EXPENDITURE</b>			326818366.00
	0.00	a) From State Government		0.00		307544376.00		<b>1) SALARY &amp; ALLOWANCES</b>		306919387.00	
	0.00	b) From Government of India		0.00		12589722.00		i) Core Activity Segment		12594542.00	
21558107.00		<b>2) FINANCIAL ASSISTANCE</b>			52220268.00	19725121.00		ii) Cess Activity Segment		7304437.00	
	0.00	a) From State Government		0.00		18914435.00		iii) Cess Activity Temp Estb			19553208.00
	21558107.00	b) From Government of India		52220268.00		810641.00		<b>2) CFF BOARD CONTRIBUTION</b>			
0.00		<b>3) REIMBURSEMENT OF CESS</b>			0.00	9810942.00		i) Core Activity Segment		18717352.00	
177542276.00					110167191.00	185446357.82		ii) Cess Activity Segment		835856.00	
		<b>4) REVENUE RECEIPT</b>			2152085390.77	13752378.00		<b>3) GRATUITY FROM CESS FUND</b>			5870061.00
2623460014.05		a) Consent Fees		2102242945.77		15026052.00		<b>4) OFFICE EXPENDITURE</b>	A		209247741.54
	2564643320.97	b) Bio Medical Authorisation Fees		35750.00		18646769.00		<b>5) RUNNING EXPENDITURE OF LAB.</b>	B		6665706.00
	8799203.75	c) Analysis Charges		49806695.00				<b>6) EXPENDITURE FOR VEHICLES</b>	C		15065666.00
	50017489.33							<b>7) MAINTAINANCE &amp; REPAIRS</b>			27391014.00
60375662.27		<b>5) OTHER RECEIPT</b>	H		40650230.00			i) Land & Building		8177219.00	
1004660804.94		<b>6) INTEREST ON INVESTMENT</b>			1012502578.81	269005826.00		ii) Furniture & Fixture		4950836.00	
								iii) S.I. & O.A.		14262959.00	
517600.00		<b>7) PROFIT ON SALE OF ASSETS</b>			123500.00	15266196991.09		<b>8) EXPENDITURE FROM CESS FUND</b>	D		34269389.00
56731450.00		<b>8) MISCELLANEOUS ADVANCES</b>			7823172.00	8109258.87		<b>9) PROJECTS EXP. From Cess Fund</b>	E		193627577.00
12153085294.52		<b>9) INVESTMENT (MATURED)</b>			13319917406.10	2587570.00		<b>10) INVESTMENT ( New )</b>			15832589446.91
6907877.00		<b>10) SUNDRY PAYABLES</b>			4254749.50	71577.00		<b>11) MISCELLANEOUS ADVANCES</b>			9248776.80
5169.00		<b>11) CREDITORS</b>			1356624.00	7368000.00		<b>12) SECURITY DEPOSIT WITH OTHERS</b>			549605.00
6019420.00		<b>12) Fund from UNIDO</b>			0.00	158120095.95		<b>13) SUNDRY PAYABLES</b>			2239097.00
19434800.00		<b>13) Fund for Health Impact Asse. Study</b>			0.00	158020427.50		<b>14) CREDITOR</b>			1500.00
16393096653.73					16859221206.13	99668.45		<b>15) Paid to MoEP from Capital Receipt</b>			0.00
						0.00		<b>16) Fund for Health Impact Asse. Study</b>			0.00
								<b>CLOSING BALANCES</b>			134482613.88
								<b>i) Cash at Bank</b>	F	134165562.43	
								<b>ii) Cash in Hand</b>	G	317051.45	
								<b>iii) Revenue Demand Draft in Hand</b>		0.00	
											16859221206.13

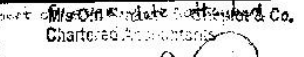
  
Chief Accounts Officer  
Maharashtra Pollution Control Board

  
Member Secretary  
Maharashtra Pollution Control Board



  
Chairman  
Maharashtra Pollution Control Board





  
Chartered Accountant  
M. S. & Co.  
Chartered Accountants  
Yashwantrao Chavan  
Mumbai - 400 002  
India

**MAHARASHTRA POLLUTION CONTROL BOARD**  
**Income & Expenditure Account for the Year 2017-18**

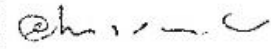
Previous Year 2016-17		Expenditure	Schedule No.	Current Year 2017-18		Previous Year 2016-17		Income	Schedule No.	Current Year 2017-18	
Major Head	Sub Head			Amount	Amount	Major Head	Sub Head			Amount	Amount
323047148.00		<u>1) SALARY &amp; ALLOWANCES</u>		326818366.00				<u>1) GRANT RECEIVED</u>			
	307544376.00	a) Core Activity Segment		306919387.00		0.00		a) From State Government			0.00
	12589729.00	b) Cess Activity Segment		12594542.00		0.00		b) From Government of India			0.00
	2913043.00	c) Cess Activity Temp Estb		7304437.00							
19725121.00		<u>2) CPF BOARD CONTRIBUTION</u>		19553208.00		21558107.00		<u>2) FINANCIAL ASSISTANCE</u>			5220268.00
	18914480.00	i) Core Activity Segment		18717352.00				a) From State Government		0.00	
	810641.00	ii) Cess Activity Segment		835856.00		21558107.00		b) From Government of India		5220268.00	
185446357.82		<u>3) OFFICE EXPENDITURE</u>	A	209247741.54		177542276.00		<u>3) REIMBURSEMENT OF CESS</u>			110167191.00
13752378.00		<u>4) RUNNING EXPENDITURE OF LAB.</u>	B	6665706.00				<u>4) REVENUE RECEIPT</u>			2152085390.77
15026052.00		<u>5) EXPENDITURE FOR VEHICLES.</u>	C	15065666.00		2623460014.05		a) Consent Fees		2102242945.77	
18646769.00		<u>6) MAINTAINANCE &amp; REPAIRS</u>		27391014.00				b) Bio Medical Authorisation Fees		35750.00	
	8417286.00	i) Land & Building		8177219.00				c) Analysis Charges		49806695.00	
	3262213.00	ii) Furniture & Fixture		4950836.00				<u>5) OTHER RECEIPT</u>	H		40650230.00
	6967270.00	iii) S.I. & O.A.		14262959.00		60375662.27		<u>6) INTEREST ON INVESTMENT</u>			1012502578.81
39035112.00		<u>7) EXPENDITURE FROM CESS FUND</u>	D	34269389.00		1004660804.94		<u>7) PROFIT ON SALE OF ASSETS</u>			123500.00
269005826.00		<u>8) PROJECTS EXP. From Cess Fund</u>	E	193627577.00		517600.00					
53428650.18		<u>9) DEPRECIATION</u>	I	48238016.22							
2951001050.26		Excess of Income Over Expenditure		2486872474.82							
3888114464.26				3367749158.58		3888114464.26					3367749158.58

As per our report of even date attached.

  
 Chief Accounts Officer  
 Maharashtra Pollution Control Board

  
 Member Secretary  
 Maharashtra Pollution Control Board



  
 Chairman  
 Maharashtra Pollution Control Board

Mr. P. S. ...  
 ...



**MAHARASHTRA POLLUTION CONTROL BOARD**  
**Balance Sheet at the Year End 31st March, 2018**

Previous Year 2016-17		Liability	Schedule No.	Current Year 2017-18		Previous Year 2016-17		Assets	Schedule No.	Current Year 2017-18	
Major Head	Sub Head			Amount	Amount	Major Head	Sub Head			Amount	Amount
1387964082.48		<b>A) CAPITAL FUND</b>			1429565520.48			1) WORKS (Form K-IV)			
		1) Grant received from Govt. for capital expenditure (Including capital value of assets transferred from Ex Directorate to MSWPIC & WHO Delhi)				442679625.08		2) FIXED ASSETS	J		
	1319557762.48	Amount utilised up to previous year (Opening Balance)		1387964082.48		66165141.94		a) Land & Building			440228074.19
	68406320.00	Add:- Transfer from Excess of Income over Expenditure for Capital Expenses		41601438.00		35607549.51		b) Laboratory Equipments			56921286.26
	0.00	Add:- Transfer from Capital Receipt for procurement of Lab. Equipment.		0.00		99365090.14		c) Vehicle			36663544.48
0.00						67422464.20		d) Furniture & Fixture			91197992.40
		<b>B) CAPITAL RECEIPT from MoEF</b>			0.00			e) Scientific Instruments			79592395.32
6162003.50	1454486.00	<b>C) Fund from UNIDO</b>		6162003.50	22610522.50	15925596991.09		<b>3) INVESTMENT</b>	K		18438269031.90
	6019420.00	Add:- Amount Received		20000000.00		179495446.88		<b>4) CURRENT ASSETS</b>			157606958.61
	131902.50	Less :- Expenditure		3551481.00			20125380.93	a) MISCELLANEOUS ADVANCES	L	21324769.73	
16625301.00		<b>D) CURRENT LIABILITIES</b>			13539433.50		1249970.00	b) SECURITY DEPOSIT WITH OTHER	M	1799575.00	
	15447388.00	1) Sundry Payables / Deposits	N	12182809.50				<b>c) CLOSING BALANCES</b>			
	1177913.00	2) Creditors	O	1356624.00			158020427.50	i) Cash at Bank	F	134165562.43	
2116263806.82		<b>E) RESERVES</b>			2266260768.82		99668.45	ii) Cash in Hand	G	317051.45	
	2083814621.73	1) Pension Fund	P	2229681644.73							
	32449185.09	2) Gratuity Fund	Q	36579124.09							
12066800.00	19434800.00	<b>F) Fund from Health Impact Assessment Study</b>		12066800.00	12066800.00						
	7368000.00	Less :- Expenditure		0.00							
13277250315.04		<b>G) INCOME &amp; EXPENDITURE APPROPRIATION ACCOUNT</b>	R		15556436237.86						
16816332308.84					19300479283.16	16816332308.84					19300479283.16

Significant Accounting Policies and Notes on Accounts

Chief Accounts Officer  
Maharashtra Pollution Control Board

S

Member Secretary  
Maharashtra Pollution Control Board



Chairman  
Maharashtra Pollution Control Board



M/s Om Prakash S. Chopra & Co.  
Chartered Accountants

Partners  
M. No. - 00552

As per our report of even date attached

**Maharashtra Pollution Control Board**  
**Fixed Assets ( Schedule - J )**

**Financial Year 2017-18**

Sr. No.	Descriptions of Fixed Assets	Gross Block				Depreciation				Net Block	
		Opening Balance as on 01/04/2017	Additions	Deletion	Closing Balance as on 31/03/2018	As at 31/03/2017	For the Year	Deletion	As at 31/03/2018	As at 31/03/2018	As at 31/03/2017
1	Land & Building	578,022,494.37	7,249,047.00	-	585,271,541.37	135,342,869.29	9,700,597.89	-	145,043,467.18	440,228,074.19	442,679,625.08
2	Laboratory Equipments	73,980,276.92	3,356,438.00	-	77,336,714.92	7,815,134.98	12,600,293.68	-	20,415,428.66	56,921,286.26	66,165,141.94
3	Vehicles	60,048,226.68	6,894,558.00	-	66,942,784.68	24,440,677.17	5,838,563.03	-	30,279,240.20	36,663,544.48	35,607,549.51
4	Furniture & Fixture	197,681,379.38	630,192.00	-	198,311,571.38	98,316,289.24	8,797,289.74	-	107,113,578.98	91,197,992.40	99,365,090.14
5	Scientific Instruments & Office Appliances	205,188,204.68	23,471,203.00	-	228,659,407.68	137,765,740.48	11,301,271.88	-	149,067,012.36	79,592,395.32	67,422,464.20
	<b>Total Rs.</b>	<b>1,114,920,582.03</b>	<b>41,601,438.00</b>	<b>-</b>	<b>1,156,522,020.03</b>	<b>403,680,711.16</b>	<b>48,238,016.22</b>	<b>-</b>	<b>451,918,727.38</b>	<b>704,603,292.65</b>	<b>711,239,870.87</b>

MAHARASHTRA POLLUTION CONTROL BOARD

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

Kalpataru Point, Sion [E], Mumbai- 400022

Website: [www.mpcb.gov.in](http://www.mpcb.gov.in)

