

Foreword

An efficient way to analyze overall environmental quality is required for any decision maker who study the environment and as an environmental consciousness in almost every activity has risen in recent years, the importance of environmental communication and social accountability, which promote active and voluntary disclosure of environmental information has become quintessential. In addition, when citizens make a decision to act on their environmental awareness, it is



necessary to know significant information about the environment they live in, and this importance is widely recognized to fulfill the needs of every stakeholder by providing and reporting the environmental information in their respective regions.

It gives me pleasure to present herewith Annual report of FY 2020-2021 publishing latest happenings of MPCB who is constantly thriving for sharing information through several means. MPCB's priority is to sensitize each & every concerned associated with activities of MPCB directly or indirectly. This report is a tool for providing wider information on activities carried out and services provided by the Board.

In this report the Board presents information on the status and condition of environmental resources, the associated environmental trends and implications and other related efforts. In this report, to evaluate the status of environment; the most up-to-date information from a range of data collected through various real-time monitoring stations and sampling is used. Further every evaluation and assessment completed during a reporting period includes a summary of its findings and conclusion. This latest report also includes the challenges we have overcome by implementing various action plans, noted the issues we are still working on, and explores emerging challenges. With a view to have ready information on the activities of Maharashtra Pollution Control Board, an attempt is made to present the relevant and latest statistics about key indicators and parameters e.g. Industries covered under the purview of the environmental legislations, Grant of Consent, Authorization issued under Bio-Medical Waste (Mgmt. and Handling) Rules, 1998 & Municipal Solid Waste (M & H) Rules, 2000, Legal Actions initiated against defaulters, Public Complaints, Central Action Plan, Industrial pollution load, CETP Status, Performance of Regional Offices, Central & Regional Laboratories, environmental Water & Air guality, Organization, Staff Strength etc. Further new developments by the Board during the said year are also briefly explained in the report.

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1. INTRODUCTION

Maharashtra Pollution Control Board (MPCB) was established on 7th September 1970 under the provisions of Maharashtra Water (Prevention and control of Pollution) Act, 1969. The Water (P & C. P) Act, 1974 was adopted in Maharashtra on 1st 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 2nd May 1983. The entire state of Maharashtra has been declared as Air Pollution Control Areas since 6th 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 and some of the provisions under Environmental (Protection) Act, 1986 and Rules framed there under, from time to time, such as, Bio-Medical Waste Management Rules, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, Solid Waste Management Rules etc. 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**.

To deal with depletion of natural resource and environmental degradation, prudent environmental management is necessary. Since environmental problems are diverse, their solutions must be Region-specific. Preparation of Annual Reports is a mandatory requirement, aimed at producing an informative account of the environmental conditions and the action plan to achieve sustainable growth. MPCB has established twelve Regional Offices and forty-three Sub-Regional offices across the State to implement various provisions in the acts and rules 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 duly analysed is updated on the website to make information available to the public. Efforts are also being made to create awareness to celebrate all festivals in an eco-friendly manner.

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, Laboratory Management, Waste Management, Human Resource and Financial Management. This information is used to determine if pollution control strategies as adopted by implementing authority are giving desirable results and are thereby lowering pollution levels and if new or additional controls are required to achieve desirable levels. The Board has introduced a system for disposal for consent and authorization applications made by industries and other projects under environment protection legislations,



in shortest possible time. 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.

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 Effluent treatment plants are also provided in industrial areas. 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 endeavours 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 through NGOs, 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 fulltime)
- 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 etc. (Not exceeding three)
- 6. Member Secretary (fulltime)

Government of Maharashtra has powers under section 4 of the Water (Prevention and Control of Pollution) Act, 1974 to constitute State Pollution Control Board (MPCB).

Table 1.0 Constitution of M.P.C. Board during 2020-21

Shri. Sudhir Shrivastava, Retired IAS	Chairman
Principal Secretary, Environment Department, Government of Maharashtra	Member
Additional Chief Secretary Public Health Dept. Government of Maharashtra, Mantralaya, Mumbai	Member
Principal Secretary-II Urban Development Dept., Government of Maharashtra, Mumbai	Member
Principal Secretary Water Supply and Sanitation, Government of Maharashtra, Mantralaya, Mumbai	Member
Secretary Home (Transport) Dept., Government of Maharashtra, Mantralaya, Mumbai	Member
Chief Executive Officer MIDC, Mahakali Caves Road, Andheri (E), Mumbai	Member
Member Secretary (Technical) Maharashtra Jeevan Pradhikaran, Express Towers, Nariman Point, Mumbai	Member
Shri. E. Ravendiran _[IAS] Member Secretary, Maharashtra Pollution Control Board	Member Secretary Upto 9 th September 2020
Shri. Ashok Shingare _[IAS] Member Secretary, MPCB, Mumbai.	Member Secretary 9 September to till date



3. MEETINGS OF THE BOARD

1.0 During the reporting year, the 175th meeting of the Maharashtra Pollution Control Board was held. The major decisions taken in the meeting are as below.

A. Post facto approval for long-term field validation of low-cost air quality sensor-based monitoring network in Mumbai

The use of low-cost air quality sensor-based monitoring stations has been successfully field evaluated by IIT Kanpur in DST-Intel supported project titled "SAIVAM"(Streaming Analytics over Temporal Variables for Air quality Monitoring). Rigorous scientific field evaluations done by IIT Kanpur using indigenously developed low-cost air quality sensor monitors, collaboratively developed by industry partner & established the precision and accuracy of Particulate Matter (PM_{2.5} and PM₁₀) over long-term spatial and temporal variations for a city-level air quality monitoring network. Board has approved post facto for the above project activity by IIT Kanpur at the cost Rs. 46,02,000.

B. Post facto approval of carrying capacity study of Navi-Mumbai & Nagpur cities and undertaking Carrying Capacity study in remaining Non-Attainment Cities in Maharashtra.

As per the directives of Hon'ble National Green Tribunal (NGT), Principal Bench, New Delhi in original application No: 681/ 2018, dtd. 20.11.2019, it is required to conduct Carrying Capacity study for Non-Attainment Cities (NACs). As notified in NGT order, Maharashtra is having 18 Non-Attainment cities namely: Mumbai, Pune, Nagpur, Nashik, Amravati, Aurangabad, Chandrapur, Kolhapur, Navi-Mumbai, Solapur, Akola, Jalna, Latur, Ulhasnagar, Jalgaon, Badlapur, Sangli and Thane. The objective of this proposed study is to conduct carrying capacity study for the listed cities of Maharashtra and prepare an effective assimilative capacity based regional developmental planning with environmental management plan, incorporating baseline data.

NEERI, Nagpur vide letter dtd. 4/2/2020, shared the detail proposal of carrying capacity of Non-Attainment cities to MPCB. The total cost of the project is 50.15Cr+ Tax and time duration of completion of the project with final report submission & workshop is given as 36 months. Board discussed agenda in detail and accords the post facto approval for conducting carrying capacity of Nagpur & Navi-Mumbai cities through NEERI, Nagpur at the cost of Rs. 6.4 cr + applicable taxes.

C. Tracking of Hazardous Waste Transporting Vehicles through ICC/NICER Globe on HAZMAT Tracking System.

As per the Provision in the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, Board has granting Authorization to private transporter for transportation of Hazardous waste from various locations of the Maharashtra to CHWTSD facilities (4 Facilities). Board has granted authorization to 200 private transporters for transportation of Hazardous waste (about 610 Numbers of vehicles). Average number of vehicle trips in the CHWTSD Facilities in the one month is about 4000. Also, Board is granting the authorization to transporter with condition to install GPS (Global Positioning System) to each HW transport vehicle. But this system is limited up to vehicle owner only. Board has no access to track the vehicles.



It is proposed to monitor the movement of HW transportation vehicle in the state of Maharashtra & Board has discussed agenda in detail and accords approval to the said proposal having total cost of project of Rs. 38 Lakh + taxes. Further, Member Secretary is authorized take further course of action by following due process for selecting agency.

- 2.0 During the reporting year, the 176th meeting of the Maharashtra Pollution Control Board was held. The major decisions taken in the meeting are as below.
- A. Post facto approval for Revised Delegation of Powers for Consent Management Board has noted the agenda item regarding the revised delegation of Powers for consent Management

It is resolved that, Board accords Post Facto approval to Office Order issued on 23/12/2020 for revised delegation of powers of consent management. Power is delegated to Sub Regional Officer for grant of consent under Water Act 1974 & Authorization under Solid Waste Management Rule 2016 to Nagar Panchayat in addition to C class Municipal Council. Separate amendment order will be issued. Member Secretary is authorized to issue amended circular in delegation of power of consent management

B. Mobile Vans for Calibration of Sensors installed for Monitoring Ambient Air Quality w.r.t. PM10 and PM2.5 parameters in Maharashtra.

Calibration of sensors with CAAQMS analysers certified by the *EPA.TUV*, *MCERT* is essential to find out suitable sensors system which can work in the field conditions and generate acceptable values in comparison with CAAQMS analysers. Presently, there is no facility available in India to certify these low-cost sensors. CPCB/NPL is working to setup calibration of these sensors and monitoring systems manufactured in India.

In view of the above, it is proposed to procure 5 Mobile calibration Vans fitted with PM_{10} and $PM_{2.5}$ analysers of CAAQMS for deployment and calibration of Sensors proposed to be installed across Maharashtra which will facilitate the optimum use of sensor based monitoring and valid data generation with respect to Ambient Air Quality for these parameters.

Similarly, it is proposed to procure 2 Mobile Vans fitted with Ozone monitoring in urban area to understand the concentration levels at ground level. Ground level Ozone levels are showing increased in urban area as per the available data of CAAQMS installed at selected locations and needs to cover more locations for Ozone monitoring.

Board has noted the agenda item and principally approved for procurement of Mobile monitoring vans for calibration of Sensors and Ozone monitoring 5+2 numbers for the Board following due e-tendering process. It is also approved the approximate capital cost of Rs. 2.65 Cr + 0 & M cost for five years@ of 12% per year. The expenditure shall be met from Boards fund.

C. Purchase/hiring of Beach Cleaning Machines for costal district of Maharashtra.

The MPC Board proposes to undertake beach cleaning activity across the state which help to rejuvenate beaches for sustainable tourism & ecological conservation. The Board proposes this activity on experimental basis for beaches located in Mumbai & Mumbai Suburban which could be extended for entire state and to undertake this activity, the Board needs machinery



& equipment's required for beach cleaning which includes beach cleaner machine & ancillary set-up. The Board has carried out literature review of equipment's required for beach cleaning and have observed machines of different specifications, price & capacities are available in the market. There are mostly various types of machines viz. Walk behind beach cleaning machine & tractor mounted beach cleaning machines, tracked loader beach cleaning machine available in the market.

In consideration of the same, the Board has resolved that; Board will procure 07 compact tracked loader beach cleaning machines through e-bidding process or GEM portal and allotted budget of Rs. 5.15 Cr plus taxes for procurement of above machines & handover the same to District Collector (Mumbai-01, Mumbai Suburban-01, Raigad-1, Palghar-01, Thane-01, Ratnagiri- 01, Sindhudurg-01) for purpose of beach cleaning activity under his jurisdiction.

D. Development of Majhi Vasundhara Web- portal and related IT activities

Most of the development mentioned above is complete and hosted on-to Cloud Storage. The development of Majhi Vasundhara web-portal has been done by Board's MIS implementor-M/s Webwerks India Pvt. Ltd. at pre-approved IT expert/ developer resource man-month e-Tender rates. The Cloud storage is also hired as per Government of Maharashtra's Cloud Services GR through Government empaneled Cloud Service Provider- M/s Netmagic IT Services Pvt. Ltd.

Board accords its approval to the above IT related expenditure for successful and timely implementation of Majhi Vasundhara Project in the State of Maharashtra. Member Secretary is authorized to initiate and execute above stated IT related activities required for Majhi Vasundhara project in consultation with Environment and Climate Change Dept. GoM

E. Proposal to study Ambient Air Quality and Atmospheric Haze condition in Mahul area

To understand the process and dynamics involve in the haze formation and the resulting built of pollutants due to haze formation, a short-term monitoring study in the Mahul area is proposed. Also, as Mahul is designated as a CEPI area, the study proposed will help in identifying the responsible sources contributing to pollution and the weather dynamics. The proposal is only for carrying out the short-term monitoring studies in the Mahul area at the cost of Rs. Rs. 62.50 lakhs +taxes as applicable with the condition that the equipments that will be used for monitoring and analysis shall be handed over to MPC Board in working condition after the completion of the study.

Board has accorded the approval for carrying out short-term monitoring study for Ambient air quality and atmospheric haze condition in Mahul area. Member Secretary is authorized to take further course of action.

F. Financial Assistance for Majhi Vasundhara Abhiyan.

The Environment and Climate Change Department, Govt. of Maharashtra had notified Government Resolution for the Majhi Vasundhara Abhiyan. Which is the first initiative under Majhi Vasundhara. It focuses on identifying potential action points under the five elements of nature (Panchamahabhuta) for the betterment of the Environment for the local bodies in



Maharashtra. The Abhiyan was launched by Hon'ble Minister Tourism, Environment and Climate Change on 2nd October 2020. It is a competition for Urban Local Bodies and Panchayat Raj Institutions. The Department had requested Board to make a provision of financial assistance for Creating of various films, Facebook live talk shows, Majhi Vasundhara summit, Theme Songs etc. for public Awareness. The Abhiyan had identified 713 participant ULBs/PRis from Maharashtra. The participants had already started working on the Majhi Vasundhara Abhiyan. The evaluation for the Abhiyan will be done in two stages i.e Stage1 for Desktop Assessment and Stage 2 for Site Visit and Citizen feedback collection in the month of April and May 2021. A tentative budget of 1.5 Crore will be required for the evaluation process. It also includes two stage evaluation and identification of the winners in all four verticals (i.e. Amrut Corporations, Municipal Councils, Nagar Panchayat and Gram Panchayat) by 31st May 2021.

Board has accorded the approval for public awareness activities and to scrutinize participated entries of Majhi Vasundhara Abhiyan of Environmental and climate change department. Member Secretary is authorized to take further course of act.



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 2020-21, 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.	Principal Secretary, Home (Transport) Dept., Mumbai	Member
3.	Technical Advisor, MIDC, Mumbai (Env.)	Member
4.	Member Secretary, MPCB, Mumbai	Member Secretary
5.	Scientist & Representative, 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 23 Meetings (in 34 sittings) of Consent Appraisal Committee held during the year 2020-21 wherein 1320 CAC applications were discussed, and 1124 approvals were granted.

4.2 Consent Committee (CC)

The Consent Committee comprises of following members:

Sr.No.	Members	Designation
1.	Mr. E. Ravendiran, Member Secretary, Maharashtra Pollution Control Board	Chairman
2.	Dr. A.R. Supate, Principal Scientific Officer Maharashtra Pollution Control Board	Member
3.	Mr. P.K. Mirashe Assistant Secretary (Technical), Maharashtra Pollution Control Board	Member
4.	Dr. Y. B. Sontakke Water Pollution Abatement Engineer, Maharashtra Pollution Control Board	Member
5.	Dr. V. M. Motghare Air Pollution Abatement Engineer (APAE),	Member



	Maharashtra Pollution Control Board	
6	Mr. N. N. Gurav, Regional Officer HQ,	Mombor
0.	Maharashtra Pollution Control Board	Member
	Mr. R. G. Pethe	
7.	Retired Water Pollution Abatement Engineer (WPAE),	Member
	Maharashtra Pollution Control Board	

> 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;

: Projects with capital investment above Rs.25Crores and up to
Rs.75Crores
: Projects with capital investment above Rs. 250Crores and up to
Rs.750Crores
: Projects with capital investment above Rs. 1000 Crores and up to
Rs. 2000Crores
: Project with capital investment above Rs. 25 Crores and up to
Rs.350 Crores

There were 15 meetings of Consent Committee held during the year 2020-21 and total 914 applications were discussed and 892 were disposed off.

4.3 Committees formed for Solid Waste Management Rule, 2016

There were 8 meetings of Technical advisory committee held during the year 2020-21 for implementation of SWM in the state & 29 Divisional level committee held during year 2020-21 for monitoring of implementation of SWM in the state.

Sr.No.	Name of Committee	Date of Formation	Division/Area of work
1.	Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra	17/01/2019	Nashik
2.	Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra	20/12/2018	Pune
3.	Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra	17/01/2019	Nagpur
4.	Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra	03/12/2018	Aurangabad
5.	Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra	03/12/2018	Konkan



6.	Committee for authorizations Corporations/Councils Municipal Solid Waste 2000, dated 02/04/201	scrutiny for as per (M & H) Ru 4	of all the µles,	17/04/2015	Scrutiny of applications for MSW authorizations
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During the year 2020-21, Authorization Committee for Scrutiny of applications for MSW Authorizations is comprised of following members:

1.	Shri P.K. Mirashe, Assistant Secretary (Tech) HQ, MPCB, Mumbai	Chairman
2.	Dr. Sneha Palnitkar or Representative, All India Institute of Local Self Govt.	Expert Member
3.	Shri. Bhalchandra P. Patil Ex. Dy. Municipal Commissioner, MCGM	Expert Member
4.	Shri N.N. Gurav, Regional officer, HQ, MPCB, Mumbai	Member Convener

Total 21 applications were discussed by the Committee for Scrutiny of applications for MSW authorizations and 7 were rejected due to non-compliance of MSW Rules and 9 applications were granted/ renewed during the year 2020-21

4.4 Committees formed for Hazardous & Other Waste (T & M) Rule, 2016 & E-waste Rule, 2016

1.	Committee for implementing liabilities for environmental damages due to handling and disposal of hazardous waste, and penalty	08/08/2017	Head Office level
2.	Committee for implementation of procedure for issuance of grant/renewal of authorization of industrial units possessing environmentally sound management facilities for reprocessing/recycling, and actual users/co-processing/utilization of the hazardous waste and recycling of electronic waste (E-waste)	04/10/2016	Head Office level

During the year 2020-21, Authorization Committee for Environment Sound Management of Hazardous & Other Waste and E-Waste is comprised of following members:

1.	Shri. R.K. Garg,	Chairman	
	Former Managing Director, Indian Rare Earths Ltd		
2	Shree. B. Sharma,	Mombor	
۷.	Regional Director, Pune, CPCB	Member	
3.	Shri Dr. B. R. Naidu,	Member	



	Ex Regional Director, West Zone, CPCB Vadodara.	
4.	Shri. Bharat Nimbarte, Ex Joint Director (WPC), MPCB	Member
5.	Shri P.K. Mirashe, Assistant Secretary (Tech) HQ, MPCB, Mumbai	Member
6.	Scientist – 1 or 2, Environment Department, Govt. of Maharashtra	Member
7.	Shri N.N. Gurav, Regional officer, HQ, MPCB, Mumbai	Member Convener

> Terms of Reference

The Authorization Committee for considering the applications for consents/ authorizations under Water (P &CP) Act, 1974, Air (P & CP) Act, 1981 and Hazardous Wastes (M & H) Rules, 1989 and E-Waste Rules, 2016 as under;

There were 6 Meetings of Authorization Committee for Hazardous waste held during the year 2020-21. During the meeting total number of 130 applications of authorization under HW Rules were discussed; out of which 108 were approved and 39 number of applications for authorization under E-waste Rules, 2016 were discussed and 22 were approved.

4.5 Committee constituted for deciding Guidelines for issuance for Registration to Producer/ Brand Owner / Manufacturer under Plastic Waste Management Rule, 2016 and amendment thereto;

1	Committee for deciding guidelines for issuance of	21/11/2016	Head Office
1.	registrations to producers and brand owners	21/11/2010	level

During the year 2020-21, Committee constituted for deciding Guidelines for issuance for Registration under PWM rules, 2016 is comprised of following members:

1.	Joint Director (WPC), MPC Board, Mumbai	Chairman	
2.	Representative of ICT, Mumbai- Prof. Shashank Mhaske,	Member	
	HOD, Polymer, ICT, Mumbai		
3.	Representative of Environment Dept., GoM	Member	
4.	Representative of Urban Development Dept., GoM	Member	
5.	Regional Officer (HQ), MPC Board, Mumbai	Member Convener	

> Terms of Reference

- A) For examining application for grant of registration scheme to producer/ Brand-owners under the Plastic Waste Management, 2016
- B) To recommend applications for issuance of grant of Registration scheme to producer/ Brand-owners under the Plastic Waste Management, 2016
- C) For implementation of the procedure for issuance of grant of Registration scheme to producer/ brand-owners under the Plastic waste management, 2016



There are 5 stake holders under PWM Rules, 2016 who are required to obtain registration under PWM rules, 2016 and amendment thereto viz. Producer, Brand-owner, Importer, Manufacturer, Recycler. The concept of Extended Producer's Responsibility is applicable to the Producer/ Importer/ Brand-owners. However, EPR is not applicable to Recyclers as per present rules. Thus, this committee was constituted to decide guidelines and line of action for issuance of registration in view of this impending EPR policy.

Only one meeting of the said Committee was held during the year 2020-21 wherein 21 applications were discussed. As per the minutes of meeting of committee held on 1.10.2020, 111 nos. of recyclers were granted registration under PWM Rules, 2016 during the year 2020-21.



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 (SO₂), nitrogen dioxides (NO₂) and Respirable Suspended Particulate Matter (RSPM/PM₁₀) 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. MPCB, with a presence across the state through its 12 Regional Offices (RO), regularly monitors pollutant levels through a medium of an established network



of Ambient Air Quality Monitoring Stations (AAQMS) installed in various regions across Maharashtra. These AAQMS are installed under the National Air Monitoring Program (NAMP) and State Air Monitoring Program (SAMP). In the year 2020-21, there are 92 active AAQMS in Maharashtra of which 61 are under NAMP, 04 SAMP and 23 Continuous AAQMS (CAAQMS) are in operation. MPCB has commissioned 40 new manual monitoring station during 2020-2021. Also Board is in process of installing 47 numbers of new CAAQMS stations at various cities. 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 stations their performance is reviewed by the Board. The data generated by these stations are verified at HQ level before forwarding it to CPCB. These stations are connected to the AQI server at CPCB, New Delhi.



Figure.5.1. Continuous Ambient Air Quality Monitoring Stations at Colaba (left) and Kurla (right) in Mumbai.

Air pollution can be effectively tackled only through the support of citizens who are well informed about local and national air pollution problems and about the required mitigation measures. To achieve this, the concept of an Air Quality Index (AQI) was developed and is used by several nations to effectively represent the air quality scenario in their respective countries. AQI is an air quality guide wherein a color index is used to document air guality as represented in table below. The index provides a single number or a set of numbers by transforming the series of multiple values of respective air pollutants recorded over a span of time. It simply transforms the complex datasets into an easy-to-understand range of values which gets depicted in the form of different colors indicating the extent of air pollution. Increase in AQI indicates an increased level of air pollution and respective threats to human health associated with these pollutants. Various international environmental agencies such as United States' Environment Protection Agency (US-EPA) have developed their own set of mathematical algorithms to determine AQI, which are based on human exposure dose of air pollutants. In India, CPCB in consultation with the Indian Institute of Technology – Kanpur (IIT-K), developed an AQI system after conducting literature review, understanding air quality monitoring procedures and protocols, Indian National Air Quality Standards (INAQS) and dose-response relationships of pollutants with human health.

Air quality in the State is assessed through routine and specific monitoring. 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 2020-21. The data is analysed for SO_2 , NO_X and particulate matter (PM_{10}) 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 annual average concentration as represented in following sections. Further Exceedance Factor (E.F. = Annual Average/ Standard Value) has also been calculated for Particulate Matter to understand the data sets and approximate average numbers of samples exceeded the standard limit. To represent the analysis of data, colour coding system is used for identification and comparison as shown in below;

Air Quality classification based on colour coding

Gasses and particulate matter	Colour code used
Locations Within the limit	
Locations Exceeding the limit	
Location having Maximum value	
Location having Minimum value	

5.1.1 Amravati

Amravati Region contains 6 Ambient Air Monitoring Stations out of which 2 are present in residential area, 2 are in industrial area, 1 is in commercial area and 1 is in rural area. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.1. It is observed that the annual average concentrations of SO₂, NOx and PM₁₀ were within the NAAQM standard limits at all the locations. Details of annual average statistical data recorded throughout the year 2020-2021 are represented in Table 5.1.

	litegion				
	Parameters				
Location	SO ₂	NOx	PM ₁₀		
Location	S	Standards (µg/m³)			
	50	40	60		
Govt. College of Engineering	10	11	48		
A-23 MIDC Amravati	12	13	53		
Raja Kamal Chowk, Amravati	12	14	56		
College of Engineering & Technology (Architechture Branch) (Akola)	14	14	55		
L R College of Engg. (Akola)	13	14	54		
MIDC Water Works (Akola)	16	16	59		

Table 5.1 Statistical Monitoring of Annual Average Air Quality in Amaravati Region

Form table 5.1, minimum SO₂ concentration of $10\mu g/m^3 \&$ NOx concentration of $11\mu g/m^3$ was found at Govt. College of Engineering. The maximum SO₂ concentration and maximum NOx concentration of $16\mu g/m^3$ was found at MIDC Water Works. The Minimum PM₁₀ concentration of $48\mu g/m^3$ was found at Govt. College of Engineering and the maximum concentration of $59\mu g/m^3$ was found at MIDC Water Works, Amaravati. The minimum and maximum exceedance factors for PM₁₀ are shown in Table 5.2



Exceedance Factor – Amravati	
Min	0.48
Max	0.59

Table 5.2Exceedance factor for PM10 for Amravati Region

5.1.2 Aurangabad

In the jurisdiction of Regional Office, MPCB, Aurangabad, major air polluting industries are Steel Industries, Re-rolling mills, Stone Crushers, Thermal Power Plant, etc. The main contributors of environmental pollution are the parameters like SPM/TPM, SO₂ and NO_X. Most of the industries have provided air pollution control systems with adequate height of Chimney.

There are 9 Air Quality Monitoring stations in this Region, 5 in residential areas, 3 in industrial areas and 1 in a rural area. The annual average concentration of all the parameters analyzed at all locations is represented in **Table 5.3.** It is observed that SO_2 and NOx concentrations at all locations were within the NAAQM standard limits. However, PM_{10} concentrations at three locations were beyond NAAQM standard limit. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.3.

	Parameters			
Location	SO ₂	NOx	PM ₁₀	
Ebcation	Standards (µg/m³)			
	50	40	60	
MIDC Walunj, Auranagabad	12	15	65	
CADA Office	15	31	60	
SBES College	16	31	57	
Collector Office, Aurangabad	15	29	60	
Jalna Krishna Dhan	10	33	85	
Jalna Bachat Bhavan	9	34	85	
Terrace of Sidhheshwar Sahakari Bank	4	9	52	
Terrace of Keshavraj Vidyalay	4	9	51	
MIDC Water Works, Latur	4	9	53	

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

From Table 5.3, minimum SO₂ concentration of $4\mu g/m^3$ was found at Terrace of Keshavraj Vidyalay, MIDC Water Works, Latur and Terrace of Sidhheshwar Sahakari Bank. The minimum NOx concentration of $9\mu g/m^3$ was found at the same three locations as SO₂. Minimum PM₁₀ concentration of $51\mu g/m^3$ was found at Terrace of Keshavraj Vidyalay. Maximum SO₂ concentration of $16\mu g/m^3$ was found at SBES College while maximum NOx concentration of $34\mu g/m^3$ was found at Jalna Bachat Bhavan. Maximum PM₁₀ concentration of $85\mu g/m^3$ was found at Jalna – Bachat Bhavan and Jalna Krishna Dhan. The exceedance factors for PM₁₀ for this Region are shown in **Table 5.4**.

Table 5.4	Exceedance factors for PM ₁₀ for Aurangabad Region
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Exceedance Factor – Aurangabad		
Min	0.51	
Max	0.85	



5.1.3 Chandrapur

There are 6 Air Monitoring stations in Chandrapur Region out of which 3 are located in industrial area. The annual average concentration of all the parameters analyzed at all locations is represented in **Table 5.5**.

From Table 5.5. it was observed those concentrations of SO_2 and NOx were within the NAAQM standard limits at all locations. However, PM_{10} concentrations at all the given locations were beyond the NAAQM standards. Details of annual average statistical data recorded throughout the year 2020-21 are represented in **Table 5.5**

	Parameters		
Location	SO ₂	NOx	PM ₁₀
Location	Standards (µg/m³)		
	80	80	100
Old MIDC Chandrapur (CAAQMS)	15	15	83
MIDC Chandrapur	4	33	96
Ghuggus	4	33	197
Rajura	4	28	159
Ballarshah	4	30	121
Tadali MIDC (CAAQMS)	4	29	117

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

It can be observed from Table 5.5. that minimum SO₂ concentration of 4µg/m³ was recorded at 5 locations - MIDC Chandrapur, Ghuggus, Rajura, Ballarshah and Tadali MIDC. Minimum NOx concentration of 15µg/m³ was found at Old MIDC Chandrapur. Maximum SO₂ concentration of 15µg/m³ and maximum NOx concentration of 33µg/m³ were found at Old MIDC Chandrapur and MIDC Chandrapur, Ghuggus respectively. Minimum PM₁₀ concentration of 83µg/m³ was recorded at Old MIDC Chandrapur. Maximum PM₁₀ concentration of 197µg/m³ was recorded at Ghuggus. The exceedance factors for PM₁₀ for Chandrapur Region are shown in Table 5.6

Table 5.6 Exceedance factors for PM₁₀ for Chandrapur Region

Exceedance Factor - Chandrapur			
PM ₁₀			
Min	0.83		
Max	1.97		

5.1.4 Kalyan

There are 9 Air Monitoring stations in Kalyan Region. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.7. It is evident that concentrations of SO_2 at all locations were within the NAAQM standard limits. Similary, concentrations of NOx at all locations except MPCB RO Kalyan Office and Powai Chowk were within the NAAQM standard limits. Concentrations of PM₁₀ exceeded the standard limits at 4 locations. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.7.



	Parameters			
Location	SO ₂	NOx	PM ₁₀	
Location		Standards (µg/m ³)		
	50	40	60	
Ambernath	17	37	59	
Badlapur	18	38	68	
Prematai Hall, Bhiwandi	27	38	53	
IGM Hospital	31	40	56	
Dombivali CETP	7	30	131	
MIDC Office Dombivali	19	40	69	
MPCB RO Kalyan Office	29	43	51	
Powai Chowk	18	41	67	
Smt. CHM College Campus	17	39	65	

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

From Table 5.7, it is observed that minimum SO₂ concentration of $7\mu g/m^3$ was found at Dombivali. The minimum NOx concentration of $37\mu g/m^3$ was found at Ambernath. The minimum PM₁₀ concentration of $51\mu g/m^3$ was found atMPCB RO Kalyan Office. The maximum SO₂ concentration of $31\mu g/m^3$ and maximum NOx concentration of $43\mu g/m^3$ was found at IGM Hospital and MPCB RO Kalyan Office respectively. Maximum PM₁₀ concentration of $131\mu g/m^3$ was found at Dombivali. The exceedance factors for NOx and PM₁₀ for Kalyan Region are shown in Table 5.8.

Table 5.8 Exceedance	factors for NOx and	d PM ₁₀ for Kalyan Region
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Exceedance Factor - Kalyan				
	NOx PM ₁₀			
Min	0.37	0.51		
Max	0.43	1.31		

5.1.5 Kolhapur

There are 6 Air Monitoring stations in Kolhapur Region out of which 3 are located in residential areas, 1 in an industrial area and 2 in rural areas. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.9.

From Table 5.9. It can be observed that SO_2 and NOx concentrations (except at Sangli Miraj Primary Municipal School in case of NOx) at all locations was within the NAAQM standard limits.PM₁₀ concentrations were within the prescribed standards expect at Shivaji university. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.9.

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

	Parameters		
Location	SO ₂	NOx	PM ₁₀
Location	Standards (µg/m³)		
	50	40	60
Shivaji University	10	15	52
Ruikar Trust	24	37	106
Mahadwar Road	19	29	85



Terrace of SRO-Sangli, Udyog Bhavan	9	35	64
Sangli Miraj Primary Municipal School	9	43	76
Krishna Valley School	8	39	72

It is evident from Table 5.9. that minimum SO_2 concentration of $8\mu g/m^3$ was found at Krishna Valley School. Minimum NOx concentration of $15\mu g/m^3$ and the minimum PM_{10} concentration of $52\mu g/m^3$ was found at Shivaji University. The maximum SO_2 concentration of $24\mu g/m^3$ and maximum NOx concentration of $43\mu g/m^3$ was found at Ruikar Trust and Sangli Miraj Primary Municipal School respectively. Maximum PM_{10} concentration of $106\mu g/m^3$ was found at Ruikar Trust. The exceedance factors for NOx and PM_{10} for Kolhapur Region are shown in Table 5.10.

Table 5.10Exceedance factors for NOx and PM10 for Kolhapur Region

Exceedance Factor - Kolhapur			
	NOx	PM ₁₀	
Min	0.15	0.52	
Max	0.43	1.06	

5.1.6 Mumbai

Mumbai has two Ambient Air Monitorin Stations at two different residential locations at Sion and Bandra. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.11.

From Table 5.11, it can be observed that the average SO₂ concentrations at Sion and Bandra were well within the NAAQM standard limits whereas concentration of NOx and PM₁₀ at Sion station was beyond the standards. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.11.

Table 5.11	Statistical Monitoring of Annua	I Average Air Qualit	y in Mumbai Region
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		Parameters	
Location	SO ₂	SO ₂ NOx P	
Location	Standards (µg/m ³)		
	50	40	60
Sion	17	52	179
Bandra (CAAQMS)	14	20	57

From Table 5.11. it is observed that minimum SO_2 concentration of $14\mu g/m^3$ was found at Bandra and a maximum of $17\mu g/m^3$ was found at Sion. Minimum NOx concentration of $20\mu g/m^3$ was found at Bandra and a maximum of $52\mu g/m^3$ was found at Sion. Minimum PM_{10} concentration of $57\mu g/m^3$ was found at Bandra whereas maximum PM_{10} concentration of $179\mu g/m^3$ was found at Sion. The exceedance factors for PM_{10} for Mumbai Region are shown in Table 5.12.

Table 5.12Exceedance factors for NOx & PM10 for Mumbai Region

Exceedance Factor – Mumbai			
	NOx	PM ₁₀	
Min	0.20	0.57	
Max	0.52	1.79	



5.1.7 Nagpur

Nagpur has four Ambient Air Monitoring Stations. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.13.

From Table 5.13. It can be observed that SO_2 and NOx concentrations at all locations are within the NAAQM standard limits. PM_{10} concentrations at all locations are beyond the prescribed limits. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.13

		Parameters		
Location	SO ₂	NOx	PM 10	
Location	Standards (µg/m³)			
	50	40	60	
Civil Lines, Nagpur	8	21	61	
North Ambazari Road	8	24	96	
Hingna Road	10	26	105	
Sadar	8	22	101	

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

From Table 5.13, it is observed that minimum SO_2 concentration of $8\mu g/m^3$ was recorded at Civil Lines, Sadar and North Ambazari Road. Minimum NOx concentration of $21\mu g/m^3$ and minimum PM_{10} concentration of $61\mu g/m^3$ was recorded at Civil Lines, Nagpur. Maximum SO_2 concentration of $10\mu g/m^3$, maximum NOx concentration of $26\mu g/m^3$ and maximum PM_{10} concentration of $105\mu g/m^3$ was recorded at Hingna Road. The exceedance factors for PM_{10} for Nagpur Region are shown in Table 5.14

Table 5.14	Exceedance	factors for	PM ₁₀ for	Nagpur	Region
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Exceedance Factor - Nagpur		
Min	0.61	
Max	1.05	

5.1.8 Nashik

There are 8 AAQMS in this Region of which 5 have been located at residential areas, 2 at industrial areas and 1 at a commercial area. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.15

From Table 5.15, it can be observed that SO_2 , NOx and PM_{10} concentrations at all locations are within the NAAQM standard limits. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.15.

Table 5.15	Statistical Monitoring o	f Annual Average Air Qualit	y in Nashik Region

	Parameters		
Leastion	SO ₂	NOx	PM 10
Location	Standards (μg/m ³)		
	50	40	60
SRO Office Nashik	6	21	36



KTHM College	5	12	55
MIDC Satpur	7	22	36
RTO Colony	6	22	37
NMC Nashik	6	22	37
MIDC Jalgaon	11	21	54
Girna Water Tank	10	21	51
Old B. J. Market	11	21	54

From Table 5.15, it can be observed that minimum SO₂ concentration of $5\mu g/m^3$ and minimum NOx concentration of $12\mu g/m^3$ was recorded at KTHM College. Minimum PM₁₀ concentration of $36\mu g/m^3$ was recorded at two locations - SRO Office Nashik and MIDC Satpur. Maximum SO₂ concentration of $11\mu g/m^3$ was recorded at MIDC Jalgaon and Old B. J. Highest NOx concentration of $22\mu g/m^3$ was observed at MIDC Satpur, RTO Colony and NMC Nashik. Maximum PM₁₀ concentration of $55\mu g/m^3$ was recorded at KTHM College. The exceedance factors for PM₁₀ for Nashik Region are shown in Table 5.16

Table 5.16	Exceedance	factors for	PM ₁₀ for	Nashik	Region
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Exceedance Factor - Nashik		
Min	0.36	
Max	0.55	

5.1.9 Navi Mumbai

Out of the 6 AAQMS in Navi Mumbai Region, 2 are located in residential areas, 3 in industrial areas and 1 in a rural area. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.17.

From Table 5.17, It can be observed that the average SO_2 concentrations at all locations are within the NAAQM standard limits. However, NOx concentrations at all locations except Nerul were beyond the prescribed standard. PM₁₀ concentrations at all locations except Airoli were within the NAAQM standard limit. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.17. It can be observed that minimum SO_2 concentration of $8\mu g/m_3$ was found at Airoli. Minimum NOx concentration of $39\mu g/m^3$ was recorded at Nerul. Similary, Minimum PM₁₀ concentration of $48\mu g/m^3$ was also found at the same location.

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

		Parameters	
Location	SO ₂	NOx	PM 10
Location	Standards (µg/m ³)		
	50	40	60
Airoli	8	96	196
Nerul	14	39	48
Rabale	15	45	55
Mahape	15	45	54
Kharghar	14	42	49
MIDC Taloja	15	46	58



Maximum SO₂ concentration of 15μ g/m³ was observed at three locations - Rabale, Mahape and MIDC Taloja. Maximum NOx concentration (96µg/m³) and maximum PM₁₀ concentration (196µg/m³) was observed at Airoli. Table 5.18 represents the exceedance factor for NOx

Exceedance Factor - Navi Mumbai			
Min	0.39		
Max	0.96		

Table 5.18 Exceedance factors for NOx for Navi Mumbai Region

5.1.10 Pune

Pune City has always been appreciated as a "Pensioner's Paradise". Its salubrious climate and clean air lead to decrease in illness rate which is good but this rate is seemingly deteriorating with time. Air pollution has reached to such an extent that, this metropolis is choking on its own vehicular exhaust. Looking at the continuous increase in air pollution, there are 8 AAQMS in this Region of which 6 are in residential areas, 1 in an industrial and 1 in a rural area. Samples have been analyzed to assess the air quality in entire region for all the areas i.e., residential, rural area& industrial. The annual average concentration of all parameters is represented in Table 5.19

From Table 5.19, It can be observed that the SO_2 concentrations at all locations are within the NAAQM standard limits. NOx concentrations at all locations except Nal Stop, PCMC and Swargate were beyond the standard limits. PM_{10} concentrations at all locations except Karve Road CAAQMS were beyond the standard limits. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.19

	Parameters				
Location	SO ₂	NOx	PM 10		
Location	Standards (µg/m³)				
	50	40	60		
PCMC	21	50	80		
Karve Road CAAQMS	12	32	39		
Nal Stop	17	51	101		
Bhosari	15	40	79		
Swargate	20	60	145		
Solapur	9	30	69		
WIT Campus	7	13	67		
Saat Rasta	7	13	65		

 Table 5.19
 Statistical Monitoring Annual Average Air Quality in Pune Region

From Table 5.19. It can be observed that minimum SO_2 concentration of $7\mu g/m^3$ was found at WIT Campus and Saat Rasta. Minimum NOx concentration of $13\mu g/m^3$ was found at WIT Campus and Saat Rasta. The minimum PM_{10} concentration of $65\mu g/m^3$ was found at Saat Rasta. Maximum SO_2 concentration of $21\mu g/m^3$ was found at PCMC. Maximum NOx concentration of $60\mu g/m^3$ was found at Swargate. Maximum PM_{10} concentration of $145\mu g/m^3$ was found at Swargate. The exceedance factors for NOx and PM_{10} for Pune Region are shown in Table 5.20



Exceedance Factor – Pune				
	NOx PM ₁₀			
Min	0.13	0.65		
Max	0.60	1.45		

Table 5.20Exceedance factors for NOx and PM10 for Pune Region

5.1.11 Raigad

The AAQMS at Panvel Water Supply Plant is located in a residential area. The annual average concentration of all the parameters analyzed at this location is represented in Table 5.21. It can be observed that the SO₂, NOx and PM₁₀ concentrations were within the NAAQM standard limits. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.21

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

	Parameters			
Location	SO ₂	NOx	PM 10	
Location	Standards (μg/m³)			
	50	40	60	
Panvel Water Supply Plant	14	40	48	

From Table 5.21, the SO₂ concentration at Panvel Water Supply Plant was $14\mu g/m^3$, NOx concentration was $40\mu g/m^3$ and PM₁₀ concentration was $48\mu g/m^3$.

5.1.12 Thane

There are 3 AAQMS established in this Region, of which 1 is in a residential area, 1 is in an industrial area and 1 is in a rural area. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.22.

From Table 5.22, It is evident that SO_2 and NOx concentrations at all locations are within the NAAQM prescribed standard limits. However, the PM_{10} concentrations at all locations are beyond the standard limits. Details of annual average statistical data recorded throughout the year 2020-21 are represented in Table 5.22.

	Parameters			
Location	SO ₂	NOx	PM 10	
Location	Standards (μg/m³)			
	50	40	60	
Balkum/Glaxo	16	28	74	
Naupada	19	29	65	
Kopri	17	29	67	

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

From Table 5.22, minimum SO₂ concentration of $16\mu g/m^3$ was found at Balkum/Glaxo while the maximum $19\mu g/m^3$ was found at Naupada. Minimum NOx concentration of $28\mu g/m^3$ was found at Balkum/Glaxo while the maximum NOx concentration of $29\mu g/m^3$ was found at Naupada and Kopri. Minimum PM₁₀ concentration of $65\mu g/m^3$ was found at Naupada while the maximum PM₁₀ concentration of $74\mu g/m^3$ was found at Balkum/Glaxo.



Exceedance Factor – Thane		
Min	0.65	
Max	0.74	

Table 5.23 Exceedance factors for PM₁₀ for Thane Region

5.2 Conclusion for Air Quality in the State of Maharashtra

An overview of the AQI for the reading recorded by the AAQMS in Maharashtra has been calculated using three parameters, viz., SO₂, NOx and RSPM as per the calculation and AQI categories released by CPCB and IIT Kanpur in October 2014. After determining the subindices for a region, the highest sub-index from that AAQMS has been considered as the AQI for the area thus represented.

In the year 2020-21, air quality monitoring was carried out across 69 active AAQMS installed in various regions of Maharashtra. As shown in Figure 5.2, around 83% observations came under the 'Good' and 'Satisfactory' categories, as compared to 75.7% in the previous year 2019-20. Thus, an increase in the percentage of non-polluted days by almost 7.3% was recorded. In 'Moderate' category, 16 % observations were recorded this year as compared to 23.68% last year. Increasing trend was found in 'Poor' category, 1% in year 2020-21 as compared to 0.64% in year 2019-20. No observations were found in 'Very Poor' and 'Severe' category, while a very minute part came under 'No Data'. Table 5.24 represents colour codes for various ranges pf 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

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Air Quality Index (AQI) is a comprehensive index value calculated by transforming weighted values of impacts of individual air pollutants (e.g., SO₂, CO, NOx,) into a single number or set of numbers. It reflects air quality of an area in terms of health impacts on the population. This makes it an easy-to-understand parameter of air quality that can be communicated to the masses and can be used by decision makers for devising policies on air pollution abatement. The standard AQI values in India are based on health breakpoints for the following eight pollutants- CO, NO₂, SO₂, PM₁₀, PM_{2.5}, O₃, Pb and NH₃. AQI has diverse uses and applications for policy makers, researchers and the public. It is a key tool in air quality monitoring and regulation. The subsequent sections elaborate the AQI trend in Maharashtra during the year 2020-21.

5.2.1 Trend Analysis of AQI share over 5 years.

Analysis of the trend of share of mean Air Quality Index between the years 2016 and 2021 was carried out in order to compare and study the contributions of each AQI category during these years. Figure 5.3, shows the trends of share of categories of AQI during the years 2016-17, 2017-18, 2018-19, 2019-20 and 2020-21.

From Figure 5.3, it can be observed that, the highest share in 2020-21 is of 'Satisfactory' category, which is similar to that of previous trend. In this year, 'Good' category follows second to the 'Satisfactory' category which was not the case in 2019-2020.Last year 'Moderate' category followed second to the Satisfactory category. From 2016-2020, the share of the



'Good' category was found to be the third most. This year, i.e. in 2020-2021, the share of 'Good" category was found to be the second most. The share of the AQI categories of 'Poor', 'Very Poor' and 'Severe' was negligible during all years.



Figure 5.2 Share of AQI categories for air quality of monitored observations across all AAQMS in Maharashtra (2020-21)



Figure 5.3. Trends in year-wise share of AQI categories



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

Noise pollution is a significant environmental problem in many urban areas. This problem has not been properly recognized even though it is steadily growing in developing countries. Undoubtedly, the most important source of noise pollution in urban areas is related to road vehicles. Hearing is one of the most important of the human senses. The location of sounds that may warn of danger is essential and the enjoyment of pleasant sounds such as music and the natural environment and, most importantly for humans, the development of speech and language for communication. The World Health Organization (WHO) states that there is sufficient evidence that noise exposure at night causes self-reported sleep disturbance and noise induced sleep disturbance is viewed as a health problem. WHO also states there is evidence, albeit limited, that disturbed sleep causes fatigue, accidents and reduced performance. Various physical disorders due to higher noise include temporary deafness, headache and increase in blood pressure. Rise in cholesterol level causes constriction of blood vessels which increases the incidence of heart attacks. Effect of exposure to excessive noise can be harmful during pregnancy. Regular exposure to highway traffic noise pollution leads to impaired hearing. Information provided by ENT specialists and psychiatrists indicates that cases of hearing loss, mental disorder and anxiety are increasing in day-to-day life.

In India, the problem caused by noise pollution is more aggravated during celebrations, festivals, marriage, or religious functions. In the State of Maharashtra, noise from firecrackers is one of the most important environmental problems especially during festive occasions such as Diwali. Various rules such as Noise Pollution Control Rule, 2000 under Environment Protection Act, 1996 have been put forth to control noise pollution. The Noise Pollution (Regulation and Control) Rules, 2000 have been authorized to curb the growing threat of noise pollution.

The unit of noise is decibel, one-tenth of a bell and denoted as d(B), however the monitoring unit considered as dB(A) Leq denotes the time weighted average 'A' of the level of sound in decibels on scale A and it has been found to be related to human hearing. Therefore dB(A) Leq, denotes the 26-frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear. The unit of frequency is Hertz (Hz) and is defined as the number of compressions and rarefactions per unit time (seconds). Human hearing is sensitive to frequencies in the range of about 20-20,000 Hz (the audio frequency range). Site of an area is selected such that it meets the land use pattern as prescribed in the standard e.g., Industrial, Commercial, and Residential & Silence Zone. Under Air pollution Control Act (1981), Central Pollution Control Board (CPCB) has prescribed different noise levels.

Catagory of Area	Limits in dB(A) Leq		
Calegory of Area	Day time	Night time	
Industrial	75	70	
Commercial	65	55	
Residential	55	45	
Silence	50	40	

Table 5.25Noise Standards by CPCB.

MPCB monitors noise periodically and during festivals, expecting higher variations and impact on the environment and people. Monitoring is carried out for a minimum of 75% of the prescribed day time (06.00 to 22.00) and night time (22.00 to 06.00). The exercise is carried



5.3.1 Mumbai

In Mumbai a total of 15 locations were monitored. The highest noise level during day time on 21st and 22nd February 2021 was observed with 76.8dB(A) at Santacruz Airport and 77.9db(A) at Goregaon East respectively. During night time the highest noise level on 21st February was observed at Antop Hill with 65.0dB(A) and on 22nd February was observed at Santacruz Airport with 69.7 dB(A).



5.3.2 Navi Mumbai

In Navi Mumbai a total of 3 locations were monitored. The highest noise level during day time on 21st and 22nd February 2021 was observed with 70.8dB(A) and 70.5dB(A) both at APMC Market Vashi. During night time the highest noise level on 21st February was observed at Ryan International School, Uran Phata, Nerul with 54.4 dB(A) and on 22nd February was observed at APMC Market Vashi with 66.3 dB(A).



5.3.4 Pune

Five locations were monitored in Pune region. On 21st and 22nd February, the highest noise level at both day time and night time was observed at Hadpsar.




5.3.3 Thane

In Thane a total of 5 locations where monitored. The highest noise level during day time on 21st and 22nd February 2021 with 75.1 dB(A) at Pokharan and 76.9 dB(A) at Main Road-Gaondevi Mandir respectively and during night time the highest noise level on both days was observed at Wagle Estate with 62.9 dB(A) and at Main Road-Gaondevi Mandir, Naupada with 74.0 dB(A).



5.3.5 Nashik

Five locations were monitored in Nashik region also. The highest noise level during day time on 21st and 22nd February 2021 was observed with 74.2dB(A) and 75.2dB(A) both at Bytco. During night time the highest noise level on 21st February was observed at Dwarka Circle, with 64.8 dB(A) and on 22nd February was observed at Bytco with 68.2 dB(A).





5.3.6 Aurangabad

Five locations were monitored for Aurangabad region. The highest noise level on 21st February both during day time and night time was observed at Nirala Bazaar. On 22nd February the highest noise level during day time was observed at Nirala Bazaar with 47.3 dB(A) and during night time the highest noise level was observed at Ghati Hospital 46.7 dB(A).



5.3.7 Nagpur

In Nagpur region 5 loactions was monitored. On 21st and 22nd February, the highest noise level during daytime were observed at Sitabardi Police Station with 71.4 dB(A) and at Shivaji Nagar with 73 dB(A). On both days at night time, the highest noise level was observed at Sitabardi Police Station.



5.3.8 Kalyan

Three locations were monitored in Kalyan region on 21st and 22nd February the highest noise level both during day time was observed at Bail Bazar and during night time the highest noise level was observed at Birla College with 60.5 dB(A) and at Bail Bazar with 63.9 dB(A).





5.3.9 Amaravati

Three locations were monitored for Amravati region. On 21st and 22nd February the highest noise level during day time was observed atBudhwara with 60.1 dB(A) and at Rajkamal Chowk with 74 dB(A). During night time at both days the highest noise level was observed at Rajkamal Chowk.



5.3.10 Kolhapur

In Kolhapur region four locations were monitored. On both the days of monitoring, the highest noise level both during day time was observed at Gokhale College with 77.1 dB(A) and 80.7 dB(A). During night time was observed at Shambhaji Nagar with 57.8 dB(A) and at Gokhale College with 71 dB(A).



5.3.11 Chandrapur

In Chandrapur region also three locations were monitored. During both 21st and 22nd February, the highest noise level on both day and night time was observed at Jetpura Gate.





5.3.12 Panvel (Raigad)

Three locations was monitored from Panvel Municipal Corporation. On 21st and 22nd February The highest noise level during day timewas observed at Khanda Colony with74 dB(A) and at Utsav chowk, Kharghar with 75 dB(A). During night time on both days, the highest noise level was observed at Utsav chowk, Kharghar.



Conclusion

Maharashtra Pollution Control Board have carried out Noise monitoring at104locations from 27 Municipal Corporation of Maharashtra for 2 days period including one working and one non-working day i.e. on 21st (Non-working day) and 22nd (Working day) February 2021 for 24 hours for each location which comprise of residential, commercial and silence zone. The study reveals comparing the laid down noise norms for respective zones (Industrial, Commercial, Residential or Silence) the noise levels are exceeded at many locations. The ever-increasing use of automobiles is a major cause of this pollution. People honk unnecessarily in the traffic and listen to loud music on the way which creates high levels of noise.

Noise pollution is the most common problem faced by humans, thanks to various reasons that pushes many people to face health issues. Following standard measures can be helpful in the long term for both humans and the environment. The ultimate aim is to bring down the noise pollution for a better environment.

There are many measures taken by the government and people to reduce the effect of noise pollution. Soundproof walls and windows are now being installed in many houses. Many flyovers in cities have soundproof walls to bring down the noise level to a nearby resident from vehicles running. As a responsible citizen, we must contribute towards bringing down the noise pollution. Needless honking should be stopped and officials should fine people doing it heavily. Hospitals and schools are build in silent zone. There should be rules to avoid noise in residential and sensitive areas. It is important for people to be aware of health Hazard from noise pollution. One of the best ways to bring down the noise pollution is by planting more and more plants. This process of planting tress can help to reduce the travelling of noise from one place to another.

5.4 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.

5.4.1 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.

5.4.1.1 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 --. and the equations used to determine the sub-index values are given 5.26 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 5.27

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 Coli form (FC)	0.15	0.28
рН	0.12	0.22
BOD	0.1	0.19
Total	0.54	1

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

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



63 – 100	Good – Excellent	A	A -I	Non-Polluted	
50 - 63	Good water	В	Not Prescribed	Non-Polluted	
38 – 50	Poor Water	С	A –II	Polluted	
38 & less	Very Poor water	D, E	A – III, A- IV	Heavily Polluted	

5.4.1.2 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 2019-20. Based on the absolute value of the index determined from calculations, water quality is classified as presented in **Table 5.30**

Chemical	Indian Sta Drinking V	andards for Vater Quality				
Parameters	Acceptable Limit	Permissible Limits	Weight	Relative Weight	Weight w/o Iron,	Relative Weight w/o Iron,
					Manganese & Bicarbonate	Manganese & Bicarbonate
рН	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
	Total		41	1	30	1

Tahlo 5 20	Relative Weights of Each Parameter for WOL of Groundwater
1 able 5.29	Relative weights of Each Parameter for wei of Groundwater

Table 5.30Groundwater 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	

5.4.2 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

5.4.2.1 Tapi Basin

The intra-basin performance of Tapi Basin across six districts in the Maharashtra is depicted in Figure **5.4** It can be observed that the water quality index (WQI) in Dhule district was 'good to excellent' during the months of April 2020, August 2020, September 2020, October 2020, November 2020, December 2020, January 2021, February 2021 and March 2021. The water quality during all these months was not polluted. In the month of May 2020, June 2020 and July 2020 WQI was not recorded as locations were dry and sample couldn't be collected.

In Amaravati district, the WQI was recorded as 'good to excellent' during the months of July, August, September, October, November 2020. The water quality was not polluted. WQI was not recorded during the months of April, May, June, December 2020 and January, February, March 2021 because the water samples were not collected.

In Akola district, the WQI was 'good-excellent' in the months of April, July, October and November 2020 and the water was not polluted. The WQI was recorded as 'good' in the month of August 2020 and September 2020 and the water was unpolluted. During the months of May, June, December 2020 and January, February, March 2021, the WQI was not recorded as the locations were dry.

In Jalgaon district, the WQI was recorded as 'good to excellent' during the months of April, May, July, August, September, October, November, December 2020 and January, February and March 2021 and the water was not polluted during these months.



In the district of Nandurbar, the WQI was recorded as 'good to excellent' during the months of April 2020 and from July 2020 to March 2021 and the water quality during these months was not polluted. In the months of May and June 2020, WQI was not recorded as locations were dry and sample couldn't be collected.

In Nashik district, the WQI was recorded as 'good to excellent' in the months of April, June, August, October, November, December 2020 and January 2021. During May, July, September 2020 and February, March 2021 WQI was not recorded as locations were dry and sample couldn't be collected.



Figure 5.4. The intra-basin performance of Tapi Basin across six districts in the Maharashtra FY 2020-21

5.4.2.2 Godavari Basin 1

Figure **5.5** shows the monthly trend in WQI along Godavari Basin 1 across 7 districts during the year 2020-21. From the figure it is evident that the WQI of all districts in this basin was recorded as 'good to excellent' during the year 2020-21 and the water was unpolluted throughout the year. However, WQI was not recorded from October 2020 to March 2021 in Aurangabad, Beed, Jalna, Nanded and Parbhani. In case of Jalna and Beed district, WQI was not recorded during September 2020 to March 2021. WQI was not recorded throughout the year in Latur district. This was because the locations were dry and hence, it was not possible to collect samples.

5.4.2.3 Godavari 2 Basin

Figure **5.6** shows the monthly trend in WQI along Godavari Basin 2 across 5 districts during the year 2020-21. In Bhandara district the WQI was recorded as 'good to excellent' on April 2020 and from June 2020 to March 2021. The WQI of Chandrapur district was recorded as 'good to excellent' throughout the year 2020-21 and the water was unpolluted. In Nagpur



district the WQI was found to be 'good to excellent' during all months and the water was unpolluted throughout the year. In the district of Wardha the WQI was recorded as 'good to excellent' during the months of April,July, August, September, October, November, December 2020 and January, February and March 2021. The water was unpolluted during these months. During May and June 2020 WQI was not recorded as locations were dry and sample couldn't be collected.

In Yavatmal district the WQI was recorded as 'good to excellent' throughout the year 2020-21 and the water was unpolluted.



Figure 5.5 The intra-basin performance of Godavari Basin 1 across six districts in the Maharashtra FY 2020-21



Figure 5.6 The intra-basin performance of Godavari Basin 2 across six districts in the Maharashtra FY 2020-21

5.4.2.4 Krishna Basin

Figure **5.7** shows the monthly trend in WQI along Krishna basin across five districts during the year 2020-21. In Kolhapur district the WQI was recorded as 'good to excellent' during all months of the year 2020-21. The water quality was unpolluted throughout the year. In Pune as well as Satara district, the WQI was recorded as 'good-excellent' for all the months from April 2020 to March 2021. The water was unpolluted during these months. In Sangli and Solapur districts, the WQI was found to be 'good to excellent' throughout the year except in May 2020, when WQI was not recorded..The water was unpolluted throughout these months.



Figure 5.7 The intra-basin performance of Krishna Basin 1 across six districts in the Maharashtra FY 2020-21

5.4.2.5 Coastal Basin

5.4.2.5.1 West Flowing Rivers

The monthly trend of WQI along the basin of west flowing rivers across four districts in Maharashtra during the year 2020-21 is shown in Figure **5.8**. In the districts of Raigad, Ratnagiri and Thane, the WQI was recorded as 'good to excellent' during all months of the year 2020-21 and the water quality was recorded as not polluted throughout the year. In Mumbai, the WQI was recorded as 'very poor' during the months of April, May, December 2020 and March 2021. The water was heavily polluted during these months. In the month of June 2020 and February 2021, the WQI was observed to be poor and the water was polluted. The WQI was recorded to be 'good' in the months of July, August, October and November 2020 and the water was unpolluted during this time. The water was clean and the WQI was 'good-excellent' only in the month of September 2021.



Figure 5.8 The intra-basin performance of West Flowing Rivers across six districts in the Maharashtra FY 2020-21

5.4.2.5.2 Saline (Sea and Creek) Basin

Figure **5.9** shows the monthly trend in WQI along the Saline (sea & creek) basin across 5 districts during the year 2020-2021. In Kalyan, the WQI was recorded as 'good to excellent' during the months of June, July, August, September, October, November, and December 2020. In the months of May and April 2020 and Janaury and March 2021, the WQI was recorded as 'good'. The water was unpolluted throughout the year except in the month of February 2022, when the WQI was recorded as poor.

In Mumbai, the WQI was recorded as 'good' during the months of April, May, June, July, August, September, October, November, December 2020 and January, March 2021 and the water was unpolluted during these months. The WQI was recorded as 'poor' during the month of February 2021 and the water was polluted during this month.

In Raigad district the WQI was recorded as 'good to excellent' throughout the year except in July 2020, when the WQI was recorded as 'good'. The water was unpolluted throughout the year.

In Ratnagiri district, the WQI was recorded as 'good to excellent' during all months of the year 2020-21 and the water was unpolluted throughout the year. In Thane district, the WQI was recorded as 'good to excellent' from July to November 2020. During the months of April, May, June, December 2020 and January, February and March 2021, the WQI was recorded as 'good' and the water quality was not polluted throughout the year.



Figure 5.9 The intra-basin performance of Saline Basin across six districts in the Maharashtra FY 2020-21

5.4.3 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	Dry	No Data
				drinking		

Table 5.31 WQI for Ground Water in Var	ious Region
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Apr-20	N/A	N/A	N/A	106.91	109.08	111.01	N/A	110.56	N/A	N/A
Oct-20	N/A	N/A	59.32	78.14	43.87	N/A	N/A	69.79	63.97	62.89
Station Code	2001	2002	2003	1993	2200	2201	2824	2825	1994	2828
Region		Amrava	ti		Au	rangaba	d		Chano	drapur

Apr-20	N/A	N/A	N/A	287. 69	277. 33	45. 3	N/A	N/A	294. 94	N/A	48. 26	318. 21	N/A
Oct-20	150.	70.	152.	80.8	86.6	N/	74.	156	81.3	22.	24.	32.9	22.
	75	05	01	5	6	A	64	.1	7	04	4	8	05
Station	200	200	200	200	200	22	282	283	283	283	283	283	283
Code	4	5	6	7	8	02	9	0	1	2	3	4	5
Region						K	olhapu	ır					



Apr-20	N/A	74.61	N/A	N/A	N/A	N/A	80.53	N/A	106.27	N/A
Oct-20	82.94	64.69	N/A	N/A	N/A	N/A	127.16	N/A	63.99	N/A
Station Code	1992	2819	2821	2822	2823	1984	1985	1986	1987	1988
Region	Pune						Thane			

Apr-20	276.33	209.19	38.5	209.19	28.86	198.93	N/A
Oct-20	239.86	145.62	78.85	N/A	78.21	61.77	N/A
Station Code	1990	1991	2204	2816	2817	2818	1989
Region Nashik						Navi Mumbai	

Apr-20	91.31	N/A	N/A	N/A	N/A	N/A	61.15	55.82	N/A
Oct-20	55.53	N/A	56.21	N/A	N/A	N/A	54.2	55.87	N/A
Station Code	1995	1996	1997	1998	1999	2000	2203	2826	2827
Region					Nagpur				

5.4.4 Conclusion for WQI for Surface Water and Groundwater

In case of Tapi basin, Krishna basin, Godavari basin 1 and 2 and west flowing rivers, all the observations recorded were in the 'Excellent' category during the year 2020-2021. However, in case of saline (Sea and Creek) sub-basin, 25% of the observations were recorded in 'Excellent' category and remaining 75% observations were recorded in 'good' category.

The overall basins shows an improvement in terms of sample observed in pollution category as comapared to last year which indicates an improvement in the extent of pollution in this sub-basin.

During 2020-21, only 1 groundwater WQMS recorded WQI in the category 'Water Unsuitable for Drinking' (2834). This number has reduced since last year. In the year 2019-2020, 2 regions in Kolhapur and 2 regions in Thane were recorded as 'Water Unsuitable for Drinking'. This was due to high levels of TDS, hardness, calcium, and chlorides.

5.4.5 Trend Analysis of WQI across basins over 5 years

Analysis of the trend of WQI across basins was carried out to study the status and changes in WQI over the period of 5 years between 2016 and 2021. Figures **Figure 5.4**, **5.5**, **5.6**, **5.7**, **5.8 and 5.9** show the graphical representation of the trends in WQI over 4 years in each river basin.

5.4.5.1 WQI Trend analysis for Tapi Basin

Figure 5.10 shows the trend of WQI over the years 2016-17, 2017-18,2018-19, 2019-2020 and 2020-2021 for Tapi Basin. From the figure it is observed that during the year 2016-17 the mean WQI was recorded in the 'good to excellent' category during all months and the water quality was 'non-polluted' throughout the year.

The mean WQI was recorded as 'good to excellent' in the months of May, June, September, October 2017 and January and March 2018. The mean WQI was recorded as 'good' during the months of April, July, August, November and December 2017 and during February 2018. The water quality was therefore 'non-polluted' throughout the year.



Figure 5.10 Trend Analysis for Tapi Basin

During the year 2018-19, the mean WQI was recorded as 'good' during the months of May, June and July 2018, and as 'good to excellent' during the remaining months. The water quality was 'non-polluted' throughout the year.

For the year 2019-20, the mean WQI was recorded in the 'Good to Excellent' category during all months and the water quality was 'Non-Polluted' throughout the year

In the year 2020-2021, the WQI was recorded as 'good-excellent' throughout the year from April 2020 to March 2021 and the water was clean and not polluted.Hence, it can be inferred that the overall water quality was unpolluted in the Tapi basin during all the five years .

5.4.5.2 WQI Trend analysis for Godavari Basin 1

Figure 5.11 shows the trend of WQI over the years 2016-17, 2017-18,2018-19, 2019-2020 and 2020-2021 for Godavari Basin 1.

From Figure 5.5. During the years 2016-17 and 2017-18, the mean WQI was recorded as 'Good to excellent' during all months. The mean WQI was recorded as 'good' during the months of May, June and July 2018 during the year 2018-19, while it was recorded as 'good to excellent' during the remaining months. During the year 2019-20 as well as 2020-2021, it was recorded as 'Good to Excellent' for all the months.

5.4.5.3 WQI Trend analysis for Godavari Basin 2

Figure 5.12 shows the trend of WQI over the years 2016-17, 2017-18,2018-19, 2019-2020 and 2020-2021 for Godavari Basin 2.



Figure 5.11 Trend Analysis for Godavarin Basin 1



Figure 5.12 Trend Analysis for Godavari Basin 2.

From Figure 5.12 it can be observed that the water quality was non-polluted during the years 2016-17, 2017-18, 2018-19,2019-2020 and 2020-2021.

During 2016-17, the mean WQI was recorded as 'good to excellent' in all months except during May and June 2016 and January 2017, when it was recorded as 'good'. During the year 2017-18, the mean WQI was recorded as 'good' in the months of November 2017 and March 2018.



The mean WQI was recorded as 'good to excellent' between April and October 2017, during December 2017 and during Janaury and February 2018.

The mean WQI was recorded as 'good' during the months of May, June and July 2018 in 2018-19. The mean WQI was recorded as 'good to excellent' during the remaining months of the year. During 2019-20, the mean WQI was recorded in the 'Good to Excellent' category during all months and the water quality was 'Non-Polluted' throughout the year. Just like last year, this year (2020-2021) too , the WQI was recorded as 'good-excellent' throughout the year.

5.4.5.4 WQI Trend Analysis for Krishna Basin

Figure 5.13 shows the trend of WQI over the years 2016-17, 2017-18,2018-19, 2019-2020 and 2020-2021 for Krishna Basin. It is evident from Figure 5.7. that the overall water quality was non-polluted during all the 5 years.



Figure 5.13 Trend analysis for Krishna Basin

During the year 2016-17, the mean WQI was recorded as 'good to excellent' during the months of April, August, September and November 2016. The mean WQI was recorded as 'good' during the months of May, June, July, October, December 2016 and January, February and March 2017.During 2017-18, the mean WQI was recorded as 'Good to Excellent' in all months except during April, May, and June 2017. During the year 2018-19, the mean WQI was recorded as 'Good to Excellent' in all the months.

During 2019-20, the mean WQI was recorded in the 'Good to Excellent' category from September' 19 to March' 20 and the water quality was 'Non-Polluted' during these months. However, at the beginning of the year, i.e., from May 2019 to August 2020, the WQI was recorded as 'good'. The WQI was recorded as 'good – excellent' during all the months in the year 2020- 2021.



5.4.5.5 WQI Trend Analysis for West Flowing Rivers

Figure 5.14 shows the trend of WQI over the years 2016-17, 2017-18,2018-19, 2019-2020 and 2020-2021 for the basin of West Flowing Rivers.

From the above figure it can be observed that during the years 2015-16, 2016-17, 2018-19 and 2019-20, the mean WQI was recorded as 'Good to Excellent' during all months of the year. During the year 2017-18, the mean WQI was recorded as 'Good' during all months except between April and June 2017, where the mean WQI was recorded as 'Good to Excellent'.



Figure 5.14 Trend Analysis for West Flowing Rivers.

From the above figure it can be observed that during the years 2016-17 ,2018-19, 2019-20 and 2020-21 the mean WQI was recorded as 'good to excellent' during all months of the year.

During the year 2017-18, the mean WQI was recorded as 'good' during all months except between April and June 2017, where the mean WQI was recorded as 'good to excellent'.

5.4.5.6 WQI Trend Analysis for Saline (sea & creek) sub-basin

Figure 5.15 shows the trend of WQI over the years 2016-17, 2017-18,2018-19, 2019-2020 and 2020-2021 for the sub-basin of Saline (sea and creek).

From Figure 5.9 During the year 2016-17, the mean WQI was recorded as 'good' between April and December 2016 and in February 2017. The water quality was non-polluted. During the months of Janaury and March 2017, the mean WQI was recorded as 'poor' and the water quality was therefore polluted.

During the year 2017-18, the WQI was recorded as 'good to excellent; during the months of July, August and September 2017. The mean WQI was recorded as 'good' during the months



of April, May, June, October, November and December 2017 and January, February and March 2018. The water quality was non-polluted throughout the year.



Figure 5.15 Trend Analysis for Saline (Sea and Creek) sub-basin.

The mean WQI was recorded as 'good to excellent' during the months of July, August, September, October, November and December 2018 and February 2019 during the year 2018-19. The mean WQI was recorded as 'good' during the months of April, May, June 2018 and January and March 2019. The water quality was non-polluted throughout the year.

During the year 2019-20, the WQI was recorded as 'Good to Excellent; during the months of July, August, September and October. The mean WQI was recorded as 'good' for rest of year. The water quality was 'non-Polluted throughout the year.

In the year 2020-2021, the WQI was recorded as good during April, May, June 2020 and from November 2020 to March 2021. The WQI was recorded as 'good-excellent' during July, August, September and october 2020. The water was unpolluted throughout the year.



5.5 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 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 brainstorming 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 many pollution-prone industries are facing chronic industrial pollution. To maintain a safe distance between industrial units and rivers to avoid discharge of effluent into waterbodies, the State has its policy which also states that no industry will be allowed to establish along a riverbank. 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, Amaravati, Kolhapur and Chandrapur. The total number of industries under these categories in Maharashtra is 1,06,014. These industries are categorized as red, orange, and 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 23,744, orange is 29,917, and green is 48,432. The total number of large industries is 11,942, medium, 2,839, and small, 86,312. The total number of white industries in the State is 3921. The categorization as well as size of industries within Maharashtra is given in **Table 5.32**

	Large	Medium	Small
Red	5,512	1,338	16,894
Orange	3,950	1,773	24,194
Green	2,480	728	45,224
White	3,921		

Table 5.32 Categorization of industries in Maharashtra.



5.5.1 Analysis and 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. Wastewater from few industries often contains a significant concentration of pollutants and to reduce it to the desired concentration becomes techno-economically difficult.

- Number and total capacity of CETPs (details of existing/ under construction / proposed) 26 Nos of CETPs with capacity of 244.85 MLD
- > The total number of operational CETPs in Maharashtra is 26
- Status of compliance and operation of the CETPs: 25 CETPs are complied, 1Nos are non-complied

۶	Numbers of Industries in the state	: 106014
\triangleright	Nos of water polluting industries in the state	: 16,597
\triangleright	Quantity of effluent generated from the industries	: 2100 MLD
	Quantity of Hazardous Sludge generated from the Industries	: 2,738.53TPD
\triangleright	Number of industrial units having ETPs	: 16597
⊳	Number of industrial units connected to CETP	: 7856

- Number and total capacity of ETPs (details of existing/ under construction proposed): No. of ETPs-16,597 with capacity of 2100 MLD
- > Compliance status of the ETPs: 16,451 complied and 146 non-complied

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 tables in the following paragraphs show the minimum and maximum values recorded by individual CETPs for BOD and COD during the year 2020-21 along with the annual mean as well as standard deviation (SD).



	Amravati					
LSI	MSI	SSI				
4650	4	584				
104	21	2106				
97	44	350				
W	White total - 355					
	Kolhapur					
LSI	MSI	SSI				
358	47	9865				
164	91	4310				
424	122	1885				
W	hite total	- 820				
	Mumba	i				
LSI	MSI	SSI				
60	43	2149				
647	281	773				
494	699					
White total - 35						

Aurangabad							
LSI	MSI	SSI					
285	45	5897					
169	111	2475					
395	142	988					
Wh	ite total -	117					
Ν	avi Mumb	ai					
LSI	MSI	SSI					
180	70	1655					
190	200	1057					
262	48	1228					
Wh	ite total -	286					
	Pune						
LSI	MSI	SSI					
530	336	7677					
1606	712	5279					
1622	401	4041					
White total - 852							

Chandrapur								
LSI	MSI	MSI						
44	L I	4		584				
47	•	8		523				
228	3	9		295				
White total - 90								
	Nag	pur						
LSI	MSI		SSI					
134		24		2130				
164		63		2539				
529		60		1379				
W	hite To	otal -	140					
	Rai	gad						
LSI	MSI		SSI					
67		28		533				
147		47		484				
301		61		503				
White Total - 31								

Thane							
LSI	MSI			SSI			
101		25	25		1491		
359		65		621			
293		57			1141		
White Total - 61							
Nashik							
LSI	MSI		S	SI			
344	62				6933		
216	95				2918		
596	148				2343		
White Total - 856							
		Kalyan					
LSI	Μ	ISI	S	SSI			
155		34			1660		
137		79			1109		
271		150			2042		
White total - 278							

Figure 5.16 Industrial categorization in the state



5.5.1.1 Amravati



There is one CETP in Amravati Region. The treatment capacity of this CETP is 5MLD. The total industrial effluent received at this CETP was 1.5MLD and all the received effluent was treated during the year 2020-21. The annual performance of the CETP for the year 2020-21 is represented in **Table 5.33** The total number of industries in Amravati under each category is demonstrated in **Figure 5.16**

			Location
	Parameters		Additional Amravati Industrial
			Area
		min	110
	BOD (mg/L)	max	282
		mean	230.37
Inlet		SD	38.57
met		min	412
		max	896
	00D (mg/L)	mean	614.06
		SD	87.75
		min	4
	BOD (mg/L)	max	5.5
		mean	4.55
Outlet		SD	0.37
Outor		min	16
	COD (mg/L)	max	28
	000 (mg/c)	mean	22.46
		SD	2.87

Table 5.33	Statistical Analysis Data for CETP Performance in Amaravati Region
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From **Table 5.33** it can be observed that the in BOD at the CETP at Additional Amaravati Industrial Area was 98% whereas the COD was being reduced with about 96% efficiency.



5.5.1.2 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. Total industrial effluent treated at CETP in the year 2020-2021 was 4-5 MLD. The total number of industries in Aurangabad under each category is presented in **Figure 5.16** and performance of the CETP is presented in **Table 5.34**.

Parar	SMS Waluj CETP Pvt Ltd					
		min	10			
	POD(ma/l)	max	1240			
	BOD (IIIg/L)	mean	310.25			
Inlot		SD	236.77			
Inner		min	72			
	COD (mg/L)	max	3600			
		mean	1055.17			
		SD	631.58			
		min	7			
	POD(ma/l)	max	44			
	BOD (IIIg/L)	mean	22.64			
Outlet		SD	5.76			
Outlet		min	44			
		max	280			
		mean	116.62			
		SD	43.49			

Table 5.34	Statistical Analy	sis Data for CET	P Performance ir	Aurangabad Region

From **Table 5.34**, it is evident that the CETP at Aurangabad was performing with 93% efficiency in reducing BOD and about 89% efficiency in reducing COD. Also, the post treatment concentration of BOD and COD was within the prescribed discharge limits of 100 mg/l and 250 mg/l respectively.



5.5.1.3 Kalyan



There are 5 operational CETPs in this Region. The collective treatment capacity of these CETPs is 26.55 MLD. The total effluent received by CETPs during the year 2020-21 was 23.7 MLD, all of which was treated by these CETPs during the year 2020-21. The total number of industries in Kalyan under each of the categories is demonstrated in **Figure 5.16** and the performance of these CETPs during the year 2020-21 is presented in **Table 5.35**

			Location					
Parameters		ACMA - CETP- Co- operative Society Ltd	Badlapur CETP Association	Dombivli Better Environment System Association	Chikhloli- Morivali Effluent Treatment	Dombivli CETP (Chemical) (Phase- II)		
		min	24	220	160	80	65	
	BOD (mg/L)	max	800	1600	1025	625	4000	
	BOD (IIIg/L)	mean	212	675	556	289	878	
Inlot		SD	164	333	215	115	816	
Inter		min	92	760	190	296	224	
	COD (mg/L)	max	2352	4560	3056	1600	12560	
		mean	627	2000	1440	822	2621	
		SD	481	970	632	260	2248	
		min	4	11	12	8	14	
	POD(mg/L)	max	42	450	115	80	850	
	BOD (IIIg/L)	mean	20	86	51	34	72	
Outle		SD	12	82	23	15	136	
t		min	20	56	30	44	20	
		max	152	1232	312	316	1680	
		mean	79	264	169	123	202	
		SD	39	219	67	47	260	

 Table 5.35
 Statistical Analysis Data for CETP Performance in Kalyan Region.

From **Table 5.35** The performance of all the CETPs was more than 85% in BOD and COD reduction. Also, the outlet values at all CETPs were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD except for Badlapur CETP Association.



5.5.1.4 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 15.4 MLD. The total number of industries in Kolhapur under each of the categories is demonstrated in **Figure 5.16.** and performance of CETPs is presented in **Table 5.36**

Table 5.36	Statistical Analysis Data for CETP Performance in Ko	Ihapur Region

		Location	Location	Location	Locatio n	Location	
Parameters		Ichalkaranji Textile Developmen t Cluster Ltd. (1 MLD)	Ichalkaranji Textile Developmen t Cluster Ltd. (12 MLD)	Kagal- Hatkananga le C.E.T.P.,	L.K. Akiwate Industri al Co Op, Estate Ltd	Lote Parshuram Environme nt Protection Co-op Societ	
		min	90	10	26	12	56
	BOD	max	3250	1550	340	1650	2750
	(mg/L)	mean	718	837	85	567	333
Inlet		SD	562	353	54	427	382
mot		min	240	28	96	40	172
	COD (mg/L)	max	7936	3666	912	3760	12480
		mean	1832	2089	256	1448	1010
		SD	1340	831	147	1075	1735
		min	10	5	4	12	12
	BOD	max	675	110	390	235	98
	(mg/L)	mean	224	37	41	71	46
Outle		SD	153	27	65	45	24
t		min	32	44	16	92	48
	COD	max	1808	284	960	660	264
	(mg/L)	mean	612	132	135	223	145
		SD	390	65	155	120	56

It is evident from **Table 5.36** that Kagal-Hatkanangale CETP was performing with the least efficiency of about 51% in BOD reduction and 47% in COD reduction. The CETP at L.K. Akiwate Industrial Co-op. Estate Ltd. was performing at 87% efficiency in reducing BOD and



at 85% efficiency in reducing COD. The Lote Parshuram Environment Protection Co-op. Society were performing with 86% efficiency in reducing BOD and at 86% efficiency in reducing COD. CETP with capacity 12 MLD at Ichalkaranji Textile Development Cluster Ltd operated at more than 90% efficiency in BOD and COD reduction. However, the CETP with capacity 1 MLD at Ichalkaranji Textile Development Cluster Ltd performed with efficiency of about 69% in BOD reduction and 67% in COD reduction. The prescribed discharge limits were met at all CETPs except Ichalkaranji Textile Development Cluster Ltd. (1 MLD)

5.5.1.5 Nagpur

There is one CETP provided in Nagpur Region. The treatment capacity of this CETP is 5 MLD. The total industrial effluent received at the CETP during the year 2020-21 was 4.5 MLD, all of which was treated at this CETP. Total number of industries in Nagpur under each category is presented in **Figure 5.16** and performance of the CETP is presented in **Table 5.37**.



 Table 5.37
 Statistical Analysis Data for CETP Performance in Nagpur Region.

	Deremetere	Location		
	Parameters	Butibori CETP Pvt. Ltd.		
			110	
		max	290	
	BOD (IIIg/L)	mean	218	
Inlat		SD	48	
Iniet		min	264	
	COD (mg/L)	max	736	
		mean	536	
		SD	122	
		min	10	
		max	30	
	BOD (IIIg/L)	mean	26	
Outlet -		SD	4	
		min	26	
		max	96	
		mean	77	
		SD	15	

From the table the CETP at Butibori is performing with 88% efficiency in BOD reduction and 86% efficiency in COD reduction. The BOD and COD outlet values after treatment are well within the prescribed limits.



5.5.1.6 Navi Mumbai

There are two operational CETPs in this Region with a collective treatment capacity of 49.5 MLD. The total numbers of industries under each category in this Region are shown in **Figure 5.16 a**nd performance of the CETPs is shown in **Table 5.38**



Table 5.38 Statistical Analysis Data for CETP Performance in Navi Mumbai Region.

			Location		
	Parameters		Taloja CETP Co Operative Society	Thane-Belapur Association	
			130	80	
	BOD(ma/l)	max	3800	1075	
	BOD (IIIg/L)	mean	1135	357	
Inlot		SD	785	238	
met		min	392	184	
		max	11840	3400	
	COD (IIIg/L)	mean	3108	1143	
		SD	2299	777	
		min	28	16	
		max	480	170	
	BOD (IIIg/L)	mean	146	48	
Outlet		SD	129	33	
		min	100	60	
		max	1952	520	
		mean	431	160	
		SD	439	93	

From **Table 5.38** that the CETP at Thane-Belapur Association is performing well with more than 87% efficiency in reducing BOD and at 86% efficiency in reducing COD. The Taloja CETP Cooperative Society has about 87% efficiency in reducing BOD and 86% in reducing COD. However, 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.



5.5.1.7 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 2020-21 was 6.37 MLD. The total number of industries under each category in this Region is shown in **Figure 5.16 a**nd performance of the CETPs is shown in **Table 5.39**



Table 5.39	Statistical Analy	sis Data for CETP	Performance in	Pune Region
	• tution • un / titu			

			Location	Location	Location	Location	Location
Parameters		Kurkumbh Environmen t Protection Co op Society	Akkalkot Cetp	Greenfield CET Plant P. Ltd	Hydro Air Tectonics (PCD)	Ranjanga on CETP	
		min	42	105	80	7	10
	ROD (mg/L)	max	1650	975	380	480	1300
	BOD (IIIg/L)	mean	317	319	193	98	156
Inlat		SD	271	182	79	81	188
met		min	100	232	216	40	24
		max	3920	1960	896	1280	3104
	COD (IIIg/L)	mean	786	794	479	254	385
		SD	654	428	181	211	448
		min	20	42	24	10	24
	POD (mg/l)	max	360	140	275	125	450
	BOD (IIIg/L)	mean	97	95	94	62	135
Outl		SD	53	27	45	37	101
et		min	48	92	56	24	56
		max	48	388	656	316	1280
		mean	241	238	231	150	339
		SD	127	70	103	92	264

From **Table 5.39**, it is evident that the CETP at Kurkumbh Environment Protection Co-op. Society is performing at about 69% efficiency in reducing BOD and COD. The CETP at Hydro Air Tectonics (PCD) had the performance of about 51% in reducing BOD and 52% in reducing COD. Akkalkot CETP was performing with 70% efficiency in reducing BOD and COD. The Greenfield CET Plant P. Ltd. was performing at 51% efficiency in reducing BOD and at 52% efficiency in reducing COD. The Ranjangaon CETP was performing with 14% at reducing BOD and with 12% efficiency in reducing COD. The discharge limit for BOD was being met at all CETPs.



5.5.1.8 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 2020-21 was 33 MLD, all of which was treated by these CETPs. The total number of industries under each category in this Region is shown in **Figure 5.16** and performance of the CETPs is shown in **Table 5.40**.

Table 5.40	Statistical Analysis Data for CETP Performance in Raigad Region.
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			Location	Location	Location
Parameters			PRIA CETP (I) Ltd.	MMA-CETP Co Operative Society Ltd.	RIA CETP Co- op. Society Ltd.
		min	8	28	190
	BOD (mg/L)	max	1250	925	3100
	BOD (IIIg/L)	mean	145	291	794
Inlot		SD	368	185	518
Inter	COD (mg/L)	min	32	80	592
		max	4040	1696	9680
		mean	481	754	2607
		SD	1189	434	1621
		min	6	12	46
	POD (mg/l)	max	29	320	825
	BOD (IIIg/L)	mean	13	59	227
Outlet		SD	7	44	170
		min	20	44	160
		max	80	832	2640
		mean	45	183	711
		SD	20	107	536

From **Table 5.40**, it is evident that the The PRIA CETP (I) Ltd.was performing very well with 91% efficiency in reducing BOD and with 91% efficiency in reducing COD. TheRIA CETP Coop. Society Ltd..was performing least efficiently with 71% efficiency in reducing BOD and 73% efficiency in reducing COD. The MMA-CETP Co Operative Society Ltd. was performing at



80% and 76% efficiency in reducing BOD and COD. The discharge limits of 100 mg/l BOD and 250 mg/l for COD respectively were being attained at all stations except at RIACETP Coop. Society Ltd.

5.5.1.9 Thane



There is one CETP of 25MLD capacity in Thane Region. The total industrial effluent generated during the year 2020-2021 was 20 MLD, all of which was treated at this CETP. The total number of industries under each category in this Region is shown in **Figure 5.16.** And performance of the CETP is shown in **Table 5.41**

	Doromotoro		Location
Faranielers			Tarapur Environment Protection Society CETP
		Min	480.0
		Max	2800.0
	BOD (mg/l)	Mean	1446.67
Inlat		SD	798.9
iniet		Min	775.0
		Max	6600.0
	COD (mg/l)	Mean	4919.75
		SD	1735.01
		Min	110.0
	BOD(mg/l)	Max	950.0
	BOD (mg/l)	Mean	697.5
Outlet		SD	313.4
COD (mg/l)		Min	288.0
		Max	4240.0
	COD (mg/l)	Mean	3204.0
	SD	980.02	

 Table 5.41
 Statistical Analysis Data for CETP Performance in Thane Region

From **Table 5.41.** It is observed that the Tarapur Environment Protection Society CETP was performing with 49% in reducing BOD and 65% in reducing COD. However, the outlet values of BOD and COD were beyond the prescribed discharge limits of 100 mg/l and 250 mg/l.

5.5.1.10 Mumbai

There is no CETP in this Region at present. Categorization of industries in this Region is given in **Figure 5.16**.



5.5.1.11 Nashik

There presently exists no CETP in this Region. Total number of industries in Nashik under each category is demonstrated in **Figure 5.16.**

5.5.1.12 Chandrapur

There presently exists no CETP in this Region. However, industries are treating their effluent individually within the premises. Therefore, all the effluent generated was treated during the year 2020-21The total number of industries in Chandrapur under each of the category is demonstrated in **Figure 5.16**.

5.6 Domestic Wastewater Treatment

5.6.1 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 10 mg/l for Biochemical Oxygen Demand (BOD) and 20 mg/l for Total Suspended Solids (TSS) as prescribed by CPCB in the Environment (Protection) Rules, 1986 in Schedule – VI.

Sewage generated & treated in urban local bodies of the State during 2020-21;

- > Estimated sewage generation: 7,541.2 MLD
- > Treatment Capacity (installed): 6,740.84 MLD

5.6.1.1 Pune

There are 41 STPs in this region of which 39 are operation during the year 2020-2021. The Old Naidu STP is not in operation at present. The STP in Lonavala is currently not operational and the council has started revamping of STP to enhance the capcity from 3.69 MLD to 6 MLD The STP with treatment capacity of 6 MLD at Shirur is operational; however, results of the sample collected were not received. Also, samples were not collected at both STPs located at Malkapur. Therefore, the results of STP performance were not available for the above mentioned STPs. The total domestic effluent received at these STPs during the year 2020-21 was 961 MLD of which 803 MLD was the total sewage treated. The mean of annual performance and analysis of all STPs provided in Pune Region are represented in **Table 5.42**.

Location of STP	Parameters (mg/l)						
	рН		BOD (Mean)		S.S. (Mean)		
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
Erandwane STP,		7.6		0.0		10	
18.487378 /73.828207		7.0		0.2		10	
Bopodi STP,							
18.572866 /		7.5		14.8		15	
73.834808							
Tanajiwadi							
18.338226 /		7.5		12.3		12	
73.853294							
Bhairoba STP,							
18.538394 /		7.6		8.2		34	
73.902304							
Mundhawa STP,		7.5		96		1/	
18.547650 / 73.950455		7.5		0.0		14	

 Table 5.42
 Mean of Annual Performance of STPs in Pune Region



18.48378 / 73.028207
18.5329 / 73.8686
Baner STP, 18.564744 / 73.776571 7.6 8.4 8 Kharadi STP, 18.547684 / 73.950533 7.6 5.7 12 New Naidu STP, 18.5329 / 73.8686 7.6 9.5 12 Shirur 8.1 34 Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5
18.564744 / 73.776571 7.6 8.4 8 Kharadi STP, 18.547684 / 73.950533 7.6 5.7 12 New Naidu STP, 18.5329 / 73.8686 7.6 9.5 12 Shirur 8.1 34 Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5
Kharadi STP, 18.547684 / 73.950533 7.6 5.7 12 New Naidu STP, 18.5329 / 73.8686 7.6 9.5 12 Shirur 8.1 44 34 Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5 0.0
18.547684 / 73.950533 7.6 5.7 12 New Naidu STP, 18.5329 / 73.8686 7.6 9.5 12 Shirur 8.1 44 34 Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5 0.0
New Naidu STP, 18.5329 / 73.8686 7.6 9.5 12 Shirur 8.1 44 34 Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5
18.5329 / 73.8686 1.0 0.0 1.2 Shirur 8.1 44 34 Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5
Shirur 8.1 44 34 Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5 0.0
Pune Cantonment Board 8 5.5 28 Khadaki Cantonment Board 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5
Board7.129.544.5Chikhali Phase I7.31910.5
Ninddaki Cantoninient 7.1 29.5 44.5 Chikhali Phase I 7.3 19 10.5 Chikhali Phase II 7.3 17.3 0.0
Chikhali Phase I 7.3 19 10.5 Chikhali Phase II 7.3 17.3 0.0
Chikhali Phase II 7.3 17.2 0.0
Akurdi 7.2 35 26.5
Ravet 7.4 32.0 11.5
Chinchwad Phase I
(Bhatnagar) 7.3 20 15.5
Chinchwad Phase II Inlet 7.3 Inlet 26.5 Inlet 8.0
Kasarwadi I sample not 7.2 sample not 38.0 sample not 23.0
Kasarwadi II taken for 7.6 taken for 32.0 taken for 13.5
Kasarwadi III analysis. 7.3 analysis. 24.0 analysis. 14.0
Chahroli Phase I 7.3 36.5 11.5
Sangvi Phase I 7.4 25.5 14.5
Sangvi Phase II 7.4 23 13.0
Dimple Nilekh 7.4 22.5
Pliniple Milekit 7.4 52.5 20.0 Charoli Phase II 7.2 26.0 10.5
Karad Municipal
Council, Sr.No.342-B.
Baradabari, Shaniwar allastad 7.7 Not 17 Not 22
Peth, Karad, Tal-Karad, Collected Collected Collected Collected
Dist-Satara Karad,
Mahabaleshwar
Municipal Council STP
No.1- at compartment
no. 79(City Survey Not Z c Not Not Not Not
Kormashari Vasahat collected 7.6 collected 225 collected 398
Admidulari Vasanal,
Mahabaleshwar, Dist-
Satara
Mahabaleshwar
Municipal Council STP
No.2- at Survey
No.626, near Dhobi Not 7.5 Not 175 Not 94
Ghat,At- collected collected collected collected
Mahabaleshwar, Tal-
Manabaleshwar, Dist-
Panchgani Municipal
Council STP No 1- at
Survey No. 83/2 near
Siddharthnagar, At- Not 6.8 Not 58 Not 126
Panchgani, Tal-
Mahabaleshwar, Dist-
Satara



Panchgani Municipal Council STP No.2- at Plot no. 497/4 & 5 near Shivajinagar,At- Panchgani, Tal- Mahabaleshwar, Dist- Satara	Not collected	6.7	Not collected	130	Not collected	266
Panchgani Municipal Council STP No.3- at Hindu Crematorium,At- Panchgani, Tal- Mahabaleshwar, Dist- Satara	7.7	7.9	520	35	832	60
Degaon STP	7.8	7.68	80	6.07	151	15.88
Kumathe STP		7.6		6		9.3
Pratap Nagar STP		7.8		5		11.9
Gopalpur STP		8.11		24		11.83
STP, 65 Acre,Pandharpur	7.3	7.85	135	46.66	9	9

It can be observed from **Table 5.42.** that the outlet values of BOD were greater than the prescribed discharge standard of 10 mg/l at Bopodi, Tanajiwadi, Shirur, Khadki Cantonment Board, Chikhali Phase 1 and 2, Akurdi, Ravet, Chichwad Phase I and II, Kasarwadi Phase I, III, III, Charoli Phase I, Sangvi Phase I and II, Pimple Nikesh, Charoli Phase II, STP 65 Acre Pandharpur and also at all the STPs in Satara region. The outlet values of suspended solids were greater than the prescribed discharge standard of 20 mg/l at Bhairoba STP, Shirur, Akurdi, Kasarwadi I, Pimple Nikesh, Pune Cantonment Board, Khadaki Cantonment Board, Chahroli phase II and at all STPs in Satara region.

5.6.1.2 Chandrapur

There are 2 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 and treated at these STPs during the year 2020-21 was 35.5 MLD. The mean of annual performance and analysis of all STPs provided in Chandrapur Region are represented in **Table 5.43**.

	Parameters (mg/l)							
Location of STP	рН		BOD (Mean)		S.S. (Mean)			
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet		
Pathanpura	7.74	7.9	43.4	60.5	30.1	34.5		
Rehmat Nagar	7.93	8.02	60.8	17.35	44.2	29.8		

 Table 5.43
 Mean of Annual Performance of STPs in Chandrapur Region

It is evident from **Table 5.43.** that the outlet values of BOD as well as the outlet values of suspended solids were not within the prescribed discharge standards at Chandrapur STP.

5.6.1.3 Nagpur

There are six operational STPs in this Region provided by Nagpur Municipal Corporation (NMC). The collective treatment capacity of these STPs is 345.3 MLD. The total effluent received at these STPs was 520 MLD of which 345.3 MLD was treated during the year 2020-



21. The mean of annual performance and analysis of all STPs provided in Nagpur Region are represented in **Table 5.44**.

	Parameters (mg/l)						
Location of STP	рН		BOD (Mean)		S.S. (Mean)		
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
Rhandowadi Nagpur	7.4 to	7.5 to	40	7.13	32	14.67	
Briandewadi, Nagpur	7.89	8.28	40				
Rhandowadi Nagpur	7.6 to	7.5 to	22	12.4	25.5	15	
Bhandewadi, Nagpur	8.05	8.03					
Ghat Road, Nagour	0.08	7.26 to	1/	8.1	22	21	
Ghat Noau, Naypul	9.90	8.26	14				
Mankapur Mokhdham,	7 95	7.7 to	52	18	11	21	
Nagpur	1.55	8.07	52	10		21	
Kachimot Nagour	7 82	7.4 to	58	11	42	22	
Rachimet, Nagpur	1.02	7.93	50				
Sanagaan	7.69	7.4 to	68	20.4	36	24	
Soneyaon	1.00	8.04	00			24	

 Table 5.44
 Mean of Annual Performance of STPs in Nagpur Region

From **Table 5.44** it can be observed that outlet values for BOD at Bhandewadi, Mankapur and Sonegaon were beyond the standard limit of 10mg/l.Similarly,the outlet value of suspended solids at Mankapur STP, Ghat road Nagpur STP, Kachiment Nagpur STP, Sanegaon STP were greater than the prescribed discharge standard of 20 mg/l.

5.6.1.4 Nashik

There are 14 operational STPs in this Region, 10 which have provided by Nashik Municipal Corporation, one has been provided by Shirdi Municipal Council, Dist. Ahmednagar and One has been provided by Shirpur Municipal Council, Dist. Dhule, one has been provided by Nandurbar Municipal council, Dist. Nandurbar and one has been provided by Municipal Council Trimbak. The collective treatment capacity of these STPs is 403.6 MLD. The total domestic effluent generated in this Region during the year 2020-21 was 355.64. The total quantity of domestic effluent received at the STPs provided at Nashik 325 MLD. The total sewage received at Shirdi STP was 9MLD, The total sewage received at the STPs at Shirpur was 12.5 MLD, the total amount of sewage received at the STPs at Nandurbar was 13.5 MLD and in case of STP at Triambak, it was 1 MLD. The mean of annual performance and analysis of all STPs provided in Nashik Region are represented in **Table 5.45**.

 Table 5.45
 Mean of Annual Performance of STPs in Nashik Region

	Parameters (mg/l)							
Location of STP	рН		BOD (Mean)		S.S. (Mean)			
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet		
Chehedi STP (20 MLD)	NA	7.6	NA	18.13	NA	52.66		
Chehedi STP (22 MLD)	NA	7.54	NA	17.8	NA	51.66		
Panchak (7.5 MLD)	NA	7.48	NA	19.5	NA	63.75		
Panchak (21 MLD)	NA	7.46	NA	18.25	NA	55.75		
Panchak (32 MLD)	NA	7.4	NA	13	NA	28.5		
Tapyan (78 MLD)	NA	7.27	NA	20	NA	47		


Tapvan (52 MLD)	NA	7.27	NA	20	NA	47
Agar Takali (70 MLD)	NA	7.5	NA	24.2	NA	52.8
Agar Takali (40 MLD)	NA	6.4	NA	20.6	NA	54.2
Gangapur (18 MLD)	NA	7.23	NA	10	NA	28
Municipal Council Trimbak (1 MLD)	NA	8	NA	92	NA	178
Shirdi Nagarpanchayat, Shirdi, Tal-Rahata Dist-Ahmednagar.	8.5	7.4	250	6	200	10
Municipal Council - Shirpur , Tq Shirpur Dist Dhule		7.76		7.5		30.8
Municipal Council - Nandurbar , Tq_Dist- Nandurbar.		7.74		5.57		27

From **Table 5.45.** It is evident that the outlet values for suspended solids were within the prescribed standard of 20 mg/l only at Shirdi Nagarpanchayat and the outlet values for BOD were within the prescribed standard of 10 mg/l at Shirdi Nagarpanchyat, Shirur Municipal Council and Nandarbur Municipal Council.

5.6.1.5 Navi Mumbai

There are 8 operational STPs in Navi Mumbai Region. The collective treatment capacity of these STPs is 461 MLD. The total effluent received at these STPs was 320.2 MLD all of which was collectively treated during the year 2020-21 by these STPs. The mean of annual performance and analysis of all STPs provided in Navi Mumbai Region are represented in **Table 5.46**.

		Р	aramet	ers (mg/	1)		No. of complex	
Location of STP	рН		BOD (Mean)		S.S. (Mean)		No. of samples	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet		
STP CBD Belapur Sector-12		7.13		5.4		12	3	
STP Sector-18 Vashi		7.2		11.3		11.3	3	
STP Nerul Sector-2		6.85		24		36	3	
STP Sanpada Sector- 20		7.2		4.6		12	3	
STP Nerul Sector-50		7.1		5.3		25.3	3	
Ghansoli STP, Sector 15	NC	7.00	NC	5.1	NC	15.20	9	
Airoli STP, Sector 18	NC	7.10	NC	5	NC	13.5	9	
Koperkhairne STP	NC	7.30	NC	7.60	NC	20.00	9	
Nil (Uran Municipal council has not provided STP)	NA	NA	NA	NA	NA	NA		

 Table 5.46
 Mean of Annual Performance of STPs in Navi Mumbai Region

* NC = Not collected

From **Table 5.46** it can be observed that outlet values for BOD were greater than the prescribed discharge standards of 10 mg/l at the STP at Nerul Sector – 2 and Sector-18 Vashi. Outlet values of suspended solids exceeded prescribed limits of 20mg/l at Nerul Sector – 2 and Nerul Sector-50.



5.6.1.6 Thane

There are 19 operational STPs in Thane Region with a collective treatment capacity of 355.1 MLD. The total quantity of domestic effluent treated by these STPs 257 MLD. The mean of annual performance and analysis of all STPs provided in Thane Region are represented in **Table 5.47.**

	Parameters (mg/l)							
Location of STP	р	Н	BOD (Mean)	S.S.	(Mean)		
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet		
TMC STP Kopri, Thane	5.6	6.6	222	8.15	37.33	12.13		
TMC STP Mumbra,	6 79	6.05	201	0 02	140	16		
Thane	0.70	0.95	201	0.03	149	10		
TMC STP Vartak Nagar	6.2	6.6	380	8.6	159	28.8		
Vitava	6.4	6.9	38	5.5	204	16		
Everest World, Kolshet	6.9	7.55	10.5	5	13.5	10		
Lodha	7.05	7.15	6.5	5	11.5	10.5		
Jessel Park, Bhayander	N	/S not collec	ted due to C		ndomic citua	tion		
(E)	50							
Shrushti Mira Road (E)	J/	JVS not collected due to COVID 19 pandemic situation						
Shanti Nagar, Mira								
Road (E), Nr. Ayappa		7.1		18		12		
Mandir								
Shanti Park, Sanghavi,		72		110		72		
Mira Road (E)		7.2				12		
Kanakiya, Mira Road		7		14		12		
(E)		•						
S. No. 233,								
Ghodbunder Mira Road								
Hatkesh to Highway		7.1		16		11		
Kasnigaon,								
Maschapada,								
Bewander (E)		7		5		12		
Bhayander (W) Near								
Garden Court Tower		6.7		4		13		
Bhayander (W) Near								
Nazareth Church	JVS not collected due to COVID 19 pandemic situation							
Kashigaon Bhayandar								
(F)	JVS not collected due to COVID 19 pandemic situation							
Mhada Colony	JVS not collected due to COVID 19 pandemic situation							
Reservation No. 170								
Kanugo, Mira Road (E)	JVS not collected due to COVID 19 pandemic situation							
Viilage : Bolini. Survey								
No. 397A. Opposite								
Vinay Unique, Near		07		40		00		
Aggrawal Meadows.		b./		48		29		
Gokul Township, Virar								
(VV)								

Table 5.47Mean of Annual Performance of STPs in Thane Region

Prescribed standard of 10 mg/l for BOD were observed at Kopri, Mumbra, Vartak Nagar, Vitava, Everest World, Lodha, Golden Nest Road and Near Garden Court. However, the outlet value of suspended solids was greater than the prescribed standard of 20 mg/l at Vartak nagar, Shanti Park, Sanghavi, Mira Road and Bolinj, Survey No. 397A, Opposite Vinay Unique, Near Aggrawal Meadows, Gokul Township, Virar (W).



5.6.1.7 Aurangabad

There are 7 STPs in this Region, 4 of which have been provided by Aurangabad Municipal Corporation. The STPs at Bondar and Elichpur & Sangavi have been provided by the Nanded-Waghala City Municipal Corporation. The total treatment capacity of these STPs is 343MLD. The total domestic effluent received at these STPs during the year 2019-20 was 148.0MLD and 148.0MLD was treated by these STPs. The mean of annual performance and analysis of all STPs provided in Aurangabad Region is represented in **Table 5.48**.

	Parameters (mg/l)						
Location of STP	pH		BOD ((Mean)	S.S. (Mean)		
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
Kanchanwadi, Aurangabad	-	7.86	-	48.8	-	-	
Padegaon, Aurangabad	-	7.9	-	56.26	-	-	
Salim Ali Lake, Aurangabad	-	7.6	-	60.78	-	-	
At Zalta, Aurangabad	-	7.8	-	29.07	-	-	
Bondar STP	-	6.2 to 8.5	-	49.9	-	44.2	
Elichpur STP	-	6.3 to 8.6	-	40.5	-	36.9	
Sangvi STP	-	6.2 to 8.8	-	52.6	-	42.9	

Fable 5.48	Mean of Annual Performance of STPs in Aurangabad Region

It can be observed from **Table 5.48**. that the outlet values of BOD as well as Suspended Solids were not within the prescribed standards at all STPs.

5.6.1.8 Amaravati

There are 3 STPs in this region, two of which are located in Amaravati District while one is located in Buldana district. The total treatment capacity of these STPs is 81.5 MLD and the same quantity of total sewage load was received at these STPs during the year 2020-21. All the received domestic effluent was treated at these STPs. The mean of annual performance and analysis of all STPs provided in Amaravati Region is represented in **Table 5.49**.

			Paramete	ers (mg/l)		
Location of STP	р	Н	BOD (Mean)	S.S. (Mean)
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
STP-I Lalkhadi Amravati	8.47	7.70	125	15	78	24
STP-II Lalkhadi Amravati	7.76	7.56	190	20	92	26
located at Shegaon, Dist. Buldana.		8.1		18		20

From **Table 5.49** it is evident that the outlet values for BOD were beyond the prescribed discharge standard of 10 mg/l at all the three STPs. The outlet values for suspended solids were beyond the prescribed standard of 20 mg/l only at Lalkhadi STP-land Amaravati STP II.

5.6.1.9 Kolhapur

There are 6 STPs in this Region, the collective treatment capacity of which is 172.7 MLD. The total effluent generated in this Region was 191.7 MLD. The total domestic effluent received at these STPs was 191.7MLD of which 166.7MLD was treated during the year 2020-21. The mean off annual performance and analysis of all STPs provided in Kolhapur Region are



represented in Table 5.50.

	Parameters (mg/l)					
Location of STP	рН		BOD ((Mean)	S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Kasaba Bawada	-	7.45	-	9.32	-	16.33
Dudhali	-	7.8	-	5.2	-	13.61
Ichalkaranji	-	7.6	-	6.03	-	14.41
Dhulgaon		7.2		4		13
Miraj		7.5		18		16
100 ft. Road		7.3		6.4		14

 Table 5.50
 Mean of Annual Performance of STPs in Kolhapur Region

From the table it can be observed that the outlet values for BOD were within the prescribed discharge standards of 10 mg/l at all STPs except at Miraj. However, the outlet values for suspended solids at all STPs were within the prescribed standards of 20 mg/l respectively.

5.6.1.10 Raigad

There are 9 STPs in this Region which have a collective treatment capacity of 330 MLD. The total sewage generated in this Region was 188.5MLD. The amount of domestic sewage received and treated during the year 2020-21 was the same and it was 144.5 MLD. The mean of annual performance and analysis of all STPs provided in Raigad Region are represented in **Table 5.51**.

		Parameters (mg/	(1)
Location of STP	рН	BOD (Mean)	S.S. (Mean)
	Outlet	Outlet	Outlet
CIDCO STP, Sector - 16, Kharghar	7.24	16	18
CIDCO STP, Sector - 16, Kharghar	7.18	10	20.4
CIDCO STP, Sector - 12, Kalamboli	7.45	6.25	16
CIDCO STP, Sector - 32, Kamothe	7.07	31	28
PMC STP, Panvel	7.28	5.4	13
CIDCO STP, Sector-6, Ulwe	8	6	14
CIDCO STP Kalundare	7.44	28	22
CIDCO STP Karanjade	7.2	6	13
CIDCO STP Taloja Phase 1 & 2	8	5.4	15

 Table 5.51
 Mean of Annual Performance of STPs in Raigad Region

From the **Table 5.51** it can be observed that the outlet values for BOD and Suspended solids, were beyond the prescribed standards of 10 mg and 20 mg respectively at Sector -16, Kharghar, Sector - 32, Kamothe and Kalundare.

5.6.1.11 Kalyan

There are 11 STPs in this Region, the collective treatment capacity of which is 249 MLD. The total domestic effluent received at these STPs was 429 MLD of which 115.5 MLD was treated during the year 2020-21. The mean off annual performance and analysis of all STPs provided in Kalyan Region are represented in **Table 5.52**.

From **Table 5.52**, it can be observed that the outlet values of BOD were greater than the prescribed discharge standard of 10 mg/l at STP at Vadalgaon only. The outlet values of suspended solids exceeded prescribed discharge standard of 20 mg/l at Vadalgaon and Bhiwandi Nizampur City Municipal Corporation, Bhiwandi, Tal.-Bhiwandi, Dist.-Thane.



		Parameters (mg/l)						
Location		рН		(Mean)	S.S. (Mean)			
Location	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet		
Barve STP: Mouje - Barve, Tal. Kalyan	-	7.2	-	9.5	-	21.7		
Adharwadi STP: Tal. Kalyan	-	7.1	-	6.8	-	13.7		
Chinchapada STP: Mouje- Kate Manivali	-	7.2	-	6.7	-	16.3		
Dombivali Thakurli STP: Motagon, Dombivali	Operational							
Titwala (E) STP: Mouje- Manda (E), Tal. Kalyan	-	7.1	-	4	-	12.3		
Titwala (W) STP: Mouje- Manda (E), Tal. Kalyan.	-	7.5	-	5.8	-	13		
Vadalgaon	6.8	7.4	60	6	30	14		
Chikloli	6.8	7.1	64	20	26	12		
Badlapur	6.2	6.7	12	4	18	12		
Ulhasnagar Vadolgaon	Nil							
Bhiwandi Nizampur City Municipal Corporation, Bhiwandi, TalBhiwandi, DistThane	7.35	7.55	125	10	153	23		

Table 5.52 Mean of Annual Performance of STPs in Kalyan Region

5.6.1.12 Mumbai

There are 8 operational STPs in Mumbai Region. The collective treatment capacity of these STPs is 2758.5 MLD. The total effluent received at these STPs was 1825.5 MLD of which 1823 MLD was collectively treated during the year 2020-21 by these STPs. The mean of annual performance and analysis of all STPs provided in Mumbai Region are represented in **Table 5.53**.

	Parameters (mg/l)						
Location	рН		BC	DD (Mean)	S.S. (Mean)		
Location	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
Colaba	7.6	7.03	124	89.6	82	64	
Worli	7.2	6.98	118	71.5	65	41.6	
Bandra	7.7	7.6	190	35	110	24	
Varsova	7.3	7.1	172	42	90	38	
Bhandup	-	7.3	-	15	-	22	
Ghatkopar	-	6.8	-	40	-	30	
Malad	6.9	7	250	90	35	18	
Charkop	7.5	7.3	80	78	115	16	

 Table 5.53
 Mean of Annual Performance of STPs in Mumbai Region.

From **Table 5.53**, it can be observed that outlet values for BOD were greater than the prescribed discharge standard of 10 mg/l at all STPs whereas the outlet values for suspended solids were greater than the prescribed standard of 20 mg/l at Colaba, Worli, Varsova, Ghatkopar and Malad.

5.7 Solid Waste Management in Maharashtra

Municipal Solid Waste (Management & Handling) Rules, 2000, came into force as per the notification published by Ministry of Environment & Forest, New Delhi on 25.09.2000 is superseded by Solid Waste Management Rules, 2016.

The inventory of solid waste generation and disposal from the state during the year 2020 is presented in following sections. **Table 5.54** shows total number of local bodies and cantonment board in the state responsible for generation of the waste **Table --** represents



quantity of solid waste generated from these local bodies whereas **Table --** represents treatment (%) of generated waste.

Table 5.54	Total number of local bodies: 396 and Cantonment Board-07
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1.	Municipal Corporations	27
2.	'A' Class Municipal Council	18
3.	'B' Class Municipal Council	71
4.	'C' Class Municipal Council	149
5.	Nagar Panchayat	131
6.	Cantonment Board	07

Local Body	No. of ULBs	Qty (MT/Day)	Percentage (%)
Municipal Corporation	27	18720.96	82.72
A Class Municipal Councils	18	992.88	4.39
B Class Municipal Councils	71	1275.65	5.64
C Class Municipal Councils	149	1034.74	4.57
Nagar Panchayats	131	480.47	2.12
Total	396	22504.7	
Cantonment Board	07	128.01	0.57
Gross Total	403	22632.71	100

Table 5.55Solid Waste Generation

Local Body	No. of ULBs	Qty (MT/Day)	Percentage (%)
Municipal Corporation	27	13349.45	81.34
A Class Municipal Councils	18	593.315	3.62
B Class Municipal Councils	71	1121.11	6.83
C Class Municipal Councils	149	888.175	5.41
Nagar Panchayats	131	354.553	2.16
Total	396	16306.6	
Cantonment Board	07	104.86	0.64
Gross Total	403	16411.46	100%

Table 5.56 Solid Waste Treatment

5.7.1 Analysis of Municipal Solid Waste Management with Statistical details (Regionwise)

The detailed report on the quantity of different categories of MSW generated and treated in all the regions in Maharashtra during the year 2020-21 is given in **Table 5.57**

Sr.No.	Region	MSW Generation (MT)	MSW treated (MT)	Treatment (%)
1.	Mumbai	6533	4632	70.90
2.	Navi Mumbai	757.01	755	99.73
3.	Raigad	574.94	556.16	96.73
4.	Thane	2181.6	995.6	45.64
5.	Kalyan	1635	1007.5	61.62
6.	Pune	3688.35	3613.83	97.98
7.	Nashik	1994.33	1705.21	85.50



8.	Aurangabad	1748.63	1170.653	66.95
9.	Nagpur	1403.66	559.92	39.89
10.	Amravati	875.34	284.66	32.52
11.	Kolhapur	793.2	720.184	90.79
12.	Chandrapur	447.65	410.75	91.76
Total		22632.71	16411.46	72.51

5.7.2 Trend Analysis of Municipal Solid Waste Generation and Treatment over 5 years

Analysis of the trends of Municipal Solid Waste generation and treatment in all Regions over the years 2016-17, 2017-18, 2018, 2019 and 2020 has been carried out to study and compare the trends of generation and treatment of MSW over duration of 5 years. **Figures 5.11** and **5.12** graphically represent the trends of average MSW generation and treatment over the span of 5 years in all regions.

From **Figure 5.17** the generation of MSW shows an increasing trend over the 5 years in most of the regions in the State. The most striking increase in generation of MSW since the year 2016-17 is observed in the Regions of Aurangabad, Nashik & Thane. However, it has to be noted that in Mumbai and Kalyan waste generation has reduced since 2016-17. Kolhapur, Navi-Mumbai and Pune show a slight increase in the amount of waste generated since 2018 while Nagpur shows a decrease in the amount of waste generated since 2018. In the remaining Regions of Amravati and Chandrapur the waste generation remained constant from 2018 uptil 2020.



Figure 5.17 Trend Analysis of MSW generation over 5 years.

5.7.3 Trend Analysis of MSW treatment over 5 years

Trend analysis of MSW treatment over past 5 years in the State of Maharashtra reveals, quantity of MSW treated has definitively increased with considerably high differences in most regions. The quantity of treated MSW treated in 2020 is slightly less than last year i.e. 2019 in case of Mumbai and Thane.



Figure 5.18. Trend Analysis of MSW treatment over 5 years.

In the Regions of Amravati, Aurangabad, Chandrapur,Kolhapur,Nagpur,Nashik,Navi-Mumbai,Pune and Raigad the quantity of MSWtreated shows an increasing trend in succeeding years. The most significant increase in quantities of MSW treated can be observed at Kalyan.

	HW INVENTORY						
Sr. No.	No of industries	Name of the District	Landfilla ble	Recycla ble	Incinera ble	Utilizable Qty.	TOTAL
1	146	Ahmedna gar	4984.46	4129.98	23452.35	16266.45	48833.24
2	40	Akola	862.14	457.78	455.82	391.56	2167.30
3	55	Amravati	3882.92	134.50	130.06	281.40	4428.87
4	349	Aurangab ad	39319.73	17165.88	29795.91	75079.60	161361.1 2
5	14	Beed	62.40	142.28	873.95	35.20	1113.83
6	16	Bhandara	2040.39	91.57	6072.93	190.48	8395.36
7	26	Buldhana	2080.73	217.80	23.30	280.80	2602.63
8	74	Chandrap ur	657.10	1667.76	1863.94	189367.59	193556.3 8
9	41	Dhule	15214.62	49.32	4269.88	626.72	20160.54
10	2	Gadchiroli	0.00	0.00	2.00	0.00	2.00
11	4	Gondia	0.00	200.00	403.05	12.00	615.05
12	5	Hingoli	0.00	78.38	1.50	0.00	79.88
13	99	Jalgaon	4063.23	1932.70	3524.42	68573.75	78094.10
14	19	Jalna	18556.32	7905.16	194.70	17.20	26673.38
15	354	Kolhapur	34121.78	15296.36	4770.16	1599.27	55787.57
16	19	Latur	661.18	896.13	13.36	5.84	1576.51
17		Mumbai			111764.0		150001.0
18	423	Mumbai Suburban	23119.63	14242.74	5	9864.08	9
19	256	Nagpur	17470.27	6144.52	36574.02	8550.12	68738.92

5.8 Hazardous Waste Generation during the year 2020-21



20	17	Nanded	124.34	10.11	133.44	110.40	378.28
21	14	Nandurba r	170.42	162.04	353.40	9.60	695.46
22	414	Nashik	14574.40	9434.25	28455.02	55897.96	108361.6 3
23	16	Osmanab ad	247.71	1130.80	32.26	8.70	1419.46
24	998	Palghar	83132.36	16387.49	65580.64	429333.49	594433.9 8
25	6	Parbhani	0.00	24.08	4.70	0.00	28.77
26	1341	Pune	96118.27	63416.90	77242.17	157730.31	394507.6 5
27	703	Raigad	195046.7 0	66873.41	351250.6 0	69762.78	682933.4 9
28	122	Ratnagiri	24559.77	4827.99	14460.32	66529.09	110377.1 8
29	95	Sangli	4487.97	19306.68	5997.72	1372.26	31164.64
30	189	Satara	4914.45	4888.72	5912.04	3911.61	19626.83
31	10	Sindhudur g	1.58	3.80	22.56	12.00	39.95
32	126	Solapur	4705.35	1408.84	7574.73	471.62	14160.54
33	1512	Thane	127408.2 4	27707.20	144951.2 6	95206.63	395273.3 4
34	18	Wardha	1915.22	14.80	2647.64	98.40	4676.06
35	4	Washim	68.40	0.96	10.50	0.00	79.86
36	32	Yavatmal	2580.03	6616.27	547.02	13.00	9756.31
	7559		727154.0 8	292970.1 7	929366.3 2	1251614.90	3201091. 47

5.8.1 Status of Common Hazardous Waste Treatment, Storage & Disposal Facility

There are total 4 number of Common Hazardous Waste Treatment, Storage & Disposal Facilities installed and operating successfully in the State of Maharashtra, 2 facilities namely Mumbai Waste Management [MWM], Taloja, Trans Thane Waste Management Association [TTCWMA], Mahape, are located under Navi Mumbai Region, 1 facility namely Maharashtra Enviro Power Ltd [MEPL], Ranjangaon is located under Pune region & Maharashtra Enviro Protection Ltd. [MEPL], Buttibori is located under Nagpur region. Presently around 7559 industries are member of these 4 facilities and disposing their Hazardous Waste.

Name of Facility & Address	M/s. Mumbai Waste Management Limited, Plot No. P-32, MIDC, Taloja,	M/s. Trans Thane Waste Management Association P-128, Shil-Mahape Road, Next to L&T Infotech Ltd.	M/s. Maharashtra Enviro Power Ltd. Ranjangaon	M/s. Maharashtra Enviro Power Ltd. (SPV of M/s. Shaktikumar M. Sancheti Ltd) Buttibori
Capacity of the Facility	SLF- 1,20,000 MT/ Year	SLF- 21,600 MT/Year	SLF- 60,000 MT/Year	SLF- 60,000 MT/Year
	1. INC - 1.5 TPH.	INC-No Facility		
	2. INC- 1.5 TPH	(Incinerable HW sent to Taloja)	INC- 3.0 TPH	INC- 3.0 TPH

Table 5.59Summary of Individual Capacities of CHWTSDFs.

There are currently 7559 industries that are generating Hazardous Waste in the state. Various methods viz. SLF & INC are used for the treatment of this Hazardous Waste. 285228.38MT/A of HW is treated by SLF method and 54010.18 MT/A by INC method while 494914.13MT of HW is recycled.



Sr. No.	SITE	SLF (MT/A)	INC (MT/A)	TOTAL (MT/A)
1	MWML - TALOJA	186778	31979	218757
2	TTCWMA - MAHAPE	10829.06	-	10829.06
3	MEPL - RANJANGAON	71131.32	19194.9	90325.32
4	VEPL - BUTIBORI	16490	2836.28	19326.28
	TOTAL	285228.38	54010.18	339238

Table 5.60 Summary of Hazardous Waste Received at disposal sites in 2020-21

In the State of Maharashtra 439 No. of facilities authorized for recycling / utilization of Hazardous & Other Wastes having total authorized capacity of 1384925.6 MT. In the year 2020-21, in Maharashtra state 494914.13 MT Waste is recycled.

	pdation as of 31 st March 2021	
Sr. No.	Districts	Total Nos of Units
1	Ahmednagar	146
2	Akola	40
3	Amravati	55
4	Aurangabad	349
5	Beed	14
6	Bhandara	16
7	Buldhana	26
8	Chandrapur	74
9	Dhule	41
10	Gadchiroli	2
11	Gondia	4
12	Hingoli	5
13	Jalgaon	99
14	Jalna	19
15	Kolhapur	354
16	Latur	19
17	Mumbai	400
18	Mumbai Suburban	423
19	Nagpur	256
20	Nanded	17
21	Nandurbar	14
22	Nashik	414
23	Osmanabad	16
24	Palghar	998
25	Parbhani	6
26	Pune	1341
27	Raigad	703
28	Ratnagiri	122
29	Sangli	95
30	Satara	189
31	Sindhudurg	10
32	Solapur	126
33	Thane	1512
34	Wardha	18
35	Washim	4
36	Yavatmal	32
	Total	7559

Table 5.61District wise Updation for HW authorizatons



5.8.2 Trend analysis of Hazardous Waste received at disposal sites over 5 years

Analysis of the trends of Hazardous Waste received at all disposal sites in the State over the years 2016-17, 2017-18, 2018-19, 2019-20 and 2020-21 has been carried out. Figure 5.19 graphically represents the trend of average Hazardous Waste received over the span of 5 years at disposal sites.



Figure 5.19 Trend Analysis of Hazardous Waste received at disposal sites over 5 years

It can be observed from Figure 5.13. That the quantity of Hazardous Waste received at MWML, Taloja was the least during the years 2017-18 followed by 2018-19, 2019-20 and 2016-17 respectively. The quantity of HW received at this site was maximum during the year 2020-21. At TTCWMA, the quantity of HW received during the years 2016-17 & 2017-18 was almost similar, with a slight increase during the year 2018-19 and 2019-20. The amount of HW received again dropped during 2020-21 and was the lowest during this year.

The quantity of Hazardous Waste received at MEPL, Ranjangaon (Pune) increased from 2016-17 to 2019-2020. However, it reduced during the year 2020-2021 was 90325.32 MT during this year. Amount of HW received at MEPL, Butibori (Nagpur) has been relatively constant over these 5 years with only a slight increase in the year 2018-19.

5.9 Bio-medical Waste

5.9.1 Implementation of Biomedical Waste Management Rules, 2016

- The MoEF & CC has notified Biomedical Waste Management Rules, 2016 on 28th 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.

5.9.2 Status of Bio-medical Waste Treatment Facilities

- (1) Total no. of Health Care Facilities/Occupiers: 64,266
- (2) Total No. of beds: 2,97,565

(3) Status of authorization

- (i) Total no. of occupiers applied for authorization : 8184
- (ii) Total no. of occupiers granted authorization : 8143
- (iii) Total no. of applications under consideration : 272
- (iv) Total no. of applications rejected : 429
- (v) Total no. of occupiers in operation without applying for authorization :75

(4) Bio-medical waste generation

- (i) Bio-medical waste generated by bedded hospitals: 61745Kg/day
- (ii) Bio-medical waste generated by non-bedded hospitals: 18965Kg/day
- (iii) Any other: 1437

(5) Bio-medical waste treatment and disposal

(a) By captive bio-medical waste treatment and disposal by Health Care Facilities

- (i) Number of Health Care Facilities having captive treatment and disposal facilities: 240
- (ii) Total bio-medical waste treated and disposed by captive treatment facilities: 494 Kg/day

(b) Bio-Medical Waste Treatment and Disposal by Common Bio-Medical Waste Treatment Facilities (CBMWFT)

(i) Number of CBMWTF in Operation : 30

(ii) Number of CBMWTF under construction : 1

(iii) Total bio-medical waste treated by CBMWTF : 81618 Kg/Day

(iv) Total treated bio-medical waste disposed through authorized recyclers: 11783 Kg/day

5.10 Electronic Waste

Electronic waste or e-waste describes 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.

5.10.1 Implementation of E-waste (Management and Handling) Rules, 2016

- E-Waste (Management) Rules, 2016 notified on 23rd March 2016 and came into force from 1st Oct. 2016.
- Applicability of these newly modified rules expanded to manufacturer, dealer, refurbisher and Producer Responsibility Organization (PRO)Producers are responsible for setting up collection centre on own or in association.
- Obtaining authorization for producers from multiple SPCs is removed. Single EPR authorization for producers from CPCB is introduced.
- Target based approach for collection under EPR is introduced.
- 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-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 Mr R. K. Garg.
- MPC Board has carried out E-waste inventory for State of Maharashtra through M/s IRG Systems South Asia Pvt. Ltd.

Details of authorizations issued under the E-waste (M & H) Rules, 2016 to dismantlers/ recyclers/collection /producers are as shown in Table 5.62

Table 5.62Present Status of E-Waste Generation and Recycling in MaharashtraState

Present Status of E-Waste dismantling and recycling capacity					
1	E-Waste Dismantlers	97	89335 MTA.		
2	E-waste Recyclers	14			
	Total	111			



5.11 Plastic Waste Management in the State of Maharashtra

The plastic waste generation is 3,11,254 TPA, collected is 2,51,556 TPA and disposal is 1,99,703 TPA as per the information obtained from Annual Report submitted by Urban Local Bodies for financial year 2020-21. Out of this, following are main modes of use:

- Plastic waste used for Refuse Derived Fuel (RDF) = 124,725 tonnes
- Plastic waste sent for co-processing= 25,400 tonnes
- Plastic waste used for granule making= 29,485 tonnes
- Plastic waste used for pyrolysis= 4,918 tonnes
- Plastic waste used for road construction= 13,513 tonnes
- Plastic waste sent to landfilling facility= 23,237 tonnes

Plastic Waste (Management & Handling) Rules, 2011, came into the force as per the notification published by Ministry of Environment & Forest; New Delhi on 4.2.2011 has been superseded by the Plastic Waste Management Rules, 2016 notified on 18.3.2016, which have been amended on 27.03.2018. Rule 16 of the PWM Rules, 2016 requires setting up of State Level Advisory Committee for effective implementation of PWM Rules, 2016 in each State. Accordingly, Government of Maharashtra has constituted State Level Advisory Committee vide Govt. Resolution Plastic 2013/ (284/ 2013) dated 4th January 2017 under the Chairmanship of the Principal Secretary, Urban Development Department-II, Govt. of Maharashtra.

Under Plastic Waste Management Rules, 2016 and amendment thereto, 111 nos. of Plastic waste Recyclers of capacity 3,65,236 Tonnes per annum and 7 nos. of Compostable Material Producers have been registered with Maharashtra Pollution Control Board as of 31st March 2021. Out of 111 recyclers, 45 have been registered in FY 2020-21. The list of registered Plastic Waste Recyclers and Compostable Material Producers is published and updated in MPCB's website regularly.

Government of Maharashtra has published Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018. This notification is applicable for the whole of Maharashtra. There are two committees constituted under the provisions of this notification namely i) the Expert Committee under chairmanship of Principal Secretary, Environment Department for technical guidance in the matters of Maharashtra Plastic and Thermocol Notification, to the Government and ii) Empowered Committee under chairmanship of Hon'ble Minister (Environment) to decide necessary amendments and review implementation of the said notification. So far, several meetings of Expert Committee and Empowered Committee have been conducted and thereafter necessary amendments in the Notification have been issued.

Effective implementation of Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018 has resulted in around 18% reduction in plastic waste generation in the urban local bodies of the state, from 5.01 lakh tonnes in FY 2017-18 to 4.09 lakh tonnes in FY 2018-19. Officials from other State pollution control boards such as Tamil Nadu, Madhya Pradesh, Kerala, Bihar etc. have discussed with MPCB about the plastic ban and its implementation in Maharashtra. Some of these states have issued their own notifications for the plastic ban on similar line of Maharashtra's Plastic and Thermocol notification, 2018.



Effective implementation of concept "Extended Producer's Responsibility (EPR)" is seen as a result of the Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018. Around 450 EPR action plans are received under EPR for post-consumer plastic waste management from leading brand owners and plastic producers.

The Board has also constituted EPR scrutiny committee to list criteria/parameters for EPR and scrutiny of submitted EPR plans. According to the directions from Environment Department, the EPR plans have been submitted to Environment Department for further decision.

Plastic industries/ brand owners are implementing or planning to implement the EPR plan through Producer Responsibility Organizations (PROs). To achieve the targets, plastic producers have signed agreements with Producer Responsibility Organizations (PRO's) such as Gem Recycler, IPCA, Shakti Plastic, NEPRA Environmental Solutions Pvt. Ltd., Sampurna Earth Environment Solutions Pvt. Ltd. etc.

Regular surveys have been carried out in jointly by local body authorities and MPCB officials within Corporation limits and separately by MPCB officials for industries, to implement the said notification. The status of fine collected during FY 2020-21 is as below:

Period	No of shops visited	Action initiated against no. of shops	Total fine collected (Rs. Cr)	Total Qty of banned items seized (MT)
FY 2020-21	1,041,541	15,587	3.91	213

As per the Plastic Waste Management Rules, 2016 and amendment thereto "Every local body shall prepare and submit an annual report in Form –V to the concerned Secretary-in-charge of the Urban Development Department under intimation to the concerned State Pollution Control Board or Pollution Control Committee. Each State Pollution Control Board or Pollution Control Committee shall prepare and submit an annual report in Form VI to the CPCB on the implementation of these rules". Accordingly, MPCB has prepared an online portal for submission of annual report from urban local bodies for speedy submission of the report. The region-wise information on plastic waste generation, collected and disposal for the year 2020-21 obtained from ULB's Annual Report is represented as below:

10.5	No. of ULBs	Plastic Waste generated (in tons)	Plastic Waste collected (in tons)	Plastic Waste channelized for recycling (in tons)
Amravati	42	3,219	3,050	2,528
Aurangabad	79	36,592	36,619	29,104
Chandrapur	40	6,564	6,519	4,597
Kalyan	8	35,701	35,701	26,142
Kolhapur	42	7,310	9,507	4,538
Mumbai	1	62,793	8,409	8,409
Nagpur	47	14,229	14,190	11,446
Nashik	62	37,647	37,222	30,083
Navi Mumbai	2	6,814	15	2,179
Pune	47	59,295	59,234	59,136
Raigad	15	7,840	7,840	6,743
Thane	9	33,249	33,249	14,800
Grand Total	394	3,11,254	2,51,556	1,99,703



As per the provisions of Plastic Waste Management Rules, 2016 and Maharashtra Plastic and Thermocol Items Notification, 2018 and amendment thereto, Producers/ Brand-owners are obligated to prepare and implement EPR plan on their own or by engaging agency / Producer Responsibility Organizations (PROs). Hence, a number of Producers and Brand-owners have appointed PROs to prepare their EPR plan and implement the same. There are 13 major PROs operating in Maharashtra. MPCB is collecting data regarding collection and disposal of Plastic Waste from these PROs. A brief summary is as below:

Name of PRO	Collection (Tonnes)
Shakti Plastic	16,837
NEPRA	9,651
IPCA	8,474
GEM Enviro	5,810
UNDP	4,190
EPR Plastics	3,642
Sampurn(e)arth	3,470
Social Labs	2,663
Geminicorp	1,189
Recykal	709
Kapila	624
Karo Sambhav	308
Swach Plus	29
Saahas	0
Grand Total	57,597
Disposal mode	Processing (tonnes)
Recycling	42,463
Co-processing	21,435
Aggregator	636
RDF	127
Waste to Energy	97
Pyrolysis	62
Grand Total	64,931

Further Board has taken initiative to develop online platform for plastic waste management EPR in the state of Maharashtra.Recity Networks Pvt. Ltd. is working with MPCB for the digital platform for plastic EPR monitoring. It has successfully completed a pilot scale project in the Pune Municipal Corporation area involving Swach and ITC-major brand owner, where all the stakeholders involved, including producers/brand owners, PROs, regulatory bodies (MPCB) will be on the platform for carrying out their role in the EPR implementation process.

5.12 Construction & Demolition Waste

Annual report in form III submitted by 384 ULBs for the financial year 2020-21 out of 403 ULBs including Cantonment Boards as represented below;

Total 3852757.79 MT/A Construction & Demolition (C&D) Waste is generated by these ULBs.



Total 99800.34 MT/A Waste processed / recycled by ULBs. The C&D disposed by land filling without processing (last option) or filling low lying area waste quantity is 353552115.0 MT/A. These ULBs having 718 storage facilities to store C&D waste securely. Total 169 Municipal magistrates appointed for taking penal action for non-compliance with these rules by these ULBs and 175 No's of cases were registered under this rules.

C & D Waste Abstract of ULBs and Cantonment Boards						
ULBs	Total Qty of C & D waste Generated during whole year in MT	Total Qty of C & D waste processed/re cycled in MT	Total Qty of C & D waste Disposed by landfilling without processing (last option) or filling low lying area	Number of Storage Facilities for C&D Waste Storage	Municipal magistrates appointed for taking penal action for non- compliance with these rules	No of Penal action cases registered
Municipal Corporation	3759479.67	80631.9	3519754.69	186	12	114
"A" Class Municipal council	14562.4	3158.1	5765,1	34	15	1
"C" Class Municipal council	16475.51	6284.84	5250.19	230	64	41
Nagar panchayats	49404.12	6712.62	1456.79	130	43	7
Cantonmen t Boards	270	0.2	239.8	0	1	0
Total	3852757.7	99800.34	353552115	718	169	175

Table 5.63 showing operational and proposed plants for processing of Construction and Demolition waste.

Table 5.63	Showing operational plant for processing of Construction and
	Demolition waste

Sr.No.	Name of Corporation	Plant capacity (TPD)	Present Status
1	Thane Municipal Corporation	300	In operation
2	Pimpri-Chinchwad Municipal	200	Work order issued
_	Corporation	200	Proposed plant
3	Navi Mumbai Municipal	150	Proposed plant
	Corporation		
4	Municipal Corporation of	1200	E-Tendered
•	Greater Mumbai	1200	Proposed Plant
5	Pune Municipal Corporation	200	Proposed Plant



5.13 Performance of MPCB Laboratories

Maharashtra Pollution Control Board has established a Central Laboratory at 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 function 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 respective authorities for further actions. Regional Laboratory Chandrapur has facility to analyze only air samples. MPCB's laboratories are well equipped with modern sophisticated instruments and equipment UV Spectrophotometer, Gas Chromatograph (GC), Mass Spectrophotometer, Atomic Adsorption Spectrophotometer (AAS), Ion Chromatography (IC), Inductive Couple Plasma (ICP), Absorbable Organic Halide Analyzer (AOx), CHNS Analyzer and others. Table 5.64 represents total numbers of samples and parameters analysed in these laboratories over the FY 2020-21 and Figure 5.20, 5.21 & 5.22 graphically represents total number of water, air & HW samples analysed respectively.

Sr.	Laboratory	Samples Analyzed		Total	Parameters Analyzed			Total			
No	Laboratory	Water	Air	H.W	Coal	TOLAT	Water	Air	H.W	Coal	TOLAT
	C. Lab.*,										
1	Navi	4156	228	96	0	4480	60835	1491	828	0	63154
	Mumbai										
2	R. Lab.*,	1416	127	30	0	1573	22301	251	279	0	22831
2	Nagpur	1410	121	50	0	1373	22001	201	215	0	22031
2	R. Lab.,	3104	183	20	0	3307	30838	462	103	0	10103
5	Pune	5104	105	20	0	5507	29020	402	195	0	40495
4	R. Lab.,	1150	205	Q	0	1463	187/2	1602	84	0	20428
-	Nashik	1155	235	5	0	1405	10/42	1002	6	0	20420
5	R. Lab.,	1310	100	a	0	1518	15876	110/	57	0	17127
5	Aurangabad	1515	130	5	0	1310	15070	1134	57	0	17127
6	R. Lab.,	2200	70	28	0	2208	20/17	161	247	0	20825
0	Chiplun	2200	70	20	0	2290	23417	101	247	0	29025
7	R. Lab.,	845	100	0	0	1044	1011	1235	0	0	6140
'	Thane	040	133	0	0	1044	4514	1200	0	0	0149
Q	R. Lab.,	0	20	0	0	20	0	71	0	0	71
0	Chandrapur	0	23	0	0	LJ	0	/ 1	0	0	7 1
	TOTAL	14199	1321	192	0	15712	191923	6467	1688	0	200078

Table 5.64	Analysis of Performance of Board Laboratories	(2020-21))
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(-) Indicates Facility Not Available

C. Lab- Central Laboratory.

R. Lab - Regional Laboratory.





Fig 5.20 Annual total of water samples analyzed at each MPCB laboratory (2020-21) *Note: there was no water sample analysed at Chandrapur Laboratory during year 2020-21*



Fig 5.21 Annual total of air samples analyzed at each MPCB laboratory (2020-21)



Fig 5.22 Annual total of hazardous waste samples analyzed at each MPCB laboratory (2020-21)

Note: there was no hazardous waste sampleanalysed at Thane & Chandrapur Laboratory during year 2020-21



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

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 Amravati

6.1.1 Air Issue

The Municipal Corporation Amravati has population of 6.48lacks and under "D" Class Municipal Corporation. There are 3 NAMP Monitoring Stations in operation within the Corporation Area, viz. Rajkamal Chowk, Govt. Engineering Collage premises and MIDC Amravati. The Government Collage of Engineering Amravati is the agency appointed for operation of these stations. From the Analysis Results of these stations, it is observed that, the parameter RSPM is exceeding the limit particularly during summer and winter session. The Amravati city is under NCAP. The parameter RSPM is observed exceeding due to the construction activities of concrete road in the city.

The Board has already given directions to Municipal Corporation Amravati to take all precautionary measures to minimize the Air Pollution. The site for CAAQMS at Amravati has been identified and Consents for installation has been received from the following agencies as follows:-

- 1. Government college of Engineering Amravati
- 2. Divisional Commissioner Office Amravati
- 3. Sipna College of Engineering Amravati
- 4. Bhartiya Mahavidyalaya, Amravati

6.1.1.1 Current status of Action Plans

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
MPCB has issued work order to IIT Mumbai and NEERI Mumbai to prepare the action plan in respect of Air Quality within the Municipal Corporation area and the Action Plan is at final stage.	MPCB has issued directions to the Municipal Corporation Amravati to minimise the Air Pollution by preventing burning of MSW. Municipal Corporation Amravati has submitted the revised Action Plan regarding NCAP on 21/12/2019 along with timely progress.	MPCB has proposed 3 NAMP stations at Washim to monitor the Ambient Air Quality.

6.1.2 Water Issues

There are around 15 effluent generating industries (including 5 textile processing industries) located in this region. To treat the effluent from these industries 5MLD capacity CETP is provided and around 10acres of SSHEHS (Soil-Sand High Efficiency Hybrid System) is provided to dispose the treated effluent from CETP. During monsoon the incidence of discharge of effluent along with rain water runoff is observed intermittently. As the location of the SSHEHS is near the low-lying MIDC area, the effluent along with rain water runoff flows towards in Nalla and creates environmental issues.



Further, Purna and Pedhi river stretches in this region are included in the polluted river stretches by CPCB viz. the river stretch from Asegaon Purna to Wathoda Shukleshwar (Amravati District Border) and river stretch from Narayanpur to Bhatkuli etc.

6.1.2.1 Current Status of Action Plan

MPCB has issued directions to the MIDC authorities to take precautionary measures to avoid such incidence & also submitted the action plan to CPCB for restoration of the water quality of the polluted river stretches of Purna, Pedhi & Penganga Rivers. Akola Municipal Corporation has proposed 2 nos. of STP's of 37 MLD capacity. Special Environment Surveillance Task Force for Amravati & Akola District has been constituted to mitigate the issues related to river water quality.

6.1.3 Solid Waste Issues

The Municipal Solid Waste is dumped on the treatment & disposal site without any segregation as there is no waste processing facility provided by Municipal Corporation at the site.

6.1.3.1 Current Status of Action Plan

MPCB has issued notices/directions to the Municipal Councils in Akola & Amravati to setup a treatment facility for Municipal Solid Waste and they have initiated the process of Establishing waste processing facilities at 3 locations viz. Sukali MSW Site, Akoli Bypass and Badnera.

6.2 Aurangabad

6.2.1 Air Issues

The CPCB has declared Aurangabad, Jalna & Latur cities as non-attainment city out of 17 cities from Maharashtra state. The area of Aurangabad City, MIDC Waluj, MIDC Chikalthana, MIDC Railway station & Paithn Road units are comes in CEPI area.

There are 12 nos of steel units engaged in manufacturing of ingots from M.S. scrap generating air emissions mainly during loading of raw material into the furnace and unloading of molten metal from the furnace. The major industrial pollution is due to fuel burning in the Boiler and dust pollution due to Stone Crusher units, Manufacturing of traditional bricks.

Industrial activities and Urban Air Pollution due to commercial activity, vehicular & construction activity are the other sources of air pollution in the area.

Current Action Plan	Mid Term Action Plan	Long Term Action Plan		
To control pollution from	As per NCAP action	Upgradation of existing pollution		
industries, meeting with	plan Municipal	control system in industrial area,		
industry representative at	Corporation has	As per the provision of Air act		
HQ under the Chairmanship	installed fountains	(P&CP) 1981 consent granted to all		
of Member Secretary on	near Siddharth	industries under stipulated		
18/10/2019 has been	Garden.	conditions,		
conducted and issued	02 no's of CAAQMS	Almost all major industries has		
directions for upgradation of	propose at Deogiri	provided APC system such as Dust		
existing APCS.	College & MPCB,	Collector, Bag Filter, Wet Scrubber		
-	Aurangabad, Latur MC	& ESP etc.& also adopted green		
In MIDC Jalna area MPCB is	installed fountains in	fuel technology by using agro		
taking continuous follow up	Basweshwar Chowk &	base/LPG fuel to reduce air		

6.2.1.1 Current Status of Action Plan



with the industries to provide	Rajiv Gandhi Chowk,	emission in the environment,
adequate capacity of Dust	01 no's of CAAQMS is	Most of the stone crusher units has
Collector, Bag Filter, and	also proposed	provided water sprinkler system,
Wet Scrubber & ESP		covered vibrating screen &
system.		conveyer belts by tin sheet, wind
The vigilance is kept on		breaking wall, Metallic road &
pollution due to stone		Massive tree plantation.
crusher & hot mix activity.		

6.2.2 Water Issues

- 1. Ground water contamination is observed at Waluj Industrial area.
- Godavari River D/S of Paithan to Shahgad (Aurangabad District, Manjra River Latur to Nanded road bridge at Vill, Bhatkeda (Latur District), Godavari River at Gangakhed, Dist- Parbhani, Bindusara River at Beed & Godavari River at Nanded are identified as Critically Polluted stretches by CPCB.

6.2.2.1 Current Status of Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
NEERI, CGWA and MPCB have conducted detailed survey of Ground Water Quality of Waluj Area &MPCB has formed committee at Board level. Preliminary study and testing has been carried out regarding removal of Chromium in the said area. Task Force Committee was constituted at District levels for follow up and regular meetings are conducted for implementation and execution. During Ganesh & Durga Festivals insisted ULB's to provide artificial ponds for immersion of idols also awareness programmers are conducted by this office to to promote use of eco-friendly Ganpati idols	Nanded Waghala Municipal Corporation has submitted proposal of 10 MLD STP for treatment of untreated sewage discharged into Godavari river through 34 Nalls causing river water pollution &said work of STP is expected to be completed by December 2021.	 3 STPs are proposed for Paithan, 2 no's of STP of Capacity 32 MLD & 40MLD is proposed by Latur Municipal Corporation, 35MLD STP is under progress at Beed & 5MLD STP is proposed at Gangalhed for treatment of sewage. Nanded Waghala Municipal Corporation has provided 3 STP of capacity- Bondar- 87MLD, Elichpur- 30MLD & Sangvi - 15MLD AMC has provided at 5 STPs having total capacity of 211MLD.

6.2.3 Solid Waste Issues

There is no scientific process for treatment and disposal followed by any of the Municipal Councils/ Nagarpanchyat (alna, Latur, Nanded, Parbhani) except Aurangabad city.

6.2.3.1 Status of Current Action Plan

Nanded Waghala Municipal Corporation has provided door to door MSW collection with segregation & Transportation of MSW is through M/s. R & B Infra Project Pvt. Ltd.

Nanded Waghala Municipal Corporation is Bio-mining 1Lac m³MSW (legacy waste). All other ULB's have been instructed by the Board to provide the scientific treatment facility and



accordingly most of the ULB's have prepared &sanctioned DPR's & the installation work will be started very soon.

6.2.4 Noise Issues

Noise pollution due to use of DJ during Shri Ganesh & Durga Pooja festivals. Noise and Air problems due to fire crackers in Diwali festival. Noise pollution due to vehicles.

6.2.4.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Awareness programme, field noise monitoring in major city areas are being carried out by Board offices, if necessary noise monitoring is carried with police dept. as per their request. MPCB is also carrying out AAQM monitoring during the festivals.	Guidelines circulated to local bodies for celebration of eco-friendly Ganesh& Durga festival, Diwali and Holi etc. Awareness campaigns and programs are conducted in the area.	Advertisement on TV and Radio is prposed. Board is conducting monitoring during Diwali festival for controlling of high dB fire cracker through the committee constituting member from DISH &police department to control the noise level.

6.3 Kolhapur

6.3.1 Air Issues

- 1. Kolhapur & Sangli has been identified as non -attainment cities as per NCAP.
- 2. Baggase is used as a fuel in most of the Sugar and other industries in the area causing air pollution.
- 3. Air pollution complaints from Sindhudurg district due to stone quarry & stone crushers.

6.3.1.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Air quality monitoring is carried out	Monitoring of VOC in ambient	
under National Ambient Air Monitoring	air is to be carried out and	
Programme (NAMP) in Kolhapur and	provision of appropriate	
Sangli city.	control measures for VOC	
Action plan for Control of Air Pollution for	levels in Chiplun area to be	The installation of
Kolhapur city is being prepared by	proposed.	Continuous
NEERI.	Accordingly, industries will be	Ambient Air
Industries have been instructed to install	directed to install appropriate	Quality
adequate APC's to control source and	APC's in Chiplun area.	Monitoring
fugitive emissions.		Stations
Continuous Ambiant Air Quality	Provision of APC's to the	(CAAQMS) at 3
Monitoring stations are proposed at 3	crushers located at	different
different locations in the city.	Sindhudurg distircts.	locations in the
Monitoring of air pollution due to stone		Kolhapur city.
crusher & issuance of notices to the	To mitigate the problems of	
crushers.	air pollution in Sangli city,	
For improvement of air quality in Sangli	Sangli Municipal Corporation	
city the MPCB has taken special task in	has taken short term	



association with Sangli Municipal	measures, such as	
Corporation, Sangli. The air action plan	maintaince of roads, cleaning	
has been prepared and submitted to	of Muncipal Solid waste,	
Government for further approval and	banning on open burning of	
necessary action.	solid waste etc.	

6.3.2 Water Issues

1. Panchaganga River & Vashishti River from village Dalvatane to Kherdi is categorized in priority-V by CPCB under "Most polluted river stretches in the country".

2. Marine water pollution at Mirkarwada (fishing harbor), Ratnagiri due to disposal of untreated sewage by Ratnagiri Nagarpalika & disposal of waste by Fisherman at jetty.

6.3.2.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
 Increased vigilance of CETP & industrial waste water generating units. Regular follow up with local bodies for completion of sewerage system & installation of new STP. Action plan for rejuvantion of Panchganga river is prepared by the board. 68 textile processing industries have been directed to achieve zero liquid discharge & 6 major textile units of five star MIDC have been directed to provide Zero Liquid Discharge for 50% of their existing effluent quantity. This unit has provided 50% ZLD facilities. Repair & Maintenance work of five star MIDC CETP is proposed & will be completed within short period. Kolhapur Municipal Corporation has been directed to earmark a sum of Rs. 2.6 lacs per day in a seperate account for expenses towards remedial measures. Kolhapur Municipal Council - out of 96 MLD daily sewage, 91 MLD sewage is treated in 2 No. of STPs having total capacity 93 MLD, additional 2 New STPs are under commissioning capacity 4 MLD & 6 MLD. Board has agreed to provide soft loans to five STP's for clusters of Villages on the bank of Panchganga River. MPCB has prepared an action plan for clean -up of Polluted Stretch of Vashishti River. Issued Prosecution Notice to Ratnagiri nagarpalika for provision of Sewage treatment plant & scientific disposal of Solid Waste. The Government has declared River Action Plans/Polluted River Stretches for 	 Implementation of Short-term action plan as proposed in the action plan prepared by the board for rejuvenation of Panchganga river by various stake holders. Implementation of short term action plan as per action plan prepared. Provision of STP through Ratnagiri & Malvan Nagarpalika Local Bodies in Sangli District are the other sources of water pollution. Necessary follow up has been taken with them to adopt good sewage management practices & provide STP of adequate capacities. In addition to above solid waste generation form local bodies are also sources of water pollution. Necessary follow up has been taken for scientific collection, segregation, treatment & disposal of MSW generated so as to avoid leachate generation mixing the same with storm water & cause water pollution 	 Implementation of Long-term action plan as proposed in the action plan prepared by the board for rejuvenation of Panchganga river by various stake holders. Implementation of Long- term action plan as per action plan prepared. All local bodies located on the bank of rivers in Sangli district are directed to install adequate capacities of STP's for treatment and disposal of sewage generated from their cities. Special Environment Survillance Task Force has been formed as per the orders of Hon'ble National Green Tribunal.



improvement of River Water Quality of	in various areas. This is
Krishna River & its tributaries, the	being followed.
implementation of said project is in	
progress.	

6.3.3 Solid Waste Issues

1. Handling, Treatment & Disposal of domestic solid waste by Corporation, Councils & Grampanchayats.

2. Burnt/used sand from foundry industries - its handling & disposal.

3. Unscientific dispoasl of Solid waste by all the local bodies in the jurisdiction. Nagarpalika/ Nagarpanchayat have not provided proper treatment facilities.

4. Solid Waste generated from Sangli, Miraj & Kupwad City Municipal Corporation area is about 220 TPD. Existing solid waste treatment is partially composting & partially disposal is on open dumping yard in an unscientific manner.

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Current Action Plan:- 1. Kolhapur Municipal Corporation has installed solid waste processing plant of 180 Ton/Day capacity & is converting waste to RDF. And also 2 Nos of Biogas plants for treatment of organic wet waste. 2. Ichalkaranji Municipal Council is treating 40 Ton/Day by composting & remaining 100 MT/Day by dumping on MSW site. 3. Municipal Councils & Grampanchayat are directed by the board to collect, segregate & scientific disposal of domestic waste generated. 4. Presently 100% of Bio Medical Waste is segregated & scientifically disposed off in the Bio Medical Waste facility provided. 5. 25% of total budget of corporations & councils has been reserved separately for provision of environmental facilities. 6. Biomining of legacy waste is started by Kolhapur Municipal Council. 8. The Board has taken initiative for upgradation of Municipal Solid Waste Treatement and disposal facilities as per the NGT orders. All sites of MSW has been authorized by the district level committee and authorizations has been given to the local bodies for treatment and disposal of solid waste. 9.Directions have been issued to local bodies to identify sites and prepare action plan for setup of solid waste processing facilities.	1. All the local bodies to provide scientific municipal waste collection, segregation & scientific processing facilities. 2.Implementation of action plan by local bodies 3. The villages on the bank of rivers disposing waste on the bank of rivers to develop solid waste management projects with the help of Z. P. authorities as eco village development point of view.	1. All the local bodies to provide scientific municipal waste collection, segregation & scientific processing facilities and same shall operate regularly. 2. Implementation of action plan by local bodies

6.3.3.1 Status of Current Action Plan



6.3.4 Noise Issues

Religious programs are the occasions of causing noise pollution.

6.3.4.1 Status of current action plan

The Sangli, Miraj & Kupwad City Municipal Corporation, Sangli is in process of preparing the action plan for control of Noise Pollution in Sangli city.

The Police department and Municipal Corporation is being taken effective steps and measures for control of Noise pollution during festivals.

6.4 Navi Mumbai

6.4.1 Air Issues

A.SRO Navi Mumbai I: Navi Mumbai area is covered under CEPI. Navi Mumbai Municiapl Corporation is covered under N-CAP.

B.SRO Navi Mumbai II: The Alok nalla pollution is due to overflow of chambers provided on MIDC effluent carrying pipeline, discharge of untreated domestic effluent from slum areas in to nallas, CETP etc., which causes smell nuisance in that area. There may increase in SPM level due to heavy traffic on Thane - Belapur Road, construction activities etc. C.SRO Navi Mumbai-III: Compalints regarding Smell nuisance from industries loacted at MIDC Taloja are being received from residential area such as Kharghar, Kalamboli, Kamothe, Taloja etc.

6.4.1.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Current Action Plan:- A. SRO Navi Mumbai I :Implementation of both CEPI and NCAP action plan is under progress.	Mid-term action plan:- A.SRO Navi Mumbai I: 1.Action plan for replacement of old pipeline of CETP in TTC MIDC area by MIDC authority is under progress.	Long-term action plan:-
B. SRO Navi Mumbai II: Direction issued to MIDC to avoid the chamber overflow, to CETP to take necessary precautions to avoid smell nuisance. It is insisted industries to change fuel pattern to PNG.	2.Introduction of Cleaner fuel like CNG/LPG and about 71 nos. of industries has switched over to cleaner fuel by replacing fuel like Furnace Oil and Coal etc. 3.Installation of CAAQM Stations	 Development of Green belt & gardens. Repairing of internal roads & proper
C. SRO Navi Mumbai III: The Board Officials have already started the night vigilance of the Taloja MIDC Industrial Area. Board has taken various actions from time to time for the non-compliances observed during the field visits of the MPCB Officials. The Board has issued various instructions to the Industrial Association and asked to communicate the member industries and to check the APC system and ensure no emission of pollutants and not to cause smell puisance. Baard has insure to	 With digital display Board. 4.Setup of new AAQM stations for strengthening air monitoring under NCAP. B.SRO Navi Mumbai II: 1. Introduction of Cleaner fuel like CNG/LPG 2. Installation of CAAQM Stations with digital display on screen. 3. Setup of new AAQM station . 4. On Display of AAQM data. 	the same. 3.Performance Evaluation of ECS. 4. Health Impact Assessment Study. 5. Smell nuisence study from Reupted institute like IIT, NEERI (similar
the MIDC and CETP from time to time for stoppage of leakage from the effluent carrying pipeline and stop entering the same at river/creek except designated location. Regular vigilance is continuous process.	C. SRO Navi Mumbai III: 1. Introduction of Cleaner fuel like CNG/LPG . 2. Installation of CAAQM Stations with digital display on screen. 3. Setup of new AAQM station. 4. On Display of AAQM data.	like Study Carried out at Chembur, Mumbai).



6.4.2 Water Issues

- 1. Accidental discharge of effluent due to breakdown of effluent carrying pipeline of CETP at some places.
- Discharge of effluent in to the Alok nalla due to overflow of chambers provided on MIDC effluent carrying pipeline, discharge of untreated domestic effluent from slum areas in to nallas, CETP etc
- 3. The JVS analysis reports are not conforming to the outlet standards of CETP

6.4.2.1 Current Status of action Plan

Directions issued to MIDC for maintenance of Pipeline and to take necessary measures to avoid rain water logging problem near inlet CETP collection sump in MIDC, Khairane area. STP shall be provided for the treatment of domestic effluent generated from Slum area located in MIDC. CETP Taloja expansion and upgradation of existing CETP is under process.

6.4.3 Solid Waste Issues

There aren't any problems related to disposal of Municipal solid waste or hazardous waste generated from Local Body and various industries located in the TTC industrial area. NMMC has already developed MSW disposal facility at Turbhe which is already in operation. They had appointed M/s NEERI to study problems and to suggest proper measures. Accordingly, NMMC had installed full-fledged Leachate Treatment plant. Also installed Waste to Compost and RDF plant. M/s TTCWMA has installed site for scientific disposal of hazardous waste generated from the industries located in TTC industrial area.

6.4.3.1 Current status of Action Plan

Uran Municipal Council has proposed MSW Site for treatment and disposal of Municipal waste from Uran Municipal Council.

6.5 Nagpur

6.5.1 Air Issues

1) Higher emissions from the Old plant of Koradi Thermal Power Plant, Khaperkheda Thermal Power Plant.

2) Vehicular Pollution in the city.

6.5.1.1 Current Status of Action Plan

- NMC has prepared an action plan from the NEERI which is approved by the CPCB which shall be implemented with the co-ordination of the various stakeholders.
- > Review meetings were conducted time to time.
- Thermal Power plants conditional consents has been issued for compliance of the MoEF&CC notifications regarding implementation of FGD, Real time ash analyzer etc.
- > Encouraged polluting industries to switch over cleaner fuel.
- The Board has planned to strengthen CAAQM stations network in Nagpur city. Presently one station at Commissioner office is in operation. Additional three locations have been identified 1) LIT, 2) VNIT 3) Town Hall Mahal, Nagpur foundation work is in progress.
- AAQM Station at Kamptee is in operational. Also manuaul AAQM is carried out in the city area at three locations.



- Thermal Power plants conditional consents has been issued for compliance of the MoefCC notifications regarding implementation of FGD, Real time ash analyser etc. All the major air polluting industries have provided adequate air pollution control system and regular monitoring/ follow -up being taken for upgradation.
- > Encouraged polluting industries to swithch over cleaner fuel.

6.5.2 Water Issues

1) Issue of polluting river stretches

2) Non avalibility of CETP at MIDC Hingna, Nagpur, which is located in the vicinity of Ambazari Lake.

6.5.2.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
MPCB has issued directions u/s 33A of Water (P & CP) Act, 1974 to provide treatment facility for the sewage generation from ULB's, which is near to catchment of river body. Board has issued directions latest on 11.09.2019 issued by Member Secretary, MPCB. Accordingly, Municipal Councils has submitted commitment letter for the installation of STP by 31.03.2021.	Treated Effluent from the MIDC Hingna is being sent to CETP Butibori via Tanker	SRO Nagpur-I Proposal for installation of STP's are submitted by ULB under polluted strach in Nagpur District. SRO Nagpur-II Dedicated CETP Planned for MIDC Hingna. EC & C to E obtained. MIDC, MIA & Other Private developer has submitted proposal for installation of CETP for 1 MLD based on ZLD.
Treated Effluent from the MIDC Hingna is being sent to CETP Butibori via Tanker.		SRO Bhandara Proposal for installation of STP's are submitted to MJP for technical sanction. Commitment letter submitted by ULB's namely MC Bhandara and Pauni.

6.5.3 Solid Waste Issues

Municipal solid waste disposal.

6.5.3.1 Current status of Action Plan

The Board has issued directions under section of the Environment Act to the Nagpur Municipal Authority vide letter 31/07/2020 for strict implementation of the MSW Rules. NMC has outsourced agencies for implementation of the management of municipal solid waste and processing.

6.6 Raigad

6.6.1 Air Issues

In the Jurisdiction of RO Raigad falls Major MIDCs viz. Patalganga, Roha, Vilebhagad, Mahad with Panvel, Khopoli and Khalapur industrial estate etc. & many a times there are complaints are received regarding severe air pollution in these areas.



6.6.1.1 Status of Current Action Plan

Current Action Plan	Mid Term	Long Term Action Plan
	Action Plan	
MPCB is initiating actions	Nil	02 nos. CAAQM stations are proposed to
against polluting		install at Khaghar and Mahad MIDC.
&defaulting industries and		Upgradation of existing APC system will be
taking follow up to rectify it.		completed within 6 months.
		Already inform to Panvel Tahsil for shifting
		of brick kline units

6.6.2 Water Issues

Untreated sewage from Municipal Councils are being discharged into River

Partially treated effluent is also being discharged into rivers as presently RIA CETP; Roha is non-complied CETP.

6.6.2.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Monitoring of CETP every	To take continuous follow up	Installation of STPs &
Monday is scheduled	with local bodies so as to	achieve standards of treated
Improvement in O & M with	commission the STPs as	effluent as per consent
upgradation of RIA CETP,	well as complete drainage	conditions and the treated
Roha.	network at the earliest.	effluent shall be recycled
Upgradation in ETP of M/s.	Continuous monitoring on	
Roha Dyechem, MIDC	defaulting industries with	
Roha.	CETP.	

6.6.3 Solid Waste Issues

Municipal council & 05 Nagarpanchyat are not carrying out scientific MSW processing and treatment.

6.6.3.1. Status of Current Action Plan

Current Action Plan Mid Term Action Plan		Long Term Action Plan
MPCB has directed	Continuous followup with local	To provide full fledge
Municipal councils to	bodies to get the progress for	MSW treatment in time
prepare DPR for MSW	disposal of solid wastes as per	with proper segregation.
management.	MSW Rule, 2016.	

6.7 Pune

6.7.1 Air Issues

- 1) In the Jurisdiction of SRO Satara there are complaints regarding;
- 2) Fire incidences at MSW dumping site
- 3) Fire incidences in Hilly Areas.
- 4) Vehicular pollution in urban areas.
- 5) Air pollution caused due to stone crusher within cluster area
- 6) Smell nuisance due to foundry activity in MIDC Satara.

Solapur District

1. Over civilization there is rise in vehicles & inadequate road conditions are the major sources



of air pollution in the city.

2. Air pollution problem in Solapur dist. As many Sugar & Chemical Industries in the area are using Baggase as a fuel.

6.7.1.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
MPCB has taken special task in association with Solapur Municipal Corporation, Solapur and NEERI for reducing air pollution.	Solapur Municipal Corporation has taken short term measures, such as maintenance of	The air action plan for Solapur city has been prepared and submitted to government for further approval and necessary action.
The air action plan has been prepared and submitted to Government for further approval and necessary action.	roads, cleaning of Municipal Solid waste, banning on open burning of solid waste etc.	Considering the industrial development, CAAQMS- Continuous Ambient Air Quality Monitoring Stations to be installed in each MIDC in consultation with MIDC authority.

6.7.2 Water Issues

Untreated domestic effluent is discharged into Pawana, Indrayani & Bhima rivers and at various locations it is resulting into deterioration of river water quality.

6.7.2.1 Status of	Current Action Plan
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Current Action Plan	Mid Term Action Plan	Long Term Action Plan
In the jurisdiction of this office	Taking continuous follow up	All these local bodies to
17-category industries are	with all local bodies, so as to	have STP so as to strictly
provided online continuous	commission the STPs as	achieve standards of
effluent quality monitoring	well as complete drainage	treated effluent and the
systems to their ETP outlets	network at the earliest and	treated effluent should use
which are connected to	expecting short term	for recycling.
MPCB & CPCB servers.	measure to treat the	
PCMC has submitted	Domestic effluent and	MIDC shall install CETPs at
proposed plan for 4 no's of	Operation of existing STP	Chakan MIDC phase wise
new STP at various locations	with its full capacity.	so that maximum trade /
namely, 1) PCMC Tathavade		domestic effluent can be
village STP -10 MLD. 2)	Necessary follow up has	treated and disposed off
PCMC Chilkhali STP-12	been taken with Solapur	scientifically.
MLD 3) PCMC Bhopkhei	Local bodies to adopt good	All local bodies located on
STP -5 MLD 4) PCMC	sewage management	the bank of rivers in
Pimpie Milakn STP-15 MLD.	practices & provide STP of	Solapur district are directed
SPO Solonur Juriodictions:	Necessary follow up has	to install adequate
The Covernment has	heep taken for acientific	treatment and dispasal of
doclarod Namami	collection sogregation	sowage generated from
Chandrabhaga Abhiyan	troatmont & disposal of	their cities
Project for improvement of	MSW generated so as to	their cities.
River Water Quality of Bhima	avoid leachate deneration	
river the implementation of	mixing the same with storm	
said project is in progress	water & cause water	
sala project is in progress.	pollution in various areas	



6.7.3 Solid Waste Issues

Municipal Solid Waste collection, segregation and its scientific disposal is major hindrance in this area. Municipal Corporation and other local bodies have not carrying out scientific process to treat the 100% solid waste. MSW dumping site causing smell, water pollution, related nuisance.

6.7.3.1 Status of Current Action Plan

Current Action Plan	Mid Term Action	Long Term Action Plan
	Plan	
PMC has MSW dumping	SRO Solapur is in	PMC has proposed 10 New
ground at Urali Devachi where	process of short	plants for processing of Mixed
generated MSW is dumped	listing villages	Waste. The waste quantity will be
partly and over all 48 MSW	having population	treated in this new plant to tone of
processing plants at various	having 5000 & the	1600 MT/day.
locations are in operation in	villages on the bank	
PMC area.	of rivers flowing in	PCMC has submitted proposal
	the district to	for waste to energy plant having
The Municipal council are	develop various	capacity 1000 MTD, Consent to
directed to stop burning of	affordable projects	Establish is also granted by the
waste immediately.	to develop solid	Board office & accordingly, the
And also instructed to Local	waste management	installation work of Waste to
bodies to attend the fire	projects with the	Energy is started.
incident immediately &	help of Z.P.	
undertake spraying of organic	authorities.	Board has granted Consent to
deodorants to reduce smell		Establish to PCMC for C & D
nuisance	This is also	waste management project &
Board has given conditional	considered to be	work of facility will be started.
authorizations to the local	one point from eco	
bodies for treatment and	village development	
disposal of solid waste.	point of view.	

6.8 Chandrapur

6.8.1 Air Issues

Chandrapur is declared as critically polluted area in the year 2009 by CPCB, New Delhi. Thereafter, by proper implementation of CEPI, score was reduced by providing proper APC provisions.

Chandrapur city is listed under Non-Attainment Cities

Activity of coal mines, coal storage, transport & trading (loading & unloading) near to the highways creating air pollution problem.

6.8.1.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan	
MPCB is Carrying out	Providing CAAQMS & manual	Transportation system	
extensive survey and air	AAQMS sampling stations	to be improved.	
sampling	additionally at different locations	100% closed coal	
Also issued Closure	to access the data of air pollution. transportation system to		
Directions to various coal	I Directed the stakeholders to be implemented.		
depots.	provide closed transportation Implementation		
To reduce air pollution due	e system for coal and form a District Environm		
to transportation & other	surveillance team to observe the	Plan for each district	
activities, stakeholders	same. Action completed by WCL	under jurisdiction of RO,	



were directed to provide	authorities.	Chandrapur
tar roads, to provide &	Proposal towards providing	-
install air sampling	underground sewer line till STPs	
machineries, provide	so as to treat 100% sewage & to	
adequate water sprinklers,	stop excess discharge into Erai &	
etc.	Zarpat River.	

6.8.2 Water Issues

- 1. 100% sewage is not treated by Chandrapur Municipal Corporation as there are no provision of underground sewer line.
- 2. Discharge of excess mine water by WCL into nearby rivers without any treatment.

6.8.2.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
MPCB has formed District Level Committee under the Chairmanship of Hon'ble District Collector, Chandrapur and directed to stakeholders not to discharge untreated effluent into nearby rivers. Action Plan was submitted by Chandrapur Municipal Corporation to comply the	 Survey & sampling of water polluting industries/activities nearby to the rivers. Initially. 	Providing underground sewer line till STPs so as to treat 100% sewage & to stop excess discharge into Erai & Zarpat River.
same. Directions were issued & Bank Guarantees were forfeited & directed WCL authorities to provide settling tanks for mine water treatment & reuse the mine water for sprinkling purpose.	temporary barriers to be suggested to stop the discharge of sewage directly into rivers.	Implementation of District Environment Plan for each district under jurisdiction of RO, Chandrapur

6.8.3 Solid Waste Issues

1) Non-provision of treatment facility as per MSW Rules, 2016

6.8.3.1 Status of Current Action plan

1. Formation of District Level Committee under the Chairmanship of Hon'ble District Collectors. Issuing MSW authorizations to ULBs.

2. Initial segregation at source is directed to implement to all the ULBs.

3. Directed to Finalize the MSW sites as per MSW Rules, 2016

6.8.4 Noise Issues

1) Noise Pollution from Handling, Processing and Recycling of End-of-Life Vehicles (ELVs)

2) Noise pollution due to old vehicles & heavy activities like construction, etc.

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
1) Implementation of	Current status was seeking	CPCB directed to SPCBs to
CPCB Guideline for	from Regional Transport	issue the consent to scrap
"Environmentally	Department to assess the	traders & environmentally sound
sound facilities for	data towards compliance of	facilities for Handling,
Handling, Processing	Environmentally sound	Processing and Recycling of
and Recycling of End-	facilities for Handling,	End of Life Vehicles (ELVs).
of-Life Vehicles	Processing and Recycling of	Implementation of District

6.8.4.1 Status of Current Action Plan



(ELVs)"	End-of-Life Vehicles (ELVs)	Environment	Plan	for	each
		district under	jurisdic	tion o	of RO,
		Chandrapur.	-		

6.9 Kalyan

6.9.1 Air Issues

There is no buffer zone between residential and industrial area located in Ph-I and Ph-II MIDC Dombivali area. Around 82 no's of textile units are using coal as a fuel and contributing to air pollution in the area. In winter due to dispersion, complaints are received regarding air pollution. Also complaints w.r.t gases emissions are received to this office.

6.9.1.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Most of the unit has provided adequate air pollution control system like dust collector and wet scrubber followed by stack. Vigilance on industry is kept by carrying out air monitoring. Board is perused with the industry to adopt cleaner fuel like PNG.	The road within the MIDC area needs to be improved.	Analysis to switch- over fuel pattern from coal to PNG is in process.

6.9.2 Water Issues

1. Illegal jean wash units were in operation without provision of ETP and untreated effluent was being discharged into Nalla which further meets to creek.

2. Kalyan Dombivali Municipal Corporation are operating their STPs under capacity due to lack of drainage arrangement.

3. Due to incomplete work of underground drainage network, partial quantity of domestic effluent in Kalyan - Dombivali area is also disposed into Nalla which creates water pollution problem.

4. Breakages/leakages of effluent carrying pipeline/Chambers in the MIDC area lead to water pollution.

5. Illegal disposal of unknown tankers in the MIDC area creates air pollution and water pollution

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Board has visited all the jeanwash units and closure directions are already issued. Breakages/leakages are informed to MIDC as well as Corporation authorities and rectified on war footing basis.	Effluent carrying pipeline in the MIDC area needs to be regularly cleaned and maintained properly.	The final disposal of treated effluent is to be discharged in to the creek @7.5 KM as per NIO and which will be completed by March-2022.



6.9.3 Solid Waste Issues

Presently in the Kalyan Dombivali Municipal Corporation, most of the waste is dumped at Aadharwadi dumping ground. The solid waste generated in the residential area of MIDC is temporary stored in the plot.

6.9.3.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
KDMC has obtained	MSW waste shall not be	13 bio methanization needs
authorization for scientific	sent to the Aadharwadi	to be in operational at the
disposal of MSW at Umbarde,	dumping ground.	earliest.
Barve and Manda wherein there	Umberde MSW site to	
is disposal of 650 MT of MSW.	make operational fully	MPC Board is following the
Kalyan Dombivali Municipal	fledged. 13 bio	matter of operation of
Corporation has obtained	methanization needs to	methenization plant at
authorization at 13 various	be in operational at the	Barve, Raju Nagar and
palaces which valid up to	earliest.	Kachore Gaon.
31.01.2022.		
	MPC Board is following	In this regard Board has filed
Umbarde site is partially	the matter of operation	affidavit in the court of law.
operated which needs to be	of methenization plant	The unauthorized site at
operated fully. Methenization	at Barve, Raju Nagar	Aadharwadi needs to be
plant at Umbarde and Aayre is in	and Kachore Gaon.	close in time bound manner.
working condition.		

6.10 Nashik

6.10.1 Air Issues

Nashik area is declared severely polluted as per CEPI Index. Nashik and Jalgaon cities are declared non-attainment cities due to poor Air Quality.

6.10.1.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
1. Air Quality Improvement Action plan	This will be implemented	Industries are
is prepared for Nashik City. The MoEF	by the concerned	suggested to use
is preparing plan for Nashik under '	stockholders as per Air	Green fuel for the
Clean Air Project ' (CAP) for Nashik	Action Plan.	Boiler and Modern
city.		technology for to
Monitoring is carried out through 1	This office taking	minimizing the Air
CAQMS at KTHM College Nashik and	continuous follow up or	pollution. The use
4 manual stations at	issued notices to industries	of green fuel for the
(i) Old NMC Building, main road	are not operating APC	vehicle and use of E
Nashik	Systems. It is continuous	vehicles for public
(ii) RTO Office old, Sharnapur Road.	process.	transport.
(iii) VIP Industries Ltd. MIDC Satpur. &		Improvement in
(iv) Udyog Bhavan, ITI Signal, Nashik.	Conversion 100 % city	Road quality and
As per population criteria proposed	transport bus in to CNG.	traffic.
4 locations of CAQMS are	Conversion of Auto in to	
identified. The installation work will	PNG & CNG based fuel.	
be completed within 1 year.	Sweeping should be	
1 No CAAQMS station is proposed for	mechanical dust collector	
Jalgaon, Dhule & Nagar City each.	in city.	



6.10.2 Water Issues

There is no sewage network and treatment facilities in most of the urban local bodies Municipal councils and Nagar Panchyat resulting into discharge of sewage into river and causing Pollution of Godavari River.

Current Action Plan	Mid Term Action Plan	Long Term
		Action Plan
Nashik Municipal	Presently Nashik Municipal Corporation does	Revamping &
corporation had	not have underground drainage network for	Upgradation of
provided 10 no's of	newly added villages. They have started laying	existing STPs
Sewage Treatment	of pipeline for these villages, drainage network	for achieving
plant on the bank of	coverage 210 KM.	new standards.
the Godavari river.		Construction of
For Godavari River	Addtional STP 43 MLD is proposed by NMC at	STPs for other
Pollution problems PIL		local bodies like
No.176/2012 was filed	Malegaon MC has started construction work of	Municipal
in the Bombay High	STP which is 64 % complete.	Councils, Nagar
Court same is		Panchayat/
disposed on	As the CETP in MIDC Satpur & MIDC Ambad	Villages.
18/12/2018. As per the	is not taken progressed hence metal surface	0
directions in the PIL	treatment industries has installed ZLD	CEPT
No.176/2012,	treatment induvidully for the treatment of	Construction for
Committee	Efluent generation.	SSI unit in
consitituted under the	T'll the entire entreme is not collected due to	MIDC area
chaimanship of	Till the entire sewage is not collected due to	Nasnik.
Divisional	poor maintannace / Break up/ Chock up/	
Commissioner,	Overnow of Sewere line issue & find its wayy	
implementation of the	to River godavari by Nalla etc.	
implementation of the	The LILP/ Village cituated on Diver Codeveri /	
Municipal Corporation	The OLD/ Village situated of River Godavall /	
	deteriate the quality of Pivers Codevari 8	
, Nashik, II) MFCD, III) District Council iv)	Darana at downstroam	
Publicity of Codavari	Darana al downstream.	
Conservation V	Ecesssive use of fertilizer in the farm field by	
MIDC These	farmers on the bank of godavari/darana which	
committes prepare	further lead the run off by rain / percolate	
plan of work for	through ground water etc etc to near by water	
Godavari Pollution	bodies may lead to increase eutrophication	
control at their	problmes in water bodies & problems to	
respective office level	aquatic life.	

6.11 Mumbai

6.11.1 Air Issues

Air pollution problem in Mumbai is mainly caused due to heavy vehicular traffic.

In Ambapad - Mahul, Chembur area, air pollution problem is mainly due to Volatile Organic Compounds (VOC). Also, burning of waste at Deonar Dumping ground also causes air pollution.

In addition to this, regularly complaints are received from RMC Plants.


6.11.1.1 Current Status of Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Action plan under NCAP has been prepared by MCGM and has been apporved by CPCB. First meeting of the stakeholder was conducted and implementation of action plan is under progress. Third party monitoring was carried out by TO 17 using ATD – GC-MS at 20 Ambient locations and 12 fugitive locations for 54 VOC's and on the basis of the results action plan was prepared. On this basis of action plan directions were issued to modify/upgrade and install air pollution control systems Installation of fire fighting systems and proper management of municipal solid waste	Action plan for Mumbai city is developed. Chembur action plan under CEPI & CPCB action plan for Mahul Ambapada Area, is also prepared in process of execution	Action plan for Mumbai city prepared. Chembur action plan under CEPI & CPCB action plan for Mahul Ambapada Area, is also developed.

6.11.2 Water Issues

Restoration & beautification of Mithi, Dhaisar, Oshiwara & Poaisar Rivers is needed.

6.11.2.1 Current Status of Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Action plan is prepared by MCGM for restoration & beautification of Mithi, Dhaisar, Oshiwara & Poaisar Rivers.	Action plan is prepared by MCGM for restoration & beautification of Mithi, Dhaisar, Oshiwara & Poaisar Rivers.	7 nos of new STP proposed to be provided by MCGM for treatment and disposal of sewage generated.

6.11.3 Solid Waste Issues

The Waste disposed at M/s. Deonar Dumping Ground situated at Deonar is not treated scientifically.

6.11.3.1 Status of Current Action Plan

Nil.

6.11.4 Noise Issues

Various complaints have been regarding Noise violation during Ganpati festival & Eid celebration. This office has filed 150 nos. of cases in respective district Courts.

6.11.4.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Aprroximately 150 nos. of		
cases filed for violation of	Nil	Nil
Noise Regulation.		

6.12 Thane



6.12.1 Air Issues

Smell nuisance is observed during monsoon & winter season.

Severe air pollution problem nearby residence, Chitralaya, Boisar, Salwad, Pasthal, Kolwade, Pam, Kumbhvali & adjacent area.

Air pollution problem is also caused by frequent burning of solid waste and plastic waste by local Grampanchayat in MIDC area i.e. Salwad, Kolawade, Boisar & Khairapada Railway Bridge.

6.12.1.1 Current Status of Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
Common letter issued every years during pre-monsoon & pre-winter season in MIDC Tarapur industries. CAAQM station installation work in process.	To monitor the stack, process emission & Ambient emissions.	To provide CAAQMs in premises along with SCADA & display system which connectivity to MPCB & CPCB server.

6.12.2 Water Issues

1. Frequent MIDC breakages of sewerage/treated effluent carrying pipeline network.

2. Overflow of MIDC raw water & treated water collection sumps.

3. Removal of old sewerage collection pipeline which causes effluent (substandard) flowing through nallah instead of reaching TEPS-CETP for further treatment.

4. Untreated domestic effluent emerging from adjacent villages & public toilets flowing through natural nallah passing through MIDC.

5. Illegal activity of washing chemically contaminated plastic in natural nallah.

6.12.2.1 Current Status of Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
 MIDC to provide temporary Bondharas over natural nallah & pumping system to nearest chamber to present downstream pollution. Up-gradation of TEPS-CETP. Provide continuous monitoring system with Two way SCADA for I/L & O/L of industries. MIDC to stop illegal water supply through tanker & bore-well. To monitor ZLD & partially ZLD units. MPCB to grant consent for washing of chemically contaminated plastic waste. 	 MIDC to identify & remove old pipeline of the sewerage collection system. Lock & Key arrangement to individual industries. Identify & dispose of high COD stream of individual industries to M/s. TEPS-CETP 	 Segregation & disposal of high COD stream of individual industries to M/s. TEPS-CETP. To make operational 50 MLD CETP. Extend disposal pipeline of existing 25 MLD TEPS-CETP. Adjoining local bodies provide STP for treatment for domestic. To make mandatory for all the LSI & MSI units to provide separate STP for domestic effluent generated & use of same for gardening purpose.

6.12.3 Solid Waste Issues

1. Illegal storage of spent solvents & ETP sludge in factory premises & illegal storage sites.



2. Illegal transportation & dumping of process waste by industries located in MIDC Tarapur area & adjacent nearby area.

3. Chocking of raw effluent carrying pipeline due to accumulation of sludge.

6.12.3.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
MIDC to ensure that all the member industries disposing trade effluent into MIDC chamber to provide single day storage tank for treated effluent.	MIDC to ensure that all the member industries disposing trade effluent into MIDC chamber to provide positive discharge system into MIDC chamber.	In order to avoid illegal disposal of ETP sludge in MIDC chamber all the member industries may be directed to compulsorily provide overhead settling tank in factory premises.

6.12.4 Noise Issues

Noise Pollution by forging, textile weaving units located in MIDC Tarapur area.

6.12.4.1 Status of Current Action Plan

Current Action Plan	Mid Term Action Plan	Long Term Action Plan
To provide acoustics/ adoption of appropriate technology for identified noise generating sources to prevent from noise pollution.	To obtain Bank Guarantees & time bond program to seek compliance.	Nil



7. ENVIRONMENTAL STUDIES AND SURVEYS

7.1 Noise Monitoring during Ganesh Festival 2020

Ambient noise monitoring was carried out during the period of Ganesh Festival at 132 locations which are covered under 27 Municipal Corporations all over the State of Maharashtra. Monitoring was carried out for 5 days considering the noise that was generated during the festival. Noise monitoring was carried out for 6 hours between 6PM to 12AM on 22nd, 23rd, 26th, 28th August 2020 and 1st September 2020. Noise monitoring was carried out using calibrated Sound Level Meters (Type I). The number of noise monitoring locations in different Municipal Corporations all over Maharashtra is provided in **Table 7.1**.

Table 7.1 Noise monitoring locations in Maharashtra during Ganesh Festival 2020 Municipal Connection No of locations

Municipal Corporation	No of locations
Mumbai	25
Navi Mumbai	5
Thane	8
Pune	18
Nashik	5
Aurangabd	5
Nagpur	5
Kalyan	3
Amaraati	3
Jalgaon	3
Kolhapur	3
Sangali	3
Mira Bhayander	3
Vasai – Virar	3
Ulhasnagar	3
Bhiwandi- Nizampur	3
Chandrapur	3
Nanded Waghala	3
Ahmednagar	3
Dhule	3
Malegaon	3
Pimpri- Chinchwad	3
Parbhani	3
Latur	3
Akola	3
Solapur	4
Panvel	3
Total No of stations	132



Figure 7.1 Noise levels during Ganesh Festival 2019 at different locations in Maharashtra

From Figure 7.1, it can be observed that the highest mean noise level recorded on 22 August 2020 was 70.15 dB (A) at Mumbai. On 23rdAugust 2020, which was the second day of noise monitoring, the highest mean noise level recorded was 69.26 dB(A) at Mumbai. On 26th August 2020, the highest mean noise level recorded was 71.69 dB(A) at Kalyan. On 28th August 2020, 73.14 dB(A) was the highest noise level which was recorded at Navi Mumbai. On the last day of noise monitoring during Ganesh festival, that is on 1th September 2020, the highest noise level was 72.28 dB(A) and was recorded at Navi Mumbai.

The lowest mean noise level recorded on 22nd August which was the first day of noise monitoring during Ganesh festival, was 63.43 dB(A) at Kalyan. On 23rd August, which was the second day of noise monitoring, the lowest mean noise levels were 62.85 dB at Aurangabad. On 26th August, 63.95 dB (A) was the lowest mean noise level recorded at Aurangabad. On 28th August 2020, 62.62 dB (A) was the lowest mean noise level recorded at Nagpur. On 1th September 2020, 65.31 dB (A) was the lowest mean noise level recorded at Aurangabad

7.1.1 Conclusion- Noise Monitoring during Ganesh Festival'2020

Ganesh festival is the biggest festival celebrated in Maharashtra since decades. However, this year, in the view of the coronavirus outbreak, the festival was celebrated in a low-profile manner, voluntarily. The usual spirit and fervour of the festival was relatively low this year. Many pandals have cancelled the installation of Ganesh idols and opted for a health festival ('Arogyaotsav') with pandemic related activities. The famous Lalbaug Sarvajanik Ganeshotsav Mandal in Mumbai has decided to cancel the celebrations and hosted blood and plasma donation camps and provide financial assistance to the families of policemen who died of Covid-19. The Brihanmumbai Sarvajanik Ganeshotsav Samanvay Samiti, an umbrella body of 12,500 Ganesh mandals across Mumbai, had ensured online darshan, social distancing within pandals and also conducted drives to promote Yoga and Pranayam among youngsters. About 300 villages in Kolhapur district in south Maharashtra have celebrate the festival without much funfair and installed only one idol in each village.



The Maharashtra government has also issued guidelines regarding Ganesh Chaturthi celebrations which mentioned the following:

1. The heights of Lord Ganesh idols installed by sarvajanik (community) mandals and at household-level should be limited to 4 feet and 2 feet, respectively, this year.

2. All mandals (associations) need to set up mandaps (decorated temporary covered structures) in line with the policies formulated by municipal corporations or the local administration.

3. Ganesh Chaturthi is to be celebrated in a simple manner this year, so there should be no pomp in the decorations by sarvajanik mandals or individuals installing idols in homes.

4. People should possibly worship idols made of metals, marbles or other elements instead of installing conventional ones this year.

5. If the idols installed are made of clay or are eco-friendly, then those should be immersed at home itself. Idols should be immersed at a nearby artificial pond if it is not possible to immerse them at homes.

6. If possible, the send-off of idols should be postponed until the time of immersions of idols installed during Maghi Ganeshotsav or during the month of Bhadrapad 2021, that is, next year.

7. Health-related advertisements should be displayed during the 10-day festival to help people keep themselves safe and avoid the infection.

8. The mandals to undertake health initiatives instead of organising cultural programmes.

9. Mandals should try to arrange for online darshan of Lord Ganesh's idols

10. The mandaps should be disinfected, thermal screening should be arranged and physical distancing related norms to be strictly adhered to by devotees turning up at mandaps to seek darshan of Lord Ganesh.

This year as per the actual observation during the survey, air pollution levels were very low as compared to previous year. There was no use of crackers at all in all regions the survey has taken place which marked the reduction of Air pollution. Also, loudspeakers, dhols, drums or any kind of musical instruments was not used during the visarjan procession nor at night time in societies or pandals. This year people have opted for eco-friendly Ganesh idols and carried out visarjan at their home itself. The procession for visargan also had very less crowd this year. There was vigilance by Police department also in many areas especially contaminated zones to ensure the fulfilment of Covid-19 protocol of wearing mask, social distancing etc. which added up to ensuring a healthy festival.

The observed levels are higher due to following reasons:

1. Use of more no. of vehicles as trains or public transport is either closed OR there is fear of infection from it

2. More two-wheelers and Cars are on road, and the noise is from vehicular traffic

3. Honking was relatively less, as most of the vehicles were driven by owners

4. Traffic should be diverted during the procession time and on Visarjan route

5. Congestion should be avoided on procession routes.

6. The increased noise level beyond the Noise Level standards is due to collective noise of human population, traffic and as such no one source or activity was responsible for the exceedance of the noise level

7. Vehicular traffic should be avoided on the procession routes

8. General awareness of the public should be increased by sensitizing them for the increased noise level

9. Festival should emphasize on noise nuisance in the urban areas in general as the



background levels itself during the high-activity time period is exceeding the average noise levels.

10. dB(A) Leq values over the period of time would be relatively significantly less vis-à-vis peak values that are measured due to sensitive dB(A) measurements.

Further, city specific geneneral common observations are given in "Noise Monitoring during Ganesh Festival'2020" report which is available at Board's official website.

7.2 Noise Monitoring during Diwali 2020.

In order to assess the ambient noise levels in the environment during Diwali festival, the MPCB has taken an initiative to carry out noise monitoring at 158 locations all over Maharashtra for a period of 3 days: 11th, 14th and 16th November 2020. , for 24 hours at various locations in different cities in Maharashtra. The main aim of the project was to determine the trends and variations of noise levels at various areas in the cities over different land uses and to create awareness about noise pollution through availability of scientific noise level data.

Noise monitoring was carried out using calibrated Sound Level Meters (Type I) kept at fast response mode keeping in view the quickly changing nature of noise levels, and using 'A' filter. The number of noise monitoring locations in different Municipal Corporations all over the State of Maharashtra is provided in **Table7.2**.

Also from **Figure 7.2.**it is observed that during day time on 11 November the highest mean noise levels of 71.9 dB(A) was recorded at Chandrapur. During day time on 14thNovember, the highest mean noise level of 60.8 dB (A) was recorded at Nashik. Similarly on 16thNovember, the highest mean noise levels of 75.5 dB (A) was recorded at Kolhapur. The highest mean noise levels of 66.9 dB (A), 74.0 dB (A) and 62.3 dB (A) were recorded during night time on 11th, 14th and 16thNovember at Nagpur, Thane and Chandrapur.

Municipal Corporation	No of locations
Mumbai South	15
Mumbai western suburbs	15
Mumbai Eastern Suburbs	15
Navi Mumbai	9
Thane	5
Pune	15
Nashik	5
Aurangabd	5
Nagpur	10
Kalyan	3
Amaraati	3
Jalgaon	3
Kolhapur	7
Sangali	3
Mira Bhayander	3
Vasai – Virar	3
Ulhasnagar	3
Bhiwandi- Nizampur	3
Chandrapur	3

Table 7.2Noise Monitoring Locations in Maharashtra during Diwali 2020.



Nanded Waghala	3
Ahmednagar	3
Dhule	3
Malegaon	3
Pimpri- Chinchwad	3
Parbhani	3
Latur	3
Akola	3
Solapur	3
Panvel	3
Total No of stations	158

The lowest mean noise levels of 61.8dB(A), 53.1 dB(A) and 63.8 Db(A) were recorded during day time on 11th, 14th and 16thNovember respectively, at Aurangabad. The lowest mean noise levels of 53.9dB(A), 63.5 dB(A) and 51.6 dB(A) were recorded during nighttime on 11th, 14th and 16thNovember respectively, at Aurangabad.



Figure 7.2 Noise levels during Diwali 2020 at different locations in Maharashtra

7.2.1 Conclusion – Noise Monitoring During Diwali'2020

This year with the outbreak of Covid-19 the Diwali festival which is celebrated all over the India was celebrated in a different way. Guidelines was published by Government in controlling the spread of the virus in the festive season. The pollution level of noise is less this year comparing to the previous years in many municipal corporations. People have tired celebrating the festival being in the constrains of the protocol published by Government. Police department also played a very important role in many areas especially contaminated zones to ensure the fulfilment of Covid-19 protocol of wearing mask, social distancing etc. which added up to ensuring a healthy festival.

Apart from above general common observations, city specific observations are given as hereunder. Municipal Corporation wise Conclusions / Observations for the noise level generated are provided below.



- 1. Mumbai The noise level in Mumbai ranged from 49.6 dB(A) to 81.2 dB(A) this year. The increase in noise level in some location is mainly due to road traffic and rain. In comparison to the noise level last year there is a tremendous decrease in the range of noise level generated.
- 2. Navi Mumbai The noise level in Navi Mumbai ranged from 43.5 dB(A) to 79.8 dB(A) this year. The noise level at all five locations was higher this year. There reason for increase in nose level was due to the crowd in locations and vehicular activities.
- 3. Thane In Thane the noise level ranged from 49.7 dB(A) to 77.9 dB(A) this year. The increase in noise levels was due to the traffic congestion and rain.
- 4. Pune Out of 18 locations monitored, the noise level was high only at Shivaji Nagar, Mahatma Phule Mandai, Khadki Bazar, M G Road and Aundh Parihar Chowk as compared to last year. In Pune also the noise level due to festival was very less due to Covid 19. In many locations the level of noise was 10 dB less than what was generated last year. The noise level in Pune ranged from 42.9 dB(A) to 86.3 db(A).
- 5. Nashik In Nashik the noise level ranged from 50 dB(A) to 72 dB(A). The noise level was less at all locations in Nashik on all 5 days as compared to last year. There was not much crowd or traffic congestions also in Nashik region.
- Aurangabad The noise level was less at all locations in of Aurangabad also on all 5 days as compared to last year. The noise level in Aurangabad ranged from 42 dB(A) to 72 dB(A). The noise level generated was due to traffic.
- 7. Nagpur The noise level in Nagpur ranged from 49.7 dB(A) to 79.9 dB(A) this year. The level of noise was high in commercial zones and was caused due to traffic mainly.
- 8. Kalyan The noise level in Kalyan ranged from 50.2 dB(A) to 77.5 dB(A) this year. The noise level was high mainly due to the crowd and traffic. Ulhasnagar station showed higher noise level and to an extent the honking of trains also contributed to the increase in noise level.
- 9. Amravati The noise level in Amravathi ranged from 54.3 dB(A) to 73.7 dB(A) this year. Irvin Hospital Square showed a little increase in noise level this year and the main reason was due to the crowd and traffic
- 10. Jalgaon The noise level was less at all locations in of Jalgaon on all 5 days as compared to last year. The noise level in Jalgaon ranged from 5O dB(A) to 79.1 dB(A) this year. The noise level in Jalgaon also was due to traffic at commercial zone.
- 11. Kolhapur The noise level was less at all locations in Kolhapur on all 5 days as compared to last year. The noise level ranged from 37 dB (A) to 79.1 dB (A) this year. The noise level near Khas Baug Maidan had highest noise levels.
- 12. Sangli The noise level was less at all locations in of Sangli also on all 5 days as compared to last year. The noise level in Sangli ranged from 59 dB(A) to 80.8 dB(A) this year. The noise level was high at Miraj Market between 6 pm to 8 pm due to the crowd and traffic congestions.
- 13. Mira Bhayander The noise level in Mira Bhayander ranged from 51dB(A) to 90 B(A) this year. The noise level was high at Golden police chowki in the peak time between 6pm to 9 pm and was caused due to the traffic congestions.
- 14. Vasai Virar The noise level in Vasai Virar ranged from 50 dB(A) to 77.2 dB(A) this year.
- 15. Ulhasnagar The noise level generation in Ulhasnagar was also mainly due to traffic and crowd. The noise level in Ulhasnagar ranged from 49.6 dB(A) to 76.1dB(A) this year.
- 16. Bhiwandi Nizampur The highest noise levels of Bhiwandi-Nizampur was observed at Shelar Near Nadi naka with 73.7 dB(A).



- 17. Chandrapur The noise level in Chandrapur ranged from 57.2 dB(A) to 81.6 dB(A) this year and the reason for such high level of noise is due to traffic.
- Nanded Waghala The noise level was less at all locations in of Nanded Waghala on all 5 days as compared to last year. The noise level in Nanded - Waghala ranged from 51dB(A) to 71 dB(A) this year.
- 19. Ahmednagar The noise level was less at all locations in of Ahmednagar also on all 5 days as compared to last year. The noise level in Ahmednagar ranged from 50 dB(A) to 70 dB(A) this year. The highest noise level was observed at Chitale Road and was due to traffic congestions.
- 20. Dhule The noise level was less at all locations In of Dhule also on all 5 days as compared to last year. The noise level in Dhule ranged from 50 dB(A) to 74 dB(A) this year.
- 21. Malegaon The noise level was less at all locations in of Malegaon also on all 5 days as compared to last year. The noise level in Malegaon ranged from 51dB(A) to 74 dB(A) this year.
- 22. Pimpri Chinchwad The noise level was less at all locations in of Pimpri Chinchwad also on all 5 days as compared to last year. The noise level in Pimpri Chinchwad ranged from 46.5 dB(A) to 78.5 dB(A) this year. The noise level in Pimpri Chinchwad also was due to traffic at commercial zone.
- 23. Parbhani The noise level was less at all locations in of Parbhani also on all 5 days as compared to last year. The noise level in Parbhani ranged from 51dB(A) to 72 dB(A) this year.
- 24. Latur The noise level was less at all locations in of Latur also on all 5 days as compared to last year. The noise level in Latur ranged from 55 dB(A) to 71 dB(A) this year.
- 25. Akola The noise level in Akola ranged from 53.4 db(A) to 81.8 dB(A) this year. The highest noise level observed at City Kotawali Chowk all five days of noise monitoring and the increase in noise level was due to traffic.
- 26. Solapur The noise level was less in all locations of Solapur on all 5 days as compared to last year. The noise level in Solapur ranged from 42.6 dB(A) to 77.1 db(A) this year. The highest noise level was observed at Ashok Chowk on 22nd August with 71.4 dB (A) and increase in noise level was due to traffic.
- 27. Panvel The noise level in Panvel ranged from 54.1 dB(A) to 77.7 dB(A) this year. The highest noise level out of three locations was observed at Khanda Colony with and the increase in noise was due to the heavy rain and traffic.

7.3 Impact Evaluation of COVID 19 Pandemic on Environmental Attributes.

Came 1st June & the so-called period of Unlock Phase I, ending the last day of the 4th phase of lockdown implemented in the country to prevent the spread of Coronavirus infection. The 4th lockdown was imposed from 18th May to 31st May. Earlier, lockdowns were announced from 25th March to 14th April, 15th April to 3rd May and from 4th May to 17th May. This COVID-19 or Coronavirus has cast a global gloom by causing severe damage to health, the economy and general societal disruption. The entire world is facing economic & health crisis due the existing health pandemic caused through uncontrolled widespread community transfer of this virus. Not known till recently to cause infections in human, this new infectious respiratory disease emerged in Wuhan, Hubei province, China & named as COVID-19 (Coronavirus Disease 2019) by World Health Organization. This new class of virus, known as SARS-CoV-2 (*severe acute respiratory syndrome* Coronavirus 2) has been found to be responsible for over 58,19,962 confirmed global infection cases of COVID-19, including 3,62,786 deaths, as reported by WHO as of 30th May 2020.



As lockdowns were implemented in response to the deadly Coronavirus pandemic, the dramatic changes expected to be brought about by these restrictions have been described as the 'largest scale experiment ever' into air quality. In India too, after many years, the blue sky can be spotted in normally hazy regions, as corroborated by satellite images, pollution data, and social media posts. This also magnetizes discussions regarding lockdown to be the effectual alternative measures to be implemented for controlling mainly air pollution but not limited to it since overall limited use of resource & equivalent restrictions in people's activity is expected to have positive impact on environmental attributes.

Overall, the significance & impacts of lockdown are still not well understood and likely to have significant role on restoration of environmental quality, Nevertheless it also provides a unique opportunity to work in this direction to understand the upshot of lockdown measures on various parameters of environmental quality particularly when there is a need to implement such alternative control actions. The present study is an effort in this direction to assess the usefulness of the lockdown as a strategic investigation for understanding changes in environmental quality in the State & the probable apportionment of sources. The study is thought to be a useful supplement to the regulatory bodies since it may show pollution source contributions towards specific environmental attribute especially for quantitative aspects like air emissions load, organic loads in surface water, bio-medical waste due to health pandemic as well as impacts of migration on MSW & so on.

The idea is to understand the environmental clean-up (as anticipated through the improved environmental scenario) that is supposedly shaped due to the ongoing event of COVID-19 & further to evaluate & account for prevailing environmental improved conditions to various barriers / restrictions on activities / source imposed due to lockdown.

Thereby, aligning the objectives of the present study as follows;

- (i) Compare various aspects of environmental pollution in Maharashtra through various timelines of Pre & Phases of Lockdown
- (ii) Map activities that can provide causal effect evaluation for changes in environmental attributes
- (iii) Quantify & correlate environmental quality throughout the State in tandem with the lockdown regulations & restricted activities
- (iv) Unveil the Sustenance Options for creating alternative equivalence for various activities, if at all possible, through source–impact matrix in order to provide strategic options for exponential activity expected to be speeded up post COVID-19

Focusing on the objectives, the study is thought to be a credible addition to the scientific community and policy makers not only to assess the impacts of lockdown on quality of air, water etc., but also its efficiency as corrective alternative action plan as practiced in several countries including India for improving overall environmental quality & limiting public exposure to extreme environmental conditions.

7.3.1 Conclusion of Impact of COVID 19 Pandemic on Environmental Attributes

Conclusively enough it can be stated that the slowdown / restrictions of activities has had direct positive impact on almost all the essential environmental attributes to a great extent except for the biomedical waste parameter, COVID-19 being recognized as health



pandemic. This subjective perception of people witnessing clean air, water & land is objectified through this report not only as a research orientation but also to provide insights into possible & probable apportionment of causal effect of all such activities that are known to impact a particular environmental attribute.

The activity in industries surely has taken the hit that is directly reflected with the reduction in fuel consumption (computed from already granted Consent database of these industries @ MPCB) from 9.5 Lakh TPD by about 80% in L-I up to 53.8% by L-IV that in turn reflects an average reduction to extent of 83% in PM₁₀ & 90% gases (SO₂, NOx & CO) during L-I further proving to be effectively 64% & 73% for PM₁₀ & gases respectively by end of L-IV.Another important & major point source emission are the Thermal Power Plants in Maharashtra generating 21.176MWh electricity using coal @ 3.55Lakh TPD during normalcy times Pre-COVID-19. The emissions in range of 1000TPD of PM₁₀ whereas 1100TPD of SO₂ & 600TPD of NOx in usual times are reduced by 27, 24, 14.7 & 10.7% during phase of L-I to L-IV equivalent to the reduction in coal use to the same extent in these phases. Line source however shows absolutely remarkable impact with almost the entire transportation sector bought to a standstill except for the essential vehicles movement. It is breath taking to know that 472cr km/day is travelled by the vehicles during business as usual (Pre-COVID-19 times) on the road network of about 3 Lakh km that the State maintains. However, this enormous road activity not only has direct tail pipe emissions of about 667TPD but also lead to re suspension of dust (accounted as Resuspended PM₁₀) that accounts to 4972TPD i.e. about 8 times higher than the tail pipe emissions especially due to accounting of the unpaved road dust in rural areas & the equivalent vehicle movement there. Subsequent imposition of limitations on travel & transport resulted in marked emissions reductions to the tune of 5%, 22%, 24% & 23% during the L-I to L-IV phases.

Area sources too are one of the factors accountable for the overall ambient air quality thereby the load from various hotels, bakeries, street vendors & construction activities are computed for even though they are extremely scattered emitters. Out of the 7,119TPD of PM_{10} emitted along with 5,800TPD of gases from this sector during the business as usual going, reductions to the tune of almost 98% was observed during the L-I & with time the very limited activities gained momentum still with 86% reductions in PM_{10} & about 45% in gases by the end of L-IV. Agriculture land preparation has been one of the highest contributors to PM_{10} amongst the area sources whereas CO accounts for the maximum share amongst gases load mostly due to high emission factor related to uncontrolled / incomplete combustion of low quality / adulterated and mixture of fuels.Thereby, computing load of pollutants for entire Maharashtra, it seems there the 1st phase of lockdown L-I witnesses about 86% subsequently with activities & life coping up with the COVID-19 event, L-II showing 73%, L-III with 64 & finally L-IV with 58% reductions in overall emissions load.

On the other hand, Water being the prime source of life & activities also shows marked variations not only in its consumption but also waste generation potential across the lockdown phases. The rivers & saline basins including nallahs that are connected to some of them of monitored at 250 locations under NWMP & SWMP of MPCB were compared at 125 locations FY April 2019 & 2020. The enhancement in quality is evident for all of the 6 river basins, showing changes in water quality that in terms of BOD are better at 84% of locations whereas for COD at 65% of the locations (viz. Tapi, Godavari, west flowing rivers & Nallah basins) whereas the other 2 River basins shows improvement at 30% locations. pH of water at all



locations was observed to be varying in the range of 7-9 for both April'2019 & April'2020 period & DO is proportionally increased wherever the organic contents are observed to be lowered. The observed improvement in water quality can be very well correlated with the limited activity wherein 1656 tons of BOD load was avoided in the phases of lockdown, of which avoidance amounted to 75% in rivers, 15% in seas & 10% on land (with variations over each of the phases). Such disposal pathways are accommodated using spatial distribution of industrial & domestic population in areas of river & coastal nearness. Avoidance of load was highest from industrial sector which is obvious whereas domestic sector though contributed very small % (up to 3.1% by end of L-IV) in absolute BOD load it amounted to about 1,165 tons of BOD translating into 25-75% concentration reduction of organic matter whereas 10-35% increase in DO concentration.

Similarly hazardous waste generation due to restricted industrial activity reduced pressures on handling of it by average 75% though it needs to be considered that this is a short-time impact. The only contrary negative impact on environmental attributes whereby the pandemic has massively created huge demand for revisiting system is of biomedical waste management. The increase number of COVID-19 patients reaching almost 70,000 by 31st May of 2020 the BMW generation (in worst case scenario of all patients being hospitalized) to the tune of computed 90.6TPD seems to have almost increased by 45% from the average 62.5TPD quantity (during Pre-COVID-19 times); thereby posing challenge to the managers, transporters as well as facility handlers.

Conclusively, Maharashtra State seems to have witnessed the environmental betterment to the tune of about 90-50% emissions load reduction of PM₁₀whereas 85-60% of gaseous load during L-I to L-IV phases of lockdown translating into approximately 60% concentration improvements averaged across all of the 22 monitored locations. River water quality has improved at more than 84% & 65% for BOD & COD in Tapi, Godavari, west flowing rivers & Nallah basins whereas the other 2 River basins shows improvement at 30% locations. With respect to concentrations of monitored parameters for water quality, ample with evidence from monitored data is available that the lockdown BOD & COD parameters enhanced by 25-75% concentration reduction of organic matter whereas 10-35% increase in DO concentration needless to mention the 50-75% reductions in Nitrates & Fecal Coliforms concentration as compared to the April 2019 data. Residential solid waste was the only major contributor towards challenges in SWM in the State whereas the total shutdown of commercial activities & restaurants as well as limited industrial activities augmented with migration though may have varied spatial distribution, have definitely reduced pressures on SWM systems ranging from 58% during L-I to 35% by end of L-IV. The only negative impact of COVID-19 as anticipated is found on the biomedical waste generation with an expected rate of doubling of wastes by end of L-IV. Nevertheless, many of the percolating impacts that may be associated further with environmental attributes such as changing patterns of consumerism, lifestyle, work culture, travel & transport it is equally important that this natures alarm of corrective attenuation be understood & anthropogenic sources be controlled effectively placing strategic environmental management systems well in advance to be able to sustain the so felt "correction".



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 deputes 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 2020-21, the Board had deputed 466 officers to attend training in technical, scientific and administrative courses organizing 24 training programs during the year. **Table 8.1 s**hows 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**.

Total Training Programs Conducted	Total Participants
24	466

Table 8.1Training Abstract for the year 2020-21.



9. FINANCE AND ACCOUNTS

Annual Accounts of Maharashtra Pollution Control Board for the Financial Year 2020-21 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.

Comptroller & Auditor General of India (CAG) have allotted the statutory audit work of Board to M/s. Kirtane & Pandit LLP, Chartered Accountant. The Audit of Final Accounts was done by M/s. Kirtane & Pandit LLP, Chartered Accountant for the Financial Year 2020-21.

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

The gist of annual Receipts and Payment Accounts, Income and Expenditure Accounts and Balance Sheet for the year 2020-21 is given in this chapter.

A) Total Income of Board for the year 2020-2	1 is Rs.490.69 Crores
1. Consent Fees	Rs. 356.52 Crores.
2. Analysis Charges	Rs. 2.54 Crores.
3. Interest on Investment	Rs. 124.98 Crores.
4. Other Income	Rs. 6.65 Crores.

B) Total Expenditure of Board for the year 2020-21 is Rs. 150.38 Crores.

Rs. 56.83 Crores.
Rs. 4.02 Crores.
Rs. 50.55 Crores.
Rs. 38.98 Crores.

- C) Excess of Income over expenditure for the year Rs. 340.31 Crores.
- D) Capital Expenditure Rs. 11.43 Crores.
- E) Investment in Fixed Deposits as on 31/03/21 Rs. 2628.19 Crores.

Details of accounts for the year 2020-21 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 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
- 6. Environment (Protection) Act, 1986 and Rules & Amended Rules made thereunder, which are as below:
 - (i) The Environment (Protection) Rules, 1986 and (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 amended)

As per these Acts and Rules the following prosecutions have been launched and convictions have been accordingly secured for the year 2020-21

10.1 Status of Legal Enforcement for the year April 2020- March 2021

I) Status of cases filed before Hon'bleTrial Courts

SN.	Name of the Act	No. of cases filed	No. of cases disposed off	No. of cases pending
1.	Water (P&CP) Act, 1974	3		3



2.	Air (P&CP) Act, 1981		
3.	Environment (Protection) Act, 1986 & Rules made thereunder	81	 81

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

SN.	No. of Writ	No. of Writ Petitions /PILS	No. of Writ Petitions
	Petitions/PILs filed	disposed off	pending
1.	58	13	45

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

SN.	No. of Special Leave	No. of Special Leave	No. of Special Leave
	Petitions/ PILs filed	Petitions /PILS disposed off	Petitions pending
1.	19		19

IV) Status of Appeals/Applications filed before the Hon'bleNational Green Tribunal, Principal Bench, New Delhi and Western Zone, Pune

SN.	No. of Appeals/ Applications filed	No. of Appeals/ Applications disposed off	No. of Appeals /Applications pending
1.	70	14	56

V) Status of Appeals/Applications filed before the Public Information Officer/Appellate Authority (P&L Divn.), MPCB, Mumbai under the Right to information Act , 2005 during the period from April,2019 to March, 2020

SN.	Particulars	No. of Appeals/ Applications filed	No. of Appeals /Applications disposed off	No. of Appeals /Applications pending
1.	Application	8	8	
2.	Appeals			



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 also organizes various environmental awareness programs across the State of Maharashtra. During the year 2020-2021 the following programs on environmental awareness were conducted by the Board.

1. 22nd April - World Earth Day

On the occasion of this day, the message of environmental awareness was published in the leading newspapers of the state. Considering the accompaniment of COVID19, in order to maintain the balance of changing environment and resources, the message of the Hon'ble Chief Minister regarding environmental awareness was published.

2. Newspaper on the occasion of World Environment Day on 5th June

On the occasion of World Environment Day, one page on environmental awareness was published in newspapers viz. Maharashtra Times, Loksatta, Sakal, Lokmat, Saamana, Indian Express, Times of India, Mid Day, DNA, Hindustan Times, Punyanagari, Pudhari, Navakal, Navbharat etc.

3. Various Awareness Activities to Celebrate Environmentally Friendly Ganesh Utsav

Awareness messages were published at bus stop shelters in Mumbai, Nagpur, Pune and at Mumbai Airport, Mumbai Metro and Best Buses in Mumbai to celebrate the environment friendly Ganesh Utsav.

4. Eco-friendly domestic Ganpati competition organized by MPC Board and Loksatta

MPC Board and Loksatta jointly organized the "Eco Friendly Domestic Ganeshotsav competition" at six divisional levels of Loksatta dailies namely Mumbai, Pune, Nashik, Nagpur, Ahmednagar and Aurangabad. In this competition more than three thousand competitors had participated.

5. Times Green Ganesha

An Eco Friendly Green Ganesha Competition was organized for the Public Ganeshotsav Mandal and Housing Societies in this Mumbai & Pune by MPC Board, Department of Environment, Government of Maharashtra and Times of India

6. ABP Mazha: My Environment Friendly Ganesh Utsav Competition

MPC Board and ABP Mazha; a news channel, organized a special public awareness campaign to celebrate eco-friendly Ganeshotsav in housing societies in major cities of the state. A special headline was broadcast on their behalf in the newsletter on the eco-friendly Ganeshotsav celebrated in the housing societies of Mumbai, Pune, Nashik and Nagpur. This time a special half hour talk show was organized on this TV channel. In this initiative, a special program was also presented on the housing societies celebrating environment friendly Ganeshotsav through newsletter through ABP Mazha channel. Also Marathi television popular artist Tejashree Pradhan and Ashutosh Patki promoted to celebrate the eco-friendly domestic Ganeshotsav in the entire state.





7. Ganesh Utsav Idol Competition organized by MPC Board and Loksatta

Ganesh Utsav idol competition was organized by LokSatta & the competition was attended by the MPC Board as a coconvenor. In this competition, a special prize was given to the best eco-friendly Ganesh Murti category.

8. Eco-friendly domestic Ganpati competition organized by MPCB and Zee 24 Hours

MPC Board and Zee 24 Hours Home Eco Friendly Ganeshotsav Competition 2019. This state level competition was organized. Or The competition was well received. Awareness was created through special promos to participate in this competition. On the occasion of this competition, news capsules were distributed during the festival on eminent persons celebrating eco-friendly domestic Ganesh Utsav.

9. Environment friendly Ganpati competition for school students and housing society organized by Sam Marathi and MPCB

Sam TV & MPC Board organised an environment Friendly Ganpati competition for the housing society and school children in the state. The competition was well received. Sam TV had appealed for participation in the competition through promos for the competition.

10. Environmentally Friendly Ganesh Utsav Competition for Housing Society organized by Jay Maharashtra and MPCB

An environmentally friendly Ganesh Utsav competition was organized for housing societies in the state jointly by Jay Maharashtra and MPC Board. Jai Maharashtra Vahini had made a wide appeal to participate in this competition.

11. Pollution Free Diwali Awareness Campaign

In order to celebrate pollution free Diwali, a massive public awareness campaign was organized by the MPC Board and the Environment Department. In this, digital sign boards and hoardings displaying public awareness messages for eco-friendly Diwali were published at bus stands in Mumbai, Nagpur and Pune, airports and metro railways.



12. IMPORTANT MATTERS DEALT WITH BY THE BOARD

Achievements of Water Pollution Control section;

- 1. Prepared inventory of tannery industry, dairy & gaushalas, food industry and paper industry.
- Revised Action Plans for rejuvenation of Priority III, IV & V polluted river stretches (total 38) submitted to CPCB and Hon'ble NGT.
- 3. Action Plan for utilization of treated sewage prepared and submitted to CPCB.
- 4. Under the National Water Monitoring Program (NWMP), river biodiversity monitoring of 156 places in 56 rivers of Maharashtra is done in two seasons and its report is expected to be completed by July 2021.
- 5. During the year 2020-21, under the project of Central Pollution Control Board, the National Water Monitoring Program collected samples of rivers, seas, creeks, and gullies of 200 places in Maharashtra every month and monitored their water quality. The results were calculated and published on the website of MPC Board. He also calculated the water quality index of rivers and published it on the website of MPC Board every month for awareness of public.
- 6. Groundwater samples of 50 places are collected twice a year and their results are published on the website of MPC Board for awareness of public.
- 7. Prepared the annual report of Maharashtra Water Quality 2019-20 and published it on the website of MPC Board for awareness of public.
- 8. Work order has been issued for preparation of Annual Report on Water Quality of Maharashtra 2020-2021 and this work is in progress.
- Common Effluent Treatment Plant (CETP) The Board was successful in bringing down non-compliant CETPs from 4 to 1. A new phase II 25 MLD CETP at Tarapur is opened and is expected to reduce the burden on non-compliant Phase I Tarapur CETP.
- 10. Polluted River Stretches;
 - a. Priority I Reduced from initial 9 stretches to 1
 - b. Priority II Reduced from initial 6 stretches to 0
 - c. Priority III Reduced from initial 14 stretches to 5
 - d. Total polluted stretches down from 53 to 51.

After reviewing the water quality data of the designated locations in the rivers of Maharashtra for the 2020-21, it is found that there is overall improvement in the water quality of the rivers in Maharashtra.

- 11. As an alternate technology for sewage treatment, 55 Faecal Sludge Treatment Plants have been operational in the entire state, out of that 15 FSTPs have been installed along polluted river stretches, with treatment capacity of 290 KLD.
- 12. Circular published to provide financial & technical assistance to A, B & C Municipal Councils, Nagar Panchayats and Gram Panchayats for setting up of facilities for management of sewage. Assistance will be provided up to 2.5 Cr as an interest free loan for the tenure of 10 Years. Assistance of Rs. 2.0 Lac also will be provided for preparation of DPR.
- 13. Online Sewage Management Portal launched to collect Local Body wise sewage related information and monitor the progress.



- 14. Benchmarking of sugar industries in Maharashtra to represent all variability and commonalities in process, technology, resource & Pollution potential- carried out through third party.
- 15. Benchmarking of Distillery & Jaggery industries in Maharashtra to represent all variability and commonalities in process, technology, resource & Pollution potential-Work Order issued.
- 16. The MPC Board monitors the water quality during the Ganeshotsav festival season every year. All the local bodies are instructed to follow the Ganesh Idol Immersion guidelines of published by Central Pollution Control Board during Ganeshotsav festival period. MPC Board has been carried out water quality monitoring before and after idol immersion during Ganeshotsav Festival and water quality monitoring reports are displayed on the MPC Board website for awareness of public.
- 17. Action plan for restoration of lakes/water bodies in Maharashtra state prepared and submitted to CPCB in compliance of Hon NGT order no <u>325/2015.</u>
- 18. Development of Standard bidding document for STP in order to facilitate Local Bodies for awarding STP related contracts.
- 19. State Environment Plan and District Environment Plans (36 districts) prepared and submitted to CPCB in compliance of Hon NGT Order OA 360/2018.

Achievements during the past year: Developments Post January 2020

MAJOR DEVELOPMENTS IN MPCB – Software related

Integrated Management Information System (IMIS) deployed by the Board consists of various modules pertaining to its functions. New modules are developed as per the requirement. The new modules developed are shown below.

1. e-signature and Blockchain: Presently consent documents are stored securely in Block Chain so that there can no change in the documents. However, the final processed document had to be signed manually by the issuing authority. In view of total Office automation and move towards Digital First, Board has implemented e-Signature in PFX format (no hardware key required). This does away with manual signature and the document gets authenticated digitally. This process is integrated with the IMIS application. Thus, the documents are digitally secured. This ensures security of consent documents and prevent tampering of the same

2. LIMS (June 2021)– Laboratory Inventory Management Module was developed and integrated with existing IMIS to ensure complete end to end flow for sample registration and processing. The modules consist of

1. Lab Assistant authority

- Physical sample inspection (look for damage, leakage etc)
- Barcode scanning
- Verify all sample details and parameters
- Accept samples with or without reason
- Report generation

2. Lab Analyst

- Based on the parameter assignment (work-distribution) analyse sample parameters
- Calculate and submit analysis (Single view and Grid view)



3. Approving Authority

- Sample acceptance
- Approving parameter analysis
- Generating analysis reports
- Re-test / Re-assign sample parameters

4. Reviewing Authority

- Review analysis reports
- Approving parameter analysis
- Generating analysis reports
- Re-test / Re-assign sample parameters

5. Lab admin

- Parameter distribution
- Manager users

6. LIMS Admin

- Lab management
- User management
- Parameter management

3. JVS Payments (July 2021)

This module is developed for collection of sampling and analysis charges from project proponent. This module is also integrated with IMIS and LIMS. In existing system Visit Scheduler has been developed, which allocates visits to Department Officers. At the time of visit, samples are collected which are analysed at laboratories. In view of the same, it is required to generate the Bill which would consist of sampling as well as analysis charges. Also, payment gateway from M/s Bill Desk, has been integrated to collect payment online.

4. Auto Consent Templates (2020-2021)

Consent certificates were issued manually. In order to issue consent certificates online without any manual intervention, consent templates have been designed based on industry type and category of application.

5. Authorization Committee (Sept 2021)

Agenda is prepared before the Board meeting. Under one agenda there are several cases. In order to prepare the Minutes of Meeting for each case, this module has been developed. It is developed for Hazardous and E-waste Application for Authorization Committee meeting.

IT Infrastructure enhancement

1. Software Defined Data Centre (SDDC)

The virtualization of the Servers through VMware software has now been extended to storage with the inclusion of new hardware. As VMware software is applied to compute Software Defined Storage (SDS) provides virtual storage by means of a Virtual data Plane – utilization of the disk space of other servers. By configuring virtual Storage Area Network (SAN), the storage capacity space on the server can be utilised efficiently. Thus, software defines the storage making a Software Defined Data Center (SDDC).



2. Security- WAF (Web Application Firewall)

Considering the much-required Security of data, Board has implemented the Web Application Firewall of SonicWall make, along with SIEM (Security Information and Event Management) software. With the application of WAF data traffic entering the internal network of the Board is thoroughly checked with he applied algorithms and hardening of entry ports for the incoming data traffic. Malicious codes and viruses are filtered before entering the internal applications, thus securing the internal network of the Board.

3. SD WAN

SD WAN refers to Software Defined WAN in which the Wide Area Network or the connectivity of Board's Statewide Offices is controlled through software implemented on independent devices. Appliances are installed at all office locations with a centrally administered Appliance at Head Office. All appliances are connected to independent Internet connections and these configured Appliances are controlled from the Head Office. The IMIS application running in Board's Data Centre at Mumbai can be accessed by all other Offices in the State. This has replaced Board's costly MPLS connections with high bandwidth Internet connections. Moreover, with any change in the location of the Office, no configuration or change in infrastructure/device needs to be done. Thus, SD WAN is economical and also offers ease of operation.

Two new SD Wan firewall devices from M/s Fortinet are installed in the Data Centre for redundancy and high availability.

3. Information Security Certification

To optimize Board's work processes and as a step towards best practices, Board has recently qualified itself with ISO 9001:2015 for Quality Management Systems for its Offices and ISO 27001 Information Security Management Systems for Board's Data Center.

Committed to best practices, Board has employed CERT empaneled Information Security Auditor to perform Information Security (IS) audit of its Desktops and Servers in the Data Centere as well as the applications it is using for its work processes.



ANNEXURES



ANNEXURE 1A – ORANIZATIONAL STRUCTURE OF THE BOARD











ANNEXURE 2 - STAFF STRENGTH AS ON 31/03/2021

Sr.	Posts	Salary Band	Grade	Sanctioned	Filled	Vacant
1	Chairman			1	1	0
2	Member Secretary	(PB-4) 37400-	10000	1	1	0
3	Joint Director (Water)	15600-39100	7600	1	1	0
4	Joint Director (Air)	15600-39100	7600	1	1	0
5	Principal Scientific	15600-39100	7600	1	1	0
6	Chief Accounts Officer	15600-39100	7600	1	1	0
7	Assistant Secretary	15600-39100	7600	1	1	0
8	Senior Law Officer	15600-39100	7600	2	0	2
9	Senior Administrative	15600-39100	6600	1	0	1
10	Executive Engineer	15600-39100	6600	1	1	0
11	Material Officer	15600-39100	6600	1	0	1
12	Regional Officer	15600-39100	6600	15	6	9
13	Law Officer	15600-39100	6600	2	2	0
14	Senior Scientific Officer	15600-39100	6600	3	1	2
15	Sub-Regional Officer	15600-39100	5400	55	53	2
16	Statistical Officer	15600-39100	5000	1	1	0
17	Assistant Secretary (EB)	15600-39100	5000	1	1	0
18	Private Secretary	9300-34800	5000	2	0	2
19	Administrative Officer	15600-39100	5000	1	0	1
20	Scientific Officer	15600-39100	5000	9	4	5
21	Account Officer	15600-39100	5000	2	2	0
22	Junior Scientific Officer	9300-34800	4400	26	20	6
23	Assistant Accounts	9300-34800	4400	11	2	9
24	Assistant Law Officer	9300-34800	4400	3	1	2
25	Deputy Engineer	9300-34800	4400	1	0	1
26	Senior Steno	9300-34800	4400	5	5	0
27	Junior Steno	9300-34800	4300	27	10	17
28	Field Officer	9300-34800	4300	204	161	43
29	Head Accountant	9300-34800	4300	20	12	8
30	Legal Assistant	9300-34800	4300	4	0	4
31	Junior Scientific	9300-34800	4200	40	27	13
32	First Clerk	9300-34800	4200	17	14	3
33	Statistical Assistant	9300-34800	4200	1	0	1
34	Draftsman	5200-20200	2800	1	0	1
35	Field Inspector	5200-20200	2800	42	3	39
36	Senior Clerk	5200-20200	2400	50	36	14
37	Assistant Draftsman	5200-20200	2400	2	0	2
38	Electrician	5200-20200	2400	2	1	1
39	Tracer	5200-20200	2000	6	1	5
40	Laboratory Assistant	5200-20200	2000	7	3	4
41	Junior Clerk	5200-20200	1900	64	54	10
42	Driver	5200-20200	1900	74	49	25
43	Instrument Fitter	5200-20200	1900	1	1	0
44	Daftari	5200-20200	1900	14	1	13
45	Naik	4440-7440	1600	2	0	2



46	Roneo Operator	4440-7440	1600	1	0	1
47	Peons	4440-7440	1300	88	32	56
48	Chowkidar	4440-7440	1300	20	9	11
49	Sweepers	4440-7440	1300	3	3	0
		Total		839	523	316

CONVERTED TEMPORARY ESTABLISHMENT AS ON 31/03/2021

SN.	Posts	Salary Band	Grade salary	Filled In
1.	Junior Scientific Assistant	9400-34800	4200	11
2.	Laboratory Assistant	5200-20200	2000	5
3.	Junior Clerk	5200-20200	1900	4
4.	Driver	4200-20200	1900	1
5.	Peon	4440-7440	1300	3
	24			



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	Maharashtra Pollution Control Board Kalpataru Point, 3 rd and 4 th floor, Opp. PVR 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
		Regional Offices, Sub-Region	al Offices and Regional Laboratories of the Board	
3	Regional Office Mumbai	Maharashtra Pollution Control Board, Kalpataru Point, 1 st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022	Mumbai Municipal Corporation Area	Tel – 022-24020781
I)	SRO Mumbai - I	Kalpataru Point, 1 st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022	Mumbai Island, Ward No. A.B.C. D.F F(South) F(North) G(South) and G(North)	Tel – 022-24020781
11)	SRO Mumbai - II	Kalpataru Point, 1 st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022	Part Of Mumbai Suburb, Ward No. M(East) M(West), H(East) H(West) and L.	Tel – 022-24020781
III)	SRO Mumbai - III	Kalpataru Point, 1 st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022	Part Of Mumbai Suburb, Ward No. (East) K(West), S, N, and P (South).	Tel – 022-24020781
IV)	SRO Mumbai - IV	Kalpataru Point, 1 st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022	Suburb of Mumbai, Ward No. P(North), R(North), R(South) and T.	Tel – 022-24020781
4	Regional Office Thane	Maharashtra Pollution Control Board, Plot No P-30, 5 th 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	Thane Municipal Corporation Area	Tel – 022 25829582



		P-30, 5 th floor Office Complex Building, Near		
		Mulund Checknaka, Thane		
11)	SRO Thane - II	Maharashtra Pollution Control Board, Plot No P-30, 5 th floor Office Complex Building, Near Mulund Checknaka, Thane	Thane taluka excluding Thane Municipal Corporation Area) Vasai taluka	Tel –022 25829582
111)	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 Vikramgadh Taluka and Palghar taluka (Except SRO - Tarapur I jurisdiction).	Tel - 02525 -261581
5	Regional Office Navi Mumbai	Maharashtra Pollution Control Board, Raigad Bhavan, 7 th floor, Sector - 11, C.B.D Belapur, Navi Mumbai	Part of Thane and Raigad district as mentioned against the Sub- Regional Offices	Tel – 022-27572739
I)	SRO Navi Mumbai - I	Raigad Bhavan, 7 th 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
11)	SRO Navi Mumbai - II	Raigad Bhavan, 7 th 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
111)	SRO Taloja	Raigad Bhavan, 7 th floor, Sector - 11, C.B.D Belapur, Navi Mumbai	MIDC Taloja and Uran Taluka.	Tel – 022-27572740
6	Regional Office Raigad	Maharashtra Pollution Control Board, Raigad Bhavan, 6 th floor, Sector – 11, C.B.D Belapur, Navi Mumbai	Part of Raigad district as mentioned against the Sub-Regional Offices under him.	Tel – 022-27572620
I)	SRO Raigad - I	Raigad Bhavan, 6 th floor, Sector – 11, C.B.D Belapur, Navi Mumbai	Khalapur taluka and Panvel taluka (Except MIDC)	Tel -022-27572739
11)	SRO Raigad - II	Raigad Bhavan, 6 th floor, Sector – 11, C.B.D Belapur, Navi Mumbai	Pen, Karjat, Sudhagad taluka.	Tel – 022-27572739
111)	SRO Mahad	Samaik Suvidha Kendra Bldg., MIDC - Mahad, District Raigad - 402 309	Mahad, Mhasla, Mangaon, Mrwardhan and Poladpur taluka.	Tel – 02145-232372
7	Regional Office	Maharashtra Pollution Control Board,	Kalyan, Bhiwandi, Ulhasnagar, Badlapur, Wada, Murbad and	Tel – 0251-2027343/0251-



	Kalyan	Sidhivinayak Sankul,3rd and 4th Floor, Station	Shahapur talukas of Thane district.	2310212		
		Road, Kalyan (West) - 421301				
		Maharashtra Pollution Control Board,		Tel - 0251 - 2310167		
I)	SRO Kalyan - I	Sidhivinayak Sankul,3rd and 4th Floor, Station	Kalyan taluka.			
		Road,Kalyan (West) - 421301				
		Maharashtra Pollution Control Board,				
II)	SRO Kalyan - II	Sidhivinayak Sankul,3rd and 4th Floor, Station	Ulhasnagar, Badlapur taluka.	Tel - 0251 - 2310167		
		Road,Kalyan (West) - 421301				
		Maharashtra Pollution Control Board,				
III)	SRO Kalyan - III	Sidhivinayak Sankul,3rd and 4th Floor, Station	Wada, Murbad, Shahapur Taluka	Tel - 0251 - 2310167		
		Road,Kalyan (West) - 421301				
		Maharashtra Pollution Control Board,				
IV)	SRO Bhiwandi	Sidhivinayak Sankul, 3rd and 4th Floor, Station	Bhiwandi taluka.	Tel – 0251 - 2310167		
		Road, Kalyan (West) - 421301				
8	Regional Office	Jog Center, 3 rd floor, Mumbai Pune Road,	Pune, Satara and Solanur district	Tel - 020-25811627		
0	Pune	Wakadewadi, Pune - 411 003.		101 020-23011027		
	Pune Lah	Jog Center, 3rd floor, Mumbai Pune Road,		Tel - 020-25811694		
		Wakdewadi, Pune - 411003.		161-020-23811094		
n	SBO Pune - I	Jog Center, 3 rd floor, Mumbai Pune Road,	Pune corporation area, Daund, Indapur, Baramati, Purandar,	Tel - 020 -25811694		
''	Site Func	Wakadewadi, Pune - 411 003.	Bhor and Velhe taluka of Pune district.	161-020-23011034		
	SRO Pune - II	log Center 3 rd floor Mumbai Pune Road	Haveli taluka: (excluding Pimpri Chinchwad Corporation Area)	Tel – 020-25816451		
II)		Wakadewadi Pune - 111 003	Khed, Mulshi, Ambegaon, Junnar, Maval and Shirur taluka of			
			Pune district.			
iii)	SRO Pimpri -	Jog Center, 3 rd floor, Mumbai Pune Road,	Pimpri Chinchwad Municipal Corporation area including MIDC	Tel - 020-25810222		
,	Chinchwad	Wakadewadi, Pune - 411 003.	Pimpri, Bhosari and Akurdi.			
IV)		Sub-Regional Office, Satara New Government		Tel - 02162- 233527/237789		
	SRO Satara	Bhavan, 2nd Floor, Near S.T. Sand, Sadar Bazar,	Satara district.			
		Satara - 415 001				
V	SBO Solanur	4/B, Bali Block, Civil Lines, Opp. Government	Solanur district	Tel - 0217– 2319850		
•,		Milk Scheme, Saat Rasta, Dist. Solapur - 413003				
9	Regional Office	Udyog Bhavan, First floor, Trimbak Road, Near	Nashik, Ahmednagar, Jalgaon, Dhule, Nandurbar district.	Tel - 0253-2365150		



	Nashik	ITI, Satpur, Nashik - 422 007		
	Nashik Lab	Udyog Bhavan, First Floor, Trimbak Road, Near ITI, Satpur, Nashik - 422007		Tel - 0253-2365161
I)	SRO Nashik	Udyog Bhavan, first floor, Trimbak Road, Near ITI, Satpur, Nashik - 422 007	Nashik distrct.	Tel - 0253-2365161
II)	SRO Jalgaon	Old Mr Bhikamchand Jain Municipal Market Building, Hall No. A, 3rd floor, Jalgaon - 425 001	Jalgaon district.	Tel - 0257-2221288
III)	SRO Dhule	2 nd 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	Regional Office Aurangabad	Paryavaran Bhavan, A - 4/1, MIDC Area, Chikalthana, Near Seth Nandlal Dhoot Hospital, Jalna Road, Aurangabad - 431 210	Aurangabad, Jalna, Parbhani, Hingoli, Nanded, Beed, Latur, Osmanabad district of Marathawada	Tel - 0240-2473462
	Aurangabad Lab	Paryavaran Bhavan, A - 4/1 , MIDC Area , Chikalthana,Near Seth Nandlal Dhoot Hospital , Jalna Road , Aurangabad - 431 210		Tel - 0240-2473463
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
11)	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 District	Tel - 02462-242492



		Nanded- 431601		
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	Regional Office Nagpur	Maharashtra Pollution Control Board, Udyog Bhavan, 6th floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001	Nagpur, Wardha, Bhandara, Gondia, Chandrapur, and Gadchiroli district.	Tel - 0712-2565308
	Nagpur Lab	Udyog Bhavan , 5 th floor , Near Sales Tax Office, Civil Line , Nagpur - 440 001	Tel - 0712-2560152	
I)	SRO Nagpur - I	Udyog Bhavan, 5 th 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 th 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
111)	SRO Bhandara	Sub-Regional Office, Bhandara, Tatya Tope ward near city petrol pump, Miskin Mahal Road, Bhandara-441 904	Bhandara and Gondia District.	Tel - 07184-260629
12	Regional Office Amaravati	"Sahakar Surbhi" Bapatwadi near Vevekanand Colony, Amaravati - 444606	Amaravati, Akola, Buldhana, Vashim and Yavatmal District.	Tel - 0721- 2563592/93/94/97
I)	SRO Amaravati – I	Sahakar Surbhi Bapatwadi near Vevekanand Colony, Amaravati - 444606	Amaravati District.	Tel - 0721- 2563592/93/94/97
11)	SRO Amaravati – II	Sahakar Surbhi Bapatwadi near Vevekanand Colony, Amaravati - 444606	Yavatmal district, Vashim District.	Tel - 0721- 2563592/93/94/97
111)	SRO Akola	ALSI Plot, in front of Hutatma Statue, Nehru Park Square, Akola - 444001	Akola and Buldhana District.	Tel - 0724-2402344
13	Regional Office Kolhapur	Maharashtra Pollution Control Board, Udyog Bhavan Building, Near Collector Office, Kolhapur - 416 002	Sangli, Kolhapur and Sindhudurg district	Tel - 0231-2652952
	Chiplun Lab	Parkar Complex, 1st floor, Behind Nagar Parishad Office, Chiplun Taluka. Chiplun Dist. Ratnagiri - 415 605		Tel - 02355 -261570



N	SBO Kolbanur	Udyog Bhavan Building, Near Collectorate	Kolhapur district.	Tel - 0231 -2652952	
"		Office, Kolhapur - 416 002		101-0251-2052552	
	SPO Sangli	300/2, Udyog Bhavan, Near Government Rest	Sangli district.	Tol. 0222 2672022	
"'	SILO Saligli	House, Vishrambaug, Sangli - 416 416		161-0255-2072052	
		Central Administrative Building No. 2,	Sindhudurga district and Rajapur, Lanja, Ratnagiri, Deorukh and		
III)	SRO Ratnagiri	2nd Floor, Collectors Office Compound,	Sangmeshwar taluka	Tel - 02352-220813	
		Ratnagiri – 415 612			
		Parkar Complex, 1 st floor, Behind Nagpur	Chiplun, Guhagar, Khed, Dapoli and Mandangad taluka of		
IV)	SRO Chiplun	Parishad Office, Chiplun Taluka, Chiplun Dist.	Ratnagiri district.	Tel - 02355-261570	
		Ratnagiri			
14	Regional Office	Udyog Bhavan, 1 st Floor, Opp. Buss Stand,	Chandranur, Vavatmal, Gadchiroli district	Tel_07172_251965	
14	Chandrapur	Railway Station Road, Chandrapur - 442401		161-0/1/2-231505	
		Regional Laboratory, MPCB, Block No 13 & 14			
	Chandrapur Lab	New Administrative Building. Mul Road,		Tel – (07172) 272416	
		Chandrapur- 442 401			
N	SRO Chandrapur	Udyog Bhavan, 1st Floor, Opp. Buss Stand,	Chandrapur, Yavatmal district.	Tel - 07172-251065	
"	-1	Railway Station Road, Chandrapur - 442401			



ANNEXURE 4 – INDUSTRY STATISTICS FOR THE YEAR 2020-21

Desien	(Green		Green	Orange		Orange	Red			Red	White	White	Grand	
Region	LSI	MSI	SSI	Total	LSI	MSI	SSI	Total	LSI	MSI	SSI	Total	SSI	Total	Total
RO Amravati	222	10	4650	4882	104	21	2106	2231	97	44	350	491	355	355	7959
RO Aurangabad	285	45	5897	6227	169	111	2475	2755	395	142	988	1525	117	117	10624
RO Chandrapur	44	4	584	632	47	8	523	578	228	9	295	532	90	90	1832
RO Kalyan	155	34	1660	1849	137	79	1109	1325	271	150	2042	2463	278	278	5915
RO Kolhapur	358	47	9865	10270	164	91	4310	4565	424	122	1885	2431	820	820	18086
RO Mumbai	60	43	2149	2252	647	281	773	1701	494	96	699	1289	35	35	5277
RO Nagpur	134	24	2130	2288	164	63	2539	2766	529	60	1379	1968	140	140	7162
RO Nashik	344	62	6933	7339	216	95	2918	3229	596	148	2343	3087	856	856	14511
RO Navi Mumbai	180	70	1655	1905	190	200	1057	1447	262	48	1228	1538	286	286	5176
RO Pune	530	336	7677	8543	1606	712	5279	7597	1622	401	4041	6064	852	852	23056
RO Raigad	67	28	533	628	147	47	484	678	301	61	503	865	31	31	2202
RO Thane	101	25	1491	1617	359	65	621	1045	293	57	1141	1491	61	61	4214
Grand Total	2480	728	45224	48432	3950	1773	24194	29917	5512	1338	16894	23744	3921	3921	106014

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 2020-2021.

Sr.	Training/Workshop	Training	Subject	No of	Name of Participants
No.	Dates and Period	Venue		Participants	
1	31/08/2020 to 14/09/2020	Online	ISO 9001:2015 Certification	356	Online training
		Training			
2	02/11/2020 to 06/11/2020	Online	ISO internal Auditors Training	12	Online training
		Training			
3	10/11/2020 to 29/11/2020	Online	Online Training course on	2	1)Shri. Nikhil More
		Training	Multisector Strategies for Clean air		2)Shri.Sameer Hundlekar
			action in cities of India		
4	19/01/2021 to 21/01/2021	Online	Air pollution Control Devices &	2	1)Shri.Rakesh Dafade
		Training	OCEMS for various Sector.		2)Shri.Pranav Pakhle
5	08/02/2021 to 12/02/2021	Online	Environmental Data Interpretation,	2	1)Shri. Ashok Kare
		Training	compilation, analysis, presentation		2)Dr. Seema Dalavi.
			and reporting hands on training		
6	27/01/2021 to 29/01/2021	Online	Detailed insight into Management of	2	1)Shri.Upendra Kulkarni
		Training	Various wastes Like hazardous		2)Mrs.Madhurima Joshi
			waste, E waste, C & D Waste		
			Municipal Solid Waste and		
	00/04/0004 / 00/04/0004		Biomedical Waste.	-	
1	28/01/2021 to 30/01/2021	Online	Hazardous waste and plastic waste	2	1)Dr.H D Gandhe 2)Dr. Sagar
	05/00/04 + 00/00/0004	Training	inventory	-	
8	05/02/21 to 06/02/2021	Online	Operating mechanism and	2	1)Shri.Kiran Hasbnis
		Iraining	performance evaluation of CBVVTF.		2)Shri.Amoi Satpute
9	09/02/2021 to 11/02/2021	Online	Aspects of hazardous waste ISDF	2	1)Shri.Rahul Mote
		Iraining	from initiation till commissioning and		2)Shri.Anand Katole
			issue pertaining to compliance		
10	00/00/0004 to 11/00/0004	Online	monitoring.	<u> </u>	A) Quest Manakumani a Usarki
10	09/02/2021 to 11/02/2021	Unline	Performance evaluation of	2	1)Smt.iviadurmia Joshi
44	00/00/0004 to 40/00/0004	i raining	EIP/SIP/GEIP.		2)Smil.Priyashree Deshmukh
11	08/02/2021 to 12/02/2021	Unline	Environmental Legislation	2	1)smt.Netra Chaphekar
		i raining	Interpretation, Enforcement Legal		2)Smt.iveelam Kubal
			and statutory requirement.		



12	02/02/2021 to 04/02/2021	Online Training	Analysis of pesticide & other organic chemicals in Environmental Samples	2	1)Smt.Ranjana Rane 2)Shri. Sangam Taide
13	17/02/2021 to 19/02/2021	Online Training	Environmental Sustainability of sugarcane, ethanol industries.	2	1)Dr.Y B Sontakke 2)Shri.Prashant Gaikwad
14	17/02/2021 to 19/02/2021	Online Training	Occupation health and saftery management system	2	1)Shri.sunil Salunkhe 2)Shri.Heena Khalokar
15	17/02/2021 to 19/02/2021	Online Training	Environmental monitoring sample collection of effluent, AAQM stack and testing of various Environmental Parameters like Air, Water and noise in the laboratory.	2	1)Shri.Jaydeep Kumbhar 2)Smt.Jyoti Sutar
16	13/02/2021 to 26/02/2021	Online Training	Strategies to reduce emission from transport.	3	1)Dr. V M Moteghare 2)Shir. Vikrant Bhalerao 3)Shri.Nikhil More
17	08/02/2021 to 11/02/2021	Online Training	ISO/IEC17025/2017 Laboratory QMS IA & UM as per NABL accrediation.	25	List Attached
18	23/02/2021 to 24/02/2021	Online Training	Water Expo International Conference	9	1)Shri.R A Rajput 2)Shri. S L Waghmare 3)Shri.Kishor Kerlikar 4)Shri.Promod Mane 5)Shri.Tanaji Yadav 6)Shri.V V Killedar 7)Shri.B M Kukde 8)Shri.S R Bhosle 8)Shri.D R Bansod
19	22/02/2021 to 25/02/2021	Online Training	ISO/IEC17025/2017 Laboratory QMS IA & UM as per NABL accrediation.	25	List Attached
20	09/02/2021 to 11/02/2021	Online Training	Sustainable construction and demolition waste Management.	2	1)Shri.Promod mane 2)Shri.Sujit Dholam
21	15/03/2021 to 17/03/2021	Online Training	Sophisticated instruments for analysis of toxic heavy metals in Environmental GC operation	2	1)Dr.Dayanand Tare 2)Shri.Anil Patil



22	24/03/2021 to 25/03/2021	Online Training	Urban air quality Management	2	1)Shri.amar Durgule 2)Shri.V V Killedar
23	10/02/2021 to 12/02/2021	Online Training	Monitoring of Implementation status of extended producer resposiblity under E Waste and plastic waste management	2	1)Smt.Rutuja Bhosle 2)Smt. Kalyani Kulkarni
24	17/03/2021 to 19/03/2021 Total Number	Online Training of Program	Control of Air pollution source apportionment studies and preparation of emission Inventory. nmes -24 Total N	2 Iumber of Part	1)Shri.Devanand Jadhav 2)Shri.RaviRaj Patil icipants -466



ANNEXURE 6 - FINANCE AND ACCOUNTS FOR THE YEAR 2020-21

1101000100	ir 2019-20		Schodu	Current Y	ear 2020-21	Previous Yes	ar 2019-20			C	0000.01
Major Head	Sub Head	Receipt	le No.	Amount	Amount	Major Head	Sub Head	Payment	Schedu	Current 1	sar 2020-21
29,19,42,547.69		OPENING BALANCE	-		1.77.36.56.647.42			D CADITAL PURCHISHING	le No.	Amount	Amount
	29,18,13,615.24	i) Cash at Bank		1.77.27.59.909.47		31 30 76 080 00		IL CAPITAL EXPENDITURE			4-000 x 1000 00 x 10-4 100
	1,28,932.45	ii) Cash in Hand		2 59 507 05		31,30,76,089.00		Pixed Assets Purchased	1		11,43,02,306.
		iii) DD in Hand		6 37 230 00							
			1	0,01,200,00		42.03.00.364.00		III REVENUE EXPENDITURE			
.0.00		1) GRANT RECEIVED			0.00	43,02,29,304.00	10.05 33 440.00	1) SALARY & ALLOWANCES			53,63,89,975.
	0.00	a) From State Government		0.00	0.00		40,05,73,662.00	i) Core Activity Segment		50,22,06,249.00	
	0.00	b) From Government of Irdia		0.00			1,89,49,418.00	ii Cess Activity Segment		2,03,22,106.00	
				0.00			1,07,06,284.00	iii) Cess Activity Temp Estb		1,38,61,620.00	
2,75,26,805.00		2) FINANCIAL ASSIATANCE			2.82.31.963.00	2 38 05 818 00		OLCOPE BOARD CONTRIDUCTION			24242332
	0.00	a) From Other State Governement		0.00		2,00,00,010.00	2 21 05 764 00	B Core Activity Segment		0.07.00.000.00	3,18,93,839.0
	2,75,26,805.00	b) From Government of India / CPC	в	2.82,31,963.00			17.01.054.00	iii Cess Activity Segment		2,97,29,982.00	
0.00					and the stream of the	5,23,20,992.00	100 March 100	3) GRATUITY FROM CESS FUND		21,03,637.00	2 13 08 720 (
0.00		3) Funds from UNIDO			78,34,881.00						8,10,20,720,7
62.89 64 422 71		AL DEVENUE DECEMENT			wearen waard	28,42,43,175.40		4) OFFICE EXPENDITURE	A		22,74,38,032.0
in the second se	2 55 60 70 000 00	H REVENUE RECEIPT			3,59,05,86,620.12	98,16,783.00		5) RUNNING EXPENDITURE OF LAB.	в		1,13,42,658.0
	7 06 95 160 90	a) Consent Fees		3,56,52,11,567.12		1,48,61,512.00		6) EXPENDITURE FOR VEHICLES	c		1,40,70,273,4
	7,20,85,169,72	0) Analysis Charges		2,53,75,053.00		3,89,86,242.00		7) MAINTAINANCE & REPAIRS			5,03,09,414.0
5 52 02 602 78			- 2 -								10000000000
0,02,02,093.18		51 OTHER RECEIPT	н		3,82,39,031.00	4,56,76,901.00		8) EXPENDITURE FROM CESS FUND	D		4.01.93.966.0
20.02.00.220.22		A CONTRACTOR OF				37,63,55,647.00		9] PROJECTS EXP. From Cess Fund	E		50.55.01.232.1
,49,03,99,230.72		6) INTEREST ON INVESTMENT	11		1,24,98,12,711.00		5 (i		~		001001011202.1
						14,64,87,68,480.00		10) INVESTMENT (New)			18 17 04 12 117 /
1,11,42,648.00		7) MISCELLENEOUS ADVANCES			64,20,353.00	1,87,14,454.00		11) MISCELLENEOUS ADVANCES			05 70 706 0
12/10/2010 11:00						22016-00-0012-000					90,10,190.0
12,10,000.00		8) SECURITY DEPOSIT WITH OTHER	RS		0.00	23,83,858,50		13) SUNDRY PAYABLES			1.60.00.660.5
					0.000	0.00		14) CREDITOR			1,02,30,008.5
40,90,48,046.28		9) INVESTMENT (MATURED)			13,96,55,69,187,00	22.5		1.			2,813.0
						92.32.792.00		15) Fund for VOC Monitoring			
65,15,845.50		10) SUNDRY PAYABLES			3,26,19,655.50	18.00.01.351.31		161 Funds for NCAP Payment			14 55 00 000 0
0.1.057 0.0	1							rog a maile for record requirem			14,65,00,000.0
84,957.00	-	11 CREDITORS			10,50,022.00	3,65,19,348.00		17] Amount Paid for Plastic Awareness			0.0
								on Behalf of State Government			0.0
0.00		12] Amount Received for Plastic			1 8650	100000000000000000000000000000000000000		2014 B	- 1		
		Sovernment			0.00	5,00,000.00		18) Environmental Compensation Fund	- I		0.0
						84.00.000.00					
39,85,00,000.00		3) Funds for NCAP Received			11 40 00 000 00	16 820 00		19)Fund from Health Impact			0.0
36,71,740.00		14) Environmental Compensation Fu	ind		1 07 05 507 00	1 22 26 14 642 42		20) GIS Claim Paid to Admane			0.0
48,27,849.95		SI Fund from Cess Accounts			1,67,20,007.00	1,77,30,50,047.42		CLOSING BALANCES		- and the second se	92,64,29,847.9
24,80,000.00	6	6) Fund for VOC Monitoring			0.00		1,77,27,59,909.47	i) Cash at Bank	F	92,61,91,324.96	
13,61,41,498.00	6	7) Fund for Abatemet of Dellution			12,40,000.00		2,59,507.95	ii) Cash in Hand	G	2,38,522.95	
26,76,58,284,63		17.1 dial for residence of Pollution	-		0.00		6,37,230.00	iii) DD in Hand		0.00	
				-	20,82,19,86,658.04	18,26,76,58,284.63		For Kirts	ne &	PanditIIP	20,82,19,86,658.0
	5				04.00		(NJ	Charter	ed Acc	countants	
		E		yan	gap		1 4540	FRN: 10	5215W	/W100057	& PANO
	Chief Account	ts Officer		Member See	cretary		Chain		0.	L (3)	21
1.1				The second second	, , , , , , , , , , , , , , , , , , ,		Chain	14	103	my	FRN
M	ianarashtra Pollu	tion Control Board	1	Maharashtra Pollu	tion Control Board	3	Maharashtra Pollu	tion Control Board Mil	ind Bh	lave × 1	05215W/ *
									and the set of some or		ALL CONTRACTOR AND



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MAHARASHTRA POLLUTION CONTROL BOARD

Income & Expenditure Account for the Year 2020-21

Previous Year 2019-20		Frenchitter		Current Y	ear 2020-21	Previous Ye	ear 2019-20			Criment Ve	
Major Head	Sub Head	Expenditure	Schedul	Amount	Amount	Major Head	Sub Head	Income	Schedu	Current re	ar 2020-21
43,02,29,364.00	40,05,73,662.00 1,89,49,418.00 1,07,06,284.00	1) SALARY & ALLOWANCES a) Core Activity Segment b) Cess Activity Segment c) Cess Activity Temp Estb		50,22,06,249.00 2,03,22,106.00 1,38,61,620.00	53,63,89,975.00	0.00	01011080	<u>1) GRANT RECEIVED</u> a) From State Governement b) From Government of India	le No	Amount	0.00 0.00
2,38,06,818.00	2,21,05,764.00 17,01,054.00	2) CPF BOARD CONTRIBUTION i) Core Activity Segment ii) Cess Activity Segment		2,97,29,982.00 21,63,857.00	3,18,93,839.00	2,75,26,805.00	0.00 2,75,26,805.00	2) FINANCIAL ASSIATANCE a) From Other State Government b) From Government of India / CPCB	5	2.82.31.963.00	2,82,31,963.00
28,42,43,175.40 98,16,783.00 1,48,61,512.00 3,89,86,242.00	1,05,86,172.00 45,81,437.00 2,38,18,633.00	3) OFFICE EXPENDITURE 4) RUNNING EXPENDITURE OF LAB. 5) EXPENDITURE FOR VEHICLES 6) MAINTAINANCE & REPAIRS i) Land & Building ii) Furniture & Fixture iii) S.I. & O.A.	A B C	75,33,190.00 35,52,687.00 3,92,23,537.00	22,74,38,032.02 1,13,42,658.00 1,40,70,273.44 5,03,09,414.00	- 2,62,89,64,422.71	2,55,62,79,232.99 7,26,85,189.72	3) REIMBURESEMENT OF CESS 4) REVENUE RECEIPT a) Consent Fees b) Bio Medical Authorisation Fees c) Analysis Charges d) Hazardus Waste Authorisation Fee		3,56,52,11,567.12 2,53,75,053.00	3,59,05,86,620.12
4,56,76,901.00 37,63,55,647.00		7) EXPENDITURE FROM CESS FUND 8) PROJECTS EXP. From Cess Fund	D E		4,01,93,966.00 50,55,01,232.17	5,52,02,693.78		51 OTHER RECEIPT	н		3,82,39,031.00
7,37,73,415.87		91 DEPRECIATION	J		8,66,76,190.15	1,29,03,99,230.72		61 INTEREST ON INVESTMENT			1,24,98,12,711.00
2,70,43,43,293.94		10) Excess of Income Over Expenditur	c		3,40,30,54,745.34			-			
4,00,20,93,152.21					4,90,68,70,325.12	4,00,20,93,152.21	-				4 90 68 70 325 12

Chief Accounts Officer

Maharashtra Pollution Control Board

angure

Member Secretary Maharashtra Pollution Control Board

Chairman Maharashtra Pollution Control Board

For Kirtane & Pandit LLP Chartered Accountants FRN: 105215W/ W400057 ٠ Hilps my E & PAA

Milind Bhave Partner M. No. 047973

FRN 105215W/ W100057



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		- 2	•

MAHARASHTRA POLLUTION CONTROL BOARD Balance Sheet at the Year End 31st March, 2021

1 85 60 04 028 19	0.1.1	Liability		Current Year 2020-21		Previous Year 2019-20		1.	1	Current Year 2020-21	
and the second sec	Sub Head		dule	Amount	Amount	Major Head	Sub Head	Assets	Sche	Amount	Amount
1,00,00,04,028.18		ALCAPITAL FUND	1.1.1.1		1,97,03,06,334.18			1) WORKS (Form K-IV)	- Canse		
		1) Grant received from Govt. for capital						547 A. A. A.			
		expenditure (including capital value of						2) FIXED ASSETS	K		
		assets transferred from Ex Directorate				63,09,46.524.93		A) Land & Building	1		62,16,84,079.36
	1 54 00 07 020 18	to MSWPIC & WHO Delhij		105325108205-025370301							1.5 2.5
	1,04,89,81,909.18	(Opening Balance)		1,85,60,04,028.18		5,23,10.542.96		B) Laboratory Equipments			5,36,45,460.96
	31,30,76,089.00	Add:- Transfer from Excess of Income		11,43,02,306.00		3,94,45,376.13		Cl Vehicle			3 58 05 030 6
		over Expenditure for Capital Expenses				1 - 12 - 23 - 23			1		2,20,03,930,03
						8,87,72,870.79		Di Furniture & Fixture	1		0 40 78 433 0
21,84,98,648.69		B) Fund for NCAP	P		18,59,98,648.69						3,43,70,433.90
100000000000000000000000000000000000000		19439 (Charles and Alleria)				16,65,78,432,50		E) Scientific Instruments			10.05 65 058 04
2,14,12,246.50		C) Fund from UNIDO	AA		2,92,08,330,50			b) occurrence mon quicing			19,95,05,958.20
						22.07.70.60.655.00		3 INVESTMENT	1.0		
			1 1			aelei h. eleotoo.co		ST HAVEST STERT	1		26,28,19,03,585.00
11,52,25,773.05		D) CURRENT LIABILITIES	1 1		13 26 61 969 05	1 01 22 15 201 20		A OTREPAR LOOPED			111123123123323017777
	1,60,41,512.50	1) Sundry Payables / Deposits	0	3.24.30.499.50	***********	4,94,88,10,201.29	2 50 22 006 87	AL MIROPHERIPASSEIS	1		1,06,81,38,844,78
	5,54,407.00	2) Creditors	R	16.01.616.00			2,30,23,090.07	A) MISCELLENEOUS ADVANCES	M	2,81,73,539.87	
	9,86,29,853.55	3) Fund From Cess Account	8	9.86.29.853.55			1 20 59 269 00		1.00	and a second	
		- Providence and the second second		21001021000.000			1,32,38,768,00	BI SECORITY DEPOSIT WITH OTHER	N	1,32,58,768.00	
0.0402030400000		E) Funds for Assustance to	1 1		13 61 41 498 00			Dia and Dia and State			
13,61,41,498.00		Abatement of Pollution	1 1		10,01,41,450.00		10.02.76.689.00	C) Amount Paid for Plastic		10,02,76,689.00	
				12			10,02,10,009.00	Government	1 °		
			1 1								
2,39,11,29,652.09		F) RESERVES	1 1		2,78,56,60,495.09		(FI CLOSING BALANCES			
	2,55,27,62,515.00	1) Pension Fund	υ	2,71,86,92,078.00			1,77,27,59,909.47	i) Cash at Bank	F	92.61.91.324.06	
	3,83,67,137.09	2) Gratuity Fund	v	6,69,68,417.09			2,59,507,95	ii) Cash in Hand	6	2 38 522 05	
	_	and the second	1 1				6.37.230.00	jii) DD in Hand		2,00,022,90	
2,70,800.00		G Fund from Health Impact	1 1					ing or on theme			
11-11-11-11-11-11		Assessment Study	w		2,70,800.00				1		
15 20 542 62											
15,39,543.00		H) For for VOC Monitoring	x		27,79,543.00	· ·					
31,71,740.00		Il Environmental Compensation Fund	Y		1,58,97,327.00						
					12 MAR -						
,02,39,35,674.09		J) INCOME & EXPENDITURE	z		23 00 67 07 347 43						
		APPROPRIATION ACCOUNT			60,03,01,37,047.40						
96,73,29,603,60					70 95 57 00 000 02	24 06 72 20 602 60			-		

MAHARASHTRA POLLUTION CONTROL BOARD

Kalpataru Point, 3rd and 4th floor, Opp. PVR Cinema, Sion Circle, Mumbai-400 022





