MAHARASHTRA POLLUTION
CONTROL BOARD

MAHARASHTRA

2022-2023

ANNUAL REPORT

OUR VISION

To be a leading authority in environmental protection, ensuring a cleaner and healthier Maharashtra.

To excel in the implementation of environmental laws and pollution control regulations, securing sustainable development.

Foster partnerships with industries, communities, and government agencies to collectively work towards environmental protection.

Translate the vision into measurable impact, mobilizing efforts to improve the quality of life for the people of Maharashtra.

Promote awareness and responsible environmental behavior among the citizens of Maharashtra.

Strive for a balanced approach, promoting industrial growth while minimizing the environmental footprint.

Embrace innovation and technology to address emerging environmental challenges effectively.

Thane Region

No. of Air Quality Monitoring stations: 12
No. of Water Quality Monitoring stations: 44
No. of CETP: 2
No. of STP: 18

Nashik Region

No. of Air Quality Monitoring stations: 18
No. of Water Quality Monitoring stations: 42
No. of STP: 16

Amravati Region

No. of Air Quality Monitoring stations: 9
No. of Water Quality Monitoring stations: 8
No. of CETP: 1
No. of STP: 6

Nagpur Region

No. of Air Quality Monitoring stations: 16
No. of Water Quality Monitoring stations: 29
No. of CETP: 1
No. of STP: 13

Mumbai Region

No. of Air Quality Monitoring stations: 15
No. of Water Quality Monitoring stations: 11
No. of STP: 8

Chandrapur Region

No. of Air Quality Monitoring stations: 13
No. of Water Quality Monitoring stations: 14
No. of STP: 2

Kalyan Region

No. of Air Quality Monitoring stations: 15
No. of Water Quality Monitoring stations: 4
No. of CETP: 5
No. of STP: 13

Aurangabad Region

No. of Air Quality Monitoring stations: 26
No. of Water Quality Monitoring stations: 23
No. of CETP: 1
No. of STP: 9

Raigad Region

No. of Air Quality Monitoring stations: 5
No. of Water Quality Monitoring stations: 26
No. of CETP: 3
No. of STP: 9

Navi Mumbai Region

No. of Air Quality Monitoring stations: 11
No. of Water Quality Monitoring stations: 2
No. of CETP: 2
No. of STP: 7

Kolhapur Region

No. of Air Quality Monitoring stations: 11
No. of Water Quality Monitoring stations: 39
No. of CETP: 5
No. of STP: 6

Pune Region

No. of Air Quality Monitoring stations: 24
No. of Water Quality Monitoring stations: 52
No. of CETP: 5
No. of STP: 42

Foreword

Maharashtra is one of India's largest and most economically important States, it contributes substantially to the country's GDP. It's home to India's financial capital, Mumbai and is a hub for various industries, including information technology, finance, entertainment and manufacturing. As a result, the need arises to strike a balance between ecology and economy through sustainable ways.

As we navigate the complex and ever-evolving landscape of environmental protection and sustainable development, it is with great pride and a sense of responsibility that I introduce the Annual Report of the Maharashtra Pollution Control Board (MPCB) for the year 2022-23. This report encapsulates our collective efforts, achievements and commitment to safeguarding the environment and promoting a greener, cleaner and more sustainable Maharashtra.

The Maharashtra Pollution Control Board has been at the forefront of environmental stewardship in our State playing a critical role in ensuring that the State of Maharashtra progresses sustainably, safeguarding the environment and the well-being of its residents.

We are living in a time when environmental challenges are more pressing than ever before. However, it is also a time of great opportunity and transformation. This report showcases our data driven decision making processes, regulatory enforcement efforts and commitment to addressing not only existing environmental issues but also emerging threats and global concerns.

The MPCB's success is not just a result of hard work but also a product of our strong partnerships with government agencies, industries, non-governmental organizations (NGOs) and the public. Our journey toward a more environmentally responsible and prosperous Maharashtra is ongoing and this Annual Report serves as both a retrospective of our past achievements and a guiding light for the future. It is a testament to our determination to lead the way in environmental protection and regulatory excellence.

I extend my heartfelt appreciation to all those who have contributed to this report and I am confident that the insights, lessons and achievements it contains will inspire us to continue our mission. Together, we will create a Maharashtra that cherishes and protects its natural heritage for generations to come.

- Shri. Abasaheb Jarhad [IAS]
Chairman, MPCB

Preface

We deliver the Maharashtra Pollution Control Board's Annual Report for the year 2022-23 with great pleasure and a sense of responsibility. This report provides an exhaustive description of our efforts, successes and difficulties as we continue to be dedicated to protecting the environment and maintaining the welfare of our residents.

The Maharashtra Pollution Control Board kept up its diligent efforts in 2022-23 to uphold environmental laws, keep an eye on the sources of pollution and encourage sustainable practices. To create a cleaner and healthier environment, our devoted staff toiled tirelessly to strike a balance between industrial development and environmental preservation.

Throughout this report, you will find a detailed overview of our activities, initiatives and the progress made in various areas of environmental protection. We highlight our collaborations with industries, local communities and government agencies to achieve our common goals. Additionally, we delve into our air and water quality monitoring programs, waste management strategies and steps taken to mitigate pollution.

As we reflect on the past year, we acknowledge that there are persistent challenges ahead. Climate change and emerging pollutants demand our vigilant attention. The Annual Report also serves as a reminder that our mission is an ongoing one, requiring the collective efforts of all stakeholders. We extend our gratitude to our dedicated staff, partner organizations and the residents of Maharashtra for their support and commitment to environmental stewardship. With your continued support, we remain resolute in our mission to protect and improve the quality of life for all.

This report is a testament to our unwavering commitment to environmental protection and we are excited about the prospects of a greener, cleaner and healthier future for Maharashtra. We hope that this Annual Report serves as a valuable resource for understanding our initiatives and their impact on our environment.

- Shri. Pravin Darade [IAS]
Member Secretary, MPCB

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1. INTRODUCTION

The Maharashtra Pollution Control Board (MPCB) is a regulatory authority that implements various environmental legislations in the State. It was predominantly formed under the provision of Maharashtra Water (Prevention and Control of Pollution) Act, 1969. And, in the upcoming years, it adopted the Water (P & CP) Act, 1974 and the Air (P & CP) Act, 1981. The Board was established on 7th September, 1970 with the aim to plan and execute a comprehensive program for the prevention, control and abatement of pollution in Maharashtra.

The MPCB functions under the administrative control of Department of Environment and Climate Change, Government of Maharashtra. Along with the above-mentioned acts, the Board also implements some provisions under the Environmental (Protection) Act, 1986 which includes the Biomedical Waste (M & H) Rules, 1998, Hazardous Waste (M & H) Rules, 2000, Municipal Solid Waste Rules, 2000. The functions of the MPCB are:

- To collect and disseminate information relating to pollution and the prevention, control or abatement
- To inspect sewage or trade effluent treatment and disposal facilities and air pollution control systems and to review plans, specification or any other data relating to the treatment plants, disposal systems and air pollution control systems in connection with the consent granted
- Supporting and encouraging the developments in the fields of pollution control, waste recycle/reuse, eco-friendly practices etc.
- To educate and guide the entrepreneurs in improving environment by suggesting appropriate pollution control technologies and techniques
- Creation of public awareness about the clean and healthy environment and attending the public complaints regarding pollution
- Plan and implement an all-inclusive program to prevent and control pollution of surface water, ground water and air pollution in the state
- Advising the State Government on prevention and control of pollution
- To collect and disseminate information on pollution and control measures for prevention and control of water and air pollution
- Participating in, encouraging and organizing programs in examination and research related to pollution prevention and control
- Coordinating with the Central Board to organize training classes for people involved in pollution prevention and control and various programs for public education
- To fix standards for the quality of industrial effluents or urban effluents as well as receiving water bodies, improve them and classify water in the State
- To provide a suitable and cost-effective method for treating industrial effluents or municipal effluents

- To determine suitable standards for discharge of treated sewage and industrial effluents, taking into account the minimum dilution potential of any watercourse and the pollution tolerance of that watercourse
- Making, varying or cancelling any order -
    a. Passing and amending orders for the prevention, control and discharge of waste water into watercourses
    b. Construction of new watercourses for the disposal of waste water or alteration thereof or passing orders regarding existing systems or alternative remedial measures for control of water pollution
- To give suitable advice to the State Government regarding location of industries which are likely to cause water pollution
- To carry out the work assigned by Central Pollution Control Board and State Government from time to time

The Maharashtra Pollution Control Board (MPCB) has implemented robust ambient air monitoring measures through its participation in both the National Air Quality Monitoring Program (NAMP) and the State Ambient Air Quality Monitoring Program (SAMP). At 106 strategic locations (69 NAMP stations and 37 SAMP stations), monitoring stations have been set up to track three crucial parameters: Sulfur dioxide (SO_2), Nitrogen oxides (NO_X) and Particulate matter (PM_{10}). In addition, the MPCB has established Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at 69 locations, equipped to assess a more comprehensive set of eight parameters, including SO_2, NO_X, $PM_{2.5}$, Ozone, Lead, Carbon monoxide (CO), Ammonia (NH_3) and Benzopyrene. To enhance the mobility and coverage of air quality monitoring, the MPCB has also procured 15 Continuous Ambient Air Quality vans, further boosting their commitment to comprehensive environmental surveillance. The State Water Quality Monitoring Programme (SWMP) monitors both surface and groundwater. There are total 294 WQMS (Water Quality Monitoring Stations) across the State to have a check on the water quality of Maharashtra. During festivals, frequent noise monitoring is carried out and the studied data is made publicly available online. Efforts are also being made to promote awareness about the need of environmentally responsible festival celebrations.

This Annual Report provides a detailed description of the activities and efforts carried out by the MPCB to sustain the environment through pollution control. There are 12 Regional Offices and 43 Sub-Regional Offices that endeavour to attain the above-mentioned functions of the Board.

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 MPCB 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 (full time)

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 2.1 Constitution of the MPCB in 2022-23.

Shri. A. L. Jarhad (IAS)	**Chairman**
Principal Secretary, Environment Department, Government of Maharashtra	**Member**
Additional Chief Secretary Public Health Department, Government of Maharashtra, Mantralaya, Mumbai	**Member**
Principal Secretary-II Urban Development Department, Government of Maharashtra, Mumbai	**Member**
Principal Secretary Water Supply and Sanitation, Government of Maharashtra, Mantralaya, Mumbai	**Member**
Secretary Home (Transport) Department, 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. Ashok Shingare (IAS)	**Member Secretary** Uptil 29th September, 2022
Shri. Pravin Darade	**Member Secretary** From 30th September, 2022 to till date

3. MEETINGS OF THE BOARD

During year 2022-23, two meetings of the Board were conducted and various developmental decisions taken are as summarized below;

3.1 The 179th MPC Board Meeting

The 179th meeting of the Maharashtra Pollution Control Board was held on 11th January, 2023. The major decisions taken in the meeting are as below;

A. Procurement for Installation of online Ambient VOC monitoring station at six Industrial area (Chemical)

In Maharashtra State there are various types of industries located at various industrial and non-industrial locations. Major Chemical Industries are in six different industrial areas such as Tarapur, Taloja, TTC Navi Mumbai, Roha, Mahad, Lote Parshuram and Kurkumbh, where there is observance of generation of Volatile Organic Compounds (VOCs) which contribute to foul smell and public complaints of odour nuisance.

In line with the same, the Board decided to install Online Ambient VOC monitoring stations at above six industrial areas on pilot basis to have constant vigilance and better abatement of pollution with respect to different parameters of VOCs. Installation of an online VOC monitoring station will cost approximately Rs. 660 Lakh for six industrial areas. The final cost for procurement for installation of online VOC monitoring stations will be finalized through the E-tender process.

B. Procurement of Provision of Handy VOC Analyzers to Field Staff

There are 12 Regional Offices and 43 Sub Regional Offices of the MPCB across the State. To address complaints, MPCB Officials are required to visit potential industries and carry out monitoring. Presently, the MPCB does not have any handy/easy to use device to gauge the VOC concentrations. Hence, the Board approved to procure 115 Handy VOC Analyzers (Two samplers for each Sub Regional Office and two samplers for each Regional Office) with reliable measurement and low detection limits of various VOCs and make them available at all MPCB offices. Approximate cost of these VOC Samplers is Rs. 1265 Lakh or as actual cost in E-tender.

The procurement of Handy VOC samplers will thereby generate a substantial amount of revenue to the MPCB which may thereby recover the purchase cost of these handy VOC samplers and help in compliance of the industries.

3.2 The 180th MPC Board Meeting

The 180th meeting of the Maharashtra Pollution Control Board was held on 29th March, 2023. The major decisions taken in the meeting are as below;

A. Strengthening of Ambient Air Quality Monitoring Network by installation of Additional CAAQM stations at 41 locations in the State (Phase-II)

In compliance to the Honorable NGT (National Green Tribunal) order in O.A. no. 681/2018 and as per the criteria proposed by CPCB for installation of minimum number of the air quality monitoring stations based on the 2011 census, the MPCB has already completed the installation of the 69 CAAQM stations at various districts in the State. The CAAQM stations are providing real time ambient air data of all the nine parameters as prescribed under NAAQS-2009.

Now, in order to further fulfill the criteria to comply with the Honorable NGT's directions and considering the expansion of the cities, population pressure and deteriorating air quality due to anthropogenic activities, it is decided to increase the existing number of the Air quality monitoring stations. Accordingly, assessment has been done based on the population (2011 census) and following cities have been identified for installation of the CAAQM stations.

Strengthening on CAAQMS Network: 28

- Amravati (01), Bhiwandi Nizampur (02), Mira Bhayander (02), Nanded (02), Sangli (02), Ulhasnagar (02) = 11 (this includes cities with population: 5,00,000 - 10,00,000)
- Aurangabad (02), Kalyan-Dombivali (03), Nagpur (01), Nashik (01), Pimpri Chinchwad (02), Pune (02), Thane (03), Vasai-Virar (03) = 17 (this includes cities with population 10,00,000 - 50,00,000)

New CAAQMS Network: 13

Achalpur (01), Ambernath (01), Barshi (01), Bhusawal (01), Beed (01), Gondia (01), Ichalkaranji (01), Nandurbar (01), Osmanabad (01), Satara (01), Udgir (01), Wardha (01), Yavatmal (01) = 13 (this includes cities with population: 1,00,000 - 5,00,000)

TOTAL = 11+17+13 = 41

The selection of the site (latitude and longitude) for the installation of these CAAQMS shall be made as per the citing guidelines as prescribed by CPCB.

As per the proposed quantity to be purchased, i.e. 41, the total approx. capital cost shall be Rs. 1.5 x 41 = Rs. 61.5 Crore + O&M cost for five years which shall be 12% of the total capital cost. The proposed quantity of the CAAQMS shall be procured following E-tender process based on the model tender document prepared by CPCB for procurement and installation of CAAQMS.

B. To conduct a comprehensive study of Environmental Impact in Chandrapur District by engaging an independent agency.

As per the 178th Board meeting held on 24th February, 2022; vide reference no. 1, the MPCB has issued work order 'To conduct a comprehensive study of Environmental Impact in Chandrapur District' within the scope of work and project cost of Rs. 80 Lakh excluding GST as submitted by NEERI. Further, NEERI requested additional funding of Rs. 27 Lakh for lodging/boarding

facilities/logistics and transport, etc. for conducting the specific study during the required period of visit at project site/meeting for the proposed study. One season of representative monitoring data for all the components will be undertaken in view of project period. In this meeting, the Board approved the additional cost requested by NEERI and the work started for conducting a comprehensive study of Environmental Impact in Chandrapur District.

C. Strengthening of MPCB Laboratory by purchasing advanced automated instruments and equipment in (Phase-II).

The MPCB in its 171st Board meeting, vide resolution of item no. 11 has approved procurement of instruments and equipment for MPCB existing and proposed laboratories in phased manner. In pursuance, vide letter dated 17th July, 2019; Central Purchase Committee (CPC) was constituted consisting of HODs of MPCB and external expert members from CPCB, Delhi, NEERI, Nagpur and NABL accredited laboratory. After due deliberations, Central Purchase Committee (CPC) finalized the specifications of each scientific instrument/ equipment considering specific legal requirements of Environmental analysis at SPCB laboratories. With the specifications given MPCB floated International Competitive Bid (ICB) E-Tender No. 1034 for procurement of 28 types of scientific instruments having unit cost more than Rs. 3 Lakh each and Local Competitive Bid (LCB) E-Tender No. 1035 for procurement of 42 types of scientific instruments having unit cost less than Rs. 3 Lakh each.

The purchase of the remaining 17 types of instruments of LCB and 18 types of ICB instruments (Un-successful bids) was approved following fresh E-Tender under the guidance of revised Central Purchase Committee. List of instruments proposed to purchase by re-tendering for ICB and LCB CPC also considered the fresh requirement of MPCB Laboratories for modernization/ atomization.

The Board decided to purchase the following additional new instruments/equipment.
1. Glassware Washer - 8 (Rs. 25 Lakh each)
2. Biosafety Cabin - 7 (Rs. 25 Lakh each)
3. Wet Chemistry Analyzer - 4 (Rs. 90 Lakh each)

Procurement of proposed instruments/equipments for the Board's existing laboratories at the estimated approximate total cost of Rs. 34.80 Crore was approved.

4. COMMITTEES CONSTITUTED BY THE BOARD

With a view to have smooth functioning of the MPCB, 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 MPCB has constituted various committees for efficient and effective implementation of the Acts and Rules. During the year 2022-23, the following Committees were in existence.

4.1 Consent Appraisal Committee (CAC)

The Consent Appraisal Committee comprises of following members:

Sr. No.	Members	Designation
1.	Chairman, MPCB	Chairman
2.	Addl. Chief Secretary, Home (Transport) Department, Government of Maharashtra	Member
3.	Member Secretary, MPCB	Member
4.	Deputy CEO (Environment) or Environment Advisor, MIDC	Member
5.	Representative of NEERI, NEERI, Nagpur	Member
6.	Joint Director (Water Pollution Control), MPCB	Member Convenor
Invitee Members		
1.	Joint Director (APC), MPCB	Invitee Member
2.	Principal Scientific Officer, MPCB	Invitee Member
3.	Regional Officer (BMW), MPCB	Invitee Member
4.	Regional Officer (HQ), MPCB	Invitee Member

- 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. 150 Crore
'ORANGE' Category	: Projects with capital investment above Rs. 1500 Crore
'GREEN' Category	: Projects with capital investment above Rs. 4000 Crore
Infrastructure Project	: Projects with capital investment above Rs. 750 Crore

There were 15 meetings (in 22 sittings) of Consent Appraisal Committee held during the year 2022-23 wherein; 1315 CAC applications were discussed out of which 898 applications were approved.

4.2 Consent Committee (CC)

The Consent Committee comprises of following members:

Sr. No.	Members	Designation
1.	Member Secretary, MPCB	Chairman
2.	Shri. R. G. Pethe Retired Water Pollution Abatement Engineer, MPCB	Member
3.	Joint Director (APC), MPCB	Member
4.	Representative of ICT, ICT, Mumbai	Member
5.	Joint Director (WPC), MPCB	Member Convenor
Invitee Members		
1.	Principal Scientific Officer, MPCB	Invitee Member
2.	Regional Officer (BMW), MPCB	Invitee Member
3.	Regional Officer (HQ), MPCB	Invitee Member

- Terms of Reference

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

'RED' Category	: Projects with capital investment above Rs. 50 Crore and up to Rs. 150 Crore
'ORANGE' Category	: Projects with capital investment above Rs. 500 Crore and up to Rs. 1500 Crore
'GREEN' Category	: Projects with capital investment above Rs. 1000 Crore and up to Rs. 4000 Crore
Infrastructure Project	: Project with capital investment above Rs. 100 Crore and up to Rs. 750 Crore

There were 37 meetings of Consent Committee held during the year 2022-23 and a total of 2007 applications were discussed out of which 1134 applications were disposed and 873 were approved.

4.3 Committees formed for Solid Waste Management Rule, 2016

There were Eight meetings of Technical Advisory Committee held during the year 2022-23 for implementation of Solid Waste Management (SWM) in the State and 29 Divisional Level Committee held during year 2022-23 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 SWM in the State of Maharashtra	17/01/2019	Nashik
2.	Divisional Level Committee for Monitoring of Implementation of SWM in the State of Maharashtra	20/12/2018	Pune
3.	Divisional Level Committee for Monitoring of Implementation of SWM in the State of Maharashtra	17/01/2019	Nagpur
4.	Divisional Level Committee for Monitoring of Implementation of SWM in the State of Maharashtra	03/12/2018	Aurangabad
5.	Divisional Level Committee for Monitoring of Implementation of SWM in the State of Maharashtra	03/12/2018	Konkan
6.	Committee for scrutiny of authorizations for all Corporations/Councils as per the Municipal Solid Waste (M & H) Rules, 2000, dated 2nd April, 2014	17/04/2015	Scrutiny of applications for MSW authorizations

During the year 2022-23, Authorization Committee for Scrutiny of applications for MSW Authorizations is comprised of following members:

Sr. No.	Members	Designation
1.	Shri. Nandkumar Gurav, Assistant Secretary (Tech.) HQ, MPCB, Mumbai	Chairman
2.	Dr. Sneha Palnitkar or Representative, All India Institute of Local Self Government	Expert Member
3.	Shri. Bhalchandra P. Patil, Ex. Dy. Municipal Commissioner, MCGM	Expert Member
4.	Shri. Manish Holkar, Regional Officer, HQ, MPCB, Mumbai	Member Convener

In this committee, total 89 applications were discussed for Scrutiny of MSW authorization out of which 25 were rejected due to non-compliance of MSW Rules and 64 applications were granted/renewed during the year 2022-23.

4.4 Committees formed for Hazardous and Other Waste (T & M) Rule, 2016 and 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 2022-23, Authorization Committee for Environment Sound Management of Hazardous and Other Waste and E-Waste is comprised of following members:

Sr. No.	Members	Designation
1.	Shri. R.K. Garg, Former Managing Director, Indian Rare Earths Ltd.	Chairman
2.	Shri. B. Sharma, Regional Director, Pune, CPCB	Member
3.	Shri Dr. B. R. Naidu, Ex Regional Director, West Zone, CPCB Vadodara.	Member
4.	Shri. Bharat Nimbarte, Ex Joint Director (WPC), MPCB	Member
5.	Shri. N. N. Gurav, Regional Officer (BMW), 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 12 meetings of Authorization Committee for Hazardous waste held during the year 2022-23. During the meeting, a total of 417 applications of authorization under Hazardous waste rules were discussed, out of which 283 were approved and 70 applications for authorization under E-waste Rules, 2016 were discussed out of which 46 were approved.

4.5 Committee constituted under Plastic Waste Management Rule, 2016 and Amendment thereto;

A committee for deciding Guidelines for issuance for Registration of Producer / Brand Owner / Manufacturer under Plastic Waste Management Rule, 2016 and further Amendments was constituted at Head Office level on 21st November 2016.

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

Air pollution is a serious problem that has an impact on both our health and the environment. It results primarily from the emission of pollutants into the atmosphere through a combination of human activities and natural phenomena. The combustion of fossil fuels, both in industrial contexts and transportation, stands out as a significant source, releasing pollutants like Carbon dioxide, Nitrogen oxides and Particulate matter. Agricultural practices, involving the application of pesticides and fertilizers, release substances such as Ammonia into the air. Inadequate waste management practices, encompassing landfill decomposition and open burning, introduce pollutants like Methane and harmful gases. Deforestation and biomass burning contribute to air pollution by releasing Particulate Matter and gases. Industrial processes, including manufacturing and waste incineration, emit hazardous chemicals and pollutants into the air. Natural sources like volcanic activity and dust storms also contribute to air pollution. Household activities, such as cooking with solid fuels, add to both indoor and outdoor air pollution. Gaining insights into the origins and consequences of air pollution is essential for reducing our environmental impact, promoting sustainable behaviour and endorsing initiatives dedicated to enhancing air quality. The MPCB adopted the Air Pollution Act of 1981 to regulate and monitor air quality throughout the State. A network to measure air quality in key cities is established to comply with the Air Act, 1981 and to disseminate information about air quality in the State.

5.1 Monitoring Network and Region-wise Air Quality in Maharashtra

The Central Pollution Control Board established the National Air Quality Monitoring Programme (NAMP) in 1984 to comprehend how air quality varies across different locations and periods. The programme focuses on measuring three air contaminants that are critical for developing air quality management plans. These are Sulphur dioxide (SO_2), Nitrogen dioxides (NO_X) and Particulate matter (PM_{10}). The programme adheres to the CPCB monitoring procedure that calls for measuring the air for these pollutants every four hours for gases and every eight hours for particles, twice a week.

The air quality is depicted through the Air Quality Index (AQI). It is a colour-coded guide that depicts air quality based on a number or collection of numbers computed from the levels of various air pollutants monitored over time. The higher the AQI, the worse the air quality and the greater the risk to human health. The locations wherein the data is collected is classified into three categories; Industrial, Residential and Commercial and the observations were made using NAAQM standards yearly average concentration as shown in the following sections. To better comprehend the data sets and approximate average number of samples that exceeded the standard limit, an Exceedance Factor (E.F. = Annual Average / Standard Value) was derived.

Air quality classification based on colour coding.

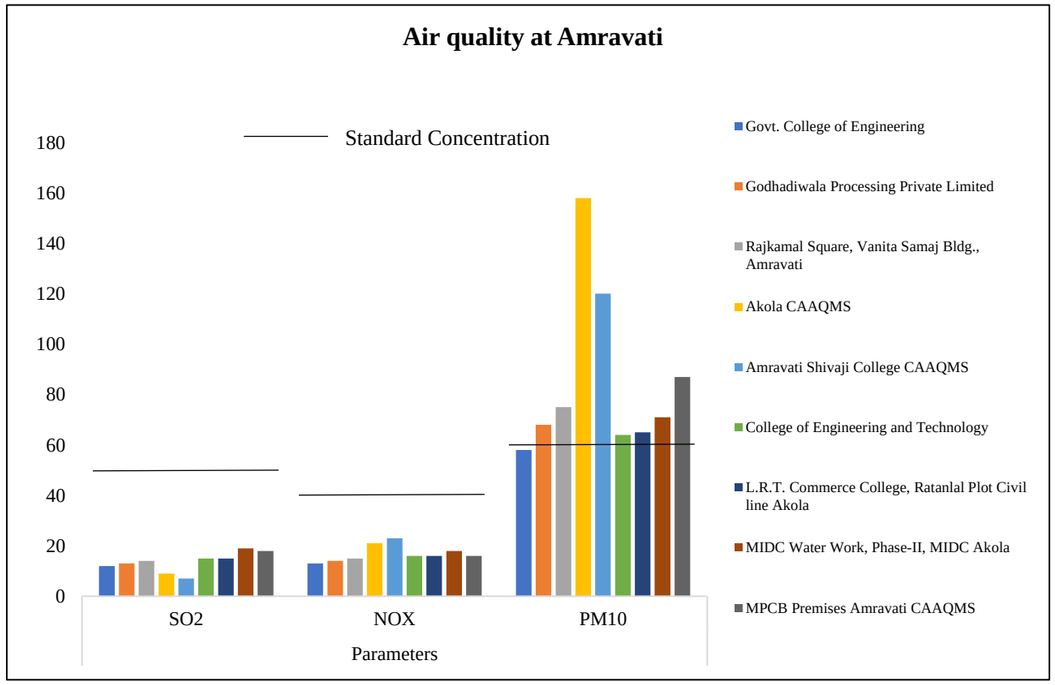
Gases and Particulate Matter	Color code used in this report
Locations Within the limit	
Locations Exceeding the limit	
Location having Maximum value	
Location having Minimum value	

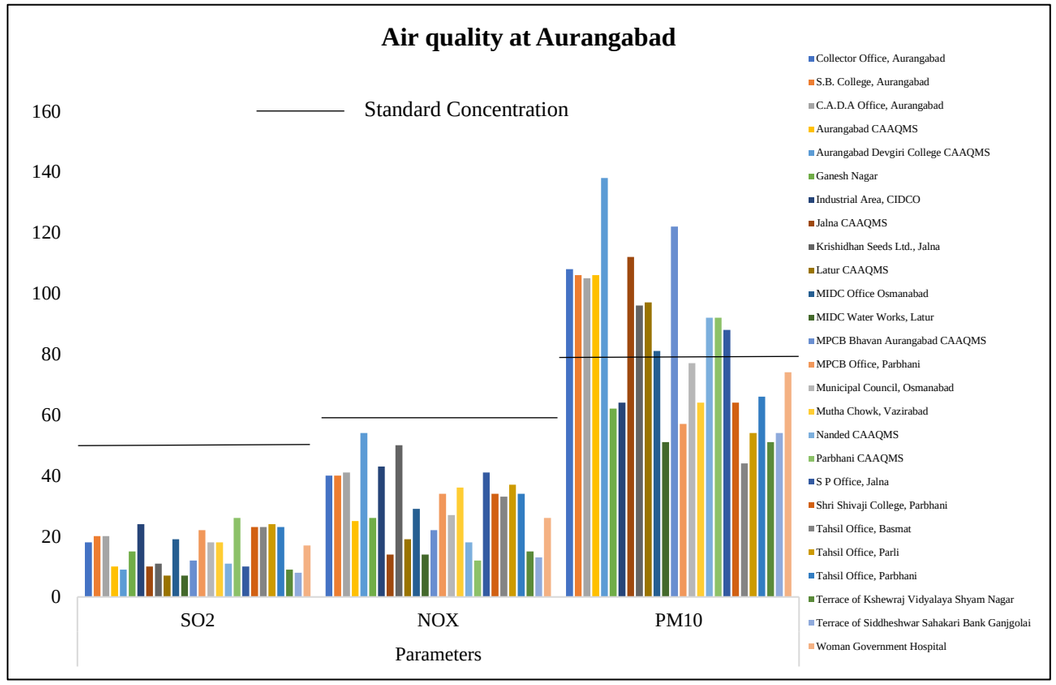
Number of AAQMS in Maharashtra under NAMP - **69**

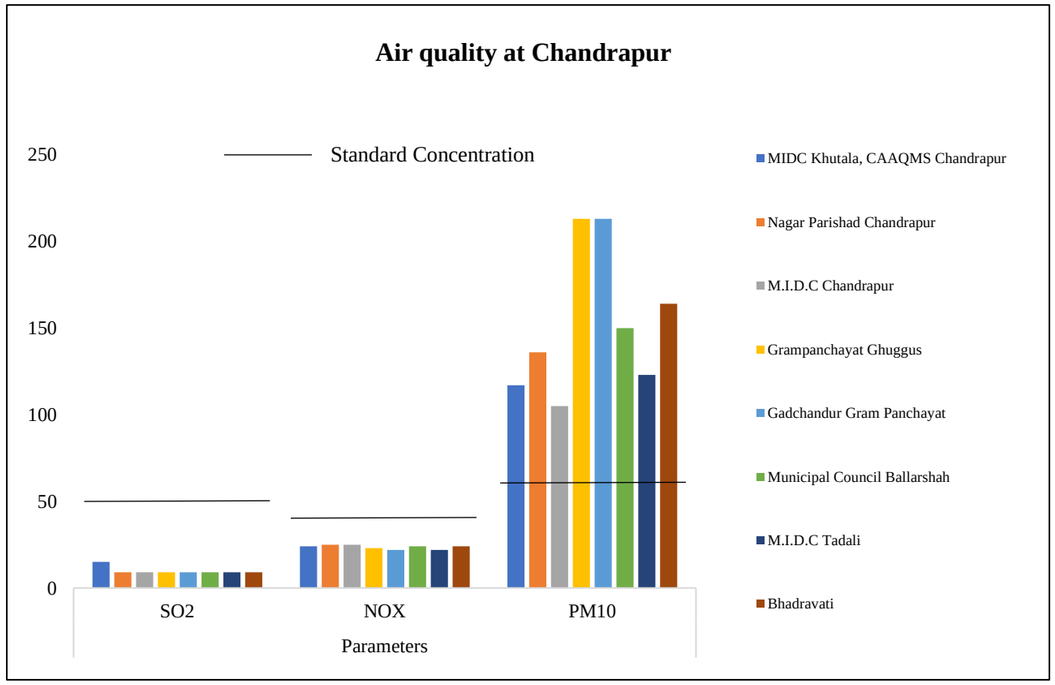
Number of AAQMS in Maharashtra under SAMP - **37**

Number of CAAQMS in Maharashtra - **69**

Figures 5.0 (a), (b) and **(c)** represents the air monitoring results of annual average air quality of the 12 regions of Maharashtra for F.Y. 2022-23. The details of the air quality analysis of each region is presented in the following sections.







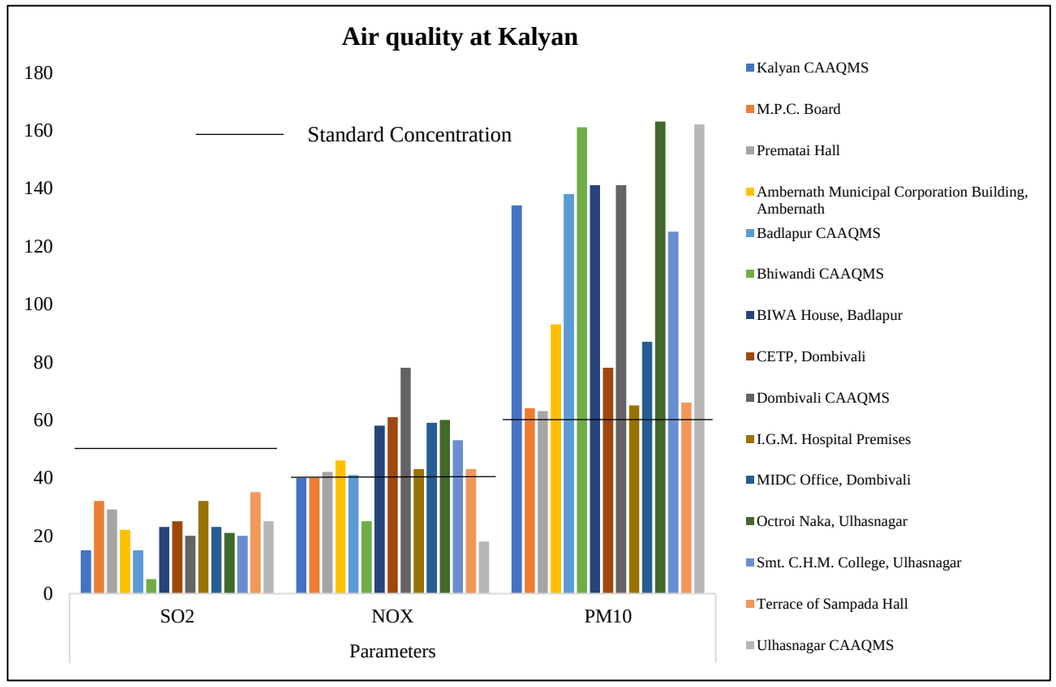
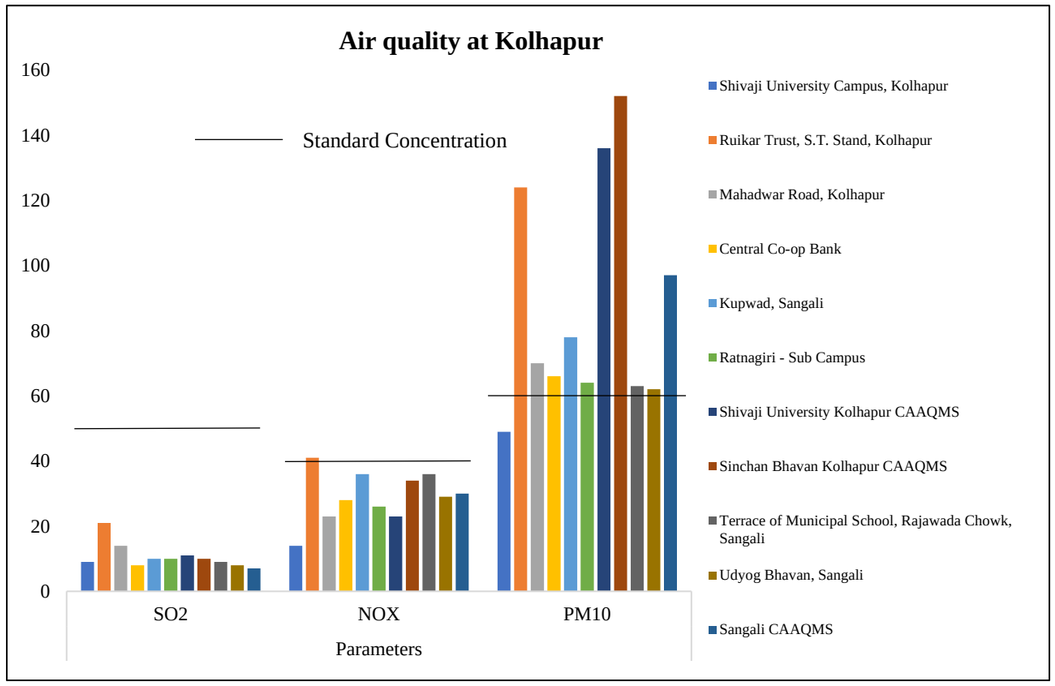
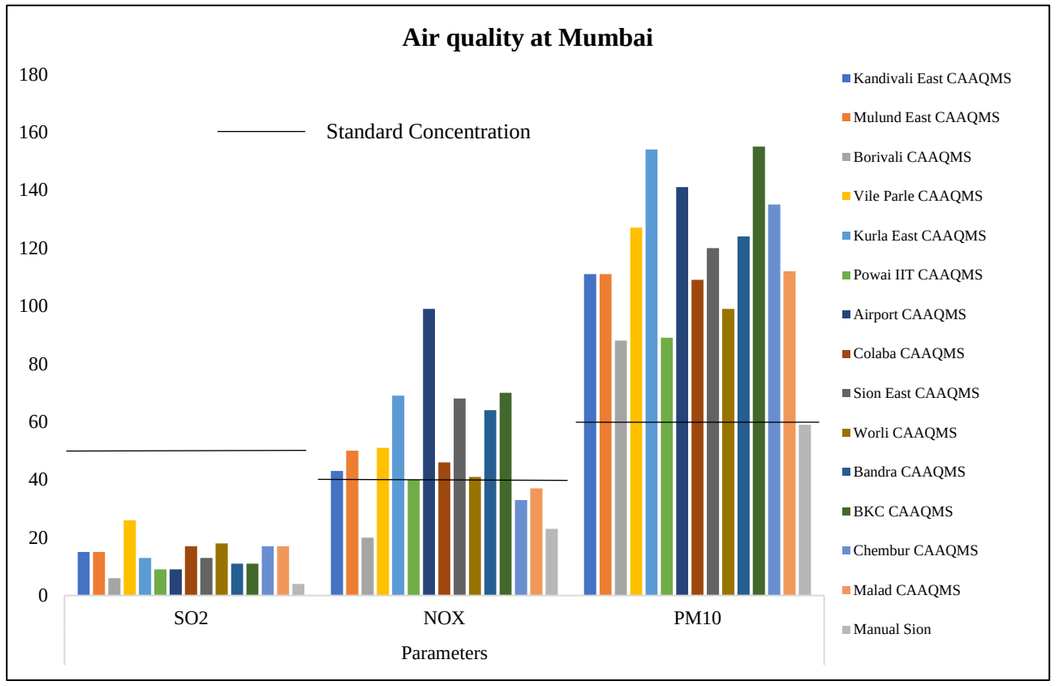
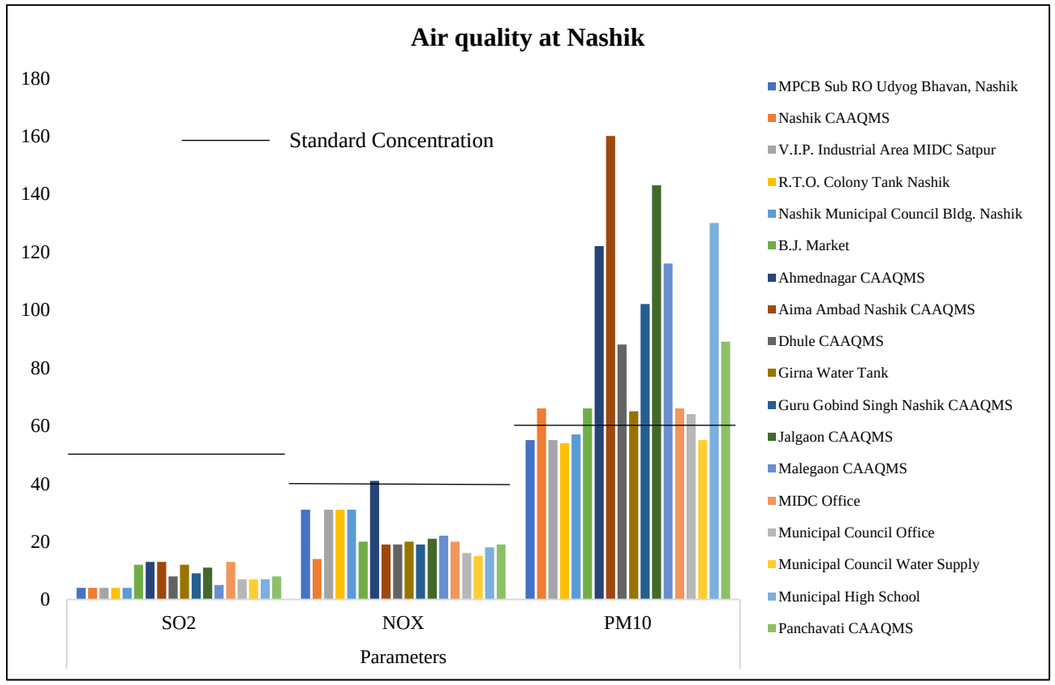


Figure 5.0 (a) Air monitoring results in Amravati, Aurangabad, Chandrapur and Kalyan Regions of Maharashtra during 2022-23.







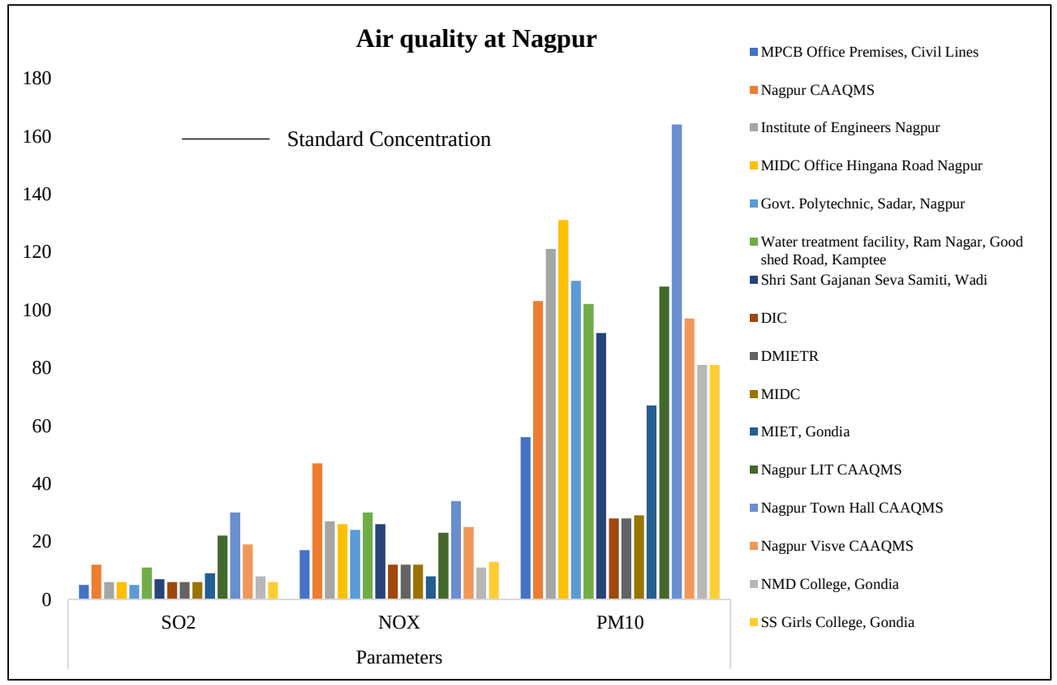
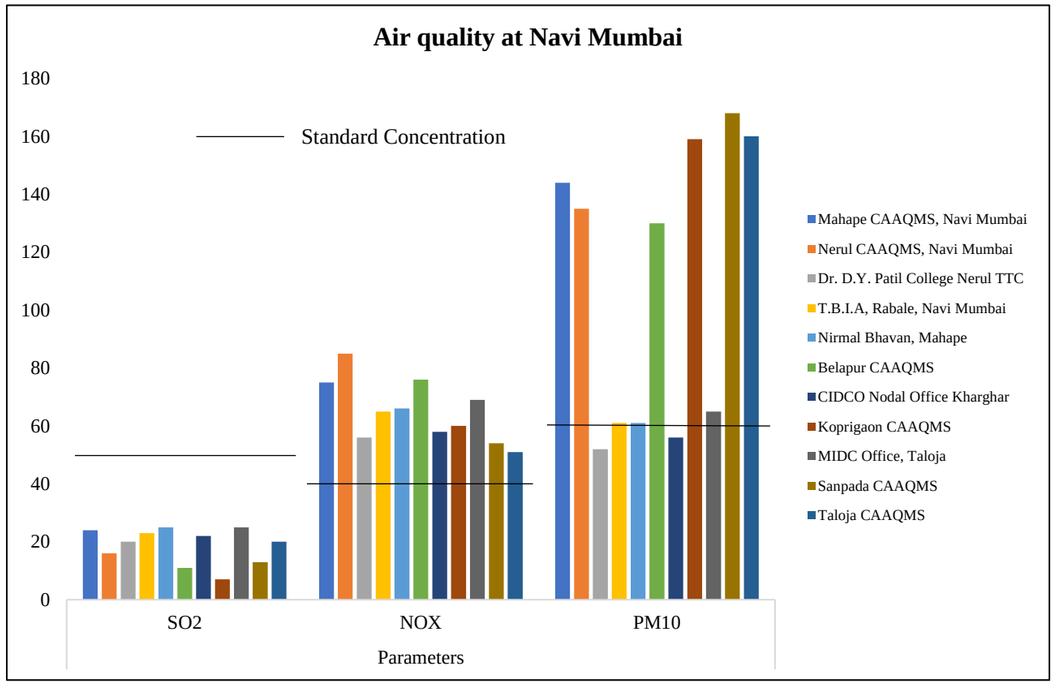
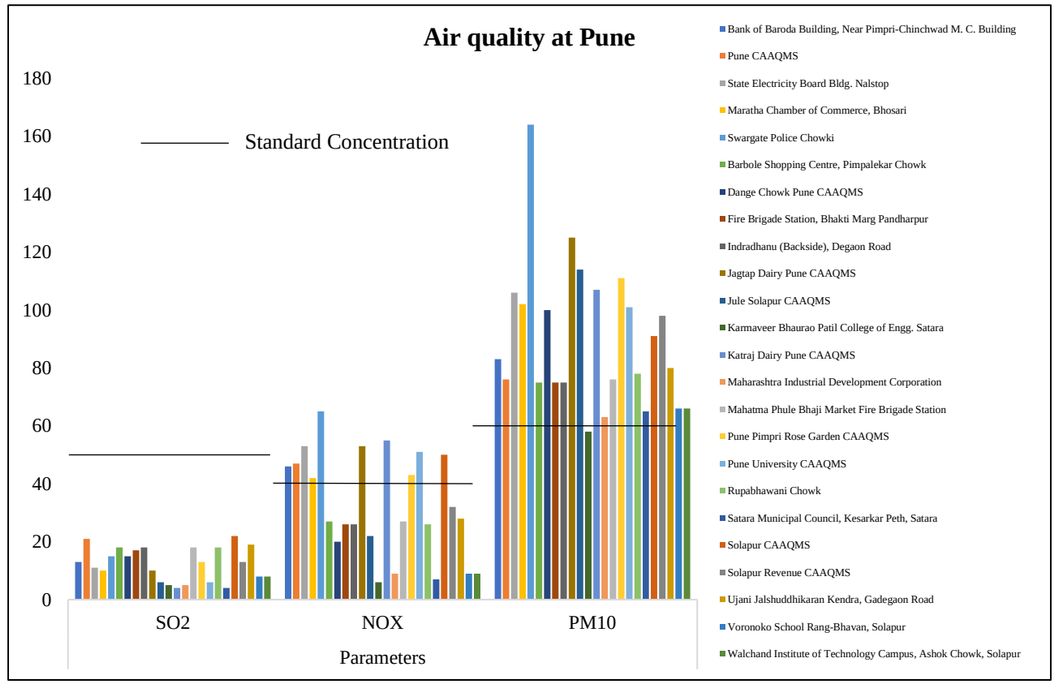
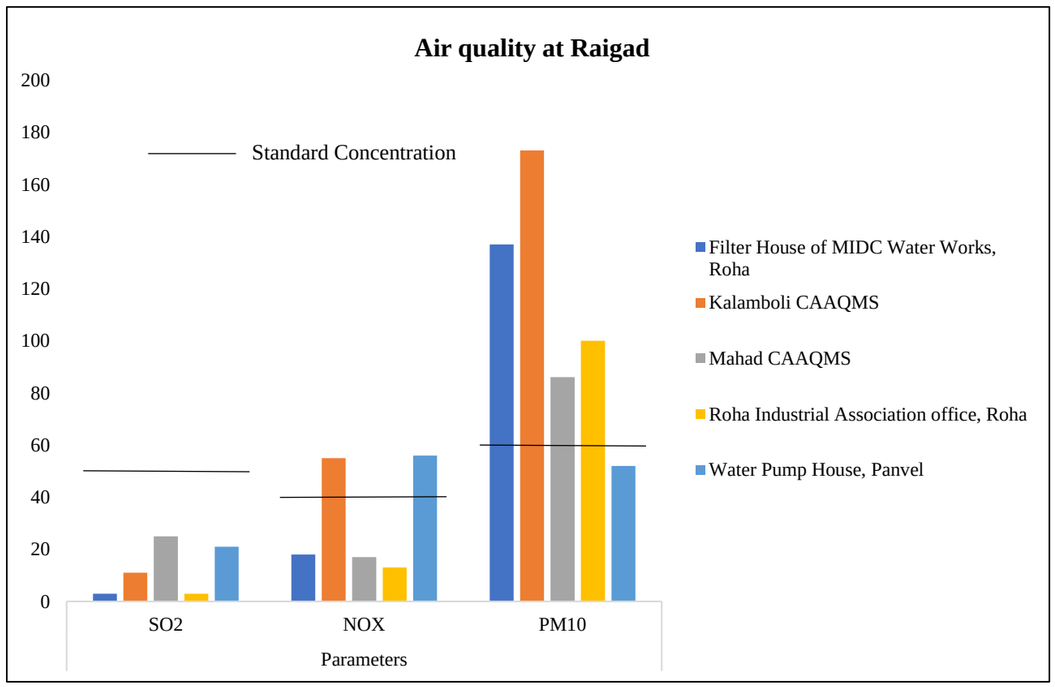


Figure 5.0 (b) Air monitoring results in Kolhapur, Mumbai, Nashik and Nagpur Regions of Maharashtra during 2022-23.







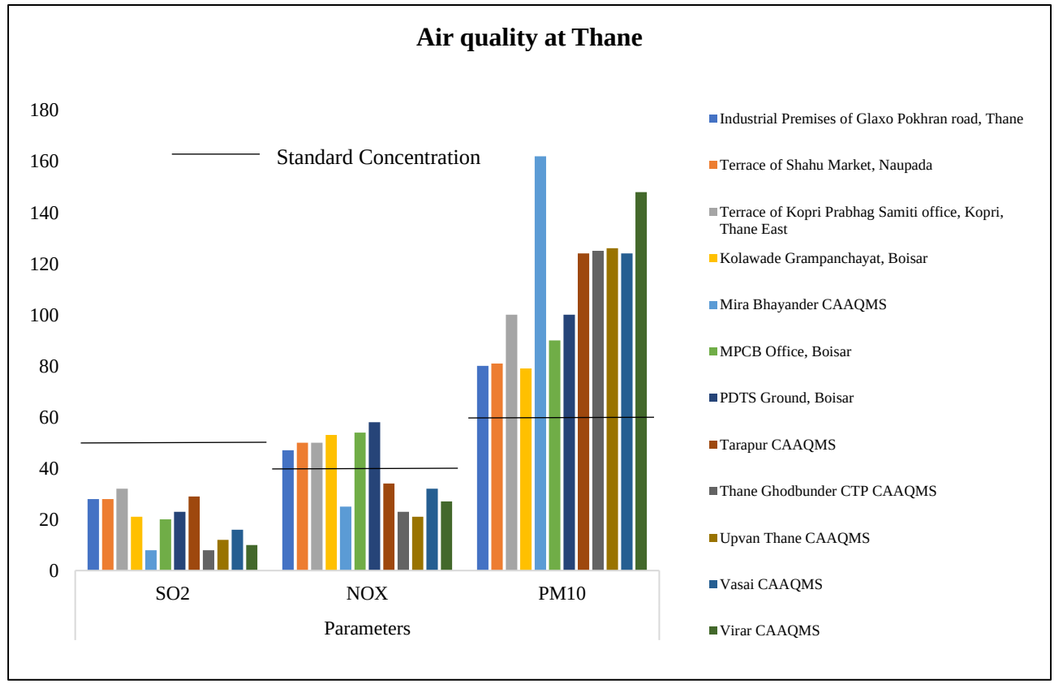


Figure 5.0 (c) Air monitoring results in Navi Mumbai, Pune, Raigad and Thane Regions of Maharashtra during 2022-23.

5.1.1 Amravati

The Amravati Region has nine air quality monitoring stations as mentioned in **Table 5.1**. The table also signifies the annual averages of all the parameters analysed. The concentrations of the SO_2 and NO_X at all the monitoring stations are within the air quality standards of 50 µg/m^3 and 40 µg/m^3 respectively.

The maximum concentration for SO_2 was at 'MIDC Water Work, Phase-II, MIDC Akola', which was 19 µg/m^3. Whereas, the minimum value for SO_2 was at Amravati Shivaji College CAAQMS, with a concentration of 7 µg/m^3. Govt. College of Engg. Amravati showed minimum concentrations of NO_X (13 µg/m^3) and Amravati Shivaji College CAAQMS showed the maximum value of 23 µg/m^3.

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m^3)		
	50	40	60
Govt. College of Engg. Amravati	12	13	58
Godhadiwala Processing Private Limited	13	14	68
Rajkamal Square, Vanita Samaj Bldg., Amravati	14	15	75
Akola CAAQMS	9	21	158
Amravati Shivaji College CAAQMS	7	23	120
College of Engineering and Technology	15	16	64
L.R.T. Commerce College, Ratanlal Plot Civil line Akola	15	16	65
MIDC Water Work, Phase-II, MIDC Akola	19	18	71
MPCB Premises Amravati CAAQMS	18	16	87

The PM_{10} concentrations at all the monitoring stations except Govt. College of Engg. Amravati are exceeding the set standard of 60 µg/m^3. The maximum concentration for PM_{10} is 158 µg/m^3 whereas the minimum concentration is 58 µg/m^3. The exceedance factor of PM_{10} was estimated. Below is a table with the outcomes.

Table 5.2 Exceedance factor of PM_{10} for Amravati Region.

Exceedance factor of PM_{10}	
Minimum	**Maximum**
1.07	2.63

5.1.2 Aurangabad

There are 26 air quality monitoring stations in Aurangabad Region. The annual average of all the parameters that were examined is shown in **Table 5.3**. The table shows that all of the monitoring station's SO_2 concentrations fall within the parameters for air quality. The Parbhani CAAQMS had the highest SO_2 concentration i.e. 26 µg/m^3. In contrast, Latur CAAQMS and MIDC Water Works, Latur had the lowest value, with a concentration of 7 µg/m^3.

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m^3)		
	50	40	60
Collector Office, Aurangabad	18	40	108
S.B. College, Aurangabad	20	40	106
C.A.D.A Office, Aurangabad	20	41	105
Aurangabad CAAQMS	10	25	106
Aurangabad Devgiri College CAAQMS	9	54	138
Ganesh Nagar	15	26	62
Industrial Area, CIDCO	24	43	64
Jalna CAAQMS	10	14	112
Krishidhan Seeds Ltd., Jalna	11	50	96
Latur CAAQMS	7	19	97
MIDC Office Osmanabad	19	29	81
MIDC Water Works, Latur	7	14	51
MPCB Bhavan Aurangabad CAAQMS	12	22	122
MPCB Office, Parbhani	22	34	57
Municipal Council, Osmanabad	18	27	77
Mutha Chowk, Vazirabad	18	36	64
Nanded CAAQMS	11	18	92
Parbhani CAAQMS	26	12	92
S P Office, Jalna	10	41	88
Shri Shivaji College, Parbhani	23	34	64
Tahsil Office, Basmat	23	33	44
Tahsil Office, Parli	24	37	54
Tahsil Office, Parbhani	23	34	66
Terrace of Kshewraj Vidyalaya Shyam Nagar	9	15	51
Terrace of Siddheshwar Sahakari Bank Ganjgolai	8	13	54
Woman Government Hospital	17	26	74

In **Table 5.3** the NO_X concentrations are exceeding the set standard of 40 µg/m^3 at seven monitoring stations. Whereas, the PM_{10} concentrations are exceeding the value of 60 µg/m^3 at all the monitoring locations except 'MIDC Water Works, Latur', 'MPCB Office, Parbhani', 'Tahsil Office, Basmat', 'Tahsil Office, Parli' and 'Terrace of Kshewraj Vidyalaya Shyam Nagar'. The highest concentration for PM_{10} is 138 µg/m^3 whereas the lowest concentration is 44 µg/m^3. The highest concentration for NO_X was 54 µg/m^3 at Aurangabad Devgiri College CAAQMS and the lowest concentration was 12 µg/m^3 at Parbhani CAAQMS. The exceedance factors of PM_{10} and NO_X were calculated and the results are tabulated below.

Table 5.4 Exceedance factors of PM_{10} and NO_X for Aurangabad Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.03	2.30	1.00	1.35

5.1.3 Chandrapur

There are 13 air quality monitoring stations in the Chandrapur Region, spread across various sorts of areas. **Table 5.5** displays the yearly average of all the parameters that were looked at. The SO_2 concentration at each monitoring station was found to be within the air quality guidelines. The maximum concentration for SO_2 was at 'MIDC Khutala, CAAQMS Chandrapur', which was 15 µg/m^3. Whereas Dal Mill and GP Chikhalgaon monitoring stations showed a minimum value of 8 µg/m^3.

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m^3)		
	50	40	60
MIDC Khutala, CAAQMS Chandrapur	15	24	117
Nagar Parishad Chandrapur	9	25	136
M.I.D.C Chandrapur	9	25	105
Grampanchayat Ghuggus	9	23	213
Gadchandur Gram Panchayat	9	22	213
Municipal Council Ballarshah	9	24	150
M.I.D.C Tadali	9	22	123
Bhadravati	9	24	164
Udyog Bhavan, Chandrapur CAAQMS	12	47	100
Dal Mill	8	21	178
Gadchiroli	9	22	71
GP Chikhalgaon	8	21	148
Tahasil Office	9	21	149

In **Table 5.5** the PM_{10} concentrations at all the monitoring stations are exceeding the set standard of 60 µg/m^3. The maximum concentration for PM_{10} is 213 µg/m^3 while the minimum concentration is 71 µg/m^3. The concentration of NO_X was exceeding the standard value only at Udyog Bhavan, Chandrapur CAAQMS. The maximum concentration for NO_X was 47 µg/m^3 at Udyog Bhavan, Chandrapur CAAQMS, whereas the minimum concentration was 21 µg/m^3 at Dal Mill, GP Chikhalgaon and Tahasil Office. From these values, the exceedance factors of PM_{10} and NO_X were calculated. The results are shown in the table below.

Table 5.6 Exceedance factors of PM_{10} and NO_X for Chandrapur Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.18	3.55	-	1.18

5.1.4 Kalyan

The Kalyan Region has 15 air quality monitoring stations. **Table 5.7** represents the annual average of all the parameters analysed. From the table, it is observed that the concentrations of SO_2 at all the monitoring stations are within the air quality standard of 50 µg/m^3. The maximum

concentration for SO_2 was at Terrace of Sampada Hall, which was 35 µg/m^3. Whereas, the minimum value was at Bhiwandi CAAQMS with a concentration of 5 µg/m^3.

Table 5.7 Statistical Monitoring of Annual Average Air quality at Kalyan Region.

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m^3)		
	50	40	60
Kalyan CAAQMS	15	40	134
M.P.C. Board	32	40	64
Prematai Hall	29	42	63
Ambernath Municipal Corporation Building, Ambernath	22	46	93
Badlapur CAAQMS	15	41	138
Bhiwandi CAAQMS	5	25	161
BIWA House, Badlapur	23	58	141
CETP, Dombivali	25	61	78
Dombivali CAAQMS	20	78	141
I.G.M. Hospital Premises	32	43	65
MIDC Office, Dombivali	23	59	87
Octroi Naka, Ulhasnagar	21	60	163
Smt. C.H.M. College, Ulhasnagar	20	53	125
Terrace of Sampada Hall	35	43	66
Ulhasnagar CAAQMS	25	18	162

Table 5.7 shows that all monitoring station's PM_{10} concentrations are higher than the set standard of 60 µg/m^3. Whereas, the NO_X concentrations are within the standards of 40 µg/m^3 only at Bhiwandi CAAQMS. The highest concentration of PM_{10} was 163 µg/m^3 at 'Octroi Naka, Ulhasnagar', while the lowest concentration was 63 µg/m^3 at Prematai Hall. The exceedance factors of PM_{10} and NO_X were calculated using this data. The results are as follows:

Table 5.8 Exceedance factors of PM_{10} and NOx for Kalyan Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.05	2.72	1.00	1.95

5.1.5 Kolhapur

The Kolhapur Region has 11 air quality monitoring stations. The yearly average of all the parameters that were considered is shown in **Table 5.9**. The SO_2 concentrations at each monitoring station are found to be within the limits of acceptable air quality.

The maximum concentration for both SO_2 and NO_X was at 'Ruikar Trust, S.T. Stand, Kolhapur' which was 21 µg/m^3 and 41 µg/m^3 respectively. On the other hand, the minimum value for SO_2 was observed at Sangali CAAQMS (7 µg/m^3) and minimum value for NO_X was at Shivaji University Campus, Kolhapur (14 µg/m^3).

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m^3)		
	50	40	60
Shivaji University Campus, Kolhapur	9	14	49
Ruikar Trust, S.T. Stand, Kolhapur	21	41	124
Mahadwar Road, Kolhapur	14	23	70
Central Co-op Bank	8	28	66
Kupwad, Sangali	10	36	78
Ratnagiri - Sub Campus	10	26	64
Shivaji University Kolhapur CAAQMS	11	23	136
Sinchan Bhavan Kolhapur CAAQMS	10	34	152
Terrace of Municipal School, Rajawada Chowk, Sangali	9	36	63
Udyog Bhavan, Sangali	8	29	62
Sangali CAAQMS	7	30	97

In **Table 5.9**, the PM_{10} concentration are exceeding the set standard at all the monitoring stations except Shivaji University Campus, Kolhapur. The maximum concentration for PM_{10} is 152 µg/m^3 whereas the minimum concentration is 49 µg/m^3. The NO_X value is exceeding the standard value of 40 µg/m^3 at 'Ruikar Trust, S.T. Stand, Kolhapur' monitoring station. Hence, the PM_{10} and NO_X exceedance factors were determined and the results are given below.

Table 5.10 Exceedance factors of PM_{10} and NO_X for Kolhapur Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.03	2.53	-	1.03

5.1.6 Mumbai

There are 15 monitoring stations across Mumbai Region. The annual average of all the parameters that have been assessed is given in **Table 5.11**. The table shows that all of the monitoring station's SO_2 concentrations fall within the air quality limits. At Vile Parle CAAQMS, the concentration of SO_2 maximum with 26 µg/m^3. In contrast, Manual Sion had the lowest value with a concentration of 4 µg/m^3.

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards ($\mu g/m^3$)		
	50	40	60
Kandivali East CAAQMS	15	43	111
Mulund East CAAQMS	15	50	111
Borivali CAAQMS	6	20	88
Vile Parle CAAQMS	26	51	127
Kurla East CAAQMS	13	69	154
Powai IIT CAAQMS	9	40	89
Airport CAAQMS	9	99	141
Colaba CAAQMS	17	46	109
Sion East CAAQMS	13	68	120
Worli CAAQMS	18	41	99
Bandra CAAQMS	11	64	124
BKC CAAQMS	11	70	155
Chembur CAAQMS	17	33	135
Malad CAAQMS	17	37	112
Manual Sion	4	23	59

The PM_{10} concentrations at all the monitoring stations except Manual Sion, were exceeding the standard value of 60 $\mu g/m^3$. The NO_X concentration was also exceeding the standard value (40 $\mu g/m^3$) at all the monitoring stations except Borivali CAAQMS, Chembur CAAQMS, Malad CAAQMS and Manual Sion. The highest concentration for PM_{10} is 155 $\mu g/m^3$ whereas the lowest concentration is 59 $\mu g/m^3$. The highest concentration for NO_X was 99 $\mu g/m^3$ and the lowest concentration was 20 $\mu g/m^3$. The exceedance factors of PM_{10} and NO_X were calculated. The results are given below.

Table 5.12 Exceedance factors of PM_{10} and NO_X for Mumbai Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.47	2.58	1.00	2.48

5.1.7 Nagpur

The Nagpur Region has 16 air quality monitoring stations. **Table 5.13** represents the annual average of all the parameters analysed. From the table, it is observed that the concentrations of SO_2 at all the monitoring stations are within the air quality standard. The Nagpur Town Hall CAAQMS had the maximum concentration for SO_2 among all the monitoring stations (30 $\mu g/m^3$). Conversely, 'MPCB Office Premises, Civil Lines' and 'Govt. Polytechnic, Sadar, Nagpur' had the minimum value, with a concentration of 5 $\mu g/m^3$ for SO_2. Nagpur CAAQMS showed the highest concentration for NO_X (47 $\mu g/m^3$) among all the monitoring stations, whereas MIET Gondia showed the least concentration (8 $\mu g/m^3$).

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m^3)		
	50	40	60
MPCB Office Premises, Civil Lines	5	17	56
Nagpur CAAQMS	12	47	103
Institute of Engineers Nagpur	6	27	121
MIDC Office Hingana Road Nagpur	6	26	131
Govt. Polytechnic, Sadar, Nagpur	5	24	110
Water treatment facility, Ram Nagar, Good shed Road, Kamptee	11	30	102
Shri Sant Gajanan Seva Samiti, Wadi	7	26	92
DIC	6	12	28
DMIETR	6	12	28
MIDC	6	12	29
MIET, Gondia	9	8	67
Nagpur LIT CAAQMS	22	23	108
Nagpur Town Hall CAAQMS	30	34	164
Nagpur Visve CAAQMS	19	25	97
NMD College, Gondia	8	11	81
SS Girls College, Gondia	6	13	81

From **Table 5.13**, the PM_{10} concentration is not exceeding the standard value of 60 µg/m^3 at four monitoring stations. They are 'MPCB Office Premises, Civil Lines', DIC, DMIETR and MIDC. The maximum PM_{10} concentration is 164 µg/m^3 while the minimum concentration is 28 µg/m^3. The concentration of NO_X was observed to be exceeding the standard value of 40 µg/m^3 only at Nagpur CAAQMS. Hence, the exceedance factors of PM_{10} and NO_X were calculated. The results are shown in the table below.

Table 5.14 Exceedance factors of PM_{10} and NOx for Nagpur Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.12	2.73	-	1.18

5.1.8 Nashik

There are 18 air quality monitoring stations in the Nashik Region. The yearly average of the parameters analysed is shown in **Table 5.15**. The table shows that all of the monitoring station's SO_2 concentrations are within the standard value of 50 µg/m^3.

'MPCB Sub RO Udyog Bhavan, Nashik', 'Nashik CAAQMS', 'V.I.P. Industrial Area MIDC Satpur', 'R.T.O. Colony Tank Nashik' and 'Nashik Municipal Council Bldg. Nashik' monitoring stations showed the least annual average concentration of 4 µg/m^3 for SO_2. In contrast, the highest concentration of 13 µg/m^3 was observed at Ahmednagar CAAQMS, Aima Ambad Nashik CAAQMS and MIDC Office. The minimum concentration for NO_X was 14

µg/m^3 at Nashik CAAQMS, whereas a maximum concentration of 41 µg/m^3 was observed at Ahmednagar CAAQMS.

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

Location	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m3)		
	50	40	60
MPCB Sub RO Udyog Bhavan, Nashik	4	31	55
Nashik CAAQMS	4	14	66
V.I.P. Industrial Area MIDC Satpur	4	31	55
R.T.O. Colony Tank Nashik	4	31	54
Nashik Municipal Council Bldg. Nashik	4	31	57
B.J. Market	12	20	66
Ahmednagar CAAQMS	13	41	122
Aima Ambad Nashik CAAQMS	13	19	160
Dhule CAAQMS	8	19	88
Girna Water Tank	12	20	65
Guru Gobind Singh Nashik CAAQMS	9	19	102
Jalgaon CAAQMS	11	21	143
Malegaon CAAQMS	5	22	116
MIDC Office	13	20	66
Municipal Council Office	7	16	64
Municipal Council Water Supply	7	15	55
Municipal High School	7	18	130
Panchavati CAAQMS	8	19	89

Table 5.15 shows that the PM_{10} concentration are within the standard value of 60 µg/m^3 at only five monitoring stations. Whereas the NO_X concentration is exceeding the 40 µg/m^3 value at only Ahmednagar CAAQMS. The maximum concentration for PM_{10} is 160 µg/m^3 and the minimum concentration is 54 µg/m^3. The exceedance factors of PM_{10} and NO_X were estimated and the results are tabulated below.

Table 5.16 Exceedance factors of PM_{10} and NOx for Nashik Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.07	2.67	-	1.03

5.1.9 Navi Mumbai

There are 11 air quality monitoring stations in the Navi Mumbai Region. **Table 5.17** represents the annual average of all the parameters assessed. From the table, it is observed that the concentrations of SO_2 at all the monitoring stations are within the air quality standard. The maximum concentration for SO_2 was at Nirmal Bhavan, Mahape, which was 25 µg/m^3. Whereas the minimum value was at Koprigaon CAAQMS, with a concentration of 7 µg/m^3.

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m3)		
	50	40	60
Mahape CAAQMS, Navi Mumbai	24	75	144
Nerul CAAQMS, Navi Mumbai	16	85	135
Dr. D.Y. Patil College Nerul TTC	20	56	52
T.B.I.A, Rabale, Navi Mumbai	23	65	61
Nirmal Bhavan, Mahape	25	66	61
Belapur CAAQMS	11	76	130
CIDCO Nodal Office Kharghar	22	58	56
Koprigaon CAAQMS	7	60	159
MIDC Office, Taloja	25	69	65
Sanpada CAAQMS	13	54	168
Taloja CAAQMS	20	51	160

From the above table, it can be observed that the PM_{10} and NO_X concentrations are exceeding the standards. The maximum concentration for PM_{10} is 168 µg/m^3 while for NO_X, it is 85 µg/m^3. The minimum concentration for NO_X and PM_{10} was 51 µg/m^3 and 52 µg/m^3 respectively. The exceedance factors of PM_{10} and NO_X were calculated and the results are as follows:

Table 5.18 Exceedance factors of PM_{10} and NO_X for Navi Mumbai Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.02	2.80	1.28	2.13

5.1.10 Pune

The Pune Region has 24 air quality monitoring stations. **Table 5.19** represents the annual average of all the parameters analysed. From the table, it is observed that the concentrations of SO_2 at all the monitoring stations are within the standard concentration of 50 µg/m^3. The maximum concentration for SO_2 was at Solapur CAAQMS 22 µg/m^3 and the minimum value was at 'Katraj Dairy Pune CAAQMS' and 'Satara Municipal Council, Kesarkar Peth' with a concentration of 4 µg/m^3.

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m^3)		
	50	40	60
Bank of Baroda Building, Near Pimpri-Chinchwad M. C. Building	13	46	83
Pune CAAQMS	21	47	76
State Electricity Board Bldg. Nalstop	11	53	106

Maratha Chamber of Commerce, Bhosari	10	42	102
Swargate Police Chowki	15	65	164
Barbole Shopping Centre, Pimpalekar Chowk	18	27	75
Dange Chowk Pune CAAQMS	15	20	100
Fire Brigade Station, Bhakti Marg Pandharpur	17	26	75
Indradhanu (Backside), Degaon Road	18	26	75
Jagtap Dairy Pune CAAQMS	10	53	125
Jule Solapur CAAQMS	6	22	114
Karmaveer Bhaurao Patil College of Engg. Satara	5	6	58
Katraj Dairy Pune CAAQMS	4	55	107
Maharashtra Industrial Development Corporation	5	9	63
Mahatma Phule Bhaji Market Fire Brigade Station	18	27	76
Pune Pimpri Rose Garden CAAQMS	13	43	111
Pune University CAAQMS	6	51	101
Rupabhawani Chowk	18	26	78
Satara Municipal Council, Kesarkar Peth, Satara	4	7	65
Solapur CAAQMS	22	50	91
Solapur Revenue CAAQMS	13	32	98
Ujani Jalshuddhikaran Kendra, Gadegaon Road	19	28	80
Voronoko School Rang-Bhavan, Solapur	8	9	66
Walchand Institute of Technology Campus, Ashok Chowk, Solapur	8	9	66

The PM_{10} and NO_X concentrations are surpassing the standard limits of 60 µg/m^3 and 40 µg/m^3 respectively, at various locations. 164 µg/m^3 was the maximum concentration for PM_{10}, whereas the minimum concentration is 58 µg/m^3. For NO_X, the maximum concentration was 65 µg/m^3 and the minimum concentration was 6 µg/m^3. The exceedance factors of PM_{10} and NO_X were calculated and are tabulated below.

Table 5.20 Exceedance factors of PM_{10} and NOx for Pune Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		**NOx**	
Minimum	**Maximum**	**Minimum**	**Maximum**
1.05	2.73	1.05	1.63

5.1.11 Raigad

'Filter House of MIDC Water Works, Roha', 'Kalamboli CAAQMS', 'Mahad CAAQMS', 'Roha Industrial Association office, Roha' and 'Water Pump House, Panvel' are the five air quality monitoring stations in Raigad Region. **Table 5.21** represents the annual average of all the parameters analysed. From the table, it is observed that the concentrations of SO_2 at all the five monitoring stations are within the air quality standard. The Mahad CAAQMS had the maximum concentration for SO_2 among all the monitoring stations (25 µg/m^3). Conversely, 'Filter House of MIDC Water Works, Roha' and 'Roha Industrial Association office, Roha' had the minimum value, with a concentration of 3 µg/m^3.

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

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m3)		
	50	40	60
Filter House of MIDC Water Works, Roha	3	18	137
Kalamboli CAAQMS	11	55	173
Mahad CAAQMS	25	17	86
Roha Industrial Association office, Roha	3	13	100
Water Pump House, Panvel	21	56	52

The NO_X concentration are surpassing the standard limit of 40 µg/m^3 at Kalamboli CAAQMS and Water Pump House, Panvel. Whereas, the PM_{10} concentrations are within the standard limit of 60 µg/m^3 only at Water Pump House, Panvel. Kalamboli CAAQMS showed the highest concentration for PM_{10} (173 µg/m^3) among all the monitoring stations, whereas Water Pump House, Panvel showed the least concentration (52 µg/m^3). The maximum concentration for NO_X was observed at Water Pump House, Panvel, with a concentration of 56 µg/m^3 and minimum concentration was at Roha Industrial Association office, Roha (13 µg/m^3). The exceedance factors of PM_{10} and NO_X were calculated and the results are as follows:

Table 5.22 Exceedance factors of PM_{10} and NO_X for Raigad Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.43	2.88	1.38	1.40

5.1.12 Thane

The Thane Region has 12 air quality monitoring stations. **Table 5.23** represents the annual average of all the parameters analysed. From the table, it is observed that the concentrations of SO_2 at all the monitoring stations are within the air quality standard. The maximum concentration for SO_2 was at 'Terrace of Kopri Prabhag Samiti, Kopri', which was 32 µg/m^3. Whereas 'Mira-Bhayander CAAQMS' and 'Thane Ghodbunder CTP CAAQMS' showed minimum concentration of 8 µg/m^3.

Table 5.23 Statistical Monitoring of Annual Average Air Quality in Thane Region.

	Parameters		
	SO_2	NO_X	PM_{10}
	Standards (µg/m3)		
	50	40	60
Industrial Premises of Glaxo Pokhran road, Thane	28	47	80
Terrace of Shahu Market, Naupada	28	50	81
Terrace of Kopri Prabhag Samiti office, Kopri, Thane East	32	50	100
Kolawade Grampanchayat, Boisar	21	53	79
Mira Bhayander CAAQMS	8	25	162
MPCB Office, Boisar	20	54	90
PDTS Ground, Boisar	23	58	100
Tarapur CAAQMS	29	34	124
Thane Ghodbunder CTP CAAQMS	8	23	125
Upvan Thane CAAQMS	12	21	126
Vasai CAAQMS	16	32	124
Virar CAAQMS	10	27	148

From the above table, it can be observed that the concentrations of PM_{10} are exceeding the standard value of 60 µg/m^3 at all the 12 monitoring stations. Whereas, the NO_X concentration is exceeding 40 µg/m^3 standard value at six locations. The maximum concentration for NO_X was 58 µg/m^3 and the minimum concentration was 21 µg/m^3. While, the maximum concentration for PM_{10} is 162 µg/m^3 and the minimum concentration is 79 µg/m^3. The exceedance factors of PM_{10} and NO_X were calculated from these values. The results are as follows:

Table 5.24 Exceedance factors of PM_{10} and NOx for Thane Region.

Exceedance factors of PM_{10} and NOx			
PM_{10}		NOx	
Minimum	Maximum	Minimum	Maximum
1.32	2.70	1.18	1.45

5.2 Conclusion for Air Quality in the State of Maharashtra

The MPCB 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 addition, the MPCB has also installed several Continuous Ambient Air Monitoring Stations (CAAQMS). The observations recorded by these air quality monitoring stations are categorized into AQI categories and illustrated in **Figure 5.1** as percentage share. A total of 30,128 observations were recorded, out of which 3907 (12.97%) observations fell into the ‘Good’ category and 12,992 (43.12%) observations were categorized as ‘Satisfactory’. The ‘Moderate’ AQI category comprised of 12,119 observations (40.23%).

The 'Poor' and 'Very Poor' categories accounted for approximately 989 observations (3.28%) and 49 observations (0.16%) respectively. Only 72 observations (0.24%) were such where no data was recorded.

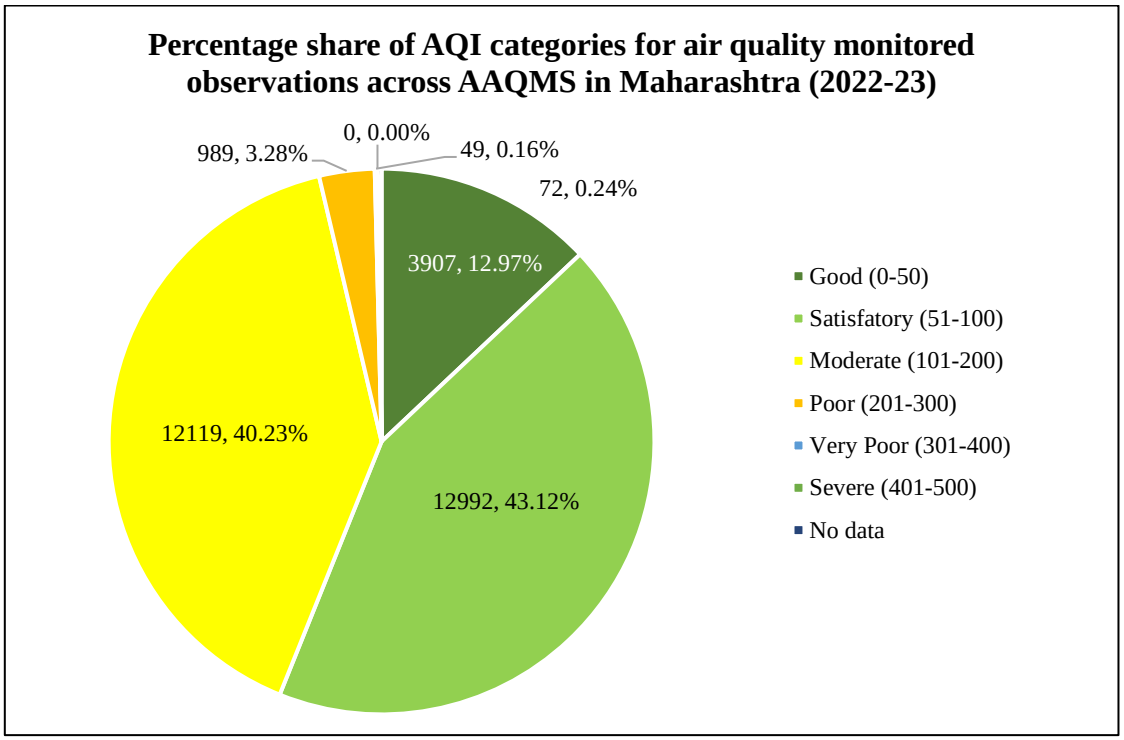


Figure 5.1 Percentage share of AQI categories for air quality of monitored observations across all AAQMS in Maharashtra (2022-23)

5.2.1 Trend Analysis of AQI over five years

The trend chart for the years 2019-23 was calculated (**Figure 5.2**). It was observed that the highest share in 2022-23 was of 'Satisfactory' category, followed by Moderate and Good. This has been the trend for the past five years except 2020-21. The share of 'Good' AQI category was the highest only during the year 2021-22 and a declining trend has been observed since then. Whereas the percentage of 'Moderate' category has increased when compared to its shares in the year 2021-22. The percentage of 'Poor' has been the least since 2019. The AQI categories 'Very Poor' and 'Severe' has been negligible for all the previous years.

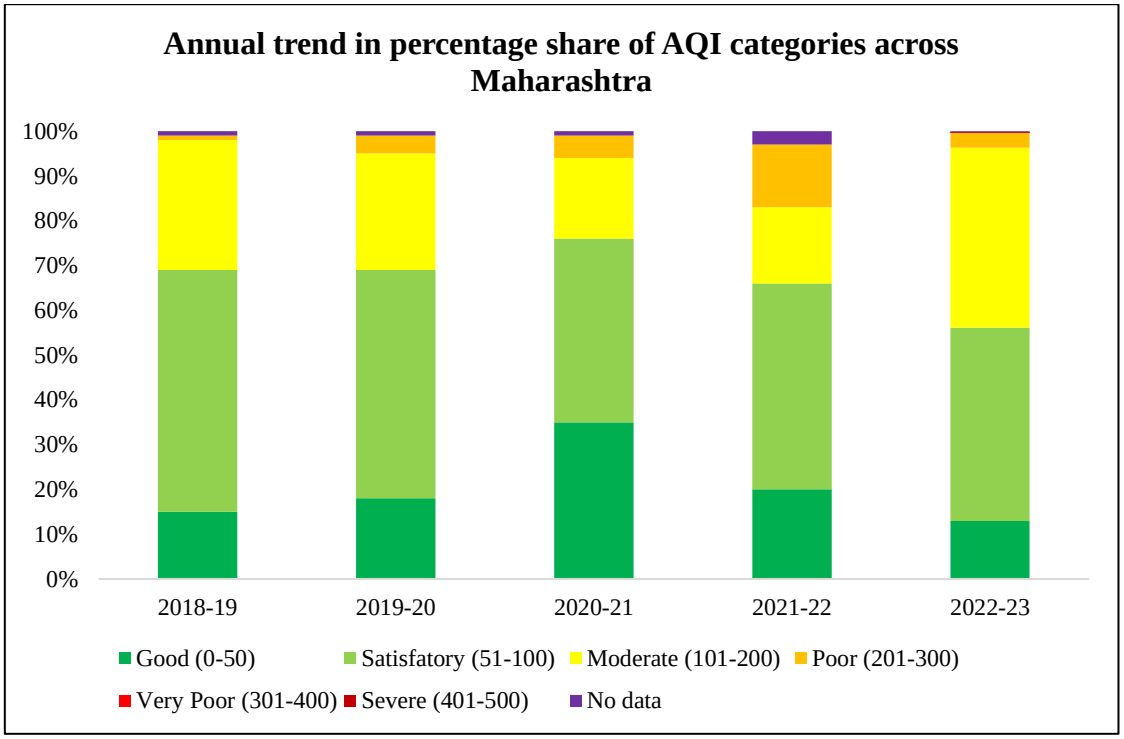


Figure 5.2 Trends in year-wise percentage share of AQI categories across Maharashtra.

5.3 Water Quality in Maharashtra

Water is the driving force of all nature and the most precious resource on our planet. It is often referred to as the 'elixir of life' for good reason. We, as human beings, are composed of around 60% water and virtually every living organism on Earth relies on it for survival. Water is not just essential for life; it plays a critical role in shaping our world, impacting ecosystems, economies and cultures. Hence, keeping our water resources clean is our duty.

However, water pollution is a pressing environmental issue that affects regions around the world, including the Indian State of Maharashtra. Maharashtra, known for its diverse geography, bustling cities and thriving industries, faces several water pollutions challenges. Water pollution represents a looming public health crisis. To mitigate the impact on health, concerted efforts are required at the governmental, industrial, community and individual levels. Access to clean water and safe sanitation is a fundamental human right and safeguarding these resources is essential for the well-being of current and future generations.

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 quality in Maharashtra can vary significantly depending on the region, water sources and various factors such as industrial pollution, agricultural runoff and population density. Overall, Maharashtra faces several challenges related to water quality, including contamination of surface water and groundwater.

In order to have continuous vigilance check on water quality across Maharashtra, MPCB being the state nodal agency under CPCB (Central Pollution Control Board), has installed 294 WQMS (Water Quality Monitoring Stations) across the State which are regularly monitored under two programs of NWMP (National Water Quality Monitoring Program) and SWMP (State Water Quality Monitoring Program). Surface water samples are monitored once every month whereas the ground water samples are monitored six monthly.

Number of Water Quality Monitoring Stations (WQMS) in Maharashtra - **294**

5.3.1 Water Quality Index

A Water Quality Index (WQI) is a numerical expression that summarizes the water quality of a particular water body based on various water quality parameters. It provides a simple way to assess and communicate the overall health or suitability of water for various purposes, such as drinking, recreation or ecological health. WQIs are used by environmental agencies, researchers and policymakers to monitor and manage water resources. The objective of developing an index is to simplify the complex water quality parametric data into comprehensive information for easy understanding. Upon determining the Water Quality Index (WQI), water quality is described for easy understanding and interpretation. 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 indexes in the United States. The WQI is calculated based on four water quality parameters selected for surface water include Dissolved Oxygen, Fecal Coliform (FC),

BOD, pH, and nine parameters for ground water namely pH, Total Hardness (TH), Calcium, Magnesium, Total dissolved solids (TDS), Chloride, Nitrate, Fluoride and Sulphate.

5.3.1.1 WQI for Surface Water

The modified weights of the four parameters are given in **Table 5.25**. CPCB updated the weights from NSFWQI and assigned relative weights to ensure uniformity when comparing throughout the nation. The equation to calculate the sub-indices for WQI is mentioned in **Table 5.26**. The WQI is represented based on colour code for easy understanding, the details are given in **Table 5.27**.

Table 5.25 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
pH	0.12	0.22
BOD	0.1	0.19
Total	**0.54**	**1**

Table 5.26 Sub-Index Equation Used to Calculate NSF WQI for DO, FC, pH and BOD.

Water Quality Parameters (Units)	Range Applicable	Equation
Dissolved Oxygen (DO) (% Saturation)	0-40	0.18 + 0.66 × % Saturation DO
	40-100	(-13.55) + 1.17 × % Saturation DO
	100-140	163.34 - 0.62 × % Saturation DO
Fecal Coliform (FC) (Counts/100 ml)	1-1000	97.2 - 26.6 x log FC
	1000-100000	42.33 – 7.75 x log FC
	>100000	2
pH	02-05	16.1 + 7.35 × (pH)
	05-7.3	(-142.67) + 33.5 × (pH)
	7.3-10	316.96 - 29.85 × (pH)
	10-12	96.17 - 8.0 × (pH)
	<2, >12	0
BOD (mg/l)	0-10	96.67 - 7 × (BOD)
	10-30	38.9 - 1.23 × (BOD
	>30	2

Table 5.27 Surface water Classification based on Water Quality Index.

WQI Value	Water Quality	Class by CPCB	Class by MPCB	Remarks	Colour code used in this report
63-100	Good to Excellent	A	A-I	Non-Polluted	
50-63	Medium to Good	B	Not prescribed	Non-Polluted	
38-50	Bad	C	A-II	Polluted	
38 and less	Bad to Very Bad	D, E	A-III, A-IV	Heavily Polluted	

5.3.1.2 WQI for Ground Water

The MPCB monitors ground water quality twice a year for the parameters described in **Table 5.28**. 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 WQI is represented based on colour code for easy understanding, the details are given in **Table 5.29**.

Table 5.28 Relative Weights of Each Parameter for WQI of Ground water.

	Indian Standards for Drinking Water Quality		Weight (WI)			
Chemical Parameters	**Acceptable Limits**	**Permissible Limits**	**Weight (WI)**	**Relative weight**	**Weight w/o Iron, Manganese and Bicarbonate**	**Relative Weight w/o Iron, Manganese and Bicarbonate**
pH	6.5 - 8.5	No relaxation	4	0.09756	4	0.13333
Total Hardness (TH)	300	600	2	0.04878	2	0.06667
Calcium	75	200	2	0.04878	2	0.06667
Magnesium	30	No relaxation	2	0.04878	2	0.06667
Bicarbonate	244	732	3	0.07317	-	-
Chloride	250	1000	3	0.07317	3	0.1
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
Iron	0.3	No relaxation	4	0.09756	-	-
Sulphate	200	400	4	0.09756	4	0.13333
Total			**41**	**1**	**30**	**1**

Table 5.29 Ground water 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	

5.3.2 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 and 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. To have continuous vigilance checks 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, Saline (Sea and Creek) and West Flowing Rivers.

5.3.2.1 Godavari Basin 1

The Water Quality Index (WQI) monthly trend of Godavari Basin 1 for the year 2022-23 is depicted in **Figure 5.3.** The Godavari Basin 1 is spread across in eight districts of Maharashtra. It is evident from the figure that water quality was non polluted throughout the year 2022-23 and that all districts in the basin had WQIs of 'Good to Excellent' except Aurangabad. The water quality in Aurangabad was 'Medium to Good' in April and November 2022. WQI was not recorded in Latur district during April to July 2022 and March 2023 since the locations were dry.

5.3.2.2 Krishna Basin

The monthly trend in WQI for the six districts in the Krishna basin in 2022-23 is displayed in **Figure 5.4**. For F.Y. 2022-23, the WQI was 'Medium to Good' in Ahmednagar (May 2022) and Solapur (June and July 2022) districts. The WQI in the rest of the four districts was classified as 'Good to Excellent' throughout the year.

5.3.2.3 Godavari Basin 2

Figure 5.5 indicates the monthly trend in WQI along Godavari Basin 2 in seven districts – Akola, Bhandara, Buldhana, Chandrapur, Nagpur, Wardha, and Yavatmal. The graph shows that all of the districts in this basin had WQIs in 2022-23 that were classified as 'Good to Excellent' signifying that the water was non polluted all year through.

Due to the locations being dry, data was not recorded in Wardha (June 2022), Akola and Buldhana districts (April to July 2022, February and March 2023).

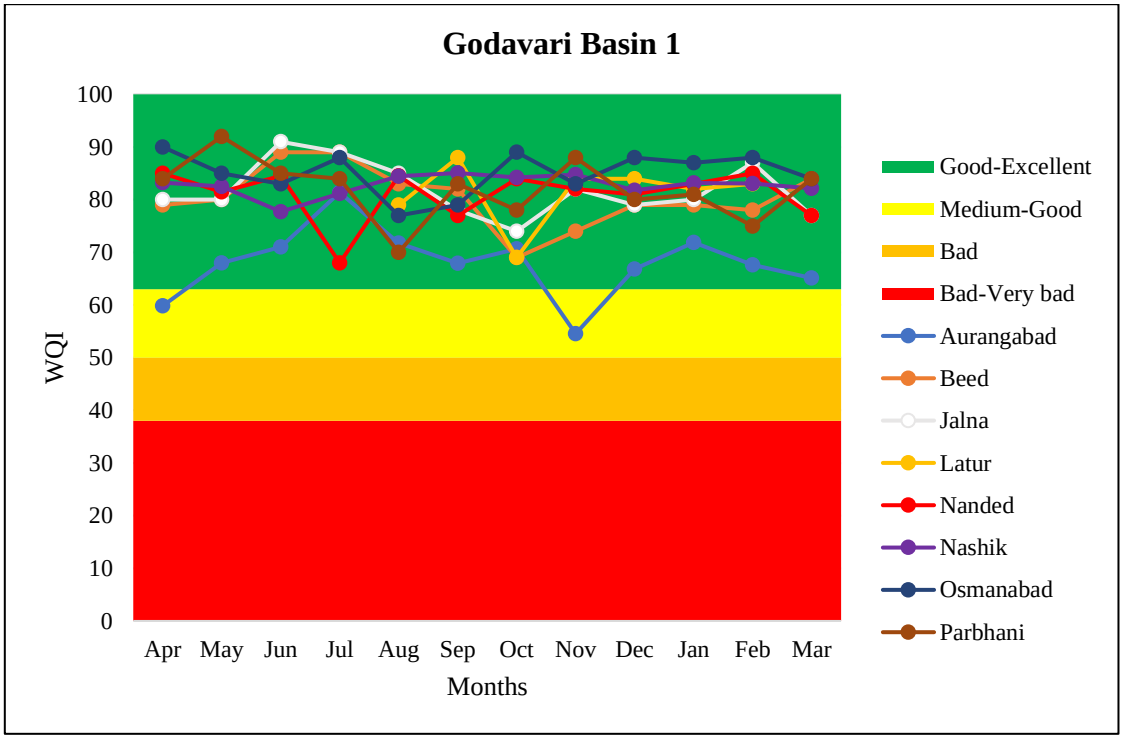


Figure 5.3 The intra-basin performance of Godavari Basin 1 across eight districts in Maharashtra F.Y. 2022-23.

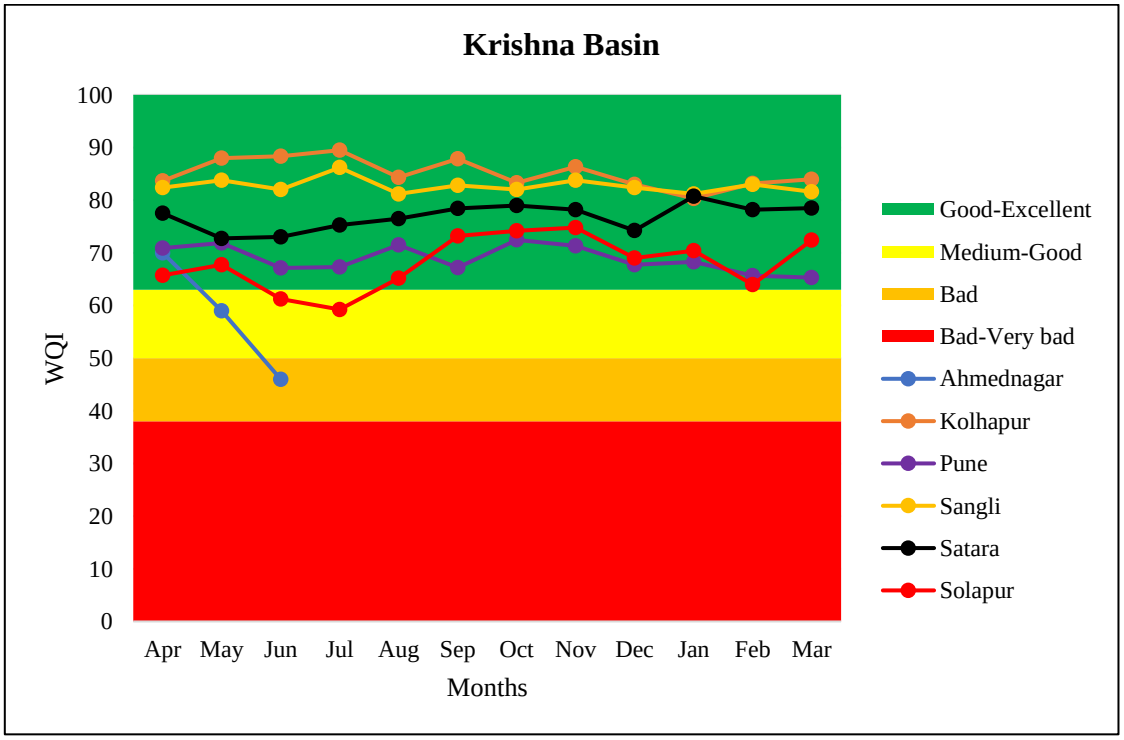


Figure 5.4 The intra-basin performance of Krishna Basin across six districts in Maharashtra F.Y. 2022-23.

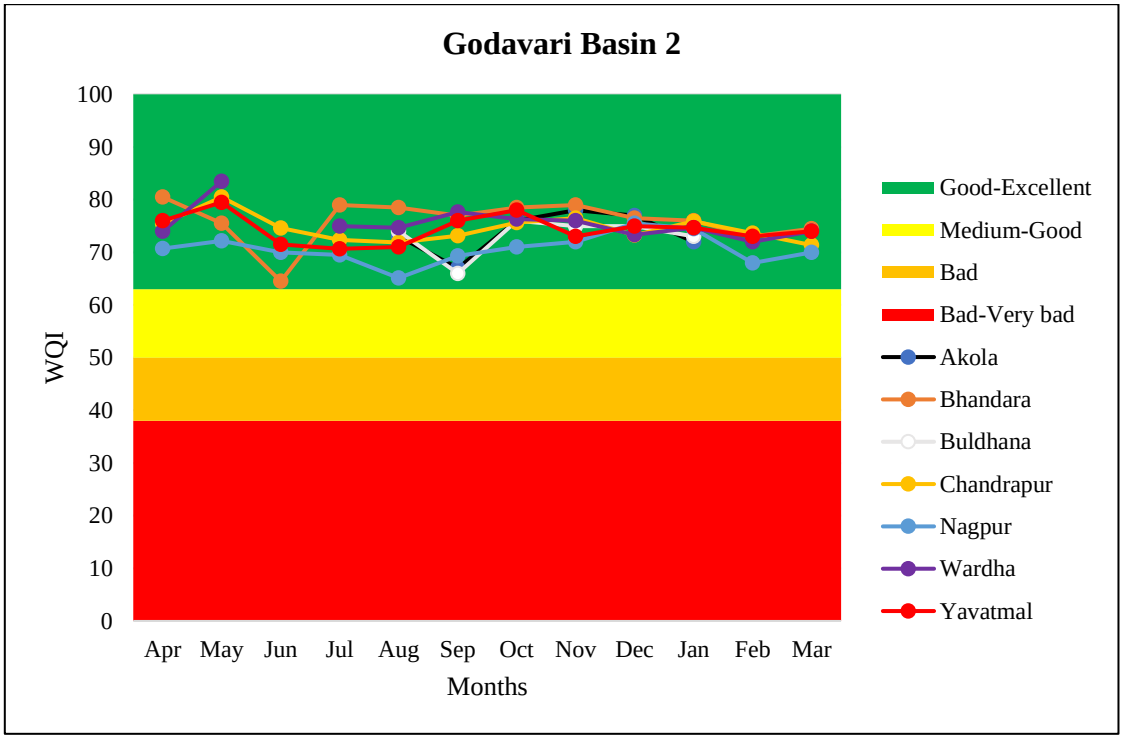


Figure 5.5 The intra-basin performance of Godavari Basin 2 across seven districts in Maharashtra F.Y. 2022-23.

5.3.2.4 Tapi Basin

Figure 5.6 shows the monthly trend in WQI along Tapi basin across six districts during the year 2022-23. It can be observed that the WQI in all the six districts was 'Good to Excellent' during April 2022 to March 2023. The water quality was non polluted during these months.

WQI was recorded in Amravati district from April to July, 2022. In Akola, WQI was not recorded from April to July 2022 and from February 2023 to March 2023.
In the case of Dhule district, WQI was not recorded during May, June 2022, February and March 2023. WQI was not recorded in April to July 2022 and January to March 2023 in Nashik district. It was because the locations were dry, which made sample collection impossible.

5.3.2.5 West Flowing Rivers

In **Figure 5.7**, the monthly trend in WQI for the year 2022-23 is displayed along the West Flowing Rivers across five districts. In Ratnagiri, Raigad, Palghar and Thane district, water quality was reported as non-polluted throughout the year and the WQI was rated as 'Good to Excellent' for every month of 2022-23.

In Mumbai, WQI was recorded as 'Bad to Very bad' during the months April, May, June, August, September, November 2022, January and March 2023. The water was heavily polluted during these months. In the months of October and December 2022, the WQI was observed to be 'Bad' indicating that the water was polluted. The WQI was recorded to be 'Good to Excellent', only in the month of July 2022.

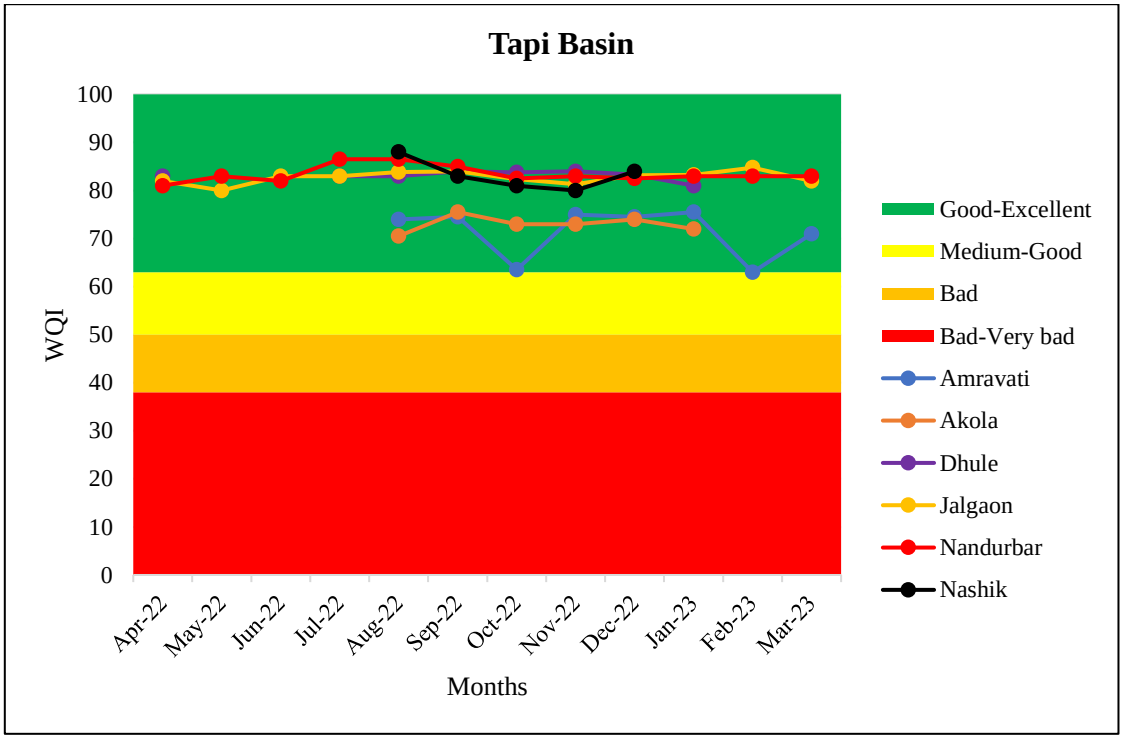


Figure 5.6 The intra-basin performance of Tapi Basin across six districts in Maharashtra F.Y. 2022-23.

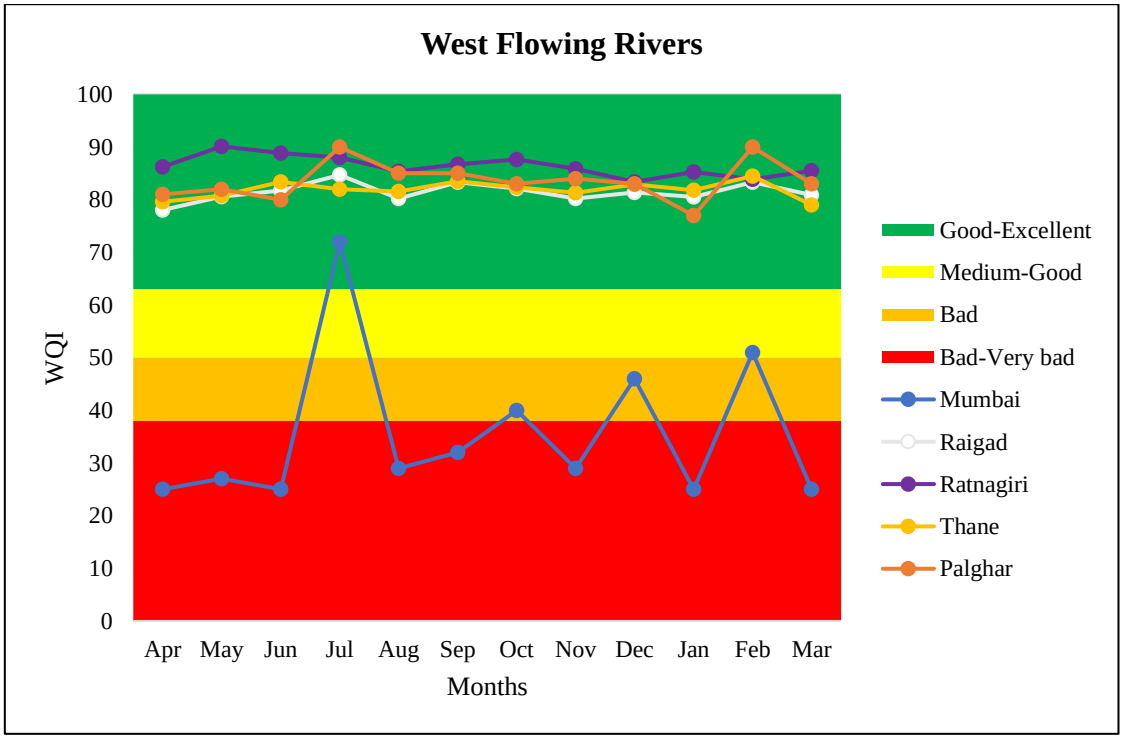


Figure 5.7 The intra-basin performance of West Flowing Rivers across five districts in Maharashtra F.Y. 2022-23.

5.3.2.6 Saline (Sea and Creek)

Figure 5.8 shows the monthly trend in WQI along the Saline (Sea and Creek) basin across four districts during the year 2022-23. The WQI for the Ratnagiri district was 'Good to Excellent' for the entire period from April 2022 to March 2023. It signifies that the water was non polluted.

In Raigad, the WQI was recorded as 'Good to Excellent' during the months from June 2022 to March 2023 and 'Medium to Good' in April, May 2022 and February 2023. The water was non polluted throughout the year.

In Thane district, the WQI was recorded as 'Good to Excellent' during the months of July, August, October and December 2022. The WQI was recorded as 'Medium to Good' during the months of April, May, June, September, November 2022, January, February and March 2023. The water was non polluted during these months.

The WQI was recorded as 'Medium to Good' during the months of April to November 2022, January and February 2023 in Mumbai. The water was non polluted during these months. The WQI was recorded as 'Bad' during the month of December 2022 and March 2023 indicating that the water was polluted during this period.

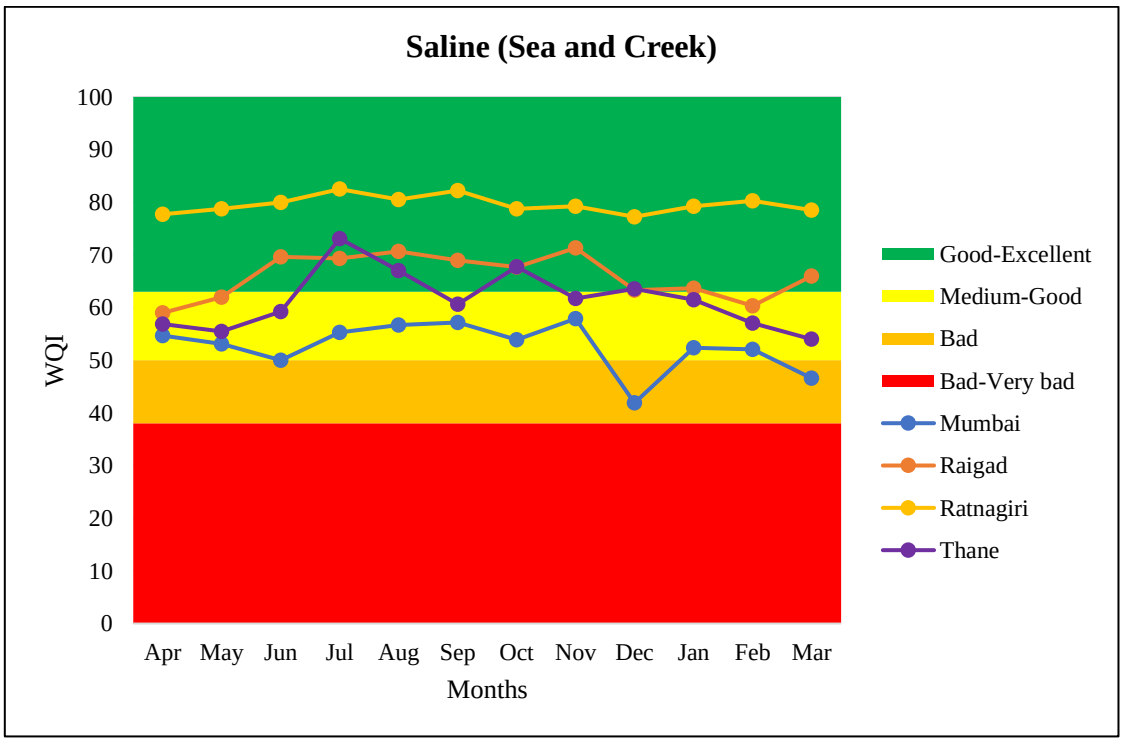


Figure 5.8 The intra-basin performance of Saline Basin across four districts in Maharashtra F.Y. 2022-23.

5.3.3 Analysis of Ground Water 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. The water quality for groundwater across various Regions in the State is represented

in **Table 5.30**, wherein WQI for 66 Ground water WQMS in Maharashtra were analysed. In F.Y. 2022-2023, nine ground water records were classified as 'Water Unsuitable for Drinking' (Station code 2825, 2004, 2834, 2819, 2821, 2822, 2823 and 1990). 17 records of ground water quality across 11 monitoring stations were observed to be 'Excellent' (Station code 207, 215, 217, 218, 219, 220, 2829, 2832, 2833, 2834 and 2835). There are 17 monitoring stations wherein no data has been recorded in both, April and December. Those stations are 2001, 2824, 2202, 1984, 1986, 1988, 2818, 1989, 1998, 2827, 2000, 209, 210, 211, 212, 213 and 214.

Ground water 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	

Table 5.30 WQI for Ground water in various Regions.

Apr-22	No data	Dry	122	134	153	No data	357	85	103	85
Dec-22	No data	137	155	193	158	No data	191	68	89	94
Station Code	**2001**	**2002**	**1993**	**2200**	**2201**	**2824**	**2825**	**1994**	**2003**	**2828**
Region	**Amravati**		**Aurangabad**					**Chandrapur**		

Apr-22	310	104	140	92	110	No data	41	81	92	31	29	361	34
Dec-22	107	126	118	75	83	No data	38	61	96	23	28	25	23
Station Code	**2004**	**2005**	**2006**	**2007**	**2008**	**2202**	**2829**	**2830**	**2831**	**2832**	**2833**	**2834**	**2835**
Region	**Kolhapur**												

Apr-22	21	27
Dec-22	22	21
Station Code	**219**	**220**
Region	**Kolhapur**	

Apr-22	72	346	63	396	381	424	No data	131	No data	112	No data
Dec-22	82	308	110	163	163	166	No data	106	Dry	76	Dry
Station Code	**1992**	**2819**	**2820**	**2821**	**2822**	**2823**	**1984**	**1985**	**1986**	**1987**	**1988**
Region	**Pune**						**Thane**				

Apr-22	104	334	83	61	157	53	Dry	N/A	57	53
Dec-22	No Data	197	198	119	187	94	No Data	N/A	38	35

Station Code	**221**	**1990**	**1991**	**2204**	**2816**	**2817**	**2818**	**1989**	**217**	**218**
Region	**Nashik**							**Raigad**		

Apr-22	109	117	No data	Dry	74	Dry	92	148	Dry
Dec-22	82	117	76	No data	77	No data	84	81	No data
Station Code	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2203**	**2826**	**2827**
Region	**Nagpur**								

Apr-22	No Data	No Data	No Data	No Data	No Data
Dec-22	No Data	No Data	No Data	No Data	No Data
Station Code	**209**	**210**	**211**	**212**	**213**
Region	**Nagpur**				

Apr-22	184	98	37	106	No data	90
Dec-22	232	104	94	75	No data	48
Station Code	**205**	**206**	**207**	**208**	**214**	**215**
Region	**Kalyan**				**Navi Mumbai**	

5.3.4 Trend Analysis of WQI across basins over five years

5.3.4.1 WQI Trend analysis for Tapi Basin

Figure 5.9 displays the WQI trend for the Tapi Basin for the years 2018-19, 2019-20, 2020-21 and 2022-23 across six districts. The average WQI for the 2018-19 year was 'Bad to Very bad' in Amravati, Dhule, Jalgaon, Nandurbar and Nashik districts. The water quality in these districts was heavily polluted. In Akola district, the water quality was polluted and categorised as 'Bad'.

The average WQI for the year 2019-20 was consistently in the 'Good to Excellent' range for all the districts and the year-round water quality was classified as non-polluted. In the year 2020-21, the WQI was recorded as 'Good to Excellent' throughout the year in all the districts except Nashik. The water quality of Nashik district was polluted since the WQI was in the range 'Medium to Good'.

Whereas, for 2022-23, the mean WQI was recorded in the 'Good to Excellent' category during all months. There has been a slight decrease in the WQI values of 2022-23 as compared to the WQI of the year 2021-22.

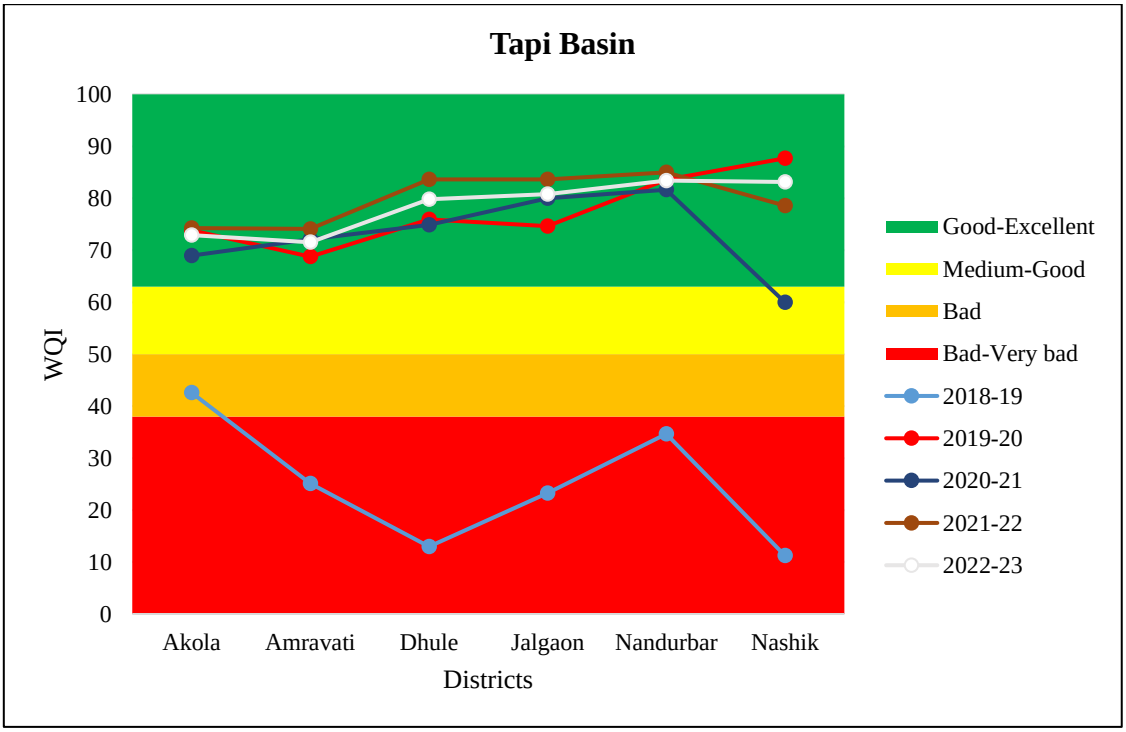


Figure 5.9 Trend Analysis for Tapi Basin.

5.3.4.2 WQI Trend Analysis for Godavari Basin 1

Figure 5.10 shows the trend of WQI over the years 2018-19 to 2022-23 for Godavari Basin 1. The water quality was analysed across eight districts - Aurangabad, Beed, Jalna, Latur, Nanded, Nashik, Osmanabad and Parbhani.

The mean WQI for the years 2018-19 was recorded as 'Medium to Good' in Aurangabad and Latur districts. The WQI was in the range 'Good to Excellent' in rest of the districts. The water quality for the years 2019-20 to 2022-23 remained as 'Good to Excellent'. The average WQI of Latur district was not recorded in the year 2020-21. Whereas for the year 2021-22, WQI of only Nashik and Osmanabad districts have been recorded.

5.3.4.3 WQI Trend Analysis for Godavari Basin 2

From **Figure 5.11**, the trend of WQI over the years 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 for Godavari Basin 2 can be observed across seven districts.
The mean WQI was recorded as 'Good to Excellent' in Bhandara, Chandrapur and Yavatmal districts for the year 2018-19. The water quality was heavily polluted in Akola and Buldhana districts since the WQI was in the category 'Bad to Very bad'. During the year 2019-20, the mean WQI was recorded in the 'Good to Excellent' category in all the districts except Nagpur, wherein the water quality was 'Medium to Good'.

During the years 2020-21 and 2021-22 as well as 2022-23, it was recorded as 'Good to Excellent' for all the seven districts. Compared to the WQI values of the years 2021-22, the WQI values for the year 2022-23 indicate a marginal increase in Akola and Nagpur districts.

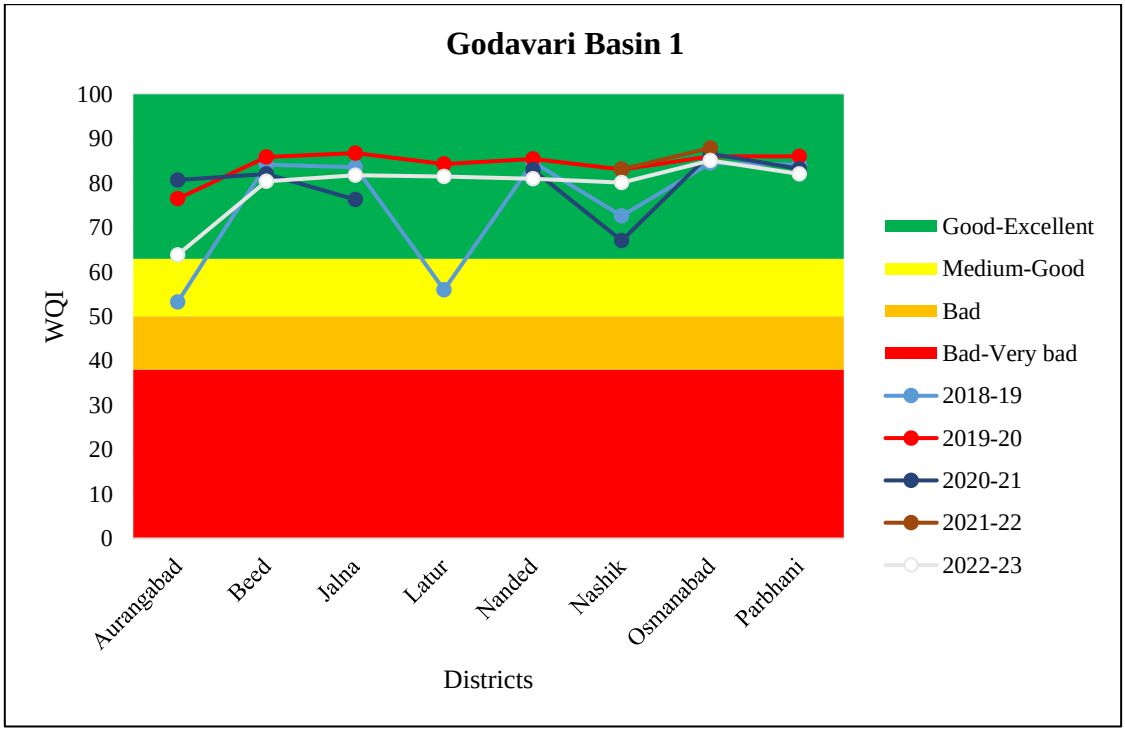


Figure 5.10 Trend Analysis for Godavari Basin 1.

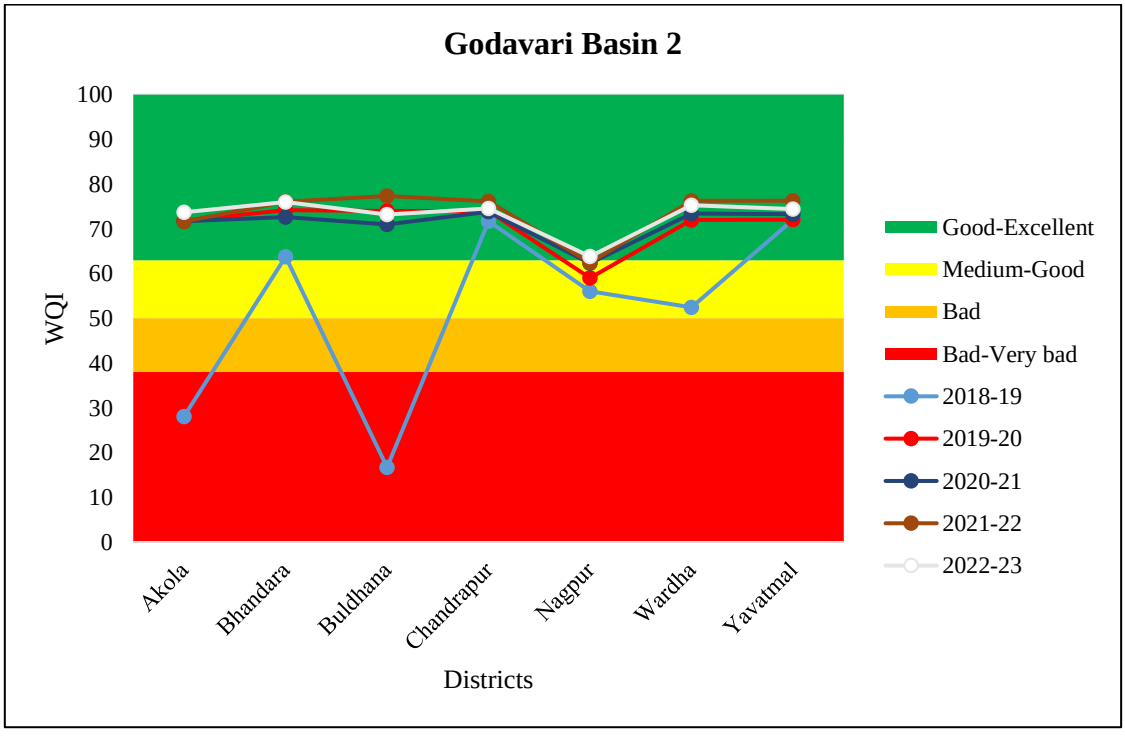


Figure 5.11 Trend Analysis for Godavari Basin 2.

5.3.4.4 WQI Trend Analysis for Krishna Basin

Figure 5.12 shows the trend of WQI over the years 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 for Krishna Basin. In 2018-19, the mean WQI was classified as 'Good to Excellent' in Kolhapur, Sangli and Satara districts.

During 2019-20, the water quality was 'Good to Excellent' in Kolhapur, Sangli, Satara, Sangli and Solapur districts. In Ahmednagar and Pune districts, the average WQI recorded was categorised as 'Bad to Very bad' and 'Medium to Good' respectively. For the years 2020-21, 2021-22 and 2022-23, the WQI has been classified as 'Good to Excellent' in all the districts except Ahmednagar. The water quality in Ahmednagar district has been 'Medium to Good' since 2020-21.

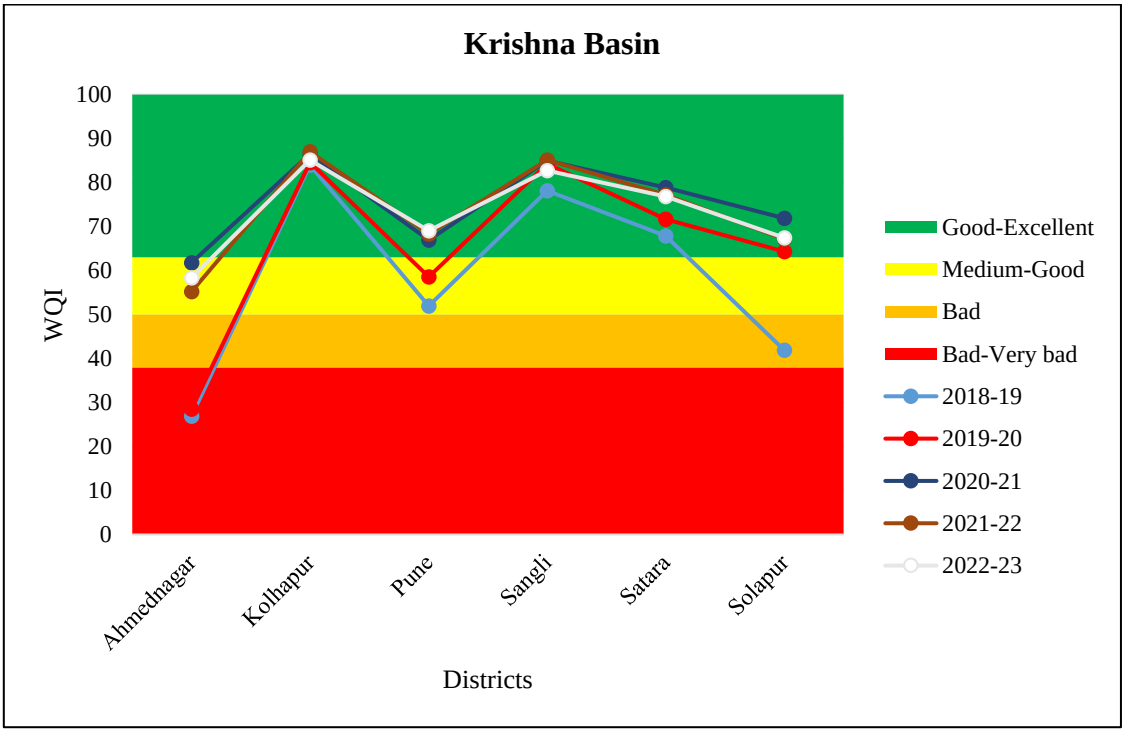


Figure 5.12 Trend analysis for Krishna Basin.

5.3.4.5 WQI Trend Analysis for West Flowing Rivers

Figure 5.13 shows the trend of WQI over the years 2018-19 to 2022-23 for West Flowing Rivers. The water quality was analysed across Mumbai, Raigad, Ratnagiri, Thane and Palghar districts.

Except for Mumbai, the average WQI values of all the districts were recorded in the 'Good to Excellent' category for all the five years since 2018-19. In Mumbai district, the average water quality has been 'Bad' in 2019-20, 2020-21, 'Medium to Good' in 2021-22 and 'Bad to Very bad' in 2018-19, 2022-23.

5.3.4.6 WQI Trend Analysis for Saline (Sea and Creek)

The trend of WQI over the years 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 for Saline (Sea and Creek) is displayed in **Figure 5.14**. The mean WQI was recorded as 'Good to Excellent' only in Ratnagiri district during the year 2018-19. It was categorised as 'Bad to Very bad' in Palghar district and 'Medium to Good' in Mumbai, Thane, Raigad districts. The water quality was non-polluted in these districts. Similar results were observed in the year 2019-20 and 2020-21.

The mean WQI for 2021-22 was recorded as 'Good to Excellent' in Ratnagiri district, indicating that the water quality was non polluted. In Mumbai, Raigad and Thane districts, the mean WQI value was categorised as 'Medium to Good'. In the year 2022-23, the WQI was 'Good to Excellent' in Raigad, Ratnagiri districts and 'Medium to Good' in Mumbai and Thane districts. The WQI values have not been recorded in Palghar district for the years 2021-22 and 2022-23.

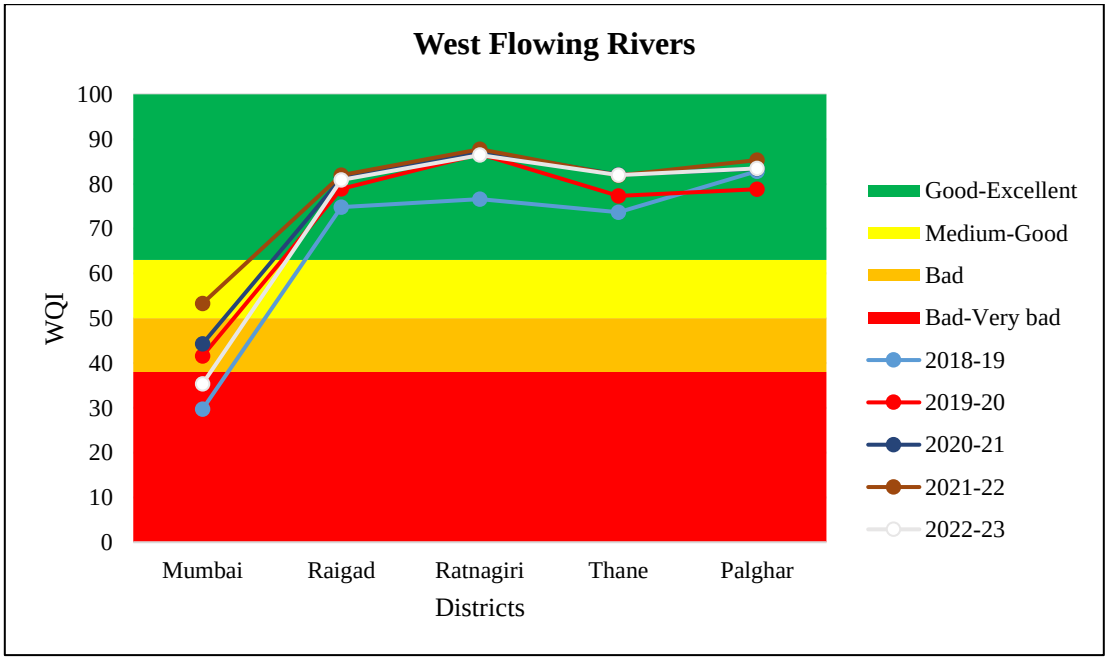


Figure 5.13 Trend Analysis for West Flowing Rivers.

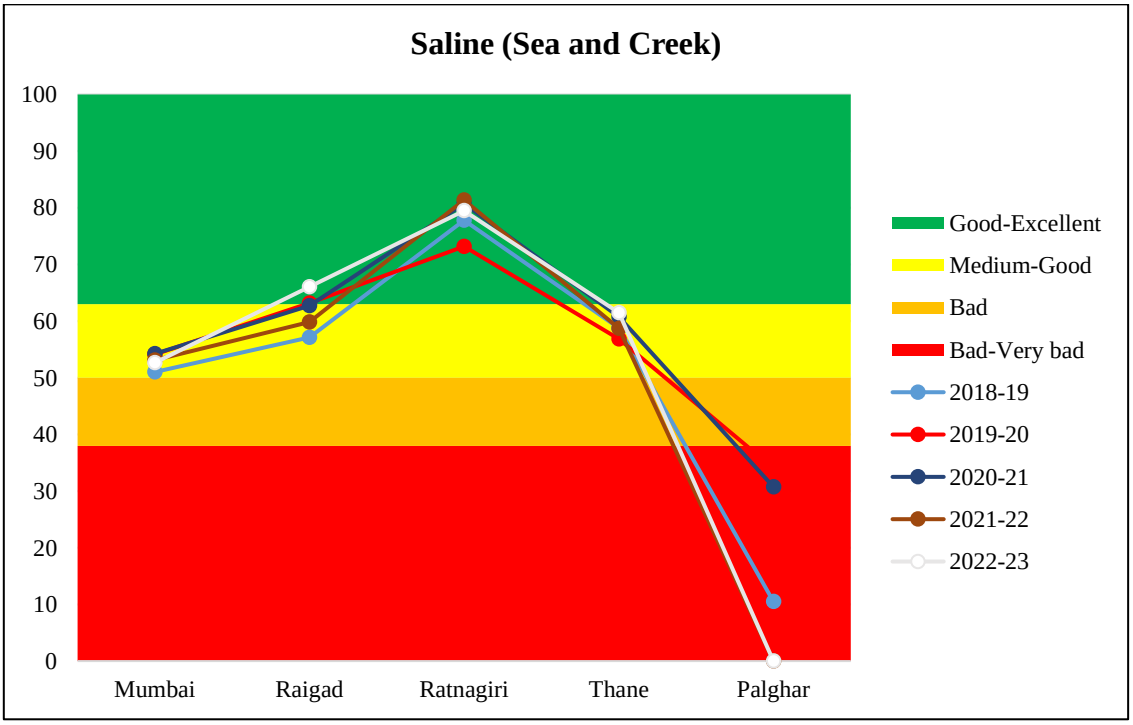


Figure 5.14 Trend Analysis for Saline (Sea and Creek).

5.4 Industrial Pollution

In the cities, the number of small-scale companies has significantly increased due to urbanization and the desire for better living conditions. These sectors produce a vast array of consumer goods and are vital to the market economy. However, many small-scale enterprises have found it difficult to achieve environmental compliance because of their unplanned growth, lack of accessible treatment equipment and variety of trading practices. It was these limitations that gave rise to the idea of Common Effluent Treatment Plants (CETPs). CETPs provide a collective solution for treating effluents generated by clusters of industries.

The Ministry of Environment, Forest and Climate Change (MoEFCC) issued notifications in 1989 that prohibited or limited the operation of specific industries. To make decisions about the location of these industries easier, the notifications have presented the idea of categorizing industries as 'Red', 'Orange', 'Green' and 'White'. The use of this concept was then expanded not only for the goal of locating industries but also for the purpose of managing consent and developing standards connected to the surveillance and inspection of industries. The size of the industries and resource consumption have been the main factors in categorizing processes thus far. The major criterion did not take into consideration pollution from emissions and effluent discharge, nor did it consider the potential impact on health.

The following 'Range of Pollution Index' criteria have been decided upon following brainstorming sessions with CPCB, SPCBs and MoEFCC for the classification of industrial sectors.

- 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.

Based on this categorization, the number of industries in Maharashtra is given in **Table 5.31**.

Table 5.31 Categorization of industries in Maharashtra.

	Large	Medium	Small
Red	4295	762	13542
HCEs	12715		
Orange	3646	1528	28644
Green	1078	889	49207
White	3624		

5.4.1 Analysis and Performance of CETP with Statistical Details

Common Effluent Treatment Plants serve as a step toward a cleaner environment and provide services to society in addition to assisting companies in easily controlling pollution. The concept of CETP has many advantages. Pollutant concentrations in wastewater from a select few industries are frequently high, making it technically and economically challenging to bring them down to the appropriate level.

The table below provides region-specific data on the number of industries falling under each category, the quantity of effluent produced, the amount treated and the performance of CETPs operating in these locations. The tables in the following paragraphs show the average values recorded by individual CETPs for BOD and COD during the year 2022-23. Standards determined by the CPCB have been considered for evaluation of performance of CETPs.

BOD → Inland surface water - 30 mg/l
Land for irrigation - 100 mg/l
Marine coastal areas - 100 mg/l

COD → Inland surface water - 250 mg/l
Marine coastal areas - 250 mg/l

Number and the total capacity of CETPs (existing and under construction) = **25** CETPs with a capacity of **220.85 MLD**.

The total number of operational CETPs in Maharashtra: **25**

The total number of under-constructions CETPs in Maharashtra: **2**

The total number of non-operational CETPs in Maharashtra: **1**

Number of Industries in the State: **1,19,930**

Quantity of effluent load from the CETPs: **170.46 MLD**

The number of industries from different categories in each region is provided in **Table 5.32**.

Table 5.32 Categorization of industries in the State.

Amravati		
LSI	**MSI**	**SSI**
2	16	5028
27	21	2220
31	8	144
White Total - 12		

Aurangabad		
LSI	**MSI**	**SSI**
71	79	6355
143	114	2858
340	40	578
White Total - 13		

Chandrapur		
LSI	**MSI**	**SSI**
10	7	792
20	41	504
139	43	103
White Total - 0		

Kolhapur		
LSI	**MSI**	**SSI**
47	32	8256
109	119	5194
297	80	1331
White Total - 2438		

Mumbai		
LSI	**MSI**	**SSI**
28	40	2657
650	249	1286
348	26	750
White Total - 0		

Nagpur		
LSI	**MSI**	**SSI**
22	31	3026
144	117	3069
284	42	1102
White Total - 34		

Navi Mumbai		
LSI	**MSI**	**SSI**
76	76	2253
192	123	1335
236	58	1162
White Total - 4		

Pune		
LSI	**MSI**	**SSI**
557	409	9145
1643	412	5438
1457	172	2812
White Total - 0		

Raigad		
LSI	**MSI**	**SSI**
47	39	806
124	49	738
272	54	528
White Total - 35		

Kalyan	Nashik	Thane

LSI	MSI	SSI
39	36	2236
130	74	1453
171	71	2186
White Total - 14		

LSI	MSI	SSI
139	96	6440
208	161	3415
472	109	1747
White Total - 1074		

LSI	MSI	SSI
40	28	2213
256	48	1134
248	59	1099
White Total - 0		

5.4.1.1 Amravati

The Amravati Region has one CETP with a treatment capacity of 5 MLD. The effluent load of 1.5 MLD was received from 2022 to 2023. **Table 5.33** displays the annual performance of the CETP for the period 2022-23. The annual performance is illustrated in **Figure 5.15**.

Table 5.33 Statistical Analysis Data for CETP Performance in Amravati Region.

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
Additional Amravati Industrial Area	304.86	838.66	12.74	39.82

For Additional Amravati Industrial Area,

- Capacity - 5 MLD
- Effluent load - 1.5 MLD
- Mode of disposal - On land for irrigation
- Performance - 95.82% BOD reduction and 95.25% COD reduction

The discharge limits of 100 mg/l for BOD were attained.

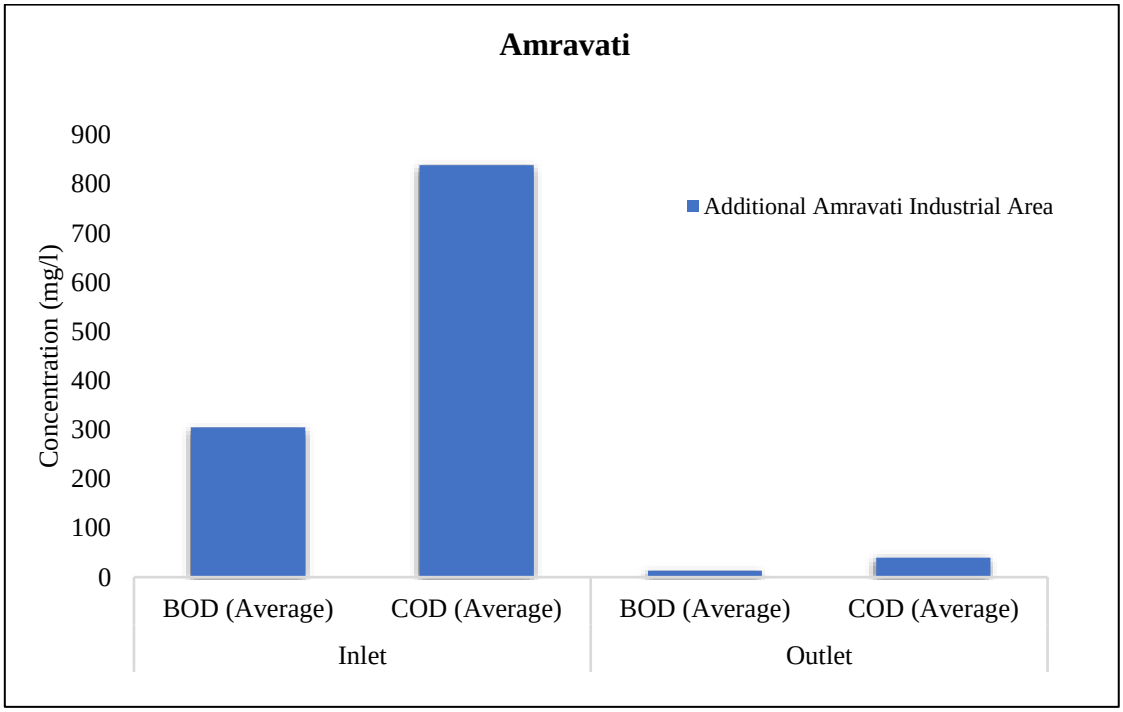


Figure 5.15 BOD and COD values of Amravati Region.

5.4.1.2 Aurangabad

There is only one operating CETP; SMS Waluj CETP Pvt. Ltd., which is situated in the MIDC Area of Waluj and has a 10 MLD treatment capacity. **Table 5.34** displays the performance of the CETP in this Region, whereas **Figure 5.16** provides a graphical representation of the same.

Table 5.34 Statistical Analysis Data for CETP Performance in Aurangabad Region.

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
SMS Waluj CETP Pvt Ltd	366.29	1091.25	26.07	97.25

For SMS Waluj CETP Pvt. Ltd.,

- Capacity - 10 MLD
- Mode of disposal - Into Inland surface water
- Performance - 92.88% BOD reduction and 91.08% COD reduction

The discharge limits of 30 mg/l BOD and 250 mg/l for COD respectively were attained.

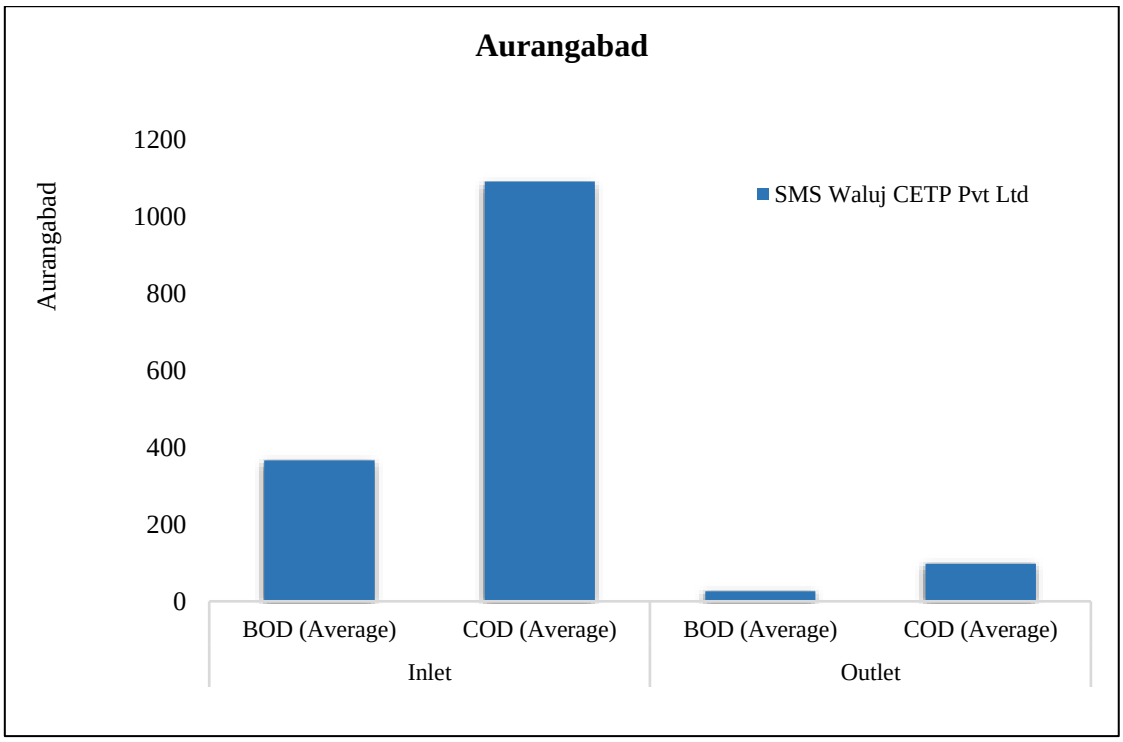


Figure 5.16 BOD and COD values of Aurangabad Region.

5.4.1.3 Kalyan

In this Region, there are five CETPs that are functional in F.Y. 2022-23. These CETPs have a total treatment capacity of 26.55 MLD with an effluent load of 23.69 MLD. The Additional Ambernath CETP at Ambernath MIDC is non-operational. The annual performance of all the CETPs in Kalyan Region is represented in **Table 5.35** and illustrated in **Figure 5.17**.

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

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
ACMA - CETP-Co-operative Society Ltd	275.92	828.08	38.29	128.92
Badlapur CETP Association	489.68	1418.38	144.26	452.68
Chikhloli-Morivali Effluent Treatment	337.3	973.88	54.56	175.04
Dombivli Better Environment System Association	477.05	1236.5	80.8	220.1
Dombivli CETP (Chemical) (Phase-II)	661.75	1978.7	115.73	358.4

For ACMA CETP Co-operative Society Ltd,

- Capacity - 0.25 MLD
- Effluent load - 0.051 MLD
- Mode of disposal - Into Inland surface water
- Performance - 86.12% BOD reduction and 84.43% COD reduction

The average outlet value of BOD was not within the prescribed discharge limits of 30 mg/l.

For Badlapur CETP Association,

- Capacity - 8 MLD
- Effluent load - 7 MLD
- Mode of disposal - Into Inland surface water
- Performance - 70.53% BOD reduction and 68.08% COD reduction

The average outlet value of the CETP was not within the prescribed discharge limits of 30 mg/l for BOD and 250 mg/l for COD.

For Chikhloli-Morivali Effluent Treatment,

- Capacity - 0.8 MLD
- Effluent load - 0.14 MLD
- Mode of disposal - Into Marine coastal areas
- Performance - 83.82% BOD reduction and 82.02% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

For Dombivli Better Environment System Association,

- Capacity - 16 MLD
- Effluent load - 15 MLD
- Mode of disposal - Into Marine coastal areas
- Performance - 83.06% BOD reduction and 82.19% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

For Dombivli CETP (Chemical) (Phase-II),

- Capacity - 1.5 MLD
- Effluent load - 1.5 MLD

- Mode of disposal - Into Inland surface water
- Performance - 82.51% BOD reduction and 81.88% COD reduction

The average outlet values of the CETP were not within the prescribed discharge limits of 30 mg/l for BOD and 250 mg/l for COD.

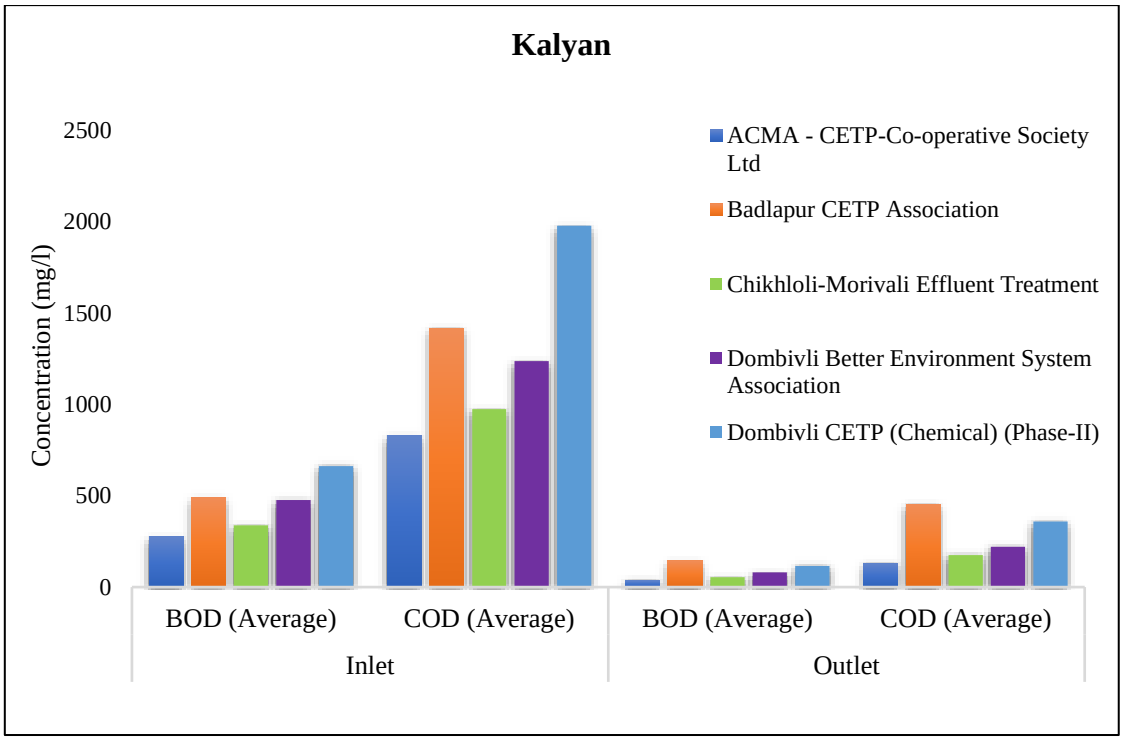


Figure 5.17 BOD and COD values of Kalyan Region.

5.4.1.4 Kolhapur

There are five CETPs in operation in this Region, with two under construction. These CETPs have a combined treatment capacity of 29.8 MLD. The overall effluent load at the CETPs was 15.4 MLD. **Table 5.36** represents the parameters examined for each CETP in Kolhapur Region. This is demonstrated graphically in **Figure 5.18**.

Table 5.36 Statistical Analysis Data for CETP Performance in Kolhapur Region.

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
L.K. Akiwate Industrial Co-op., Estate Ltd.	595.81	1898.88	51.26	171.8
Lote Parshuram Environment Protection Co-op. Society	1280.78	4020.27	74.58	229.41
Kagal-Hatkanangale CETP	71.16	228.4	16.4	74.31
Ichalkaranji Textile Development Cluster Ltd. (12 MLD)	569.46	1711.8	27.04	107.88
Ichalkaranji Textile Development Cluster Ltd. (1 MLD)	398.5	1216.34	21.07	89.73

For L. K. Akiwate Industrial Co-op. Estate Ltd,

- Capacity - 0.8 MLD
- Effluent load - 0.8 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 91.39% BOD reduction and 90.95% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

For Lote Parshuram Environment Protection Co-op Society,

- Capacity - 6 MLD
- Effluent load - 4.6 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 94.17% BOD reduction and 94.29% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

For Kagal-Hatkanangale CETP,

- Capacity - 10 MLD
- Effluent load - 10 MLD
- Mode of disposal - On Land for irrigation
- Performance - 76.95% BOD reduction and 67.46% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD.

For Ichalkaranji Textile Development Cluster Ltd. (1 MLD) (under construction),

- Capacity - 1 MLD
- Mode of disposal - Into Inland surface water
- Performance - 94.71% BOD reduction and 92.62% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 30 mg/l for BOD and 250 mg/l for COD.

For Ichalkaranji Textile Development Cluster Ltd. (12 MLD) (under construction),

- Capacity - 12 MLD
- Mode of disposal - Into Inland surface water
- Performance - 95.25% BOD reduction and 93.69% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 30 mg/l for BOD and 250 mg/l for COD.

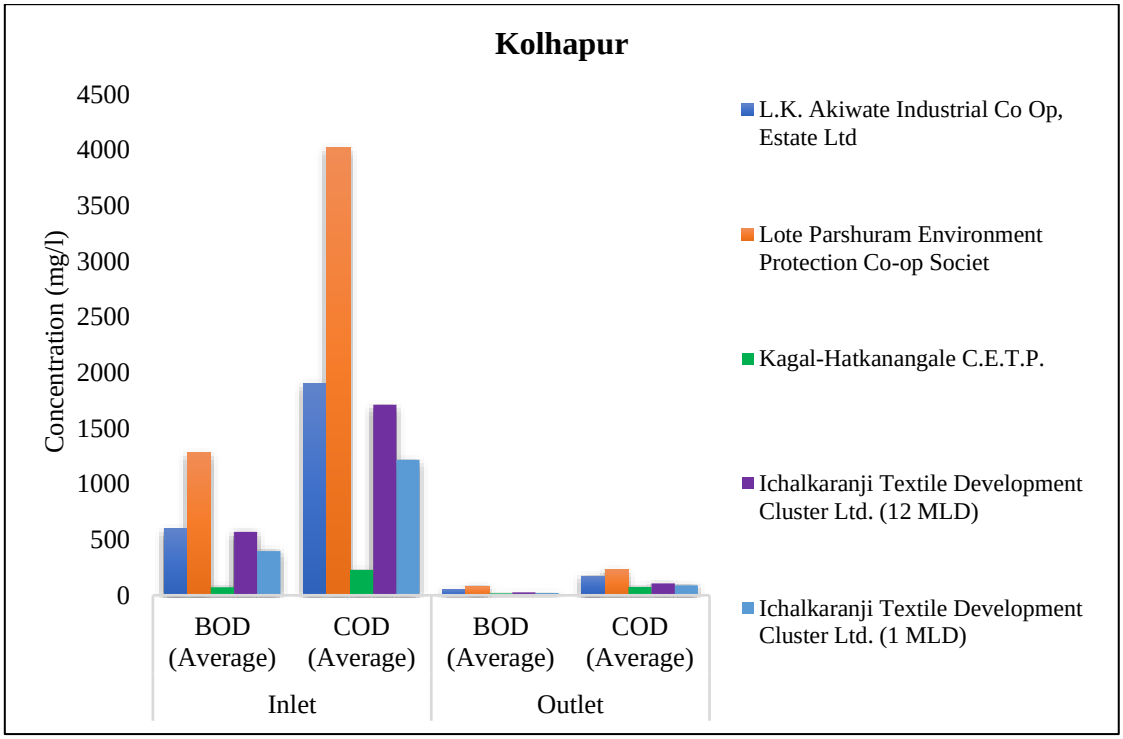


Figure 5.18 BOD and COD values of Kolhapur Region.

5.4.1.5 Navi Mumbai

In this Region, there are two operational CETPs with a combined treatment capacity of 49.5 MLD and effluent load of 41 MLD. **Table 5.37** shows the performance of each CETP and **Figure 5.19** illustrates it.

For Taloja CETP Co-operative Society,

- Capacity - 22.5 MLD
- Effluent load - 16 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 76.86% BOD reduction and 78.15% COD reduction

The average outlet values of CETP were not within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

Table 5.37 Statistical Analysis Data for CETP Performance in Navi Mumbai Region.

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
Taloja CETP Co-operative Society	1145.41	3581.5	265	782.38
Thane-Belapur Association	527.84	1537.33	63.98	200.69

For Thane - Belapur Association,

- Capacity - 27 MLD
- Effluent load - 25 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 87.87% BOD reduction and 86.94% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

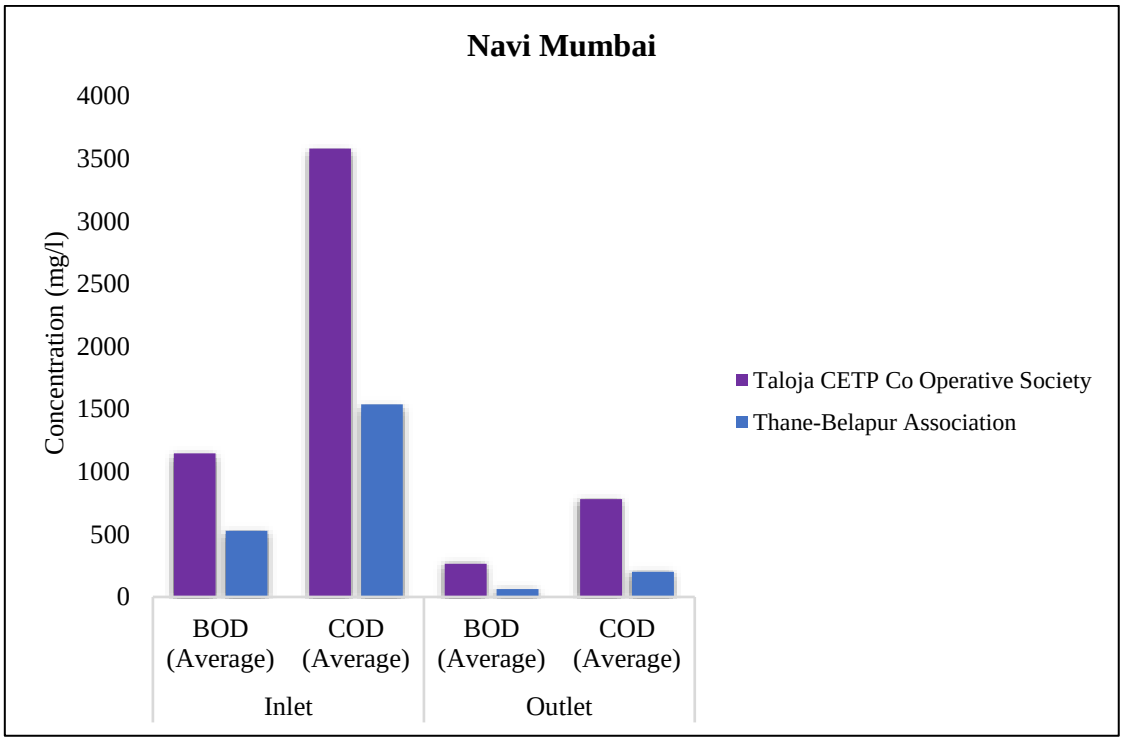


Figure 5.19 BOD and COD values of Navi Mumbai Region.

5.4.1.6 Nagpur

In Nagpur Region, one CETP is operational with a treatment capacity of 5 MLD. The effluent load received for the 2022-23 financial year was 4.5 MLD. **Table 5.38** provides details of the annual average of the parameters analysed and **Figure 5.20** gives a graphical representation of the same.

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

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
Butibori CETP Pvt. Ltd.	353.54	927.08	22.46	61.94

For Butibori CETP Pvt. Ltd.,

- Capacity - 5 MLD
- Effluent load - 4.5 MLD
- Mode of disposal - Into Inland surface water
- Performance - 93.64% BOD reduction and 93.31% COD reduction

The average outlet values were within the prescribed discharge limits of 30 mg/l for BOD and 250 mg/l for COD.

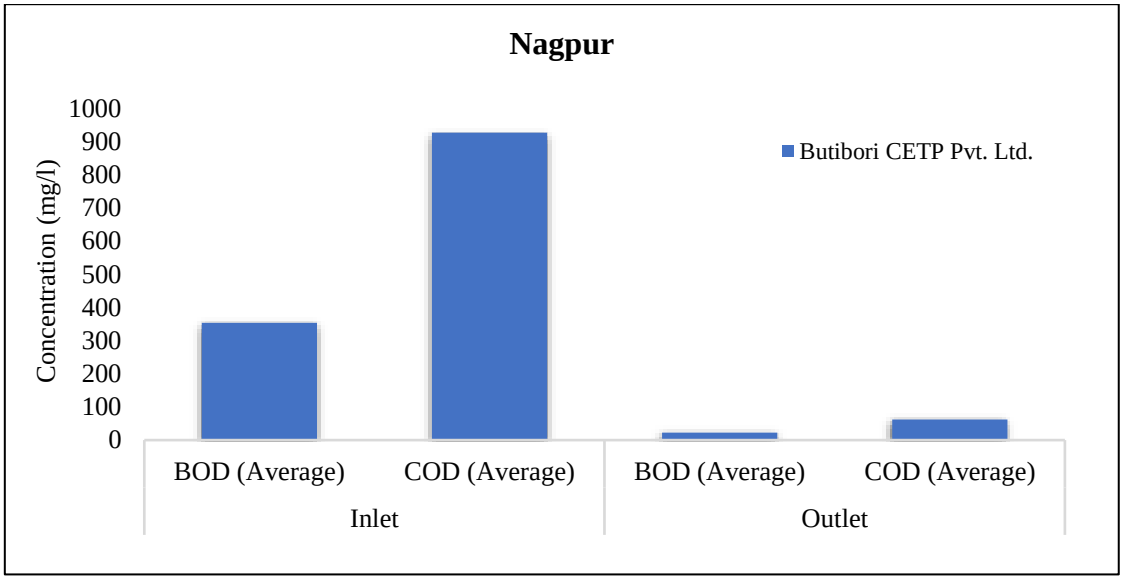


Figure 5.20 BOD and COD values of Nagpur Region.

5.4.1.7 Pune

The Pune Region has five functional CETPs with an effective treatment capacity of 12.5 MLD. In this Region, the total effluent load received was 6.37 MLD in total in the year 2022-23. The performance of all the CETPs in Pune Region is displayed in **Table 5.39** and illustrated in **Figure 5.21**.

Table 5.39 Statistical Analysis Data for CETP Performance in Pune Region.

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
Greenfield CETP Pvt. Ltd.	224	650.23	105.18	290.77
Hydro Air Tectonics (PCD)	33.48	90.88	23	58.22
Akkalkot CETP	374.37	1051.95	107.73	298.97
Kurkumbh Environment Protection Co-op. Society	229.98	660.38	92.9	253.6
Ranjangaon CETP	153.43	417.6	94.09	266.7

For Greenfield CETP Pvt. Ltd.,

- Capacity - 1.5 MLD
- Effluent load - 0.5 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 53.04% BOD reduction and 55.28% COD reduction

The average outlet values of CETP were not within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

For Hydro Air Tectonics,

- Capacity - 4 MLD
- Effluent load - 4 MLD
- Mode of disposal - On Land for irrigation

- Performance - 31.30% BOD reduction and 35.93% COD reduction

The average outlet value of CETP was within the prescribed discharge limits of 100 mg/l for BOD.

For Akkalkot CETP,

- Capacity - 3 MLD
- Mode of disposal - Into Inland surface water
- Performance - 71.22% BOD reduction and 71.57% COD reduction

The average outlet values of CETP were not within the prescribed discharge limits of 30 mg/l for BOD and 250 mg/l for COD.

For Kurkumbh Environment Protection Co-op. Society,

- Capacity - 1 MLD
- Effluent load - 0.37 MLD
- Mode of disposal - On land for irrigation
- Performance - 59.60% BOD reduction and 61.59% COD reduction

The average outlet value of CETP was within the prescribed discharge limits of 100 mg/l for BOD.

For Ranjangaon CETP,

- Capacity - 3 MLD
- Effluent load - 1.5 MLD
- Mode of disposal - On land for irrigation
- Performance - 38.67% BOD reduction and 36.13% COD reduction

The average outlet value of CETP was within the prescribed discharge limits of 100 mg/l for BOD.

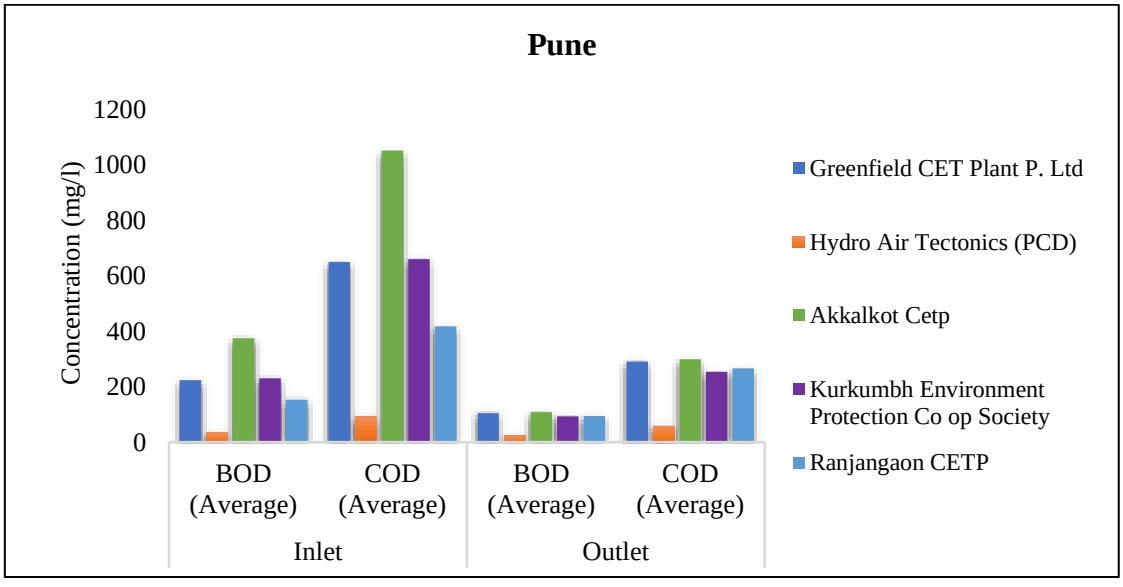


Figure 5.21 BOD and COD values of Pune Region.

5.4.1.8 Raigad

In this Region, there are three CETPs in operation with a combined treatment capacity of 32.5 MLD. In F.Y. 2022-23, the effluent load was 33 MLD. The annual performance of the CETPs is given in **Table 5.40** and represented in **Figure 5.22**.

Table 5.40 Statistical Analysis Data for CETP Performance in Raigad Region.

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
MMA-CETP Co Operative Society Ltd.	233.22	702.8	40.37	142.51
PRIA CETP (I) Ltd.	123.17	345.12	51.95	148.74
RIA CETP Co-op. Society Ltd.	1005.29	2972.62	151.4	466.15

For MMA-CETP Co Operative Society Ltd,

- Capacity - 7.5 MLD
- Effluent load - 8.5 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 82.69% BOD reduction and 79.72% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

For PRIA CETP (I) Ltd.,

- Capacity - 15 MLD
- Effluent load - 15 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 57.82% BOD reduction and 56.90% COD reduction

The average outlet values of CETP were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

For RIA-CETP Co-op. Society Ltd,

- Capacity - 10 MLD
- Effluent load - 9.5 MLD
- Mode of disposal - Into marine coastal areas
- Performance - 84.93% BOD reduction and 84.31% COD reduction

The average outlet values of CETP were not within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

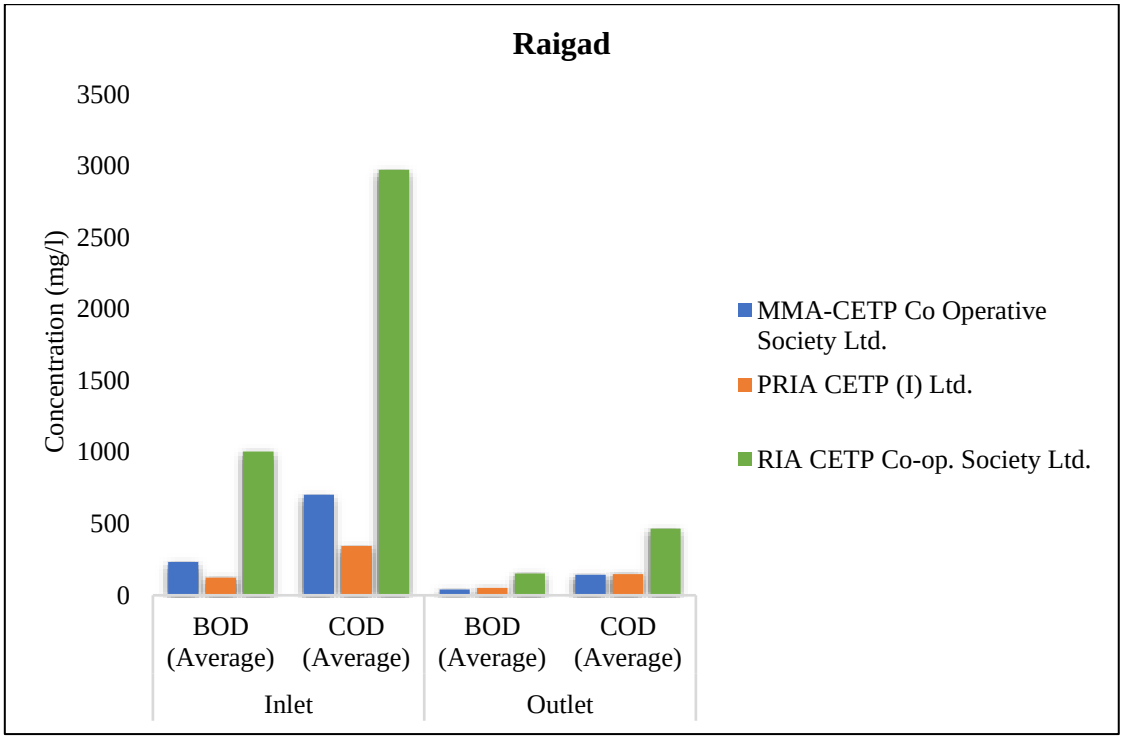


Figure 5.22 BOD and COD values of Raigad Region.

5.4.1.9 Thane

The Thane Region has two operational CETPs with a cumulative capacity 50 MLD. These CETPs treated a total of 45 MLD of industrial effluent that was received in F.Y. 2022-23. The details of annual performance of each CETP is given in **Table 5.41** and represented in **Figure 5.23**.

Table 5.41 Statistical Analysis Data for CETP Performance in Thane Region.

Parameters in mg/l	Inlet		Outlet	
	BOD (Mean)	COD (Mean)	BOD (Mean)	COD (Mean)
Tarapur Environment Protection Society CETP, Phase-II, Dist. Thane	867.17	2389.91	260	737.13
Tarapur Environment Protection Society CETP, Plot No. AM-29.	1147.73	3096.73	565.91	1585.45

For Tarapur Environment Protection Society CETP, Phase-II, Dist. Thane,

- Capacity - 25 MLD
- Effluent load - 25 MLD
- Performance - 70.01% BOD reduction and 69.15% COD reduction

For Tarapur Environment Protection Society CETP, Plot No. AM-29,

- Capacity - 25 MLD
- Effluent load - 20 MLD
- Performance - 50.69% BOD reduction and 48.80% COD reduction
- Mode of Disposal - Into Marine Coastal areas

The average outlet values of CETP were exceeding the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD.

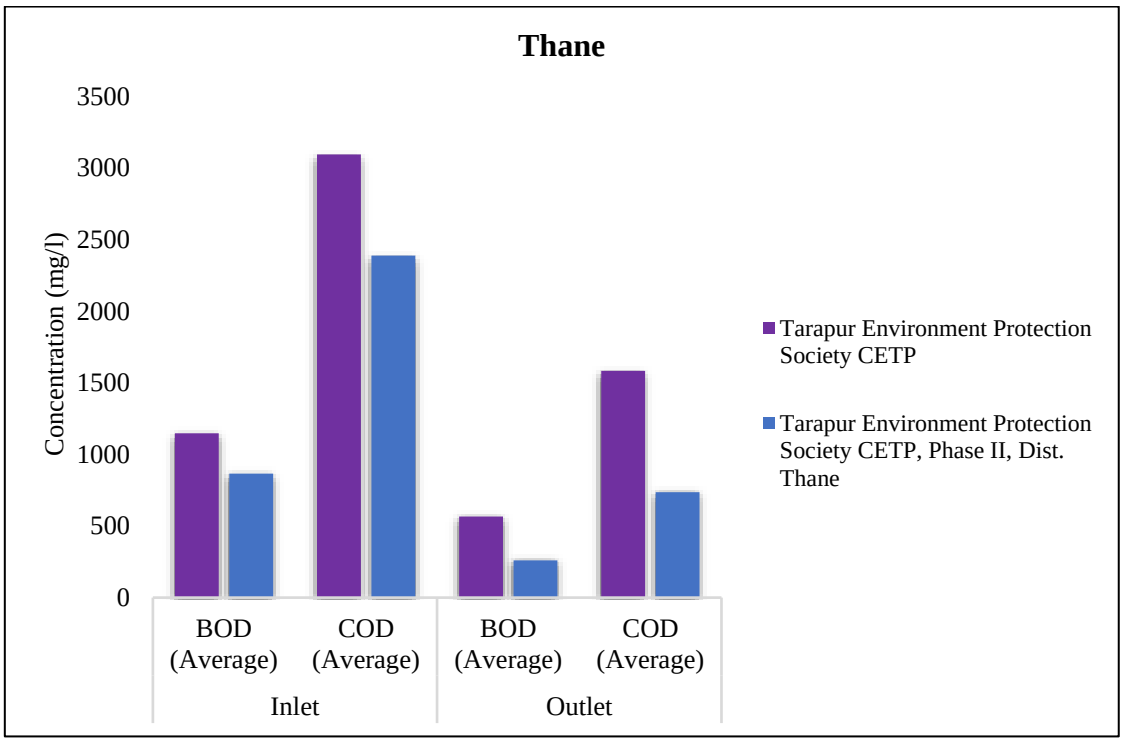


Figure 5.23 BOD and COD values of Thane Region.

5.5 Domestic Wastewater Treatment

A sewage treatment plant is a crucial facility designed to process and treat wastewater from residential, commercial and industrial sources. This process involves the removal of contaminants and pollutants from sewage to produce treated effluent and solid sludge. Primary treatment typically includes the physical removal of large debris and sediment, followed by secondary treatment, where biological processes break down organic matter. Advanced treatment methods, such as tertiary treatment, may be employed to further enhance water quality. Sewage treatment plants play a vital role in safeguarding public health, protecting the environment and ensuring the responsible disposal or reuse of treated water in various applications.

5.5.1 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 analysed 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 and treated in Urban Local Bodies of the State during 2022-23;

- Total sewage generation: **6037.83 MLD**
- Treatment capacity (installed): **6881.31 MLD**
- Total Operational STPs: **144**
- Total Non-operational STPs: **5**
- Total Additional STPs: **10**

5.5.1.1 Amravati

In the Amravati Region, there are six STPs for 2022-23. The STPs at Siloda, PKV, Akola, and Phase-II Shegaon are added recently. The combined effluent generated was 163.6 MLD. Whereas, the amount of sewage treated was 121.1 MLD out of the plant's treatment capacity of 128.5 MLD. **Table 5.42** shows the average annual performance and analysis of all STPs offered in the Amravati Region.

Table 5.42 Mean of Annual Performance of STPs in Amravati Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
STP-I Lalkhadi	7.50	7.60	34.6	12.5	196	68.33
STP-II Lalkhadi	7.80	7.80	71	11.24	134	57.6
STP Washim	7.2	7.2	54	12	189	112
Siloda and PKV, Akola	7.7	7.5	9.6	7.8	78	66
Phase-I, Shegaon	7.8	7.8	25	14	70	44
Phase-II, Shegaon	7.7	7.4	20	10	50	38

From **Table 5.42**, it is evident that the outlet values for pH are within range for all STPs. The outlet values for BOD were beyond the prescribed discharge standard of 10 mg/l at all the STPs except STP at Phase-II Shegaon and Siloda and PKV, Akola. The outlet values for Suspended

solids (SS) were beyond the prescribed standard of 20 mg/l at all the STPs. The STP II Lalkhadi performed best among these STPs with a BOD removal efficiency of 84.16% and the removal efficiency of SS was of 57.01%. Siloda and PKV STP performed lowest with 18.75% BOD performance and 15.38% SS performance.

5.5.1.2 Aurangabad

There are nine STPs in Aurangabad Region. There are two additional STPs for the year 2022-23 which are 'Jalna Municipal Council' and 'At Partur Nagar Parishad, Dist. Jalna'. The installation of Jalna Municipal Council STP is currently in progress, while the STP at Salim Ali Lake is being upgraded. The total sewage load was 143.2 MLD, with the combined sewage generated being 175.2 MLD. Hence, the amount of sewage treated was 143.2 MLD out of the plant's treatment capacity of 346 MLD. The average annual performance and analysis of all STPs provided in Aurangabad Region is represented in **Table 5.43.**

Table 5.43 Mean of Annual Performance of STPs in Aurangabad Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Kanchanwadi, Aurangabad	-	7.9	-	38	-	15
Padegaon, Aurangabad	-	7.6	-	30	-	10
Salim Ali Lake, Aurangabad	Presently upgradation of STP is in progress and sewage is diverted to Kanchanwadi STP which has sufficient capacity.					
At Zalta, Aurangabad	-	7.9	-	48	-	10
At Partur Nagar Parishad, Dist. Jalna	-	-	-	-	-	-
Jalna Municipal council	Work of installation of STP is under process.					
Bondar STP	-	8-8.9	-	35	-	25.2
Elichpur STP	-	7.5-8.5	-	38.03	-	22.2
Sangvi STP	-	7.7-8.6	-	40.36	-	21.6

It can be observed from **Table 5.43** that the pH outlet values were within the set limits. The outlet values of BOD were not within the prescribed standards at all STPs. The outlet values of SS for Kanchanwadi, Padegaon and Zalta were within the prescribed standards of 20 mg/l.

5.5.1.3 Chandrapur

The Chandrapur Municipal Corporation operates two STPs. The combined treatment capacity of these sewage treatment plants is 70 MLD. During the year 2022-23, the total quantity of domestic effluent received and treated was 35.5 MLD. The annual performance and analysis of all STPs is provided in Chandrapur Region are represented in **Table 5.44.**

Table 5.44 Mean of Annual Performance of STPs in Chandrapur Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Pathanpura	7.53	8.1	16.98	7.13	110.18	18.45

Rehmat Nagar	7.69	7.72	12.53	7.4	62.09	42.27

Table 5.44 shows that the outlet values of pH, BOD, and SS values at Pathanpura STP in Chandrapur Region meet the prescribed discharge standards. However, the SS outlet value at Rehmat Nagar was 42.27 mg/l, surpassing the standard value of 20 mg/l. The BOD and SS removal efficiency at Pathanpura STP were 58% and 83%, respectively. Additionally, at Rehmat Nagar STP the BOD and SS removal efficiency were 40.94% and 31.92% respectively.

5.5.1.4 Kalyan

In the Kalyan Region for the year 2022-23, there are a total of 13 STPs. The total sewage generated was 219 MLD. Out of the treatment plant's capacity of 268.98 MLD, 201 MLD of sewage was treated. **Table 5.45** provides a detailed information about all the STPs in the Region.

Table 5.45 Mean of Annual Performance of STPs in the Kalyan Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Barve STP	-	7.1	-	4.2	-	12
Adharwadi STP	-	7.6	-	3.8	-	14
Chinchapada STP	-	7.6	-	4	-	10
Titwala (E) STP	-	7.7	-	4	-	12
Titwala (W) STP	-	7.8	-	6.5	-	16
Bhiwandi Nizampur City Municipal Corporation, Bhiwandi.	-	7.16	-	37.64	-	36.55
	7.1	7.69	42	8.3	132	14.6
Vadalgaon	7.1	7.7	70	9.5	42	15
Chikloli	7	7.1	85	45	80	48
Badlapur	7.1	7.3	123	11.8	195.5	13.3
Ulhasnagar Vadolgaon	7.4	7.8	55	5	16	13
Ulhasnagar Shantinagar-1	7.2	7.2	55	9	157	19
Ulhasnagar Shantinagar-2	7.2	7.6	24	5	68	13.33

From **Table 5.45**, it can be observed that the outlet values for pH are within range. The outlet values for BOD were greater than the prescribed discharge standard of 10 mg/l at Bhiwandi Nizampur, Chikloli and Badlapur STPs. Additionally, the outlet values of SS surpassed the prescribed discharge standard of 20 mg/l at Bhiwandi Nizampur City Municipal Corporation and Chikloli STPs. The highest BOD and SS removal efficiency were recorded at Badlapur STP, reaching 90.40% and 93.19%, respectively.

5.5.1.5 Kolhapur

There are six operational STPs in the Kolhapur Region for the year 2022-23. The total sewage generated in the Region was 214.2 MLD and the total sewage load was 156.7 MLD. Hence, the quantity of sewage treated was 156.7 MLD out of 172.7 MLD of the treatment capacity of the plant. The mean of annual performance and analysis of all STPs provided in Kolhapur Region are represented in **Table 5.46**.

Table 5.46 Mean of Annual Performance of STPs in Kolhapur Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Kasaba Bawada	-	7.47	-	6.01	-	19.42
Dudhali	-	7.47	-	6.72	-	15.9
Ichalkaranji	-	7.32	-	12.04	-	21.45
STP at Dhulgaon	-	7.2	-	7	-	18
Miraj STP	-	7.5	-	44	-	18.5
100 ft Road STP	-	7.3	-	58	-	18

From **Table 5.46**, it can be observed that the outlet values for pH are within the standards for all STPs. The BOD outlet values met the prescribed discharge standards of 10 mg/l at Kasba Bawda, Dudhali, and Dhulgaon STPs. However, for SS, the outlet values at all STPs adhered to the prescribed standards of 20 mg/l, except for Ichalkaranji STP.

5.5.1.6 Mumbai

In the Mumbai Region for the year 2022-23, there are a total of eight operational STPs. The total sewage generated was 1853.79 MLD and the total sewage load was 1421.79 MLD. Hence, the STPs treated 1421.79 MLD of sewage out of the 2835 MLD treatment capacity of the plant. The average annual performance and analysis of all STPs provided in Mumbai Region are represented in **Table 5.47.**

Table 5.47 Mean of Annual Performance of STPs in Mumbai Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Colaba	6.9	7.3	71.79	21.75	43.33	16.5
Worli	6.9	6.9	131.58	100.42	62.66	62.33
Bandra	6.4	6.93	63.5	57.45	48.16	52.33
Versova	6.35	7.11	109.16	38	74.66	29.5
Bhandup	6.9	6.99	61.5	26.41	75.5	42.83
Ghatkopar	6.7	6.9	204.25	42.83	69	46.83
Malad	6.9	7.75	120.42	84.41	84.66	63
Charkop	6.9	6.04	102	40.66	90.66	27.5

From **Table 5.47**, it can be observed that outlet values for pH are within the standard range. The outlet values for BOD were greater than the prescribed discharge standard of 10 mg/l at all STPs, whereas the outlet values for SS was within the prescribed standard of 20 mg/l only at Colaba STP. The outlet values for BOD and SS at Worli STP were 100 and 62.33 respectively, which was the highest among all STPs. The BOD removal efficiency was maximum at Ghatkopar i.e. 79.03% and the STP at Charkop showed the maximum SS removal efficiency of 69.66%.

5.5.1.7 Nagpur

There are 13 STPs in Nagpur Region as of the year 2022-23 with a cumulative capacity of 413.5 MLD. The total sewage generated was 520 MLD and 411.5 MLD of cumulative sewage was treated. The annual performance and analysis of all STPs are represented in **Table 5.48.**

Table 5.48 Mean of Annual Performance of STPs in the Nagpur Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Bhandewadi	7.6	7.7	96	4.9	186	27
Bhandewadi	7.5	8	64	3.8	196	26
Mankapur	7.6	-	20	-	165	-
Mokshadham	7.7	8	19	12	69	82
Kachimet	7.4	7.8	60	10.6	168	46
Sonegaon	7.1	7.6	82	18	130	86
Hazari Pahad	7.8	7.6	13	96	186	186
Somalwada-1	7.6	7.8	12	4	119	29
Somalwada-2	7.4	7.7	160	12	309	71
Ambazari	7.9	9.2	18	5.8	76	48
Dabha	7.8	7.5	96	11	359	39
Ittabhatti	7.4	8.1	98	4	372	26
Hingangaht Municipal Council	-	-	-	-	-	-

From **Table 5.48**, it can be observed that outlet values for pH are within range. However, the BOD outlet values did not meet the prescribed discharge standard of 10 mg/l at Mokshadham, Kachimet, Sonegaon, Hazari Pahad, Somalwada-2, and Dabha STPs. Additionally, the outlet values for SS exceeded the prescribed standard of 20 mg/l at all STPs. The BOD and removal efficiency of SS was maximum at Ittabhatti i.e. 95.91% and 93.01% respectively.

5.5.1.8 Nashik

The total sewage generated in Nashik Region was 424.94 MLD and the total sewage load was 423.94 MLD. Hence, the quantity of sewage treated was 423.94 MLD out of the 497.5 MLD treatment capacity of the plant. **Table 5.49** shows the average annual performance of the STPs in Nashik Region.

Table 5.49 Mean of Annual Performance of STPs in Nashik Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Chehedi STP	N. A	7.94	N. A	25.95	N. A	33.1
Chehedi STP	N. A	7.97	N. A	27.7	N. A	29.7
Panchak	N. A	8.01	N. A	28	N. A	31.5
Panchak	N. A	7.95	N. A	32.18	N. A	34.2

Panchak	N. A	7.96	N. A	29.91	N. A	35.1
Tapvan	N. A	7.88	N. A	32.42	N. A	38.5
Tapvan	N. A	7.83	N. A	29.17	N. A	37.8
Agar Takali	N. A	7.8	N. A	32.83	N. A	37.7
Agar Takali	N. A	7.83	N. A	29	N. A	33.44
Gangapur	N. A	7.81	N. A	22.3	N. A	29.11
Pimpalgaon Kam	N. A	7.89	N. A	25.89	-	35
Municipal Council, Trimbak	-	-	-	-	-	-
Municipal Council, Shirpur	-	7.8	-	16	-	18
Municipal Council, Nandurbar	-	7.7	-	8.08	-	26
Shirdi, Tal. Rahata, Dist. Ahmednagar	6	7	120	20	200	10
Dhule Municipal Corporation	-	-	-	-	-	-

From **Table 5.49**, it can be observed that the outlet pH values are within the prescribed range for all the STPs in Nashik Region. But the BOD outlet values have exceeded their prescribed limits at all STPs except Municipal Council, Nandurbar. Likewise, the outlet values for SS have surpassed their prescribed limits at all STPs, except for Shirdi and Municipal Council, Shirpur. The removal efficiency of BOD and SS at Shirdi was calculated to be 83.33% and 95% respectively.

5.5.1.9 Navi Mumbai

As of the year 2022-23, there are seven functioning STPs in the Navi Mumbai Region having cumulative treatment capacity of 454 MLD. The cumulative sewage generated and the total sewage load in the Region was 456.8 MLD and 216 MLD respectively. The mean of annual performance and analysis of all the STPs are given in **Table 5.50**.

Table 5.50 Mean of Annual Performance of STPs in Navi Mumbai Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
STP CBD Belapur, Sector-12	6.7	7	91	14	64	17
STP Nerul	6.8	7.1	101	7.4	65	15
STP Sanpada	6.8	7.2	134	6	75	16
STP Vashi, Sector-18	6.7	7.2	135	11	93	15
Koparkhairane	6.83	7.30	191.15	6.60	105.08	13.60
Ghansoli	6.92	7.30	98.33	9	71.11	17.80
Airoli	6.96	7.40	91.42	6.60	70	14.50

From the above table, the outlet pH and SS values are within the prescribed range for all STPs in Navi Mumbai Region. However, the BOD outlet values have exceeded for STP CBD Belapur Sector-12 and STP Sector-18 Vashi. The removal efficiency of BOD and SS was found to be the lowest at CBD Belapur Sector 12 with 84.62% and 73.44% respectively. Whereas the removal efficiency of BOD and SS was found to be the highest at Koparkhairane with 96.55% and 87.06% respectively.

5.5.1.10 Pune

There are 42 STPs in this Region as of the year 2022-23. Notably, the Old Naidu STP is currently not operational and 'Shirur' is an additional STP in F.Y 2022-23 in the Pune Region. 1,357.8 MLD of sewage was generated cumulatively, while the total sewage load was 933.69 MLD. Hence, the quantity of sewage treated was 933.69 MLD out of 1,019.7 MLD of the treatment capacity of the plant. **Table 5.51** represents the average annual performance of all the STPs in Pune Region.

Table 5.51 Mean of Annual Performance of STPs in Pune Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Erandwane STP	-	7.8	-	33	-	10.5
Bopodi STP	-	-	-	-	-	..
Tanajiwadi	-	8.3	-	30	-	19.5
Bhairoba STP	-	7.9	-	36.7	-	33.3
Mundhawa STP	-	8.3	-	36	-	22
Vithalwadi STP	-	8.4	-	35.3	-	18
Old Naidu STP	STP not in operation.					
Baner STP	-	-	-	-	-	-
Kharadi STP	-	7.45	-	32.45	-	26
New Naidu STP	-	8.4	-	36	-	28
Lonavala	-	7.2	-	34	-	14
Shirur	-	-	-	-	-	-
Pune Cantonment Board	-	8.2	-	42	-	26
Khadaki Cantonment Board	-	7.3	-	290	-	78
	-	7.7	-	110	-	22
Chikhali Phase I	-	-	-	-	-	-
Chikhali Phase II	-	-	-	-	-	-
Akurdi	-	-	-	-	-	-
Ravet	-	-	-	-	-	-
Chinchwad Phase I (Bhatnagar)	-	-	-	-	-	-
Chinchwad Phase II	-	-	-	-	-	-
Kasarwadi I	-	-	-	-	-	-
Kasarwadi II	-	-	-	-	-	-
Kasarwadi III	-	-	-	-	-	-
Charholi Phase I	-	-	-	-	-	-
Charholi Phase II	-	-	-	-	-	-
Sangvi Phase I	-	-	-	-	-	-
Sangvi Phase II (Dapodi)	-	-	-	-	-	-
Pimple Nilekh	-	-	-	-	-	-
Karad Municipal Council STP	-	7.2	-	34	-	10
Malkapur Municipal Council	-	8.3	-	32	-	
Malkapur at Sr. No. 10 STP	-	8.5	-	36	-	

Mahabaleshwar Municipal Council STP 1	-	7.9	-	130	-	154
Mahabaleshwar Municipal Council STP 2	-	8.2	-	36	-	30
Panchagani Municipal Council STP 1	-	7.8	-	34	-	
Panchagani Municipal Council STP 2	-	8.4	-	32	-	16
Panchagani Municipal Council STP 3	-	8.3	-	34	-	16
Degaon STP	7.4	7.83	110	22.3	116	18.5
Kumathe STP	7.4	7.9	140	22.49	104	19.64
Pratap Nagar STP	7.7	7.73	145	24.53	206	17.53
Gopalpur STP	7.9	7.95	250	36.717	386	63.87
Pandharpur STP (65 Acre)	7.38	8.6	135	34.5	9	66.05

It can be observed from **Table 5.51** that none of the outlet values of BOD fall within the limit of the prescribed discharge standard of 10 mg/l. Moreover, the outlet values of SS were greater than the prescribed discharge standard of 20 mg/l at Bhairoba, Mundhawa, Kharadi, New Naidu, Pune Cantonment Board, Khadaki Cantonment Board, Mahabaleshwar Municipal Council STP 1, Mahabaleshwar Municipal Council STP 2, Gopalpur and Pandharpur STPs.

The BOD removal efficiency at Degaon, Kumathe, Pratap Nagar, Gopalpur and Pandharpur STPs, was observed to be 79.73%, 83.94%, 83.08%, 85.31% and 74.44% respectively. While the SS removal efficiency at Degaon, Kumathe, Pratap Nagar and Gopalpur STPs were 84.05%, 81.12%, 91.49% and 83.45% respectively.

5.5.1.11 Raigad

The Raigad Region has nine functional STPs for the year 2022-23. The cumulative sewage generated was 188.5 MLD and the total sewage load was 160 MLD. Hence, out of the plant's treatment capacity of 338 MLD, a volume of 160 MLD of sewage was treated. The mean of annual performance and analysis of all STPs provided in the Region are represented in **Table 5.52**.

Table 5.52 Mean of Annual Performance of STPs in the Raigad Region.

Location of STP	pH	BOD (Mean)	SS (Mean)
	Outlet	Outlet	Outlet
CIDCO STP, Sector-16, Kharghar	7.26	13.46	20.86
CIDCO STP, Sector-16, Kharghar	7.31	5.39	18.22
CIDCO STP, Sector-12, Kalamboli	7.3	6	12
CIDCO STP, Sector-32, Kamothe	6.57	22.71	23.43
PMC STP, Panvel	7.38	4.80	15
CIDCO STP, Sector-6, Ulwe	7.22	6.33	12.67
CIDCO STP, Kalundare	7.26	4.08	11.6
CIDCO STP, Karanjade	7.2	5.33	16
CIDCO STP, Taloja Phase 1 and 2	7.62	5.10	12.33

There are six Municipal councils in Sub Regional Office Raigad II. The Roha Municipal Council has proposed to install 5 MLD STPs. Currently, the Municipal Council is in the process of seeking approval from the Government for the installation of a STP. The other Municipal council has not provided STP for sewage treatment.

From **Table 5.52** it can be observed that the outlet values for pH are within range and for BOD and SS, the outlet values were beyond the prescribed standards of 10 mg and 20 mg respectively at Sector-16 and Sector-32 of Kharghar.

5.5.1.12 Thane

There are 18 STPs in the Thane Region as of the year 2022-23. The Kharegaon STP is presently not in operation. There are three additional STPs; Kharegaon, Nagla Bunder and Hiranandani. The inlet and outlet quantity of 2022-23 has changed from the previous year of 2021-22. The total sewage generated was 394 MLD, while the total sewage load was 247.25 MLD. Hence, the quantity of sewage treated was 247.25 MLD out of 337.43 MLD treatment capacity of the plant. **Table 5.53** provides the details of the performance of the STPs in Thane Region.

Table 5.53 Mean of Annual Performance of STPs in the Thane Region.

Location of STP	Parameters (mg/l)					
	pH		BOD (Mean)		SS (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Kopri	7.23	7.43	78.33	16.66	88.33	10.33
Mumbra	7.2	7.55	362.5	11.75	133.5	44.75
Vartak Nagar	-_	7.7	-_	9	-	18
Vitava	7.25	7.66	1748.33	8.63	367	10.5
Kharegaon	The STP is Non-Operational. Construction work is completed.					
Everest World, Kolshet	7.34	7.7	1351	7.08	120.6	10.6
Lodha	7.36	7.64	1677.14	6.05	283	8.42
Nagla Bunder	7.26	7.76	34	7.46	17.66	8
Hiranandani	Trial run started from April 2023					
Shanti Nagar, Mira Road	-	7.7	-	42	-	77
Shanti Park, Mira Road	-	7.5	-	15	-	10
Kanakiya, Mira Road	-	7.6	-	29	-	18
Survey No. 233, Bhayandar (E)	-	7.7	-	25	-	11
Golden nest road, Bhayandar	-	7.5	-	32	-	14
Bhayander (W), Near Garden	-	7.3	-	29	-	18
Mhada Colony	-	7.5	-	17	-	15
Reservation No. 170, Kanugo,	-	7.7	-	14	-	44
Bolinj STP, Virar (W)	7.3	7.8	280	9	320	10

The Kharegaon STP is not operational although the construction work has been completed. According to **Table 5.53**, the outlet values of pH were within the limits at all STPs in Thane. The BOD outlet values met the prescribed standard of 10 mg/l at Vartak Nagar, Vitava, Everest World, Lodha, Nagla Bunder and Bolinj STP, Virar (W). However, the SS outlet values did not meet the prescribed standard of 20 mg/l at Mumbra, Shanti Nagar-Mira Road and Reservation no. 170, Kanugo, Mira Road. Lodha exhibited the highest BOD removal efficiency at 99.63%, while Nagla Bunder had the lowest at 78.05% among all other STPs in the Thane Region. For

SS removal efficiency, Vitava had the highest at 97.13%, and Nagla Bunder had the lowest at 54.70% among all other STPs in the Thane Region.

5.6 Solid Waste Management in Maharashtra

Municipal Solid Waste (MSW) Management involves the collection, transportation, disposal and recycling of everyday waste produced by households, businesses and institutions within a community. It encompasses various types of waste, such as paper, plastic, organic matter and non-recyclable materials. Effective waste management is crucial for preventing environmental pollution, conserving resources and minimizing the impact on public health. Strategies include source separation, recycling programs, waste-to-energy initiatives and responsible landfill practices. Sustainable Municipal Solid Waste Management not only addresses the immediate challenge of waste disposal but also promotes a circular economy by encouraging reduced consumption, reuse and recycling to create a more environmentally friendly and resilient community.

Solid Waste Management Rules, 2016, came into force as per the notification published by Ministry of Environment and Forest, New Delhi on 8th April, 2016; superseding the Municipal Solid Waste (Management and Handling) Rules, 2000.

The inventory of solid waste generation and disposal from the State during the year 2022 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 5.55** represents quantity of solid waste generated from these local bodies whereas **Table 5.56** represents treatment percentage of generated waste.

Table 5.54 Total number of local bodies - 411 and Cantonment Board - 07.

1.	Municipal Corporations	28
2.	‘A’ Class Municipal Council	16
3.	‘B’ Class Municipal Council	74
4.	‘C’ Class Municipal Council	151
5.	Nagar Panchayat	142
6.	Cantonment Board	07
	Total	**418**

Table 5.55 Solid Waste Generation.

Local Body	No. of ULBs	Quantity (MT/Day)	Percentage (%)
Municipal Corporation	28	19,316.45	82.38
‘A’ Class Municipal Councils	16	956.44	4.08
‘B’ Class Municipal Councils	74	1,363.62	5.82
‘C’ Class Municipal Councils	151	1,108.34	4.73
Nagar Panchayats	142	556.42	2.37
Total	**411**	**23,301.27**	-
Cantonment Board	07	147.21	0.63
Gross Total	**418**	**23,448.48**	**100**

Table 5.56 Solid Waste Treatment.

Local Body	No. of ULBs	Quantity (MT/Day)	Percentage (%)
Municipal Corporation	28	15,334.1	81.87
'A' Class Municipal Councils	16	709.23	3.79
'B' Class Municipal Councils	74	1,185.44	6.33
'C' Class Municipal Councils	151	964.76	5.15
Nagar Panchayats	142	406.68	2.17
Total	**411**	**18,600.21**	-
Cantonment Board	07	129.01	0.69
Gross Total	**418**	**18,729.22**	**100**

5.6.1 Analysis of Municipal Solid Waste Management with Statistical details (Region wise)

The detailed report on the quantity of different categories of MSW generated and treated in all the Regions of Maharashtra during the year 2022-23 is given in **Table 5.57**.

Table 5.57 Region-wise Statistical analysis of MSW (Generation and Treatment).

Sr. No.	Region	MSW Generation (MT)	MSW treated (MT)	Treatment (%)
1.	Aurangabad	1,752.37	1,425.62	81.35
2.	Nashik	2,111.92	1,718.85	81.38
3.	Pune	4,306.79	4,100.79	95.21
4.	Chandrapur	493.74	437.19	88.54
5.	Nagpur	1,594.87	540.72	33.90
6.	Kolhapur	801.19	735.79	91.83
7.	Amravati	812.31	535.6	65.93
8.	Raigad	589.66	444.56	75.39
9.	Thane	2,197.1	1,629.32	74.15
10.	Kalyan	1,678.5	949.5	56.56
11.	Navi Mumbai	725	694	95.72
12.	Mumbai	6,385	5,517.26	86.40
	Total	**23,448.45**	**18,729.20**	**77.19**

5.6.2 Trend Analysis of Municipal Solid Waste Generation and Treatment over five years.

Analysis of the trends of Municipal Solid Waste generation and treatment in all Regions over the years 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 has been carried out to study and compare the trends of generation and treatment of MSW over duration of five years. **Figures 5.24** and **5.25** graphically represent the trends of average MSW generation and treatment over the span of five years in all Regions. From **Figure 5.24** the generation of MSW shows an increasing trend over the five years in most of the Regions in the State. The most striking increase in generation of MSW since the year 2018 is observed in Mumbai Region. Thane, Nagpur and Pune show a slight increase in the amount of waste generated since 2019 while Amravati shows a slight decrease in the amount of waste generated since 2019.

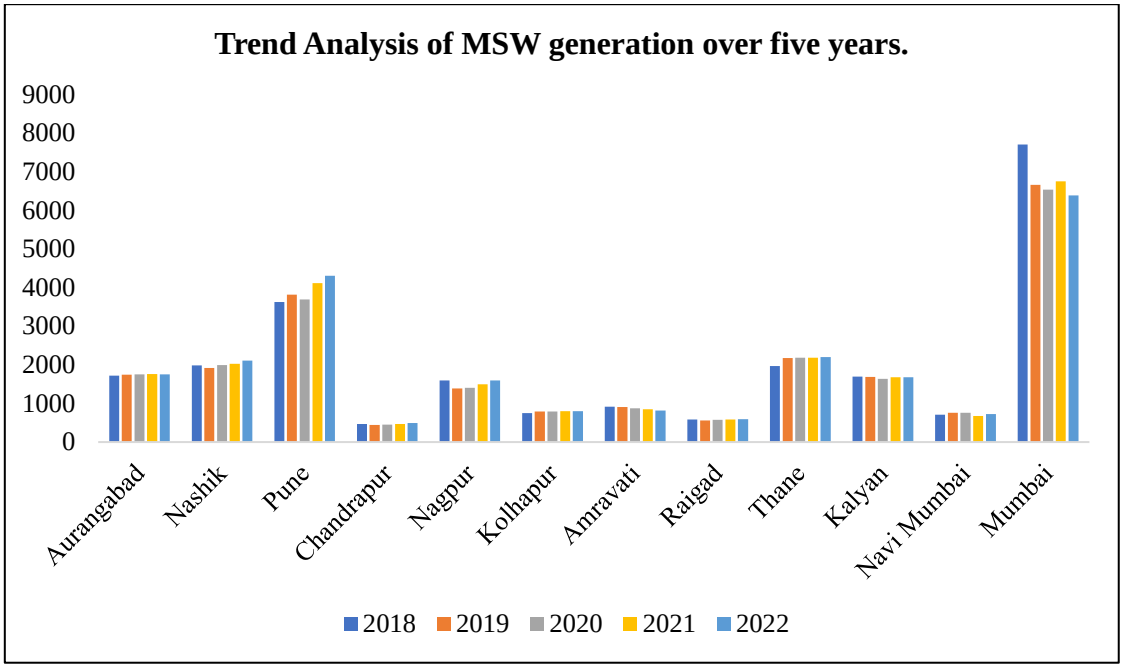


Figure 5.24 Trend Analysis of MSW generation over five years.

5.6.3 Trend Analysis of MSW treatment over five years

Trends analysis of MSW treatment over past five years in the State of Maharashtra, from **Figure 5.25**, reveals the quantity of MSW treated. It has definitely increased with considerably high differences in most Regions.

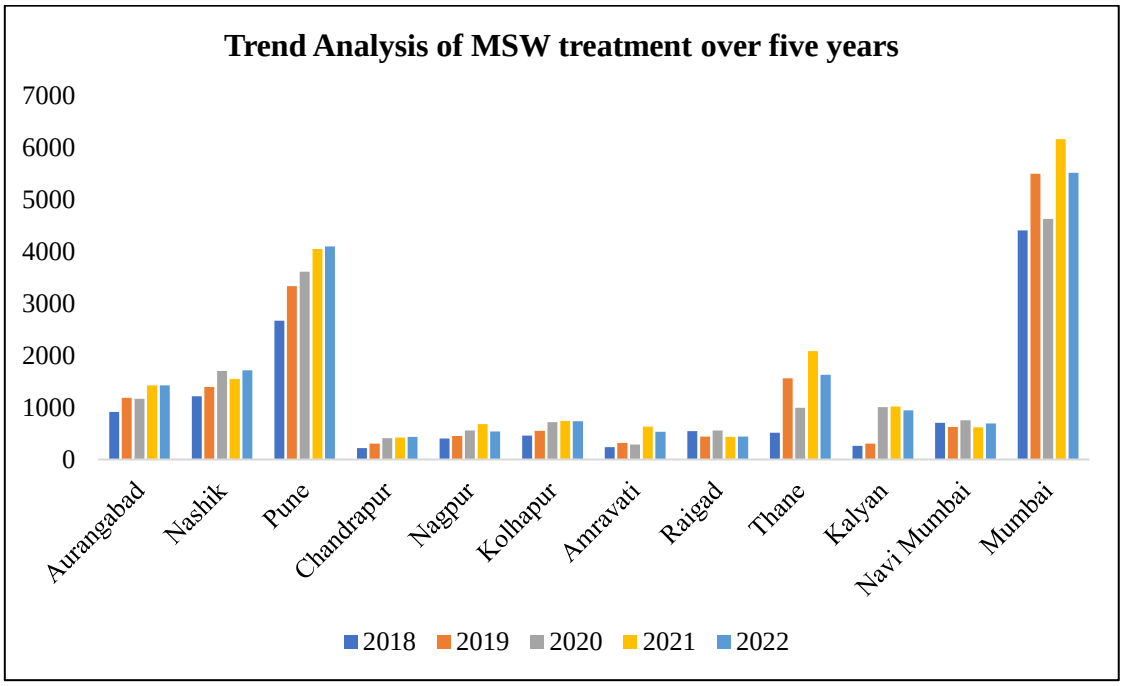


Figure 5.25 Trend Analysis of MSW treatment over five years.

In the Region of Mumbai, Thane, Kalyan, Pune, Aurangabad, Chandrapur, Kolhapur, Nagpur and Nashik the quantity of MSW treatment shows an increasing trend in succeeding years. The most significant increase in quantities of MSW treated can be observed at Mumbai, Thane, Kalyan, Pune and Aurangabad Region.

5.7 Hazardous Waste Generation during the year 2022-23

5.7.1 Status of Common Hazardous Waste Treatment, Storage and Disposal Facility.

There is total four Common Hazardous Waste Treatment, Storage and Disposal Facilities (CHWTSDF) installed and operating successfully in the State of Maharashtra. Two facilities namely Mumbai Waste Management (MWM), Taloja and Trans Thane Waste Management Association (TTCWMA), Mahape, are located under Navi Mumbai Region. Maharashtra Enviro Power Ltd. (MEPL), Ranjangaon is located under Pune Region and Maharashtra Enviro Power Ltd. (MEPL), Butibori Industrial Area is located under Nagpur Region. **Table 5.58** represents the details of these four CHWTSDFs.

Table 5.58 Summary of Individual Capacities of CHWTSDFs.

Name of Facility	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.) Butibori
Capacity of the Facility	SLF - 3,50,000 MT/ Year	SLF - 21,600 MT/Year	SLF - 60,000 MT/Year	SLF - 60,000 MT/Year
	INC - Two each of 1.5 TPH	0	INC - 3.0 TPH	INC - 1.0 TPH

There are various industries that generate hazardous waste. Methods like Secured Landfill Facility (SLF) and Incineration (INC) are used to treat this hazardous waste. 4,00,700.35 MT/A of hazardous waste was received cumulatively by the four CHWTSDFs, out of which 3,34,977.83 MT/A of hazardous waste is treated by SLF method and 65,722.52 MT/A by INC method. The details of the amount of hazardous waste received and treated by the two methods at each disposal site is provided in **Table 5.59**.

Table 5.59 Summary of Hazardous Waste received at disposal sites in 2022-23.

Site	SLF (MT/A)	INC (MT/A)	Total (MT/A)
MWML - Taloja	2,23,233	34,814	2,58,047
TTCWMA - Mahape	18,082.78	-	18,082.78
MEPL - Ranjangaon	72,515.97	28,745.87	1,01,261.84
MEPL - Butibori	21,146.08	2,162.65	23,308.73
Total	**3,34,977.83**	**65,722.52**	**4,00,700.35**

5.7.2 Trend analysis of Hazardous Waste received at disposal sites over five years.

Analysis of the trends of hazardous waste received at all disposal sites in the State over the years 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 has been carried out. **Figure 5.26** illustrates the quantity of hazardous waste received at the four CHWTSDFs in Maharashtra over the past five years.

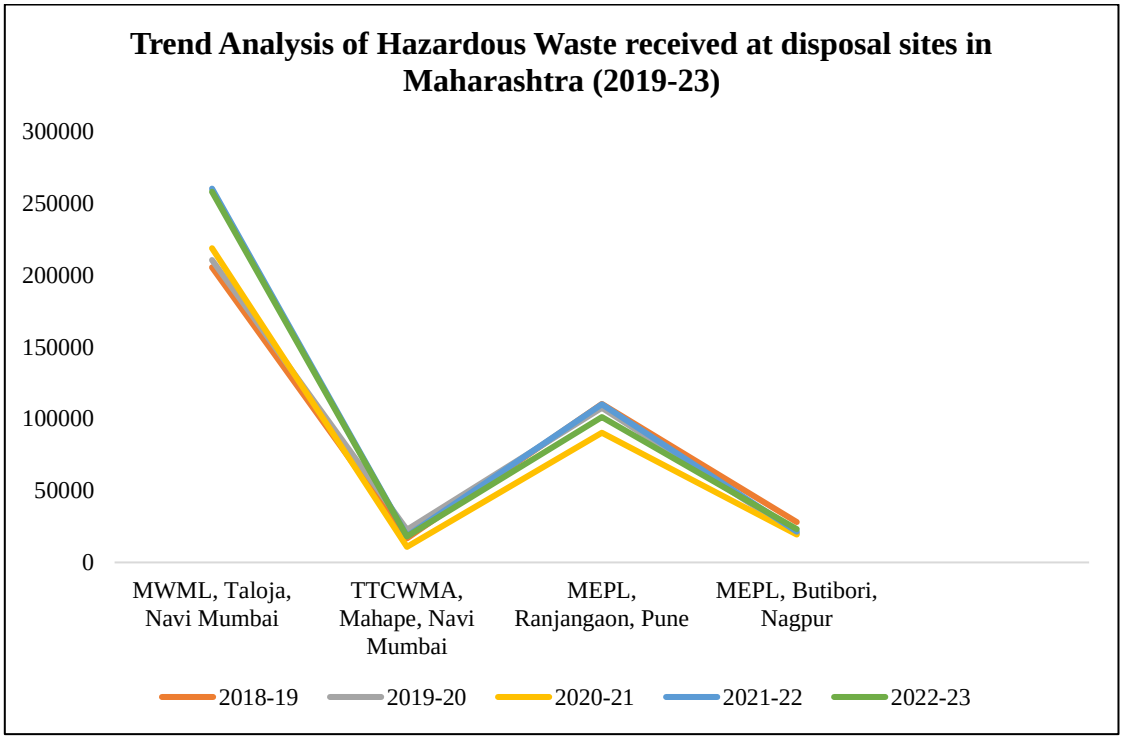


Figure 5.26 Trend Analysis of Hazardous Waste received at disposal sites over five years.

From the above figure, it can be observed that the hazardous waste received at MWML, Taloja was the least during the years 2018-19 but increased gradually till 2022-23. The quantity of hazardous waste received at this site was maximum in the year 2021-22. At TTCWMA, the quantity of hazardous waste received during the years 2021-22 and 2022-23 was almost similar, with a slight increase during the year 2019-20. The highest amount of waste received at TTCWMA was in 2019-20.

The quantity of hazardous waste received at MEPL, Ranjangaon has decreased in the current year, compared to the waste received in 2021-22. The amount of hazardous waste received at MEPL, Butibori has seen an increasing trend since 2020-21, but the highest quantity of waste received at this site was in the year 2018-19. The quantity of hazardous waste received at these sites over last five years is also represented in tabular form in **Table 5.60**.

Table 5.60 Hazardous Waste inventory at disposal site for past five years.

Facility Name	2018-19	2019-20	2020-21	2021-22	2022-23
MWML, Taloja, Navi Mumbai	2,05,430	2,10,528	2,18,757	2,60,230	2,58,047

TTCWMA, Mahape, Navi Mumbai	16,758	22,695	10,829	18,417	18,082.78
MEPL, Ranjangaon, Pune	1,10,288	1,07,765	90,325	1,10,063	1,01,261.84
MEPL, Butibori, Nagpur	28,071	20,200	19,326	21,396	23,308.73

5.8 Biomedical Waste

5.8.1 Implementation of Biomedical Waste Management Rules, 2016

- The MoEFCC 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 included under the purview of these rules.
- It is mandatory for all non-bedded HCEs to obtain one-time BMW authorization from the MPCB.
- 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 MPCB 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.

5.8.2 Status of Biomedical Waste Treatment Facilities

- Total number of Health Care Facilities/Occupiers: 70,083
- Total number of beds: 3,39,351

- <u>Status of authorization.</u>
  i. Total number of occupiers applied for authorization: 7,181
  ii. Total number of occupiers granted authorization: 6,542
  iii. Total number of applications under consideration: 387
  iv. Total number of applications rejected: 872
  v. Total number of occupiers in operation without applying for authorization: 679

- <u>Biomedical waste generation.</u>
  i. Biomedical waste generated by bedded hospitals: 54,589 Kg/day
  ii. Biomedical waste generated by non-bedded hospitals: 18,674 Kg/day
  iii. Any other: 985 Kg/day

- <u>Biomedical waste treatment and disposal.</u>
  i. By captive biomedical waste treatment and disposal by Health Care Facilities.

a. Number of Health Care Facilities having captive treatment and disposal facilities: 255

b. Total bio-medical waste treated and disposed by captive treatment facilities: 164 Kg/day

ii. Biomedical Waste Treatment and Disposal by Common Bio-Medical Waste Treatment Facilities (CBMWFT).

a. Number of CBMWTF in Operation: 30

b. Number of CBMWTF under construction: 7

d. Total biomedical waste treated by CBMWTF: 74,084 Kg/Day

e. Total treated biomedical waste disposed through authorized recyclers: 10,341 Kg/day

5.9 Electronic Waste

Electronic Waste or E-waste describes discarded electrical or electronics devices. It encompasses discarded electronic devices and equipment such as computers, smartphones, televisions and various gadgets. The rapid evolution of technology has led to a substantial surge in e-waste generation. 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 scrape components, such as CPUs, contain potentially harmful components such as Lead, Cadmium, Beryllium, or Brominated flame retardants. Increasing consumer awareness regarding the environmental impact of E-waste is essential, emphasizing responsible disposal practices and encouraging the recycling of old electronics. Addressing the challenges posed by E-waste requires a comprehensive approach involving regulatory measures, technological advancements and a shift in consumer behavior to foster sustainable practices and embrace the principles of the circular economy.

5.9.1 Implementation of E-waste Management Rules, 2022

- E-Waste Management Rules, 2022 were notified on 2nd November, 2022 and came into force from 1st April, 2023.
- These rules are applicable for Manufacturer, Producer, Refurbisher, Dismantler and Recycler involved in manufacture, sale transfer, purchase, refurbishing, dismantling, recycling and processing of E-waste or electrical and electronic equipment including their components, consumables, parts and spares which makes the product operational.
- Manufacturer, producer, refurbisher and recycler of E-waste must register on the centralized portal developed by CPCB.
- Manufacturer of solar photovoltaic modules or panels or cells must register on the centralized portal developed by CPCB.
- All producers shall fulfill their extended produce responsibility obligation through online purchase of Extended Producer Responsibility (EPR) Certificate from registered recyclers. The certificate shall be subject to environmental audit by the

Central Pollution Control Board, or any other agencies authorized by CPCB in this regard.

- The SPCB is responsible for inventorization of E-waste, monitoring of compliance of EPR as directed by CPCB. To conduct random inspection of recycler and refurbisher and monitoring the utilization of recycling capacity.
- The ULB is responsible for ensuring that E-waste if found to be mixed with MSW; is properly segregated, collected and is channelised to registered recycler of refurbisher. E-waste pertaining to orphan products is also collected and channelized to registered recyclers or refurbisher.
- The MPCB has constituted a Technical Committee for scrutiny of applications received for grant/renewal of authorization for dismantling/recycling/refurbishing of E-Waste under the Chairmanship of Shri. R. K. Garg (Former Director, Indian Rare Earth Ltd.).
- MPCB has carried out E-waste inventory for the State of Maharashtra through M/s. IRG System South Asia Pvt. Ltd.

Details of authorizations issued under the E-waste (M & H) Rules, 2016 to Dismantlers/Refurbishers/Recyclers/Producers up to 31st March, 2023 are as shown in **Table 5.61**.

Table 5.61 Present Status of E-Waste Generation and Recycling in Maharashtra State.

1.	E-waste Dismantlers	151	92,042MT/A
2.	E-waste Recyclers	14	52,114 MT/A
Total		**165**	**1,44,156 MT/A**

5.10 Plastic Waste Management in the State of Maharashtra

Plastic Waste (Management and Handling) Rules, 2011, came into the force as per the notification published by Ministry of Environment and Forest; New Delhi on 4th February, 2011 has been superseded by the Plastic Waste Management Rules, 2016 notified on 18th March, 2016 which have been amended on 27th March 2018, 12th August 2021, 17th September 2021, 16th February 2022 and 6th July 2022.

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 Government Resolution Plastic 2013/(284/2013) dated 4th January, 2017 under the Chairmanship of the Principal Secretary, Urban Development Department-II, Government of Maharashtra.

Under Plastic Waste Management Rules, 2016 and amendment thereto, 243 Plastic waste Recyclers of capacity 10.11 Lakh Tonnes per annum and 14 compostable material producers have been registered with Maharashtra Pollution Control Board as of 31st March 2023. Out of 243 recyclers, 243 have been registered in F.Y. 2022-23. 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 for regulating manufacture, usage, sale, storage, transport of the products made from plastic and thermocol etc. on 23rd March, 2018 and amendment dated 11th April 2018, 30th June 2018, 14th June 2019, 28th March 2022, 15th July 2022, 27th July 2022 and 30th November, 2022.

The notification is applicable for the whole State 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 to the Government in the matters of Maharashtra Plastic and Thermocol Notification.
ii. Empowered Committee under chairmanship of Honorable Minister (Environment) to decide necessary amendments and review implementation of the said notification. So far, several meetings of the Expert Committee and Empowered Committee have been conducted and thereafter necessary amendments in the Notification have been issued.

Regular surveys have been carried out jointly by local body authorities and MPCB officials within ULBs limits and separately by MPCB officials for industries, to implement the said notification. The status of inspection, action taken, fine collected and banned items seized during F.Y. 2022-23 is represented in **Table 5.62**.

Table 5.62 Status of action taken for Plastic Waste Management by the MPCB.

Period	No. of shops visited	Action initiated against no. of shops	Total fine collected (Rs. in Crore)	Total Qty of banned items seized (MT)
F.Y. 2022-23	3,31,982	19,981	3.27	115.4

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 SPCB 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 Reports from urban local bodies for speedy submission of the report. Out of 418 ULBs, 417 ULBs have submitted the Annual Report for the year 2022-23.

Collection and Disposal of Plastic Waste during the year 2022-23

The plastic waste generation is 3,96,760 TPA, wherein 2,88,305 TPA is collected and 2,25,121 TPA of waste is channelized for recycling (**Table 5.63**). This is as per the information obtained

from Annual Report submitted by ULBs for F.Y. 2022-23. Out of this, following are main modes of use are

- Plastic waste used for Refuse Derived Fuel (RDF) : 1,71,790 tonnes
- Plastic waste sent for co-processing : 27,863 tonnes
- Plastic waste used for granule making : 57,340 tonnes
- Plastic waste used for pyrolysis : 5,884 tonnes
- Plastic waste used for road construction : 13,578 tonnes
- Plastic waste sent to landfilling facility : 14,204 tonnes

The Region-wise information on plastic waste generation, collected and disposal for the year 2022-23 obtained from ULB's Annual Report is represented in **Table 5.63**.

Table 5.63 Region-wise statistical information on Plastic Waste in Maharashtra for F.Y. 2022-23.

MPCB Regions	No. of ULBs	Plastic Waste generated (in tons)	Plastic Waste collected (in tons)	Plastic Waste channelized for recycling (in tons)
Amravati	41	3,042	2,881	2,255
Aurangabad	81	42,406	42,377	6,851
Chandrapur	47	5,364	5,347	4,322
Kalyan	8	30,955	30,955	25,753
Kolhapur	44	8,270	8,284	8,032
Mumbai	1	1,18,625	12,777	12,777
Nagpur	47	18,744	18,737	13,818
Nashik	66	47,117	46,710	39,875
Navi Mumbai	2	9,739	9,739	3,498
Pune	56	72,727	70,727	69,344
Raigad	16	10,437	10,437	9,855
Thane	9	29,334	29,334	28,741
Total	**418**	**3,96,760**	**2,88,305**	**2,25,121**

5.11 Construction and Demolition Waste

Construction and Demolition (C & D) Waste refers to the materials generated from building, renovating and demolishing structures, such as residential and commercial buildings, roads and bridges. This category of waste includes a diverse range of materials, such as concrete, wood, metal, bricks, glass and other construction materials. The construction industry is a significant contributor to C & D waste and the increasing pace of urban development amplifies the volume of materials discarded. Effective management of C & D waste is crucial for several reasons. Improper disposal of construction waste harms the environment, especially slow-decomposing components like concrete and wood. Recycling and responsible management not only conserve resources but also reduce the environmental impact linked to extracting and processing new raw materials. Implementing strategies such as source separation, recycling and the use of advanced waste treatment technologies are essential for sustainable C & D waste management. Furthermore, raising awareness within the construction industry about the benefits of reducing,

reusing and recycling C & D waste is vital for fostering a more sustainable approach to building and infrastructure development. Ultimately, a holistic and environmentally conscious approach to C & D waste management is essential for mitigating the environmental footprint of the construction sector.

Annual Report in Form III submitted by 418 ULBs (Urban Local Bodies) for the F.Y. 2022-23 including Cantonment Boards is represented below:
Total 30,53,717.46 MT/A Construction and Demolition (C & D) Waste is generated by these ULBs. Total 2,38,550.97 MT/A Waste processed/recycled by ULBs (**Table 5.64**). The C & D disposed by land filling without processing (last option) or filling low lying area waste quantity is 15,03,478.3 MT/A. These ULBs having 472 storage facilities to store C & D waste securely. Total 166 Municipal magistrates appointed for taking penal action for non-compliance with these rules by these ULBs and 146 cases were registered under this rule.

Table 5.65 provides details of plants available for processing the Construction and Demolition waste.

Table 5.64 Construction and Demolition waste abstract of ULBs and Cantonment Boards.

C & D Waste Abstract of ULBs and Cantonment Boards						
ULBs	**Total Quantity of C & D Waste Generated during whole year in MT**	**Total Quantity of C & D waste processed/ re cycled in MT**	**Total Quantity of C & D waste Disposed by landfilling without processing or filling low lying area**	**No. of Storage Facilities for C & D Waste Storage**	**Municipal magistrates appointed for taking penal action for noncompliance with these rules**	**No. of Penal action cases registered**
Municipal Corporation	30,08,585	2,18,678	14,58,652	37	11	105
'A' Class Municipal Council	11,123.8	1,548.65	4,807.3	36	10	0
'B' Class Municipal Council	10,658.7	4,983.98	2,984.79	124	37	12
'C' Class Municipal Council	10,736.59	5,446.46	3,855.48	139	68	21
Nagar Panchayats	12,501.26	7,888.88	33,066.62	136	40	8
Cantonment Boards	112.11	5	112.11	0	0	0
Total	**30,53,717.46**	**2,38,550.97**	**15,03,478.3**	**472**	**166**	**146**

Table 5.65 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 Corporation	200	In operation
3.	Navi Mumbai Municipal Corporation	150	In operation
4.	Pune Municipal Corporation	300	In operation

The MPCB has issued notices to the ULBs which are not complied with the timeline for Solid Waste Management and Legacy Waste Management to submit the Environmental Compensation as per the order of Honorable National Green Tribunal, Principal Bench, New Delhi in the matter of OA 606/2018.

5.12 Performance of MPCB Laboratories

The MPCB has established a Central Laboratory at Navi Mumbai and seven Regional Laboratories at Pune, Nagpur, Nashik, Aurangabad, 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 the Ministry of Environment Forest and Climate Change (MOEFCC), Government of India, Delhi under Environment Protection 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 analyse the samples collected by officers authorized to collect samples from respective jurisdiction for analysis of Water, Air and Hazardous Waste, Municipal Solid Waste, Biomedical Waste samples and submit the reports to respective authority for further actions.

The MPCB laboratories are well equipped with modern sophisticated instruments and equipment such as UV Spectrophotometer, Gas Chromatograph (GC), Mass Spectrophotometer, Atomic Absorption Spectrophotometer (AAS), Ion Chromatography (IC), Inductive Coupled Plasma (ICP). Absorbable Organic Halide Analyzer (AOx), CHNS Analyzer etc.

Table 5.66 provides details of the number of samples and parameters analysed to evaluate the performance of each Board Laboratory. **Figures 5.27**, **5.28** and **5.29** represents the number of water, air and hazardous waste samples analysed respectively.

Table 5.66 Analysis of Performance of Board Laboratories (2022-23).

Laboratory	Samples analysed				Total	Parameters analysed				Total
	Water	Air	H.W	Coal		Water	Air	H. W	Coal	
Central Lab, Navi Mumbai	6,161	1,242	90	0	**7,493**	1,00,674	10,557	885	0	**1,12,116**

R. Lab, Nagpur	1,556	515	108	0	**2,179**	26,214	4,534	1,140	0	**31,888**
R. Lab, Pune	4,375	521	89	0	**4,985**	53,422	2,244	760	0	**56,426**
R. Lab, Nashik	1,593	349	12	0	**1,954**	24,248	2,801	89	0	**27,138**
R. Lab, Aurangabad	1,451	278	7	0	**1,736**	18,679	881	14	0	**19,574**
R. Lab, Chiplun	3,263	668	119	0	**4,050**	45,872	2,487	1,171	0	**49,530**
R. Lab, Thane	1,163	437	0	0	**1,600**	8,698	2,526	0	0	**11,224**
R. Lab, Chandrapur	122	167	0	0	**259**	912	614	0	0	**1,526**
Total	**19,684**	**4,177**	**425**	**0**	**24,256**	**2,78,719**	**26,644**	**4,059**	**0**	**3,09,422**

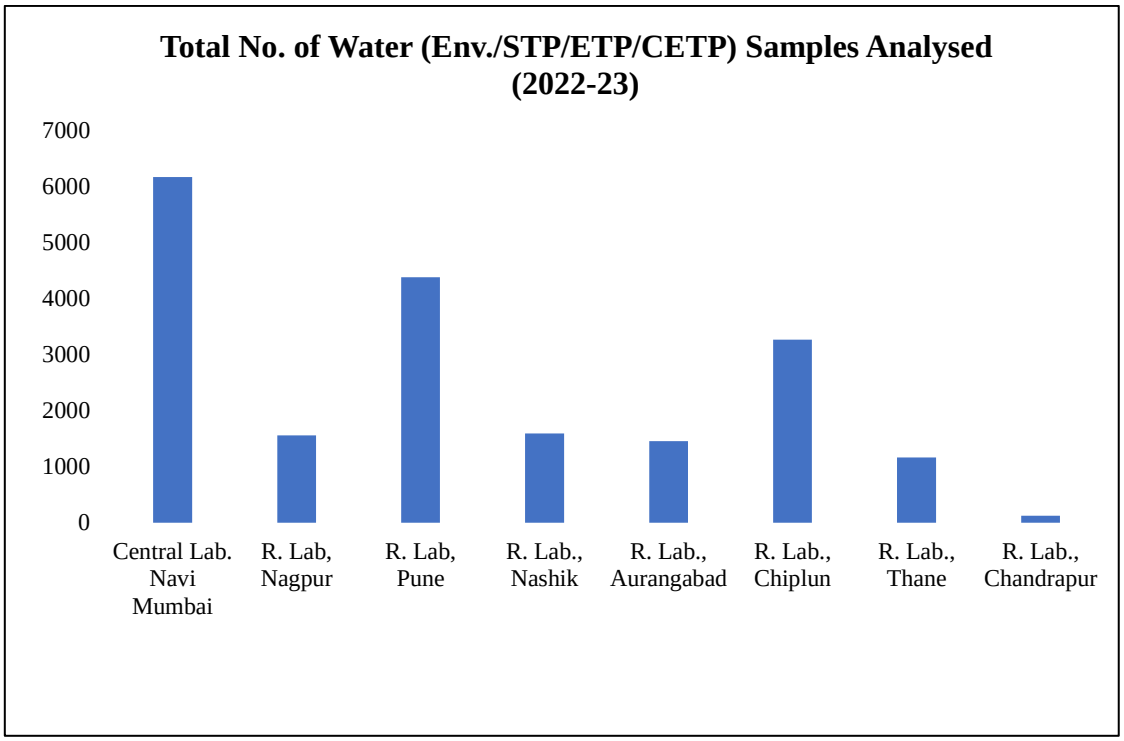


Figure 5.27 Annual total of Water Samples analysed at each MPCB Laboratory (2022-23).

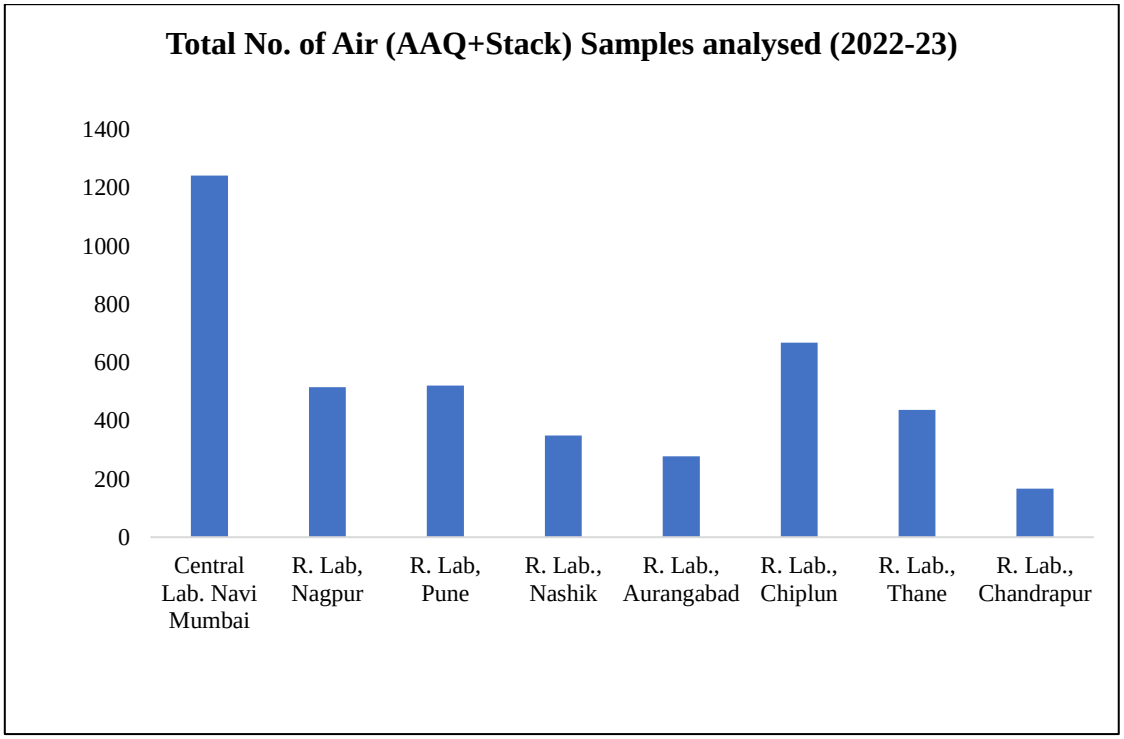


Figure 5.28 Annual total of Air Samples analysed at each MPCB Laboratory (2022-23).

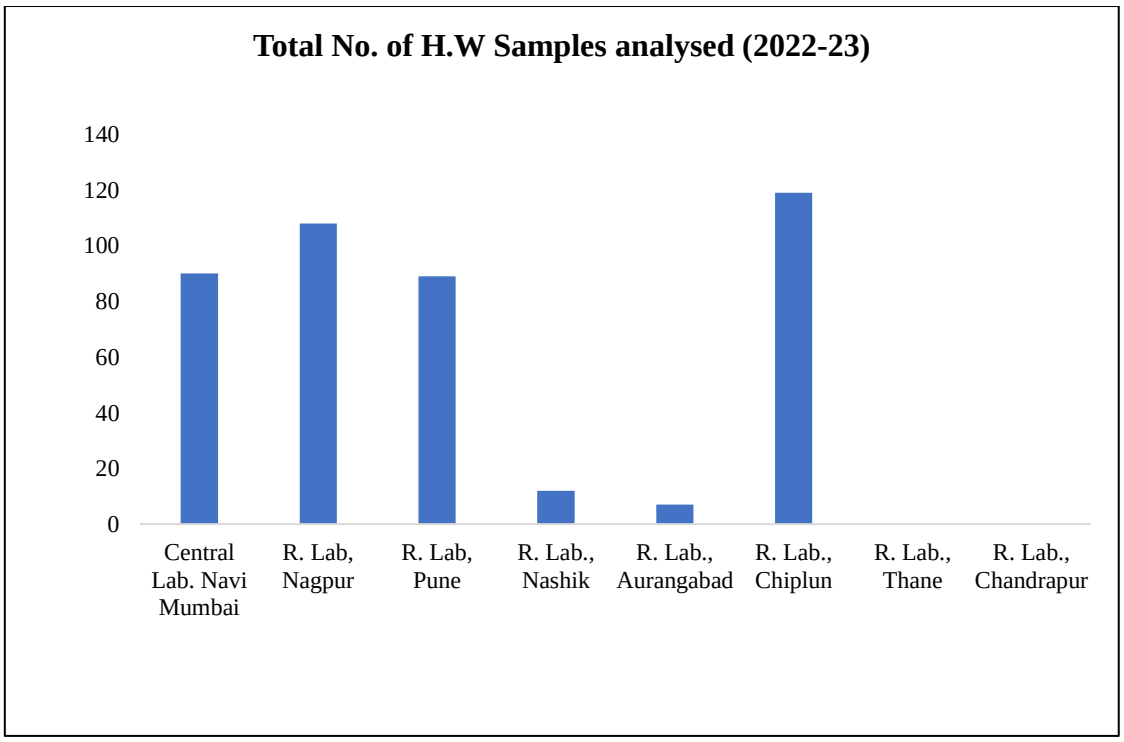


Figure 5.29 Annual total of Hazardous Waste Samples analysed at each MPCB Laboratory (2022-23).

5.12.1 Achievements of MPCB Laboratories:

- **ISO 9001:2015, ISO 45001:2018 and ISO/IEC 17025:2017 NABL Accreditation:**

Maharashtra Pollution Control Board's Central Laboratory and Seven Regional laboratories located at Pune, Nashik, Aurangabad, Nagpur, Chandrapur, Thane and Chiplun, upon successful completion of the certification audits, were awarded certification for Quality and Management Standard (QMS) ISO 9001:2015 and Occupational Health and Safety Assessment Standard ISO 45001:2018 by Appave Assessment Ind. Pvt. Ltd. Central Laboratory and Seven Regional laboratories acquired ISO/IEC 17025:2017 NABL Accreditation.

- **Strong support in Judicial matters:**
  i. As per direction of High Court Bombay (No. PIL 17/2011 dated 01st March, 2011) and order vide no. MPCB/PSO/B-27 dated 02nd March 2011, MPCB laboratories are completing weekly analysis of CETP Joint Vigilance Sample analysis across the State and submitting analysis report well within time for hoisting the performance of CETPs on MPCB website.
  ii. All laboratories are equipped for Coal Analysis (Ash Content) as per NGT directions in application no. 19/2014 dated 15th October, 2015.

- **Special Monitoring of Ambient Air during Deepawali Festival:**
  In compliance of Honorable Supreme Court Judgment dated 23rd October 2018, during Deepawali festival MPCB Laboratories analyze Ambient Air Quality Monitoring Samples as per CPCB protocol regarding bursting of firecrackers across the State and submit analysis report well within time. This helps in generation of data on pollution caused by bursting of firecrackers.

- **Time bound completion of analysis of samples collected under special projects:**
  During Ganesh Festival MPCB laboratories analyzes the pre and post immersion environmental samples collected from lakes, rivers, sea, creek and submit analysis report well within time for hoisting on MPCB website.

- **Special Training to Scientific Officials:**
  Training on Uncertainty of Measurement and Decision Rule as per ISO/IEC 17025:2017 imparted to Senior Scientific Officer and Scientific Officer.

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

The 12 regions of Maharashtra have various environmental issues. The MPCB has been working relentlessly to dissolve the issues. The common issue observed in the State of Maharashtra is that of Municipal Solid Waste and Effluent disposal. In most of the regions, there is a scarcity of waste processing facilities. Currently, there are a total of 25 actively functional CETPs with a joint capacity of 220.85 MLD. The total effluent treated by the industries was 170.46 MLD. It can be observed that the capacity of the CETPs is greater than the effluent load and is able to treat it effectively.

As per the CPCB reports of 2022 for Polluted River Stretches for Restoration of Water Quality, Maharashtra has the maximum number of polluted rivers, i.e. 55 river stretches. It includes major river basins of Maharashtra, Godavari and Krishna. The MPCB initiated river rejuvenation programs for Krishna, Godavari and other rivers of Maharashtra with the aim to alleviate the water quality of the rivers as per the required standards. In Nashik Region, the water pollution arising due to Nallah water is treated through phytoremediation. Whereas, in Kalyan Region, three major water polluting industries; M/s Hindustan Coca Cola, M/s Technocraft Industries and M/s JSW Steel coating have adopted cleaner technologies such as ETP with RO systems and MEE. The treated effluent is reused.

In the Kalyan Region of Maharashtra, the textile units were found to be one of the contributors to air pollution. The textile units consume coal as fuel. In 2022-23, there were 87 textile units in Kalyan-Dombivali and 43 in Ambernath, Badlapur which uses coal. The MPCB is taking strict actions against the non-complying industries. Air Pollution Control systems (APC systems) are used by industries to curb air pollution. In Kolhapur Region, many industries use bagasse as fuel which ultimately leads to air pollution. For many years this has been a significant problem. These industries have implemented APC systems such as ESP, Wet scrubbers and OCEMS. The industries in Navi Mumbai have implemented Leakage Detection and Repair system (LDAR) to control air pollution resulting from VOC emissions, pesticides and bulk drug manufacturing units.
Maharashtra Plastic and Thermocol Products (MUSTH&S) Notification was implemented in 2018 wherein Multilayered plastics were phased out. However, in Kalyan Region the banned materials were still observed. The plastic waste generated in Chandrapur Region is sent to Cement industries for disposal in kiln as fuel.

6.1 Namami Chandrabhaga

The Chandrabhaga Fair held annually in the town of Pandharpur, is one of the most famous events in Maharashtra, attracting thousands of pilgrims and tourists. The grandest pilgrimage of Warkari devotees leads to Pandharpur from all across Maharashtra, where they pay their reverence to Lord Vitthala. The origin of the Chandrabhaga (Bhima River) is Bhimashankar in Pune district. the religious and historical significance of the Chandrabhaga River is heightened

by the contributions of Saint Dnyaneshwar Maharaj, Saint Chokhamela, Saint Savta Mali and Chhatrapati Sambhaji Maharaj. Hence, this place is visited by many devotees. However, due to ignorance and lack of awareness, the spiritual side of Chandrabhaga had taken a dark side as the river quality had worsened.

The human factor is responsible for the declining river water quality. As a place of pilgrimage, visitors, devotees and tourists often contribute to this issue by leaving plastic bottles, engaging in open urination, washing their clothes and vehicles and discarding flower waste directly into the river. Apart from this, the untreated sewage from the town is being discharged into the river. Even agricultural runoff enters the river, carrying pesticides. These practices resulted in the proliferation of waterborne diseases and had a detrimental impact on biodiversity. Plastic waste has been discovered in the stomachs of animals. The visit of migratory birds such as Flamingos was threatened due to river pollution. Given the severity of this issue, government intervention became imperative.

The Government of Maharashtra therefore announced 'Namami Chandrabhaga Abhiyan' in the year 2016. It is an initiative taken to revive and rejuvenate the river Chandrabhaga and restore its historic glory. The Government of Maharashtra has prepared a comprehensive plan for cleaning the river on the lines of 'Namami Gange'. The aim of the mission is to make the Chandrabhaga River pollution-free and conserve its purity and sanctity up to the year 2022.

The action plan under the Namami Chandrabhaga Abhiyan included the following:

- To ensure treatment of domestic sewage before discharging it in the river. The practice of waste segregation must be implemented. Provide STP for treatment of sewage generation to avoid contamination of river water
- Agricultural runoff: To ensure banned chemical pesticides must not be in use and in the market
- Religious activities: To build a special Kunda for idol immersion, cremation ash disposal and use of electric cremation. Provision of toilets/bio-toilets facility during the religious yatra. To stop bathing in river water and open defecation at the bank of the river, proper disposal of human excreta and sewage
- To prevent the growth of Algae/Eichhornia in the riverbed by the installation of floating rafters and screen bars
- In-situ Nallah Clean-up treatment to stop untreated sewage from entering into the river.
- Installation of an online monitoring system for water quality and GIS platform for creating
- and maintaining the database
- Tree plantation drive
- Awareness campaigns for farmers should be made by agricultural Universities or Agricultural departments/NGOs. Awareness amongst the rural and urban residents regarding river pollution
- Organize awareness programs about the promotion of organic farming on the river bank of villages

Chandrabhaga river rejuvenation can only be successful with collective efforts, collaborations and initiatives by the government, locals and visitors. Namami Chandrabhaga Abhiyan has helped a lot in reviving the river quality, but more efforts are expected.

6.2 Efforts by Maharashtra Pollution Control Board in Carbon Footprint

Human development has always been responsible for resource usage in an unplanned fashion over the ages which has now led policy makers to think in the direction of sustainability of mankind itself. It is interesting to note that though a lot has been talked about sensitization and awareness about global warming, the implementation of projects and concepts for actual reduction of CO_2 is not witnessed on the ground. Thus, no matter that the level of interest amongst people has been tremendous to negotiate and implement carbon reduction projects, the effective and real time application of concepts is difficult to be seen. In order to however come up with any such carbon management plans that are expected to lead to carbon reductions, it is essential to inventorize emissions in the first place. The MPCB has undertaken various projects to inventories the carbon emissions through implementation of several projects while using a carbon footprint calculator is the first step made in that direction starting from its development and implementation. The details of various such projects carried out are as below;

6.2.1 ROCO Mobile Application for calculation of Carbon Footprint:

'ROCO' is State's first one of its kind mobile application to help users understand their individual carbon footprint. The app can calculate the footprint of an individual, family, region and industry separately. And it has a facility to calculate carbon, water and ecological footprint as well. It takes in details like water and food consumption, energy use, waste segregation and transport to tell you the extent of your carbon emissions (**Figure 6.1**). The application can be used by anyone across the State and the results of the study will help the MPCB formulate targeted programs that will address the sensitization of residents to climate changes and mitigation strategies.

Once the requisite details of any individual are shred in the app, like the amount of water consumed per month, it gives a total of their carbon emissions per day and it also has a great facility that suggests 'How to reduce your Carbon Footprint'. The app is available for both android and iOS mobile phones and can be easily downloaded from Play Store and App Store respectively.

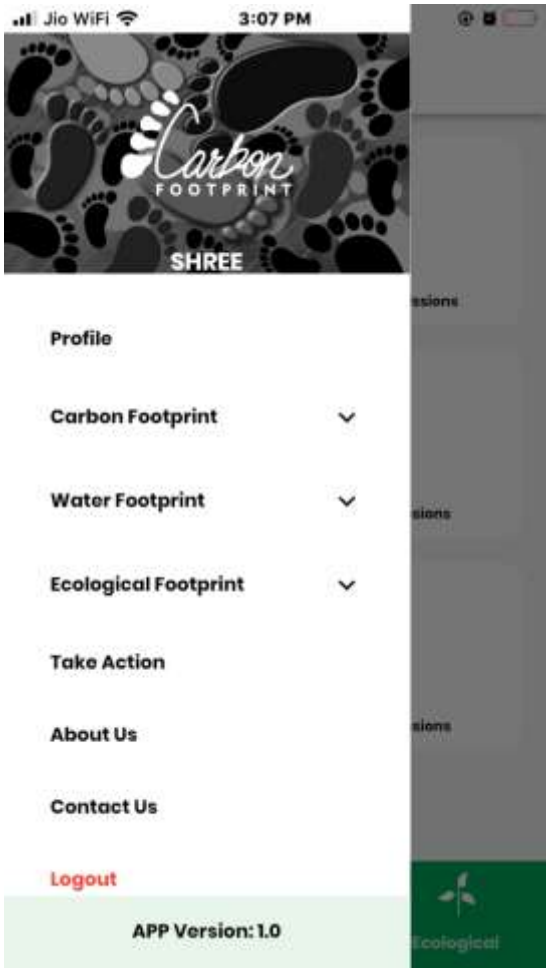


Figure 6.1 ROCO Application Screenshot.

6.2.2 Creation of Carbon Inventory and preparation of Action Plan for Carbon Neutrality and its monitoring in AMRUT Cities in the State of Maharashtra.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) was relaunched by Prime Minister of India Narendra Modi in June 2015 with the focus to establish infrastructure that could ensure adequate robust sewage networks and water supply for urban transformation by implementing urban revival projects. A total of 500 cities have been selected from the whole country out of which 43 are from Maharashtra. Out of the total population of AMRUT cities, 40% lies in Maharashtra in the area of 11,758 sq. km which is merely 4% of the total area of Maharashtra and hence there is a vast difference in population density of AMRUT cities and Maharashtra. The average population density of AMRUT cities is 10,841 person per sq. km while that of Maharashtra is just 410 person per sq. km.

The inventory was created on the basis of calculation methodology given by GHG Platform India. The GHG Platform26 - India is a collective civil-society initiative providing an independent estimation and analysis of India's Greenhouse Gas (GHG) emissions. The key sectors considered in the study are, namely - Transport, Thermal Power Plants, Industrial Processes, Agriculture, Forestry and Other Land Use (AFOLU) and Waste Sector which comprises of both Wastewater and Municipal Solid Waste.

Cumulative effect of all policies of all sectors as shown below indicates the projected emission values and the Emissions that would be obtained after the implementation of the interventions suggested above of GHGs, that are considered in the study, which are, CH_4, N_2O and CO_2. In the process of developing the Carbon Neutrality action plan for the AMRUT Cities of Maharashtra, a sector-specific approach was adopted, including a detailed analysis of local air pollution sources and their emissions contribution. This was followed by a primary survey to identify and quantify various sources contributing to ambient air pollution. Using an approach based on activity and emissions factors, an emissions inventory has been developed for Maharashtra to quantify the emission of different GHGs from various sources. The total GHG emissions estimated through the emission inventory is provided in **Figure 6.2**. The final version of the action plan contains a detailed assessment of air pollution source characteristics evaluated by an emissions inventory and clean air strategies for different sources based on inputs from policy makers.

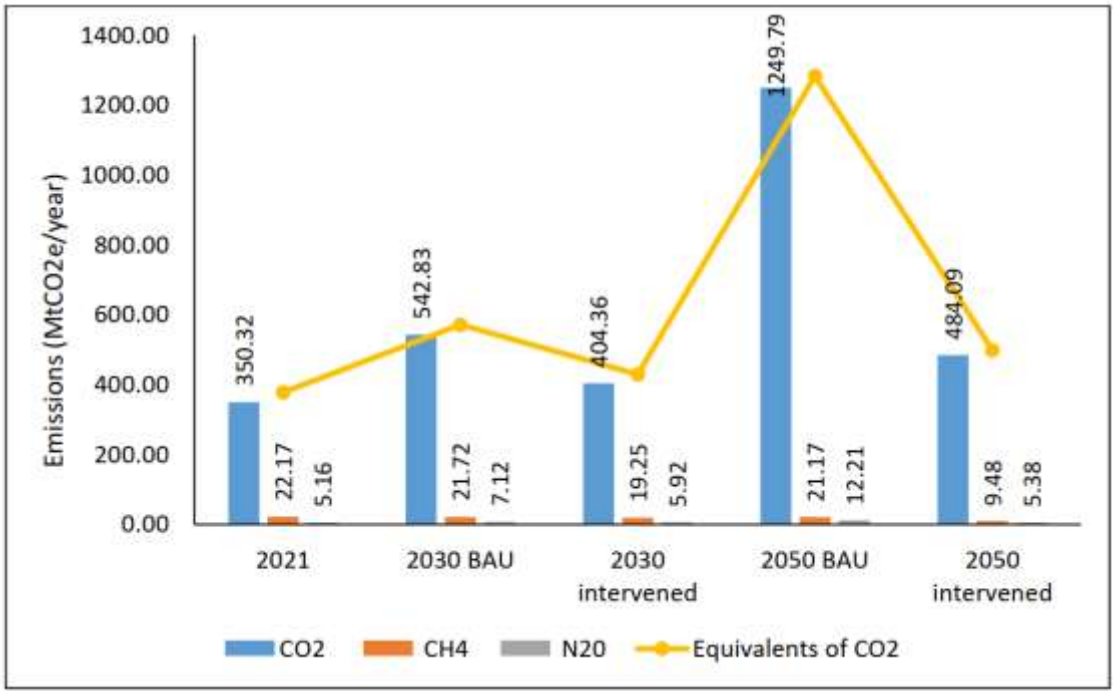


Figure 6.2 Total GHG emissions in Maharashtra.

6.2.3 Majhi Vasundhara 3.0

Majhi Vasundhara Abhiyan was launched by Honorable Minister Tourism, Environment and Climate Change on 2nd October, 2020. It is a unique integrated first ever exercise by Environment and Climate Change Department, Government of Maharashtra for urban and rural areas with the following adjectives:

- To encourage active participation in different climate change mitigation initiatives in a timely and innovative manner
- To identify dynamic and incremental/scalable measures towards sustainable environment through replication

More than 16,000 ULBs and PRIs are identified as potential participants for the Majhi Vasundhara Abhiyan 3.0 (2022-23). The Abhiyan will be conducted across 11 verticals i.e. Amrut Cities (01: with population more than 10 Lakhs), Amrut Cities (02: with population between 3-10 Lakhs), Amrut Cities (03: with population between 1-3 Lakhs), Municipal Councils, Nagar Panchayat(01 with population between 50 Thousand to 1 Lakh), Municipal Councils, Nagar Panchayat (02 with population between 25 Thousand to 50 Thousand), Municipal Councils, Nagar Panchayat (03 with population between 15 Thousand to 25 Thousand), Municipal Councils, Nagar Panchayat(04 with population less than 15 Thousand) Gram Panchayats (01: with population more than 10 Thousand) and Gram Panchayats (02: with population between 5 Thousand to 10 Thousand), Gram Panchayats (03: with population between 2.5 Thousand to 5 Thousand), Gram Panchayats (04: with population less than 2.5 Thousand). The timeline for the Majhi Vasundhara Abhiyan 3.0 (2022-23) is from 1st April 2022 to 31st March 2023.

MPCB has successfully executed this project in two stages with respect to desktop assessment and third-party site visit for direct observation and citizen feedback and the benefits of executing the projects in terms of carbon footprint is as below;

Table 6.1 Sector wise Carbon footprint estimation in Majhi Vasundhara Abhiyan.

Theme Area	Sector	Quantity	Unit of Measurement / Estimation	TonsCO_2e/Yr.
Bhoomi	Trees	17,75,551	No. of trees survived and cared	**12,137.5**
Bhoomi	Compost	1,27,965	Compost produced per year	**63,982.5**
Vayu	Roadside Trees	4,19,283	No. of roadside trees survived and cared	**2,473.8**
Agni (Urban)	Green Buildings	1,300	No. of GBs with 10,000 sq. ft. area each	**31,786.7**
Agni	LED Lighting	12,23,773	No. using 50% less energy than conventional HPS	**2,09,938.3**
Agni	Solar Lighting	70,907	No. avoiding Direct Electricity Use	**24,328.2**
Agni (Rural)	Biogas	736	No. of Units each of 125kg Waste Capacity	**30,463.8**
Agni (Rural)	Solar Pumps	701	No. 4 HP Each running for 4 hours a day instead of Diesel	**2.4**
			Total Carbon Avoidance (Tons of CO_2e/year)	**3,75,113.2**

6.2.4 Carbon Neutral exhibition stall inculcating five elements of nature to represent Environment and Climate Change Department, Government of Maharashtra/MPCB's efforts by integrating Panchmahabhoota

Department of Environment and Climate Change, Government of Maharashtra and Maharashtra Pollution Control Board successfully contributed in the 'Sumangalam - Panchmahabhoot Lokotsav 2023' event organized by Shri Kshetra Siddhagiri Mahasansthan from 20th to 26th February 2023 at Siddhagiri Math, Kaneri, Kolhapur, wherein various efforts taken by the Department of Environment and Climate Change, Government of Maharashtra and the Maharashtra Pollution Control Board were represented based on the concept of Panchmahabhoot where each of the element including Jal, Vayu, Agni, Akash and Prithvi was considered. The stall was designed and represented in such a way in terms of all these elements were represented considering and co-relating functioning of both these departments in terms of regulatory and innovative involvement and promotive steps and implementations that are supported by these departments and through various realistic solutions. The design of the stall was sustainable and various nature-based elements were used. Electricity Supplied to this Exhibition Stall is from 5 KWh Solar PV installed onsite, thereby making it a **'Carbon Neutral Exhibition Stall'**.

The concept of 'Carbon Neutral Stall' was achieved by incorporating the thought of offsetting the generated carbon dioxide during the event (which was computed by carrying out survey of each person and activities involved including travel, fuel and material used etc.) by undertaking the carbon offset principal strategy of Solar energy (power donation for 20 years of 5 Kw Solar panels) and mass tree plantation (more than 200 trees) continuously for three years.

7. ENVIRONMENTAL STUDIES AND SURVEYS

7.1 Noise Monitoring during Ganesh Festival 2022

The ambient noise monitoring was carried out during the period of the Ganesh Festival at 132 locations which are covered under 27 Municipal Corporations all over Maharashtra. The noise level data was collected using precalibrated Type-II Sound Level Meters (SLM), outside the pandals where continuous music and a crowd of devotees were observed. The monitoring was carried out for five days for 6 hours between 6 PM to 12 AM on 31st August, 1st September, 4th September, 6th September and 9th September 2022. The study shows that the overall noise level increased this year after two years of quiet celebrations due to COVID-19. The maximum increase is observed on the 5th day of monitoring i.e. on the 9th of September, this is because of the last day (11th day) of the festival. On this day, the idol of Lord Ganesha is taken through the streets in a procession accompanied by musical instruments, dhols, DJs and bands to be immersed in a river or the sea symbolizing a ritual known as 'Ganesh Visarjan'.

The number of noise monitoring locations in different Municipal Corporations all over Maharashtra is represented in **Figure 7.1**.

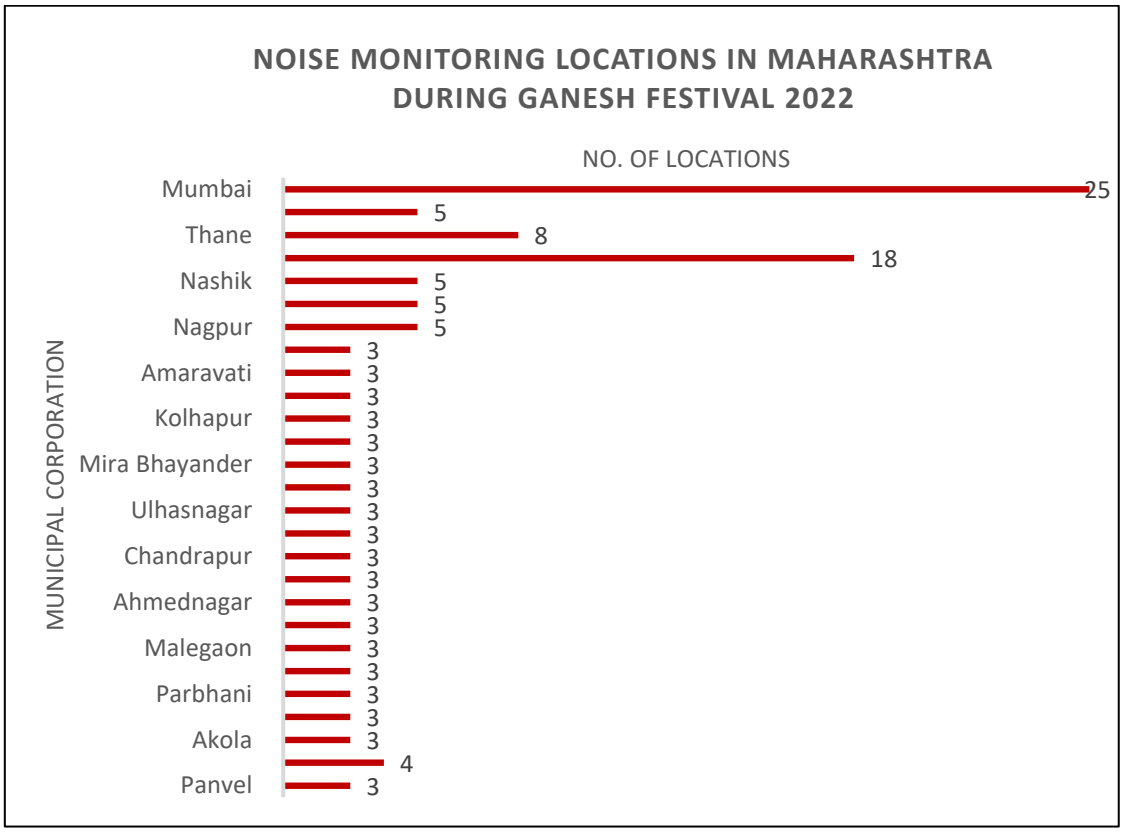


Figure 7.1 Noise monitoring locations in Maharashtra during Ganesh festival 2022.

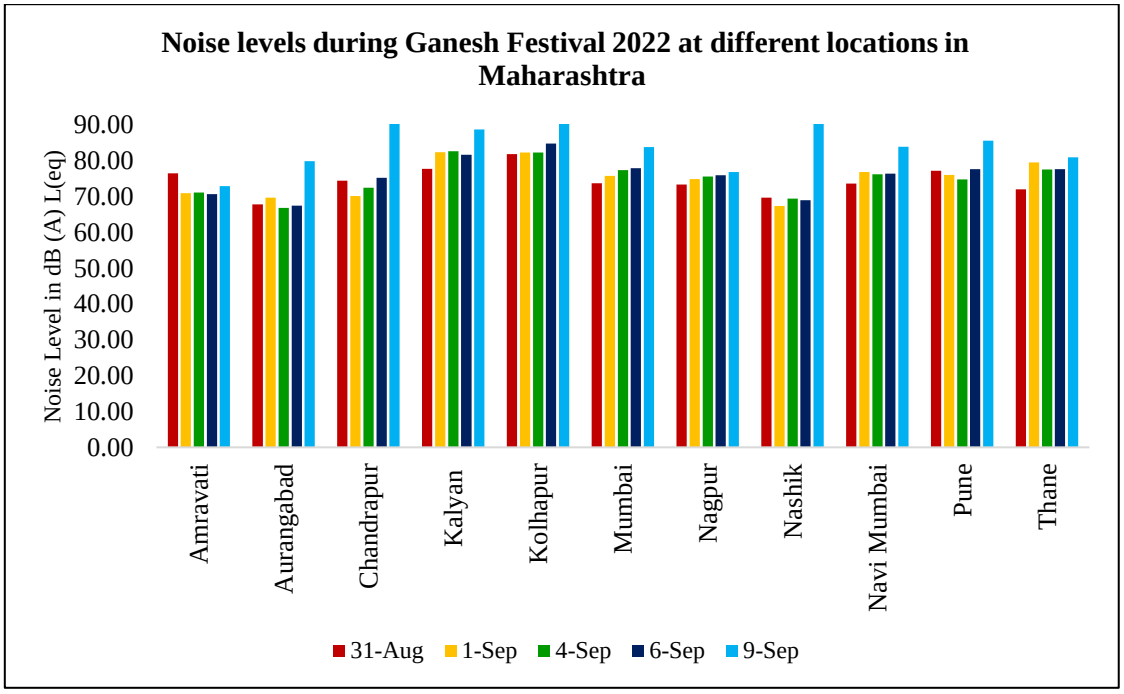


Figure 7.2 Noise levels during Ganesh festival 2022 at different locations in Maharashtra.

From the above graph (**Figure 7.2**), it can be observed that the highest mean noise level recorded on 31st August 2022 was 81.90 dB(A) at Kolhapur. On 1st September 2022, which was the second day of noise monitoring, the highest mean noise level recorded was 82.41 dB(A) at Kalyan. On 4th September 2022, the highest mean noise level recorded was 82.64 dB(A) again at Kalyan. On 6th September 2022, 84.85 dB(A) was the highest noise level which was recorded in Kolhapur. On the last day of noise monitoring during the Ganesh festival, that is on 9th September 2022, the highest noise level was 95.59 dB(A) and was recorded again at Kolhapur.

The lowest mean noise level recorded on 31st August 2022 which was the first day of noise monitoring during the Ganesh festival, was 67.82 dB(A) at Aurangabad. On 1st September 2022, which was the second day of noise monitoring, the lowest mean noise levels were 67.39 dB(A) at Nashik. On 4th September 2022, 66.89 dB (A) was the lowest mean noise level recorded at Aurangabad. On 6th September 2022, 67.49 dB (A) was the lowest mean noise level recorded at Aurangabad. On 9th September 2022, 72.98 dB (A) was the lowest mean noise level recorded at Amravati.

7.1.1 Conclusion - Noise Monitoring during Ganesh Festival, 2022

Ganesh festival is the biggest festival celebrated in Maharashtra for decades. This year 132 locations from 27 Municipal Corporation of Maharashtra were considered for noise monitoring. The noise monitoring was carried out for a five-day period during the Ganesh Festival i.e. on 31st August, 1st September, 4th September, 6th September and 9th September 2022 for six hours from 6 PM to 12 AM for each location comprising of residential, commercial and silence zone.

The State was celebrating the festival after two years (due to the COVID-19 pandemic during last two years i.e. from 2020-2022) in full swing and spirit by gathering in large numbers. The

troops were accompanied by musical instruments, dhols and loudspeakers during immersion day i.e. on the 9th of September. Heavy traffic and vehicular noise (excessive honking) also contributed to the higher noise levels. All types of noise together led to a significant increase in noise levels as compared to last year's noise levels. The overall increase in noise levels this year (2022) was observed as up to 44% as compared to last year's (2021) noise levels.

Although, many efforts have been taken by the officials of the MPCB, Maharashtra State Police, Municipal Corporations, NGOs, etc. to control the pollution without hurting the religious sentiments of the people. However, the comparative analysis of the results in the year 2022 indicates that the public contribution is imperative to curtail the noise pollution and eco-friendly celebration of festivals. The study highlights the continual need for more efforts to bring the noise levels up to the permissible limits which may include more awareness among people about noise pollution and its adverse health effects without disturbing their spiritual thoughts about the festival.

The observed higher levels are due to the following reasons:

- Use of musical instruments, dhols and loudspeakers
- More two-wheelers and cars are on the road and the noise is from vehicular traffic
- Honking was relatively more, due to traffic congestion
- Use of a greater number of vehicles as trains or public transport were mostly halted
- General awareness of the public should be increased by sensitizing them for increased noise level

7.2 Noise Monitoring during Diwali 2022

To assess the ambient noise levels in the environment during the Diwali festival, the MPCB has taken the initiative to carry out noise monitoring at 158 locations from 27 Municipal Corporation of Maharashtra for three days period during Diwali Festival that is on 18th October (Pre-Diwali), 24th October (Laxmi Poojan or On Diwali) and 26th October (Bhaubeej or Post-Diwali) for 24 hours at various locations in different cities of Maharashtra which comprise of residential, commercial and silence zone. The main aim of the project was to determine the trends and variations of noise levels in various areas in the cities over different land uses and to create awareness about noise pollution through the availability of scientific noise level data. Noise monitoring was carried out using calibrated Sound Level Meters (Type II).

The monitoring was carried out for three days considering the noise that generate due to bursting of firecrackers during the festival. For this, continuous noise monitoring for 24 hours was carried out on 18th October (Pre-Diwali), 24th October (On Diwali) and 26th October 2022 (Post-Diwali). The monitoring was carried out using calibrated Sound Level Meters (Type II). The locations at which the noise monitoring was carried out is represented in **Figure 7.3**.

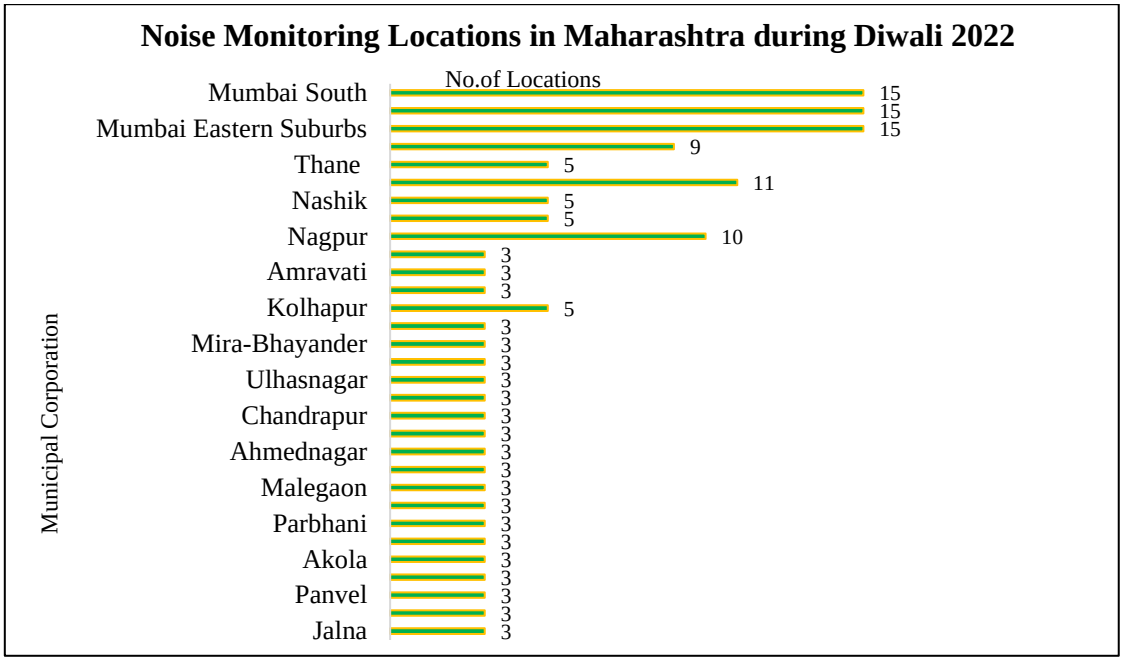


Figure 7.3 Noise Monitoring locations in Maharashtra during Diwali 2022.

From **Figure 7.4**, it is observed that during the daytime on 18th October, the highest mean noise level of 77.02 dB(A) was recorded at Pune. During daytime on 24th October, the highest mean noise level of 93.4 dB(A) was recorded at Kolhapur. Similarly, on 26th October, the highest mean noise level of 83.6 dB(A) was recorded again at Kolhapur. The highest mean noise levels of 67.5 dB(A) at Thane, 74.76 dB(A) at Kalyan and 69.3 dB(A) at Navi Mumbai were recorded during night time on 18th, 24th and 26th October. The lowest mean noise levels of 66.96 dB(A), 69.54 dB(A) and 67.4 dB(A) were recorded during daytime on the 18th, 24th and 26th October respectively, at Nashik, Aurangabad and again at Aurangabad in order. The lowest mean noise levels of 50.88 dB(A), 55.4 dB(A) and 53.62 dB(A) were recorded during night-time on the 18th, 24th and 26th of October respectively, only at Aurangabad.

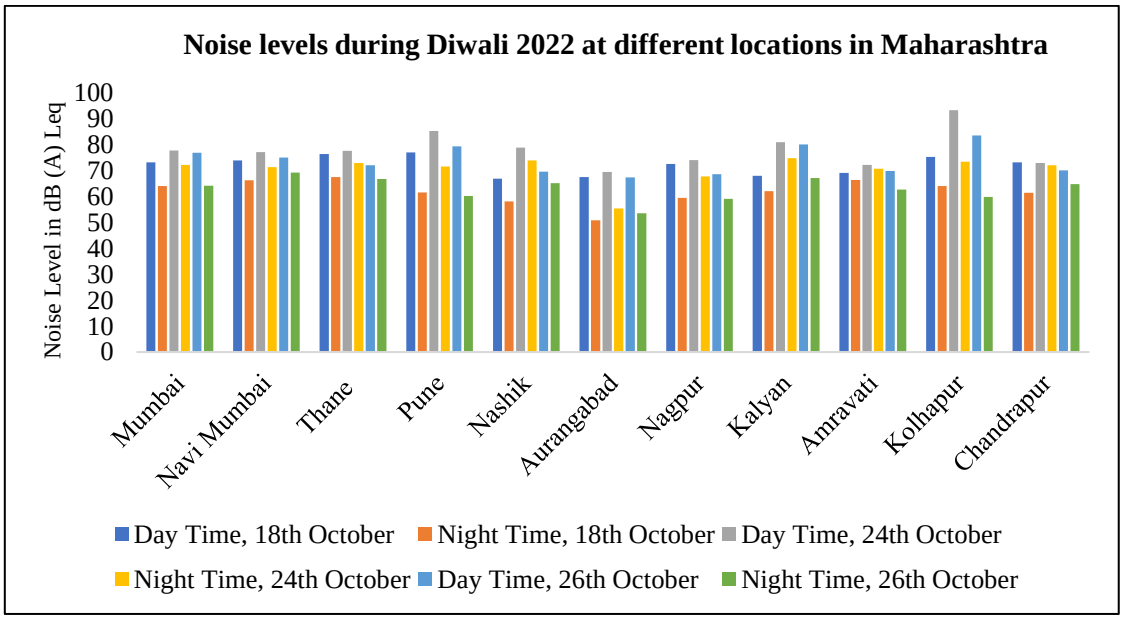


Figure 7.4 Noise levels during Diwali 2022 at different locations in Maharashtra.

7.2.1 Conclusion - Noise Monitoring During Diwali 2022

This year 158 locations from 29 Municipal Corporation of Maharashtra were monitored for the noise levels. The monitoring was carried out for three days during the Diwali Festival i.e. on the 18th October (Pre-Diwali), 24th October (Laxmi Poojan or On Diwali) and 26th October (Bhaubeej or Post-Diwali) 2022 for 24 hours. Each location comprises of residential, commercial and silence zone.

The study found that the average noise levels at different locations remained high due to multiple reasons such as heavy traffic, honking, domestic activities, construction and firecrackers However, the most commonly observed are heavy traffic and bursting of firecrackers. Despite the efforts taken by Government authorities, organizations and NGOs to address noise pollution, there is still a need for a greater awareness. The pandemic highlighted the importance of self-restriction for a safe environment, a principle that should be emphasized. Promoting the use of green and less noisy firecrackers should also be encouraged.

Apart from the above general common observations, city-specific observations are given. Municipal Corporation wise observations for the noise level generated are provided below.

- **Mumbai**: The noise level in Mumbai ranged from 35.6 dB(A) to 103.2 dB(A) in this year. Out of this, the ambient noise levels of daytime in Mumbai South ranged from 43.1 dB(A) to 95.2 dB(A), in Mumbai Western Suburbs the noise level ranged from 40.4dB(A) to 98.3 dB(A). Whereas in the Mumbai Eastern Suburbs, the noise level ranged from 35.6 dB(A) to 103.2 dB(A). The high noise levels in Mumbai South, Mumbai Western Suburbs and Mumbai Eastern Suburbs were mainly due to the usage of firecrackers and traffic.
- **Navi Mumbai:** The noise levels in Navi Mumbai ranged from 33 dB(A) to 99.9 dB(A) this year. Since six out of the nine monitoring locations fall under the commercial zone, crowded spaces and traffic also contributed to high level of noise in these areas.
- **Thane:** In Thane, the minimum noise level recorded was 42.1 dB(A) and the maximum of 99.1 dB(A) this year. Traffic in the commercial zone contributed to the high noise levels and in residential zone, bursting of firecrackers and traffic caused the higher noise levels.
- **Panvel:** The noise levels in Panvel varied from 41.9 dB(A) to 101.5 dB(A). It was due to firecrackers.
- **Pune:** The noise levels recorded in Pune ranged from 40.1 dB(A) to 96.6 dB(A). Traffic in the commercial zones contributed to the overall high noise level in the city.
- **Nashik:** In Nashik, the noise level ranged from 48 dB(A) to 91 dB(A). The recorded noise levels in the city were due to the bursting of firecrackers and traffic.
- **Aurangabad:** The noise level in Aurangabad ranged from 34 dB(A) to 84.2dB(A) which were due to firecrackers.
- **Nagpur:** The noise level in Nagpur ranged from 31.8 dB(A) to 96.8 dB(A) this year. Traffic in the commercial zones contributed to the overall high noise levels in the city.
- **Kalyan:** The noise level in Kalyan were observed to be from 36 dB(A) to 99.9 dB(A) this year. The measured and recorded noise levels were due to crackers and traffic congestion.
- **Amravati:** The minimum noise level in Amravati recorded was 33.2dB(A) and maximum was 87.1 dB(A) this year .

- **Jalgaon:** 36 dB(A) and 89.6 dB(A) were the least and highest noise level recorded in Jalgaon in the current financial year. In Jalgaon too, traffic in commercial zones was the cause of the noise levels.
- **Kolhapur:** The noise level in Kolhapur ranged from a minimum of 40.1 dB(A) to a maximum 110.7 dB(A) this year. The increase in noise level was due to the bursting of crackers.
- **Sangli:** The noise level in Sangli ranged from 40.1 dB(A) to 99.2 dB(A) this year. It was caused by firecracker bursting.
- **Mira - Bhayander:** The noise level in Mira - Bhayander ranged from 30.4 dB(A) to 99.1 dB(A) this year. The noise level was high mainly because of bursting of crackers.
- **Vasai - Virar:** The noise level in Vasai - Virar ranged from 50 dB(A) to 94.5 dB(A) this year. The increase in noise level was due to crackers and traffic congestion.
- **Ulhasnagar:** The noise level in Ulhasnagar ranged from 39.3 dB(A) to 96.1 dB(A) this year. The noise level generation in Ulhasnagar was also due to the bursting of crackers.
- **Bhiwandi - Nizampur:** The noise level in Bhiwandi - Nizampur ranged from 45.5 dB(A) to 89.5 dB(A) this year. The noise level was high at the commercial spots of the city mainly due to traffic.
- **Chandrapur:** The noise level in Chandrapur ranged from 41.9 dB(A) to 97.9 dB(A) and was due to the traffic and bursting of firecrackers on the accession of Diwali.
- **Nanded - Waghala:** The noise level in Nanded - Waghala ranged from 37 dB(A) to 79 dB(A) this year. The noise levels in Nanded were lower as compared to other locations.
- **Ahmednagar:** The noise level in Ahmednagar ranged from 50 dB(A) to 87 dB(A) this year. All the monitoring locations here in Ahmednagar come under commercial zones, hence traffic and honking were the main contributors to the recorded noise levels.
- **Dhule:** The noise level in Dhule ranged from 51 dB(A) to 83 dB(A) this year and was due to the traffic and bursting of firecrackers on the accession of Diwali.
- **Malegaon:** The minimum noise level in Malegaon was recorded as 52 dB(A) and the maximum as 80 dB(A) this year. The higher noise level was due to traffic and crowds.
- **Pimpri - Chinchwad:** The minimum noise level in Pimpri - Chinchwad was recorded as 41 dB(A) and the maximum as 101.5 dB(A) this year. All the monitoring locations come under Commercial zone; hence traffic and honking were the main contributors to the recorded noise levels.
- **Parbhani:** The noise level in Parbhani ranged from 37 dB(A) to 79 dB(A) this year. The noise levels in Parbhani were less as compared to other locations.
- **Latur:** The noise level in Latur ranged from 37 dB(A) to 74 dB(A) this year. The noise levels in Latur were also less when compared to other locations in the State.
- **Akola:** The noise level in Akola ranged from 38.1 dB(A) to 90.8 dB(A) this year. The observed levels were due to traffic congestion and the bursting of crackers.
- **Solapur:** The noise level in Solapur ranged from 36.7 dB(A) to 99.1 dB(A) this year. The higher noise level was due to traffic.
- **Badlapur:** 25.9 dB(A) to 96.3 dB(A) was the least to highest noise level recorded in Badlapur this year. The increase in noise was due to the heavy traffic and the bursting of crackers.
- **Jalna:** The minimum noise level in Jalna was recorded as 37 dB(A) and the maximum as 71 dB(A) this year.

8. ENVIRONMENTAL TRAINING

During the year 2022-23, MPCB staff attended 23 training programmes in various places across India. The programmes included a wide range of topics, including management, safety, pollution control technology and many more. **Annexure 5** contains detailed information on the training programme and **Table 8.1** provides a summary of the same. Environmental training is crucial for individuals, organizations and communities to foster a greater understanding of environmental challenges and promote responsible and sustainable behaviours. It plays a vital role in equipping people with the skills and knowledge needed to protect and preserve the environment for future generations.

Planning and organizing environmental training programmes benefit both the employee and the organisation. Not only it leads to better communication and team bonding but also skill development, capacity building, networking and exchange of ideas to tackle a possible issue.
It empowers individuals and organizations to be better stewards of the environment and contributes to a healthier, more sustainable future.

Table 8.1 Training Abstract for F.Y. 2022-23.

Total Training Programs Conducted	Total Participants
23	144

9. FINANCE AND ACCOUNTS

Annual Accounts of the MPCB for the Financial Year 2022-23 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 of Receipt and Payments, Income and Expenditure and Balance Sheet along with schedule of Fixed Assets.

Comptroller and Auditor General of India (CAG) have allotted the statutory audit work of Board to M/s. Kirtane and Pandit LLP, Chartered Accountant. The Audit of Final Accounts was done by M/s. Kirtane and Pandit LLP, Chartered Accountant for the Financial Year 2022-23.

The Audited Final Accounts submitted to the MPCB for approval and adoption. After approval from the MPCB, it will be submitted to the 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 2022-23 is given in this chapter.

- **Total Income of MPCB for the year 2022-23 is Rs. 548.41 Crore as follows;**
  - i. Consent Fees : Rs. 401.54 Crore
  - ii. Analysis Charges : Rs. 5.85 Crore
  - iii. Interest on Investment : Rs. 117.52 Crore
  - iv. Reimbursement of Cess : Rs. 4.23 Crore
  - v. Other Income : Rs. 19.27 Crore
- **Total Expenditure of MPCB for the year 2022-23 is Rs. 121.69 Crore as follows;**
  - i. Salary and CPF Contribution Expenditure : Rs. 52.34 Crore
  - ii. Expenditure from Cess Fund : Rs. 9.05 Crore
  - iii. Expenses on Projects from Cess Fund : Rs. 33.49 Crore
  - iv. Office Expenditure and Depreciation : Rs. 26.81 Crore

- Excess of Income over expenditure for the year : Rs. 401.97 Crore
- Capital Expenditure : Rs. 30.82 Crore
- Investment in Fixed Deposits as on 31st March, 2023 : Rs. 3430.42 Crore

Details of accounts for the year 2022-23 are attached as **Annexure 6**.

10. IMPLEMENTATION OF ACTS AND RULES

The MPCB functions under the administrative control of Environment Department of Government of Maharashtra. The MPCB enforces several acts rules and notifications to ensure environmental protection and sustainable development in the State. They are:

Acts and Rules

1. Water (Prevention and Control of Pollution) Act, 1974
2. Air (Prevention and Control of Pollution) Act, 1981
3. Maharashtra Water (Prevention and Control of Pollution) Rules, 1983
4. Maharashtra Air (Prevention and Control of Pollution) Rules, 1983
5. Maharashtra Biodegradable and Non-biodegradable Waste (Control) Act, 2006
6. Public Liability Insurance Act, 1991
7. Right to Information Act, 2005
8. National Green Tribunal Act, 2010
9. Environment (Protection) Act, 1986 and Rules made thereunder as follows:
   i. Environment (Protection) Rules, 1986 (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, 2017

Notifications

1. Environment Impact Assessment Notification, 2006 and amendments thereof.
2. Coastal Regulation Zone Notification, 2019.
3. Maharashtra Plastic and Thermal Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018 (As amended).
4. Various Notifications issued by MoEF, Government of Maharashtra in respect of Environmental Sensitive Areas such as:
   i. Dahanu Notification
   ii. Murud Janjira Notification
   iii. Mahabaleshwar-Panchgani Notification
   iv. Matheran Notification
   v. Antop Hill Notification etc.
   vi. Western Ghat Notification.

As per these Acts and Rules the following prosecutions have been launched and convictions have been accordingly secured for the year 2022-23.

10.1 Status of Legal Enforcement for the year April 2022 - March 2023.

(i) Status of Cases before Honorable Supreme Court of India

No. of Special Leave Petitions/Writ Petition (Civil) /Civil Appels filed	No. of Special Leave Petitions/Writ Petition	No. of Special Leave Petition Appels Petitions/Writ (Civil)/Civil Pending (Civil) /Civil Appels disposed off
49	2	47

(ii) Status of Writ Petitions/PILS before Honorable High Court of Judicature at Bombay (Bench at Mumbai/ Aurangabad/ Nagpur)

No. of Writ Petitions/PILs filed	No. of Writ Petitions/PILs disposed off	Writ Petitions PILs Pending
81	23	58

(iii) Status of Appeals/ Applications before Honorable National Green Tribunal, Principal Bench, New Delhi and Western Zone, Pune

No. of Applications Pending	No. of Appeals/ Applications filed	No. of Applications off Appeals/ No. disposed Appeals/
98	29	69

(iv) Status of cases filed before Honorable Trial Courts

Sr. No.	Name of the Act	No. of cases filed	No. of cases disposed off	No. of cases pending
1.	Water (P & CP) Act, 1974	7	Nil	7
2.	Air (P & CP) Act, 1981	Nil	Nil	Nil
3.	Environment (Protection) Act, 1986 and Rules made thereunder	146	3	143

(v) Status of Appeals/Applications filed before the Public Information officer/ Appellate Authority (P & L Div.), MPCB, Mumbai under the Right to information Act, 2005 during the period from April 2022 to March 2023.

Sr. No.	Particulars	No. of Appeals/ Applications filed	No. of Appeals/ Applications disposed off	No. of Appeals/ Applications pending
1.	Application	25	25	-
2.	Appeals	2	2	-

11. ENVIRONMENTAL AWARENESS AND PUBLIC PARTICIPATION

- **Environmental awareness at a literary meet in Udgir (22nd to 24th April 2022):** The Akhil Bharatiya Marathi Sahitya Sammelan conducted in Udgir raised environmental awareness by organizing a range of eco-themed competitions like speeches, slogans and poetry contests for school students.

- **On 5th June, World Environment Day, newspapers published awareness articles:** On World Environment Day, June 5th, an article focusing on environmental awareness was featured in the Mumbai editions of Maharashtra Times, Loksatta, Sakaal, Lokmat, Saamana and Indian Express. Additionally, a one-page awareness piece was included in various other newspapers across the State. Similar awareness articles were also published in esteemed newspapers such as Hindustan Times, Punyanagari, Netheri, Navakaal, Navbharat and other prominent publications in the region.

- **'Paryavarnachi Vaari, Pandharichya Daari' (25th June to 10th July 2022):** On Ashadhi Ekadashi, environmental awareness initiative was conducted in regions of Alandi to Pandharpur. Given the current scenario, environmental concerns in both urban and rural areas hold equal significance. As a result, pilgrims heading to Pandharpur were educated on a range of fundamental topics, including the ban on plastic usage, responsible water and electricity consumption, the preservation of natural resources, the utilization of efficient electric pumps for agriculture, the adoption of organic fertilizers and the proper management of both wet and dry waste. In rural regions, this awareness campaign leveraged traditional folklore forms such as Kirtan, Bharud and Powada, which are deeply rooted in rural culture. Over the course of this 15-day campaign, renowned folk artists like Smt. Chandabai Tiwadi, Shahir Shri. Devanand Mali, Shahir Prasad Vibhute and Shri. Dnyaneshwar Maharaj Wabale disseminated awareness through performances of Bharud, Powada and Kirtan. The initiative was inaugurated in Pune by Shri. Ashok Shingare, Member Secretary of MPCB and Dr. Prakash Khandge, a prominent figure in folk art. The closing ceremony took place on the day preceding Ekadashi, with the honorable presence of Chief Minister Shri. Eknathji Shinde, Member Secretary of the MPCB Shri. Ashok Shingare and other notable dignitaries.

Paryavarnachi vari closing ceremony at Pandharpur in presence of Hon'ble Chief Minister Shri. Eknathji Shinde, Member Secretary, MPCB Shri. Ashok Shingare and other dignitaries.

- **Environmental awareness at Konkan Marathi Literary Conference (11th & 12th June 2022):** At the Konkan Marathi Women's Literary Conference in Vasai, environmental awareness was conducted. Notably, the conference attendees were well-informed about the prohibition of single-use plastic at the event.

- **Awareness about single-use plastic ban on 15th August 2022:** A one-page message on public awareness was published in many newspapers such as Maharashtra Times, Loksatta, Sakal, Lokmat, Saamana, Pudhaari, Punyanagari, Prahaar, Navakaal, Navbharat Times and Navarashtra on Independence Day on August 15, 2022.

- **Mass awareness about single use plastic ban in Sakaal Shravan-sari initiative (15th August 2022):** The event was organized by Sakaal Newspaper for women in major cities across the State including Mumbai, Pune, Pimpri Chinchwad, Nashik and Kolhapur. Several events were organized under this initiative. One of which was the oath ceremony by leading Marathi TV serial artists to not use single use plastics.

Sakal Shravansari public awareness about single use plastic at Dadar, Mumbai.

- **Eco-friendly Dahi Handi (19th August 2022):** The eco-friendly Dahi Handi Festival was organized in association with Ideal Book Company and MPCB. Public awareness on noise pollution was carried out on the open deck BEST bus by renowned actors from Marathi film industry. The campaign was attended by renowned film and TV artistes. On the eve of Dahi Handi, the rally was organized in Dadar and Lalbaug with street theatre artists. Also, an eco-friendly Dahi Handi was broken in front of Chhabildas High School in Dadar in the presence of artists from popular serials on Zee TV, E-TV channel. The event was attended by the Public Relations Officer of the MPCB.

Eco-Friendly Dahi Handi Public Awareness Rally in presence of Television actors and PRO, MPCB at Dadar, Mumbai.

- **Eco-friendly Ganpati Competition organized by MPCB and Loksatta (26th August 2022):** The eco-friendly household Ganeshotsav competition was organized at six regions of Loksatta namely Mumbai, Pune, Nashik, Nagpur, Ahmednagar and Aurangabad. The

event was in association with the MPCB and Loksatta. More than 3,000 contestants participated in the competition.

- **Times Green Ganesha (26th August 2022):** The Times Green Ganesha competition was a collaborative effort between the MPCB, the Environment Department of the Government of Maharashtra and the Times of India Group, held in both Mumbai and Pune. Public organizations associated with Ganeshotsav Mandal and housing societies in Mumbai organized an eco-friendly Ganesh competition. Additionally, workshops for school students were conducted for making eco-friendly Ganesh idol, along with various activities for college students to promote environmentally conscious Ganpati celebrations. To cap off the festivities, a cleanliness drive was carried out at Girgaum Chowpatty in Mumbai during the Ganesh Visarjan.

Prize Distribution at Eco-Friendly Ganpati Competition.

Beach Cleanup activities taken up by MPCB.

Prize Distribution of ABP Majha and Loksatta.

- **ABP Majha Eco-friendly Ganesh Utsav Competition (26th August 2022):** A special awareness campaign was organized by the MPCB and ABP Majha news channel to celebrate eco-friendly Ganeshotsav in housing societies in major cities of the State. The channel also aired a half-hour special talk show on the eco-friendly Ganeshotsav celebrated in the housing societies of Mumbai, Pune, Nashik and Nagpur. It was organized by ABP Majha channel. Popular television artists Samruddhi Kelkar and Harshad Atkari had promoted the organized competition across the State.

- **Ganesh Utsav Idol Competition organized by MPCB and Loksatta (26th August 2022):** The MPCB participated as co-convenor in the Ganesh Utsav Idol Competition organized by Loksatta. In this competition, special prizes were awarded in the category of best ecofriendly Ganesh idol.

- **MPCB Eco-friendly public Ganesh Utsav competition organized by the MPCB and the newspaper Saamana (26th August 2022):** An eco-friendly public Ganeshotsav competition was organized in Mumbai, Pune and Aurangabad in collaboration with Dainik Saamana newspaper. Public Ganesh Utsav organizations were invited to participate in the competition. Similar event was also conducted by News 18 Lokmat news channel and MPCB.

- **Eco-friendly Ganpati Competition for School Students and Housing Societies organized by Saam Marathi and MPCB (26th August 2022):** Saam TV news channel and MPCB organized Eco-Friendly Ganpati Competition for housing societies and school students in the State. The competition received a good response. Saam TV had appealed for participation in the competition through promos. Similar initiative was also undertaken by Jai Maharashtra news channel and MPCB.

- **Eco-friendly Ganesh Utsav Competition for School students organized by TV9 and MPCB (26th August 2022):** TV9 news channel and MPCB co-organized an eco-friendly Ganesh Idol Competition for school students in the State. TV9 had made an appeal to participate in the competition through advertisements.

- **Video message by the Chief Minister, Deputy Chief Minister on Environment-friendly Ganesh Utsav and ban on single-use plastic (31st August 2022):** The video message of Honorable Chief Minister and Deputy Chief Minister regarding the ban on eco-friendly Ganesh Utsav and single-use plastic during Ganesh Utsav was broadcasted on various ABP Majha, Zee 24 Taas, TV9, News18 Lokmat, Saam TV, Jai Maharashtra, Loktantrik and Mumbai Doordarshan news channels.

- **Massive awareness on ban on single-use plastic during Ganesh festival (5th September 2022):** A one-page illustrative article was published in Maharashtra Times, Loksatta, Sakal, Lokmat, Saamana, Pudhaari, Punyanagari, Prahar, Navakaal, Navbharat Times, Navrashtra and other newspapers to inform the public about the ban on single-use plastic during Ganesh festival.

- **Pollution free Diwali Sankalp Abhiyan and other public awareness initiatives, 2022:** To celebrate a pollution free Diwali, the Pollution free Diwali Sankalp Abhiyan 2022 was organized at Mantralaya. The oath of Pollution free Diwali by Honorable Chief Minister Shri. Eknathji Shinde, Honorable Deputy Chief Minister Shri. Devendraji Fadnavis to the school and college students across the State. Honorable Ministers Shri. Shambhuraje Desai, Shri. Deepak Keskar, Secretary of Department of Environment and Climate Change and Honorable Member Secretary Shri. Pravin Darade, Chairman of the MPCB Shri. Abasaheb

Jarhad and other dignitaries were present on the occasion. The event was attended by students from various Universities of Mumbai. In addition, the State's leading FM radio channels like 92.7 Big FM, 93.5 Red FM, 98.3 Radio Mirchi, 91.1 Radio City, Radio Nasha and Radio One broadcasted the message of pollution free Diwali. The message was circulated in selected cinema theatres in the State and bus stations of the State Transport Corporation. To celebrate a pollution free Diwali, eco-friendly Diwali sets were distributed to Honorable Ministers, MLAs, Officers and Employees of the MPCB.

Eco-friendly Diwali oath ceremony at Mantralaya in presence of Hon'ble Chief Minister Shri. Eknathji Shinde, Dy. Chief Minister Shri. Devendraji Fadnavis and other Hon'ble ministers and dignitaries.

Oath ceremony accompanying with school children.

- **Diwali magazine 2022: Message of Pollution free Diwali (26th September 2022):** The tradition of reading Diwali magazines is deeply ingrained in Maharashtra's cultural heritage. These magazines feature articles penned by renowned writers, scientists and artists from various domains, making them a delightful reading experience. Hence, on this festive occasion, the message advocating a pollution-free Diwali was disseminated through the pages of Diwali magazines published throughout the State.

- **Sumangal Panchamahabhoota Lokotsav, Kaneri Math Kolhapur (20th - 26th February 2023):** The Shri Kshetra Siddagiri Mahasansthan Kaneri Math in Kolhapur organized the Sumangal Panchamahabhoota Lokotsav, an International Conference and Exhibition on Environment. During this event, the environmental vision was presented by the Honorable Prime Minister Shri. Narendra Modi was put into action. The conference was inaugurated by the Honorable Chief Minister Shri. Eknathji Shinde and was presided over by Deputy Chief Minister Shri. Devendraji Fadnavis. It witnessed the participation of Vice Chancellors from numerous Universities, Thinkers, Scientists, Scholars of Saint Literature, Agronomists and various other dignitaries from all over India. The eight-day exhibition was attended by more than 2.5 million people.

12. IMPORTANT MATTERS DEALT BY THE BOARD

12.1 Achievements in Control of Air Pollution

- Implementation of City Clean Air Action Plans under the National Clean Air Programme (NCAP): The MPCB along with the concerned city Municipal Corporation/Council(s) of 19 non-attainment/million-plus cities have prepared the comprehensive Air Action Plans to achieve national level target of 20% to 30% reduction of $PM_{2.5}$ and PM_{10} concentration by 2024.
- Fund of Rs. 2,981 Crore has been allocated to Maharashtra State under 15th Finance Commission (XV-FC) grants. Utilization of funds released to the State under NCAP (Rs. 128.98 Crore) and XV-FC grants (Rs. 1,555.34 Crore) for air quality improvement through implementation of various activities such as E-vehicle procurement for public transport, greening of traffic corridors and open spaces, management of C & D waste, purchase of mechanical sweepers, public outreach and capacity building activities, etc.
- In addition, under XV-FC Rs. 41.34 Crore has been released to Maharashtra State as incentive grants for good performance of the six million plus Urban Agglomerations/Cities of the State.
- MPCB has developed the 'Maharashtra State Clean Air Action Plan' based on airshed approach, hotspots and emission inventory of polluting sources, etc.
- 43 AMRUT cities and urban clusters from Maharashtra have joined the global 'Race to Zero' campaign. Cities joining this campaign have pledged to reach net zero carbon emissions in the year 2040 or sooner.
- For improvisation of the city action plans prepared under NCAP and to achieve tangible results in improvement of air quality, MPCB is undertaking Source Apportionment (SA), Emission Inventory (EI) and Carrying Capacity (CC) Studies along with IIT (Bombay) and NEERI, Nagpur for 19 non-attainment/million-plus cities.
- The MPCB is also associated with various advanced studies related to Air Pollution in recent past such as Pre and Covid Period Air Quality monitoring and its analysis, Low Sensor-based Air Quality monitoring, Drone based Air Quality monitoring, etc.
- MPCB has successfully created and exhibited 'Carbon Neutral' exhibition stall inculcating five elements of nature to represent Environment and Climate Change Department, Government of Maharashtra/MPCB's efforts by integrating Panchmahabhoota held from 20th to 26th February, 2023 at Shri Siddhagiri Mahasansthan, Kanheri Math, Kolhapur.
- Honorable Chief Minister Shri. Eknathji Shinde and Honorable Deputy Chief Minister Shri. Devendraji Fadnavis, inaugurated on 20th February 2023 '47 Real Time Continuous Ambient Air Quality Monitoring stations (CAAQMS)' installed by MPCB in the various cities of the State. The CAAQMS is a State-of-the-art monitoring facility which MPCB has successfully installed and commissioned in the State. Maharashtra State has the highest number of CAAQM stations in the country.
- Consequently, Honorable Chief Minister and Deputy Chief Minister on Monday 20th February, 2023 also inaugurated 15 Mobile Continuous Ambient Air Monitoring Vans (MCAAQMV) at Shri Siddhagiri Mahasansthan, Kanheri Math, Kolhapur.
- The MPCB has undertaken a project of Air Quality Monitoring in collaboration with Environmental Defense Fund (EDF), a New York based World's leading environmental

organization with expertise in Hyperlocal Hotspot Identification and Air Quality Monitoring (HHI and AQM) to conduct a research-oriented project named LAMP (Local Area Management Plan.

12.2 Achievements in Hazardous and other Waste Management during 2022-23

- The MPCB has conducted three authorization committee meetings under Rule-9 of Hazardous Waste Rules, 2016 from 1st October, 2022 to 31st March, 2023; 153 applications were discussed and accordingly rejected.
- The MPCB has issued 100 authorizations for Hazardous Waste Transporter, 54 Hazardous Waste Trader applications were discussed and accordingly disposed since 1st October, 2022 to 31st March, 2023.
- The MPCB has issued an order to education institutes for the third party environmental and waste audit of highly polluting 15 industries of Kalyan Region.
- The MPCB has issued show cause notices to 3,259 industries for violation of the Provisions of the Hazardous and Other Wastes (Management Transboundary Movement) Rules, 2016 and not submitting Annual Reports through Online Portal within stipulated period.

12.3 Achievements in Plastic Waste Management

- Maharashtra State level Special Task Force (STF) constituted under Chairmanship of Honorable Chief Secretary, Government of Maharashtra for implementation of single use plastic notification 2021.
- Constituted district level and city level task force for implementation of single use plastic notification 2021.
- Action plan prepared for implementation of single use plastic notification and submitted to CPCB.
- From October to March 2023, inspections completed were 1,58,249. Action taken against 3,373 commercials establishments, fine of Rs. 1.56 Crore collected and 78 Tons of banned plastic items seized.
- A workshop on Alternative to Plastic was organized for the NGOs working for plastic management, ULBs and Stake holders to promote the alternative to plastic usage.
- Successfully issued registration to the Plastic waste processors, Producers, Importer and Brand owners. A total of 1,187 registrations were issued on the EPR portal developed by the CPCB.

12.4 Training programs held in the Financial Year 2022-23

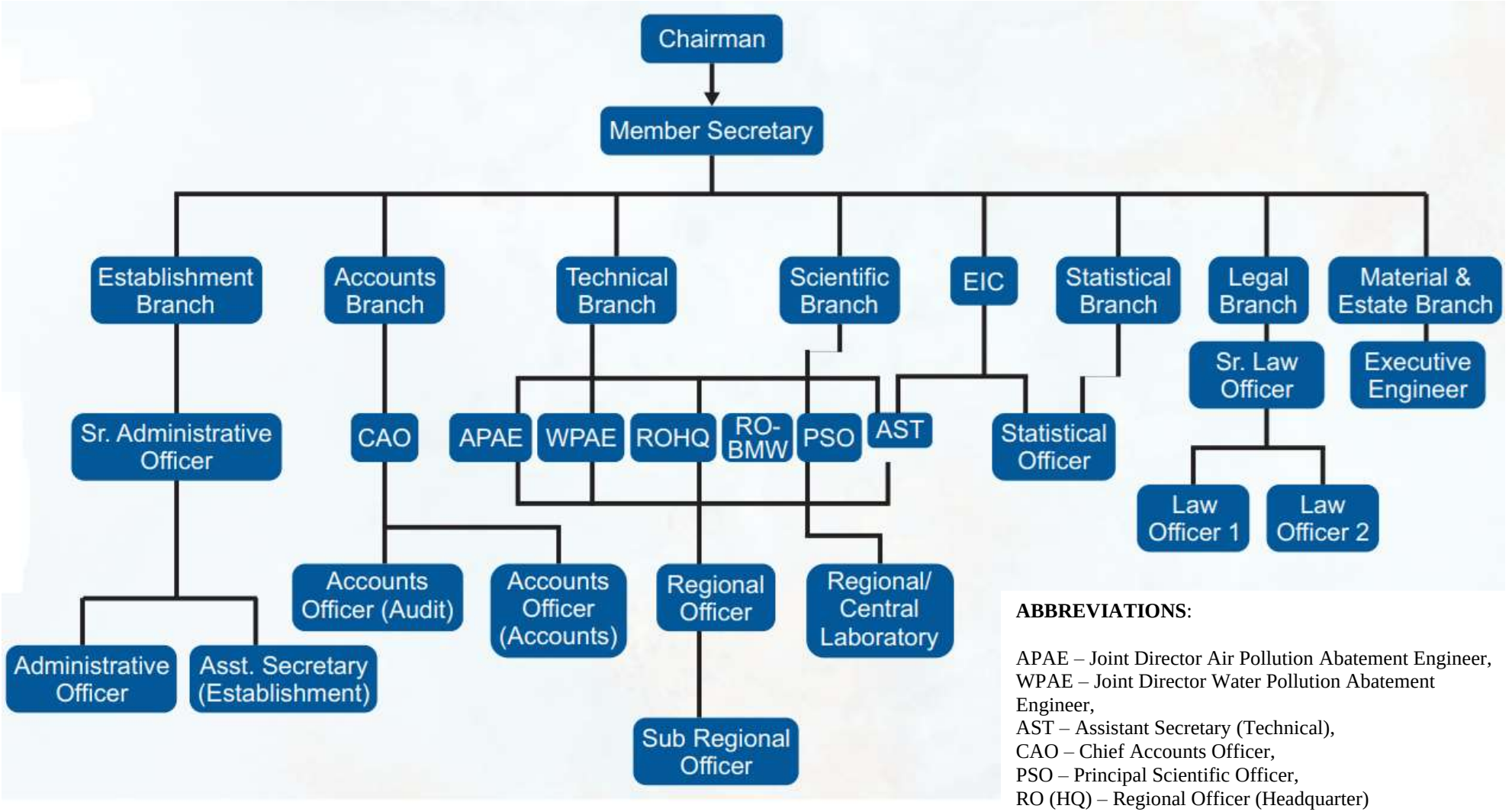
A total of 23 training courses organized on various environmental aspects with the participation of 144 MPCB officials.

12.5 Achievements in Control of Water Pollution

- State Environment Plan and District Environment Plans (36 districts) prepared and submitted to CPCB in compliance of Honorable NGT Order OA 360/2018.
- Prepared inventory of tannery industry, dairy and gaushalas, food industry and paper industry.
- Revised Action Plans for rejuvenation of Priority III, IV and V polluted river stretches (Total 38) submitted to CPCB and Honorable NGT.
- Action Plan for utilization of treated sewage prepared and submitted to CPCB.
- MPCB has prepared a report on Biodiversity monitoring and indexing of the rivers for 156 National Water Monitoring Programme (NWMP) stations located on 56 rivers of Maharashtra with the help of third-party institute.
- Common Effluent Treatment Plant (CETP) - The MPCB was successful in bringing down non-compliant CETPs from 4 to 3. A new Phase-II, 25 MLD CETP at Tarapur has opened and is expected to reduce the burden on non-compliant Phase-I Tarapur CETP.
- Polluted River Stretches -
    i. Priority I - Reduced from initial 9 stretches to 1
    ii. Priority II - Reduced from initial 6 stretches to 4
    iii. Priority III - Reduced from initial 14 stretches to 7
    iv. Total polluted river stretches down from 53 to 50
    v. Number of less polluted river stretches (PRS) have been increased from 3 to 5 resulting in decrease in pollution levels in PRS
- Circular published to provide financial and technical assistance to A, B and C Municipal Councils, Nagar Panchayats and Gram Panchayats for setting up of facilities for management of sewage. Assistance will be provided up to Rs. 2.5 Crore as an interest free loan for the tenure of 10 years. Assistance of Rs. 2 Lakh also will be provided for preparation of DPR.
- Benchmarking of Sugar industries in Maharashtra to represent all variability and commonalities in process, technology, resource and pollution potential carried out through the third party.
- Benchmarking of Distillery and Jaggery industries in Maharashtra to represent all variability and commonalities in process, technology, resource and pollution potential carried out through the third party.
- The MPCB has prepared guidelines/policy that have been formulated for environment friendly idol immersion.
- The MPCB has prepared a report on Eco-Friendly Festivals and methods of immersing idols in natural water bodies.
- The MPCB has prepared a report on the Water Quality Status of Maharashtra with the help of a third-party institute.

ANNEXURES

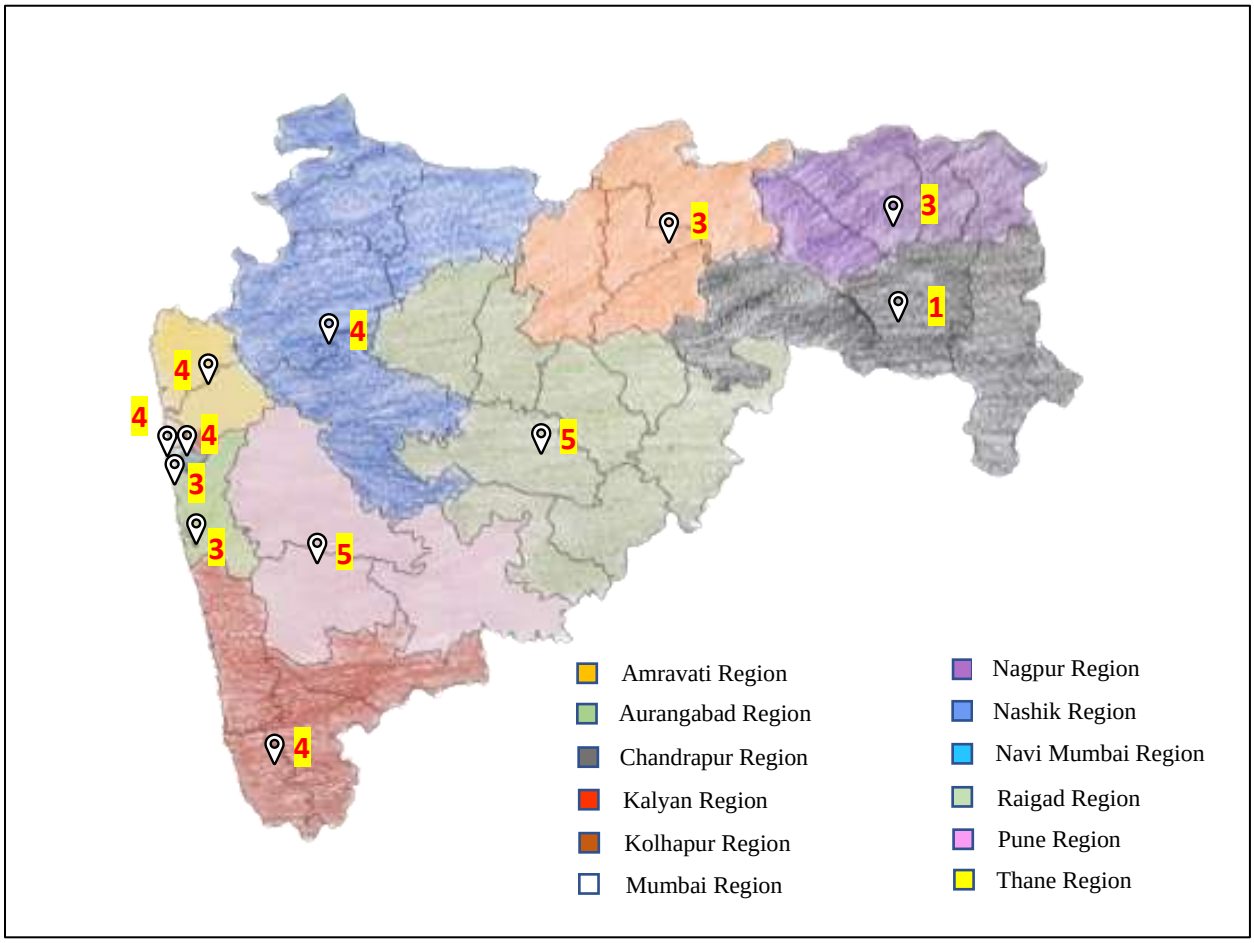
ANNEXURE 1 A. ORGANIZATIONAL STRUCTURE OF THE BOARD



ABBREVIATIONS:

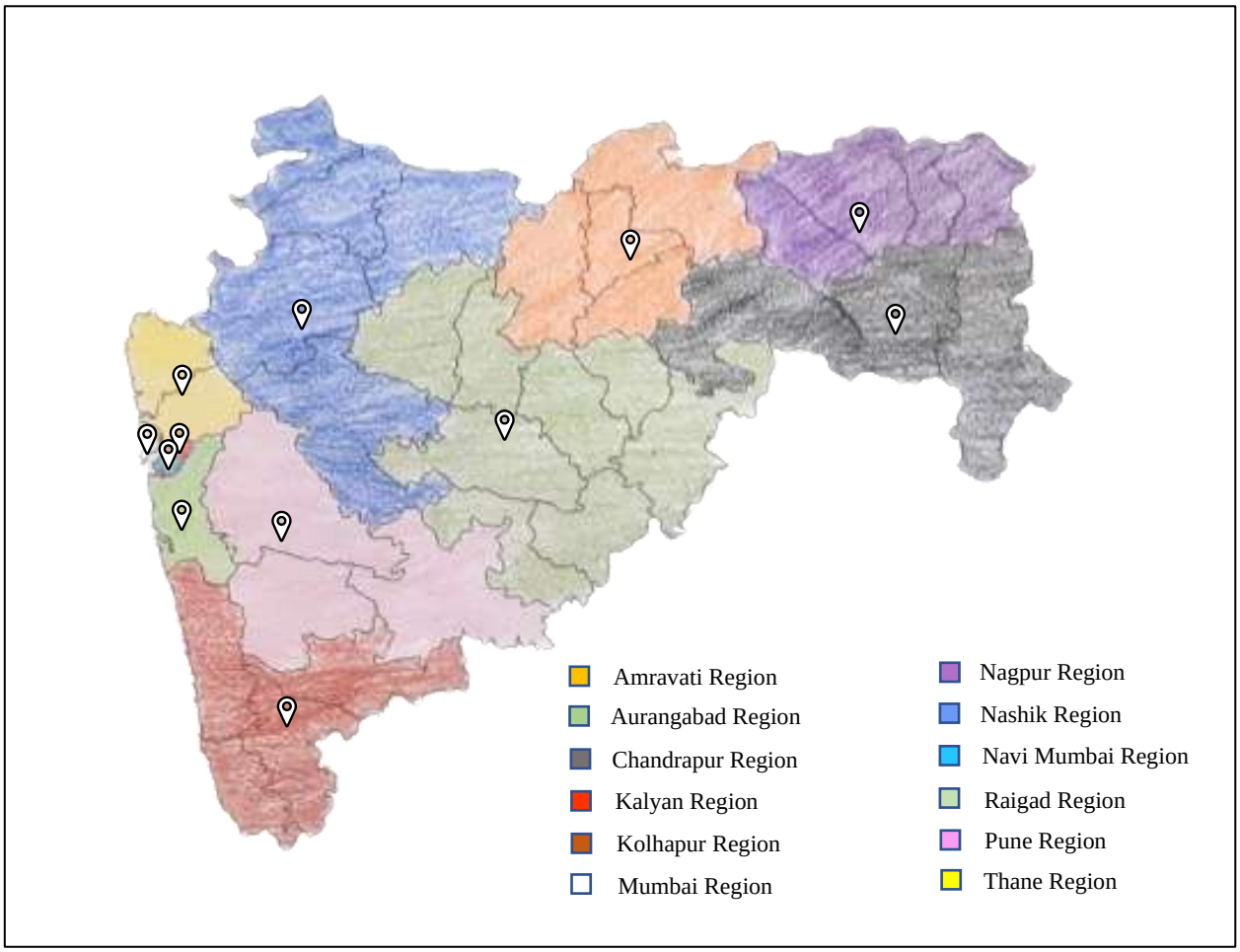
APAE – Joint Director Air Pollution Abatement Engineer,
WPAE – Joint Director Water Pollution Abatement Engineer,
AST – Assistant Secretary (Technical),
CAO – Chief Accounts Officer,
PSO – Principal Scientific Officer,
RO (HQ) – Regional Officer (Headquarter)
EIC – Environment Information Centre

ANNEXURE 1 B. FIELD OFFICES CHART



REGIONAL OFFICE	SUB-REGIONAL OFFICE
Amravati	Akola, Amravati-I, Amravati-II
Aurangabad	Aurangabad, Jalna, Latur, Parbhani, Nanded
Chandrapur	Chandrapur
Kalyan	Bhiwandi, Kalyan-I, Kalyan-II, Kalyan-III
Kolhapur	Sangli, Chiplun, Ratnagiri, Kolhapur
Mumbai	Mumbai-I, Mumbai-II, Mumbai-III, Mumbai-IV
Nagpur	Nagpur-I, Nagpur-II, Bhandara
Nashik	Nashik, Jalgaon, Dhule, Ahmednagar
Navi Mumbai	Taloja, Navi Mumbai-I, Navi Mumbai-II
Pune	Pune-I, Pune-II, Pimpri-Chinchwad, Satara, Solapur
Raigad	Raigad-I, Raigad-II, Mahad
Thane	Thane-I, Thane-II, Tarapur-I, Tarapur-II

ANNEXURE 1 C. BOARD LABORATORIES CHART



BOARD LABORATORIES	JURISDICTION
Central Laboratory	: Regional Office(RO) Mumbai, RO Navi Mumbai, RO Raigad, RO Kalyan
Regional Laboratory Aurangabad	: RO Aurangabad
Regional Laboratory Chandrapur	: RO Chandrapur
Regional Laboratory Chiplun	: RO Kolhapur, SRO Mahad
Regional Laboratory Nashik	: RO Nashik
Regional Laboratory Nagpur	: RO Nagpur, RO Amravati
Regional Laboratory Pune	: RO Pune
Regional Laboratory Thane	: RO Thane

ANNEXURE 2. STAFF STRENGTH AS OF 31/03/2023

Sr. No.	Posts	Salary Band	Grade	Sanctioned	Filled	Vacant
1.	Chairman			1	1	0
2.	Member Secretary	(PB-4) 37400- 67000	10000	1	1	0
3.	WPAE (Water Prevention Amendment Engineer)	15600-39100	7600	1	0	1
4.	APAE (Air Prevention Amendment Engineer)	15600-39100	7600	1	1	0
5.	Principal Scientific officer	15600-39100	7600	1	1	0
6.	Chief Accounts Officer	15600-39100	7600	1	1	0
7.	Assistant Secretary (Technical)	15600-39100	7600	1	0	1
8.	Senior Law Officer	15600-39100	7600	2	0	2
9.	Senior Administrative Officer	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	11	4
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	52	3
16.	Statistical Officer	15600-39100	5000	1	0	1
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	7	2
21.	Account Officer	15600-39100	5000	2	2	0
22.	Junior Scientific Officer	9300-34800	4400	26	21	5
23.	Assistant Accounts Officer	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 Stenographer	9300-34800	4400	5	5	0
27.	Junior Stenographer	9300-34800	4300	27	9	18
28.	Field Officer	9300-34800	4300	204	147	57
29.	Head Accountant	9300-34800	4300	20	8	12
30.	Legal Assistant	9300-34800	4300	4	0	4
31.	Junior Scientific Assistant	9300-34800	4200	40	19	21
32.	First Clerk	9300-34800	4200	17	17	0
33.	Statistical Assistant	9300-34800	4200	1	1	0

34.	Draftsman	5200-20200	2800	1	0	1
35.	Field Inspector	5200-20200	2800	42	0	42
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	36	28
42.	Driver	5200-20200	1900	74	47	27
43.	Instrument Fitter	5200-20200	1900	1	0	1
44.	Daftari	5200-20200	1900	14	0	14
45.	Naik	4440-7440	1600	2	0	2
46.	Roneo Operator	4440-7440	1600	1	0	1
47.	Peon	4440-7440	1300	88	31	57
48.	Chowkidar	4440-7440	1300	20	9	11
49.	Sweeper	4440-7440	1300	3	3	0
		Total		**839**	**479**	**360**

CONVERTED TEMPORARY ESTABLISHMENT AS ON 31/03/2023.

Sr. No.	Posts	Salary Band	Grade	Sanctioned
1.	Junior Scientific Assistant	9300-34800	4200	11
2.	Laboratory Assistant	5200-20200	2000	5
3.	Junior Clerk	5200-20200	1900	4
4.	Driver	5200-20200	1900	1
5.	Peon	4440-7440	1300	3
		Total		**24**

ANNEXURE 3. DETAILS OF REGIONAL AND SUB-REGIONAL OFFICES IN MAHARASHTRA WITH THEIR JURISDICTIONS

Sr. No.	Name of the Region	Jurisdiction	Telephone No.
	Head Office Maharashtra Pollution Control Board, Kalpataru Point, 3rd and 4th floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022		022-24016239/ 24015269
	Central Lab Central Laboratory, Maharashtra Pollution Control Board, 'Nirmal Bhavan', P-3, MIDC Industrial Area, Mahape, Navi Mumbai- 400 701		022-67195031/ 67195032
1.	**Regional Office Mumbai** Maharashtra Pollution Control Board, Kalpataru Point, 1st floor, opposite P.V.R. Theatre, Sion (E), Mumbai - 400 022.	Mumbai Municipal Corporation Area	24015269 24016239
	Sub Regional Office Mumbai - I Maharashtra Pollution Control Board, Kalpataru Point, 1st floor, opposite P.V.R. Theatre, Sion (E), Mumbai - 400 022.	Mumbai city, Ward A, B, C, D, F (North), F (South), G (North) and G (South)	24015269 24016239
	Sub Regional Office Mumbai - II Maharashtra Pollution Control Board, Kalpataru Point, 1st floor, opposite P.V.R. Theatre, Sion (E), Mumbai - 400 022.	Mumbai Suburban Ward M/H (West), M/H (East) and L	24015269 24016239
	Sub Regional Office Mumbai - III Maharashtra Pollution Control Board, Kalpataru Point, 1st floor, opposite P.V.R. Theatre, Sion (E), Mumbai - 400 022.	Mumbai Suburban Ward K (East), K (West), S, N and P (South)	24015269 24016239
	Sub Regional Office Mumbai - IV Maharashtra Pollution Control Board, Kalpataru Point, 1st floor, opposite P.V.R. Theatre, Sion (E), Mumbai - 400 022.	Mumbai Suburban P (North), R (North), R(South) and T Ward	24015269 24016239
2.	**Regional Office Thane** Maharashtra Pollution Control Board, Plot no. P-30, 5th floor, Office	Thane district	25829582 25805398

	Complex building, Mulund Check Naka, Thane.		
	Thane Lab Maharashtra Pollution Control Board, Office Complex Building, 5th floor, Wagle Industrial Estate, Thane - 400 604.		022-25829582/ 25820423
	Sub Regional Office Thane - I Maharashtra Pollution Control Board, Plot no. P-30, 5th floor, Office Complex building, Mulund Check Naka, Thane.	Thane Municipal Corporation, Wagale estate MIDC	25829582 25802272
	Sub Regional Office Thane - II Maharashtra Pollution Control Board, Plot no. P-30, 5th floor, Office Complex building, Mulund Check Naka, Thane.	Thane Taluka, Thane Municipal Corporation, Mira Bhayander and Vasai Virar Municipal Corporation and Vasai taluka Palghar district	25829582
	Sub Regional Office Tarapur - I MIDC Office building, Boisar Station, Post Taps, Tarapur, Dist. Thane - 401 506.	Tarapur MIDC and related area	02525-273314
	Sub Regional Office Tarapur - II MIDC Office building, Boisar Station, Post Taps, Tarapur, Dist. Thane - 401 506.	Dahanu, Talasari, Mokhada, Javhar and Vikramgadh and Palghar taluka (Except Sub Regional Office Tarapur - I jurisdiction)	02525-273314
3.	**Regional Office Kalyan** Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th floor, Oak Bagh, Station Road, Kalyan (West) - 421 301.	Kalyan, Bhiwandi, Ulhasnagar, Badlapur, Wada, Murbad and Shahapur taluka of Thane district	0251-2310167/0251-2310212
	Sub Regional Office Kalyan - I Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th floor, Oak Bagh, Station Road, Kalyan (West) - 421 301.	Kalyan Bhiwandi taluka	0251-2310167
	Sub Regional Office Kalyan - II Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th	Ulhasnagar, Badlapur taluka	0251-2310167

	floor, Oak Bagh, Station Road, Kalyan (West) - 421 301.		
	Sub Regional Office Kalyan - III Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th floor, Oak Bagh, Station Road, Kalyan (West) - 421 301.	Wada Taluka (Palghar district), Murbad, Shahapur Taluka (Thane district)	0251-2310167
	Sub Regional Office Bhiwandi Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th floor, Oak Bagh, Station Road, Kalyan (West) - 421 301.	Sawarli MIDC and Bhiwandi taluka (Thane district), Bhiwandi Municipal Corporation	0251-2310167
4.	**Regional Office Navi Mumbai** Raigad Bhavan, 7th floor, Sector - 11, C.B.D Belapur, Navi Mumbai - 400 614.	Parts of Thane and Raigad district and Sub-Regional Offices under Navi Mumbai	2757240 27571127
	Sub Regional Office Navi Mumbai - I Raigad Bhavan, 7th floor, Sector - 11, C.B.D Belapur, Navi Mumbai - 400 614.	C.B.D Belapur, Shiravane, Nerul, Seawoods, Juinagar, Turbhe, Pawane, Vashi, Khairne (sub)	2757240 27571127
	Sub Regional Office Navi Mumbai - II Raigad Bhavan, 7th floor, Sector - 11, C.B.D Belapur, Navi Mumbai - 400 614.	Airoli, Rabale, Ghansoli, Mahape and MIDC Khairne (sub) Digha, Dahisar, Mori, Pimpri, Uttarshiv, Ghoteghar	2757240 27571127
	Sub Regional Office Taloja Raigad Bhavan, 7th floor, Sector - 11, C.B.D Belapur, Navi Mumbai - 400 614.	MIDC Taloja, Uran Taluka	2757240 27571127
5.	**Regional Office Raigad** Raigad Bhavan, 6th floor, Sector - 11, C.B.D Belapur, Navi Mumbai - 400 614.	Parts of Raigad district and Sub Regional Offices under the jurisdiction	27572620 27562865 27572620
	Sub Regional Office Raigad - I Raigad Bhavan, 6th floor, Sector - 11, C.B.D Belapur, Navi Mumbai - 400 614.	Khalapur and Panvel taluka (Except MIDC Taloja)	27572620 27562865
	Sub Regional Office Raigad - II	Pen, Karjat, Roha, Alibaug, Murud Janjira taluka	27572620 27562865

	Raigad Bhavan, 6th floor, Sector - 11, C.B.D Belapur, Navi Mumbai - 400 614.		
	Sub Regional Office Mahad Samaik Suvidha Kendra building, MIDC - Mahad, District Raigad - 402 309.	Mahad, Mangaon, Shrivardhan Poladpur and Tala taluka	02145-232372
6.	**Regional Office Pune** Jog Center, 2nd and 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Pune district	020-25811627 020-25811694
	Pune Lab Jog Center, 3rd floor, Mumbai Pune Road, Wakdewadi, Pune - 411 003.		020-25811698
	Sub Regional Office Pune - I Jog Center, 2nd and 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Haveli (limited to Pune Corporation) Indapur, Baramati, Purandar, Bhor and Daund Corporation-1 and Council-6	020-25811029
	Sub Regional Office Pune - II Jog Center, 2nd and 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Haveli taluka (excluding Pimpri Chinchwad Municipal Corporation and Pune Municipal Corporation) Khed, Mulshi, Ambegaon, Junnar, Maval and Shirur taluka of Pune district	020-25816451
	Sub Regional Office Pimpri - Chinchwad Jog Center, 2nd and 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Pimpri Chinchwad Municipal Corporation area including MIDC Pimpri, Bhosari and Akurdi	020-25810222
	Sub Regional Office Satara New Government Bhavan, 2nd floor, near S.T. Stand, Sadar Bazar, Satara - 415 001.	Satara district (11 talukas) Satara, Karhad, Phaltan, Wai, Mahabaleshwar, Khandala, Man, Khatav, Patan, Javali, Koregaon, Council-09	02162-233527
	Sub Regional Office Solapur 4/B, Bali Block, Civil Lines, opposite Government Milk Scheme, Saat Rasta, Dist. Solapur - 413 003.	Solapur district	0217-2319850

7.	**<u>Regional Office Kolhapur</u>** Udyog Bhavan building, near Collectorate Office, Kolhapur - 416 002.	Sangli, Kolhapur, Sindhudurg district	0231-2652952
	Chiplun Lab Maharashtra Pollution Control Board, Parkar Complex, 1st floor, Behind Nagar Parishad, Chiplun, Dist. Ratnagiri - 415 605.		02355-261970
	Sub Regional Office Kolhapur Udyog Bhavan building, near Collectorate Office, Kolhapur - 416 002.	Kolhapur district	0231-2660448
	Sub Regional Office Ratnagiri Mahsul Vibhag, Workers Co-op Patasanstha Limited, Office building, Collector office compound, Zadgaon, Ratnagiri - 415 639.	Ratnagiri district, Rajapur, Ratnagiri, Lanja and Sangameshwar taluka. Sindhudurg district, Kudal, Kankavali, Sawantwadi, Vengurla, Malvan, Vaibhavwadi, Devgad, Dodamarg talukas	02352-220813
	Sub Regional Office Chiplun Parkar Complex, 1st floor, near Chiplun Municipal Council office, Chiplun, Dist. Ratnagiri, Chiplun - 415 605.	Chiplun, Guhagar, Khed, Dapoli, Mandangad taluka of Ratnagiri district	02355-261570
	Sub Regional Office Sangli 300/2, Udyog Bhavan, behind TATA petrol pump, near Government Rest House, Vishrambaug, Sangli - 416 416.	Sangli district, Miraj, Valawa, Shirala, Aatpati, Taasgaon, Khanapur, Kadegaon, Palus, Jat and Kavthemahakaal	0233-2672032
8.	**<u>Regional Office Nashik</u>** Udyog Bhavan, first floor, Trimbak Road, Satpur, Nashik 422 007.	Nashik, Ahmednagar, Jalgaon, Dhule, Nandurbar district	0253-2365150
	Nashik Lab Maharashtra Pollution Control Board, Udyog Bhavan, Satpur MIDC, Near ITI, Nashik - 422 107.		0253 -2365161
	Sub Regional Office Nashik	Nashik district	0253-2365161

	Udyog Bhavan, first floor, Trimbak Road, Satpur, Nashik 422 007.		
	Sub Regional Office Jalgaon Hall no. A, 3rd floor, old B.J. market, Jalgaon - 425 001.	Jalgaon district. Jalgaon Municipal Corporation, Bhusawal, Faijpur, Savda, Raver, Pachora, Dharangaon, Chalisgaon, Chopda, Amalner, Bhadgaon, Jamner, Yaval, Varangaon	0257-2221288
	Sub Regional Office Ahmednagar Savitribai Phule Vyapari Sankul, 1st floor, hall no. 2 and 3, near T.V. centre, Savedi, Ahmednagar - 414 003.	Ahmednagar district Ahmednagar, Nevasa, Shrirampur, Sangamner, Parner, MIDC Kopargaon area	0241-2470852
	Sub Regional Office Dhule Fulchand Plaza, 2nd floor, B.C. College Road, Near S.S.V.P.S. Engineering College, Near Vidya Nagari, Devpur, Dhule - 424 001.	Dhule district Dhule, Shirpur, Sakri and Sindhkheda, MIDC Avdham and MIDC Nardana Nandurbar district - Nandurbar, Navapur, Shahada, Taloda, Dhadgaon and Akkalkupa, MIDC Navapur area	02562-273731
9.	**Regional Office Aurangabad** Paryavaran Bhavan, A-4/1, Chikalthana Industrial area, near Seth Nandlal Dhoot Hospital, Aurangabad - 431 210.	Aurangabad, Jalna, Parbhani, Hingoli, Nanded, Beed, Osmanabad	0240-2993004
	Aurangabad Lab Maharashtra Pollution Control Board, A - 4/1, Paryavaran Bhavan, Behind Dhoot Hospital, Chikalthana MIDC, Aurangabad - 431 210.		0240-2473463/ 2473462
	Sub Regional Office Aurangabad Paryavaran Bhavan, A-4/1, Chikalthana Industrial area, near Seth Nandlal Dhoot Hospital, Aurangabad - 431 210.	Aurangabad district	0240-2993004
	Sub Regional Office Jalna	Jalna and Beed (except Parli taluka of Beed)	02482-220120

	Plot no. P-3/1 and P-3/2, near Hotel Aadarsh Palace, Jalna - Aurangabad Road, MIDC colony Jalna.		
	Sub Regional Office Latur Plot no. P-10, Latur district Udyog Samuh Building, MIDC, Latur - 413 531.	Latur, Osmanabad district	02382-299645
	Sub Regional Office Parbhani Devkripa Building, Rangnath Maharaj Nagar, Nandkhula Road, Parbhani - 431 401.	Parbhani, Hingoli and Beed district, Parli Vaijnath taluka of Beed	02452-226687
	Sub Regional Office Nanded Lahuti Complex, 2nd Floor, near Shivaji Statue, Vajirabad, Nanded - 431 601.	Nanded District	02462-242492
10.	**Regional Office Nagpur** Udyog Bhavan, 5th floor, Sales Tax office, Civil Lines, Nagpur - 440 001	Nagpur, Wardha, Bhandara, Gondia district	0712-2565308
	Nagpur Lab Maharashtra Pollution Control Board, Udyog Bhavan, Civil Lines, Nagpur - 440 001.		0712-2557231
	Sub Regional Office Nagpur - I Udyog Bhavan, 5th floor, Sales Tax office, Civil Lines, Nagpur - 440 001	Nagpur city, Kamati, Katol, Kalmeshwar, Ramtek and Savner, Parshivani, Narkhed	0712-2560139
	Sub Regional Office Nagpur - II Udyog Bhavan, 5th floor, Sales Tax office, Civil Lines, Nagpur - 440 001	Nagpur Gramin taluka Hingana, Mouda, Umred Bhivapur, Kuhi of Nagpur district and Wardha taluka	0712-2560152
	Sub Regional Office Bhandara Tatya Tope ward, near city petrol pump, Miskin tank, Mahal Road, Bhandara - 441 904	Bhandara and Gondia District	07184-260629
11.	**Regional Office Chandrapur** Udyog Bhavan, 1st floor, near Railway Station, Chandrapur - 442 401.	Chandrapur, Yavatmal district, Gadchiroli district	07172-251965 07172-272410
	Chandrapur Lab		07172-272416

	Maharashtra Pollution Control Board, 1st floor Udyog Bhavan, Railway Station Road Chandrapur - 442 401.		
	Sub Regional Office Chandrapur Udyog Bhavan, 1st floor, near Railway Station, Chandrapur - 442 401.	Chandrapur district, Yavatmal and Gadchiroli district MIDC Chandrapur Chandrapur, Tadali, Ghuggus, Varora, MIDC Yavatmal, Yavatmal, Mul, Bhadravati, Chimur, Gadchandur, Nagbhid, Kotgal, Gadchiroli Kolsa Khani Chandrapur, Bhadravati, Ballarpur, Rajura and Varora west, Kolsa area	07172-251965 07172-272410 07172-258062
12.	**<u>Regional Office Amravati</u>** Sahakar Surbhi, Bapatwadi, Vivekanand Colony, Amravati - 444 606.	Amravati, Akola, Buldhana, Vashim	0721-2563597 0721-2563592
	Sub Regional Office Amravati - I Sahakar Surbhi, Bapatwadi, Vivekanand Colony, Amravati - 444 606.	Amravati District Amravati, Achalpur, Chandur, Bazar, Tivsa, Daryapur, Anjangaonsurji, Chandur Railway, Dhamangaon Railway Morshi, Varud, Nandgaon Khandeshwar, Bhatkuli, Dharani, Chikhaldara	0721-2563593
	Sub Regional Office Amravati - II Sahakar Surbhi, Bapatwadi, Vivekanand Colony, Amravati - 444 606.	Washim district Washim mangarulpir, Risod, Manora, Malegaon, Karanja Laad	0721-2563594
	Sub Regional Office Akola Opposite to Hutatma Statue, Nehru Park Square, Alsi Plot, Akola - 444 001.	Akola District Akola, Balapur, Patur, Akot, Murtijapur, Barshi Takali Buldhana District. Buldhana, Chikhali, Mehkar, Lonar, Shegaon, Sindhkhedraja Deulgaonraja, Khamgaon, Nandura, Malkapur, Motala	0724-2452344 0724-2442344

ANNEXURE 4. INDUSTRY STATISTICS FOR THE YEAR 2022-23

OFFICE	CATEGORY															
	Green			Total	HCE	Total	Orange			Total	Red			Total	White	Grand Total
	LSI	MSI	SSI				LSI	MSI	SSI		LSI	MSI	SSI			
RO-Amravati	2	16	5028	**5046**	477	**477**	27	21	2220	**2268**	31	8	144	**183**	12	**7986**
RO-Aurangabad	71	79	6355	**6505**	2019	**2019**	143	114	2858	**3115**	340	40	578	**958**	13	**12610**
RO-Chandrapur	10	7	792	**809**	189	**189**	20	41	504	**565**	139	43	103	**285**		**1848**
RO-Kalyan	39	36	2236	**2311**	675	**675**	130	74	1453	**1657**	171	71	2186	**2428**	14	**7085**
RO-Kolhapur	47	32	8256	**8335**	1248	**1248**	109	119	5194	**5422**	297	80	1331	**1708**	2438	**19151**
RO-Mumbai	28	40	2657	**2725**	1923	**1923**	650	249	1286	**2185**	348	26	750	**1124**		**7957**
RO-Nagpur	22	31	3026	**3079**	858	**858**	144	117	3069	**3330**	284	42	1102	**1428**	34	**8729**
RO-Nashik	139	96	6440	**6675**	2036	**2036**	208	161	3415	**3784**	472	109	1747	**2328**	1074	**15897**
RO-Navi Mumbai	76	76	2253	**2405**	362	**362**	192	123	1335	**1650**	236	58	1162	**1456**	4	**5877**
RO-Pune	557	409	9145	**10111**	1630	**1630**	1643	412	5438	**7493**	1457	172	2812	**4441**	35	**23710**
RO-Raigad	47	39	806	**892**	268	**268**	124	49	738	**911**	272	54	528	**854**		**2925**
RO-Thane	40	28	2213	**2281**	1030	**1030**	256	48	1134	**1438**	248	59	1099	**1406**		**6155**
Grand Total	**1078**	**889**	**49207**	**51174**	**12715**	**12715**	**3646**	**1528**	**28644**	**33818**	**4295**	**762**	**13542**	**18599**	**3624**	**119930**

ANNEXURE 5. DETAILS OF TRAINING PROGRAMS ATTENDED BY MPCB OFFICIALS DURING THE YEAR 2022-23

Details of Training Programs attended by MPCB Officials during the Year 2022-23.					
Sr. No.	**Training/ Workshop Dates and Period**	**Training Venue**	**Subject**	**No. of Partici pants**	**Name of Participants**
1.	05.04.2022 to 08.04.2022	Nimli, Rajasthan	NCAP: Developing Air quality management plan for Industrial areas	**2**	1) Ashok Kare, RO Nagpur 2) Amar Durgule, SRO Nashik
2.	26.04.2022 to 29.04.2022	Nimli, Rajasthan	Tools for pollution management in small and medium scale industries	**2**	1) Avinash Kadle, FO 2) Rahul Nimbalkar, FO
3.	07.06.2022 to 10.06.2022	Nimli, Rajasthan	Air Quality monitoring and framing of targets and strategies for State and micro action plan for implementation under NCAP	**2**	1) Karansingh Rajput, SRO, HQ 2) Dhanashree Patil, SRO, Amravati
4.	17.06.2022	Mazgaon, Mumbai	Pollution response seminar/workshop and mock drill.	**1**	1) Sachin Adkar, SRO
5.	05.09.2022 to 09.09.2022	NEERI, Nagpur	Monitoring of persistent oxygen pollutants.	**3**	1) Swapna Satam, JSA, 2) Mahesh Walse, JSA, 3) Sharvari Charmode, JSA
6.	20.09.2022 to 23.09.2022	CSE, Alwar	Controlling fugitive emissions from stone crusher and mineral grounding sector.	**1**	1) Arvind Dhapate, FO
7.	21.09.2022 to 23.09.2022	Goa	Spilltech-2022 (International Conference and Exhibition)	**10**	1)Y.B. Sontakke, JD WPC, 2) J.S. Salunkhe, RO 3) Ravindra Andhale, RO 4) Satish Padwal, SRO, 5) V.R. Singh, SRO,

					6) Raj Kamat, SRO 7) Rahul Mote, SRO 8) Tanaji Yadav, SRO 9) Upendra Kulkarni, SRO 10) Jayant Kadam, SRO
8.	12.10.2022 to 13.10.2022	Bharuch, Gujarat	Conference on 'Advancing Impletation of green and sustainable chemistry in India's leading chemical industry hub - Gujarat'	**2**	1) Sachin Adkar, SRO, 2) Upendra Kulkarni, SRO
9.	07.11.2022 to 08.11.2022	Tiptop Hotel, Pune	Workshop on Urban Air Quality Management and based on training on 'URbAirIndia decision making tool'	**23**	1) Sushil Rathod, SRO 2) Pratap Jagtap, RO 3) Somnath Kurmude, SRO 4) Parmeshwar Kamble, SRO 5) Nikhil More, SRO 6) Nandkishor Patil, FO 7) Priyashri Deshmukh, FO 8) Anirudh Varale, FO 9) Vinod Shukla, FO 10) Manish Mahajan, FO 11) Nilesh Marbhal, FO 12) Pramod Lone, FO 13) Shrutika Dalvi, FO 14) Bhagwan Maknikar, FO 15) Rohidas Matkar, FO 16) Vishal Munde, FO 17) Vikram Mane, FO 18) Sanjay Nanware, FO 19) Nitin Chowdhary, FO 20) Ujwala Wadekar, FO 21) Gajanan Pawar, FO 22) Ajit Suryawanshi, FO 23) Snehal Gole, CPCB Consultant

10.	28.11.2022 to 01.12.2022	Berlin, Germany	NCPA, MOEF and CC GII Global Project Conference 'The way forward to circularity'	**1**	1) Dr. V. M. Motghare, JD (APC)
11.	08.12.2022 to 09.12.2022	Royal Orchid, Pune	Greenhouse gas air-pollution interaction and synergies	**9**	1) Deepali Taide, FO 2) Deepali Chowdhary, FO 3) Vishal Mundhe, FO 4) Rajesh Nandgaokar, FO 5) Rajaram Injulkar, FO 6) Shivanad Baswade, FO 7) Dattatraya Gawali, FO 8) Prakash Jadhav, FO 9) Rekha Togare, FO
12.	04.01.2023 to 07.01.2023	Nimli, Rajasthan	NCAP: Framing of strategies and targets for State and micro action plan of air quality improvement in cities	**2**	1) Kishor Pusadkar, SRO 2) M. N. Watane, FO
13.	09.01.2023 to 11.01.2023	New Delhi	Refresher training program on 'Capacity Building'	**2**	1) R.A. Rajput, RO 2) V.V. Killedar, RO
14.	10.01.2023 to 14.01.2023			**2**	1) Jayant Kadam, SRO 2) Limbaji Bhad, SRO
15.	11.01.2023 to 14.01.2023	TERI Campus, Delhi	Air pollution monitoring and advance analytical techniques	**15**	1) Dayanand Tare, JSO 2) Chandrakant Sabde, JSA 3) Salil Save, JSA 4) Mahesh Rakh, JSO 5) Mahesh Walse, JSA 6) Ravindra Raut, JSO 7) Anappa Kural, JSA 8) Sunil Salunkhe, JSA 9) Abhijit Wagh, JSA 10) Mrudula Wagh, JSA 11) Harish Narkhade, JSA 12) Santosh Kulkarni, JSA 13) Bhimraj Chavan, JSA

					14) Ranjana Rane, JSO 15) Anjana Sengupta, JSA
16.	30.01.2023 to 03.02.2023	Manesar, Gurugram	Training on AAS Instrument	**16**	1)Vinod Deshmukh, JSA 2) Vaibhavi Welingkar, JSA 3) Sarang Deshpande, JSA 4) Mrudula Ingley, JSA 5) Sunil Baviskar, JSO 6) Shailesh Kada, JSA 7) Kishor Bedwal, JSA 8) Meeta Deshmukh, JSA 9) R.P. Raut, JSO 10) Suresh Patil, JSA 11) S.S. Mahajan, JSO 12) B.K. Chavan, JSA 13) A.N. Sandansing, JSO 14) V.S. Kadam, JSA 15) B.U. Bhandare, JSO 16) Anjana Sengupta, JSA
17.	13.02.2023 to 15.02.2023	New Delhi	Refresher training Program on 'Capacity Building'	**2**	1) Ravindra Andhale, RO 2) Shankar Waghmare, RO
18.	13.02.2023 to 15.02.2023	Mahape Lab	Internal Auditor Training as per ISO 45001:2018 for MPCB Scientific staff	**25**	1) Dr. V. R. Thakur, I/c. Central Laboratory 2) A. V. Mandavkar, I, I/c. Senior Scientific Officer 3) K. V, Gawankar, JSO 4) H. V. Khalokar, JSO 5) Anil Patil, JSO 6) S. M. Satam, JSO 7) S.S. Muley, JSO 8) A. A. Lendait, JSO 9) P. D. Khadkikar, SO 10) Ravindra Raut, JSO 11) Annappa Kurale, JSA 12) B. N. Sangale, SO 13) Mahesh Rakh, JSO 14) Mita R. Deshmukh, JSA 15) Sunil Mohite, JSA 16) S. D. Mali, SSO

					17) Sarang Deshpande, JSA 18) S.N. Nagare, SO 19) S. S. Kadam, JSA 20) S. N. Wagh, SO 21) Sumitra Mahajan, JSO 22) Bipin Bhandare, JSO 23) Anil Sandansing, JSO 24) Vaibhavi Kadam, JSA 25) Dhananjay Nanekar, JSA
19.	14.02.2023 to 17.02.2023	TERI, New Delhi	Air pollution monitoring and advance analytical techniques	**9**	1) Rakesh Dafade, FO 2) Utkarsh Shingare, FO 3) Vishalsingh Rajput, FO 4) Nilesh Marbhai, FO 5) Pankaj Bawne, FO 6) Sanjeev Redasani, FO 7) Pramod Doke, FO 8) Priyashri Deshmukh, FO 9) Pramod Lone, FO
20.	14.02.2023 to 18.02.2023			**2**	1) Manchak Jadhav, SRO 2) Pratap Jagtap, SRO
21.	17.02.2023	Vadodara, Gujarat	Automated monitoring systems (OCEMS)	**10**	1) Swapnil Lingade, FO 2) Shrutika Dalvi, FO 3) Nandkumar Lomte, FO 4) Rupali Sonkamble, FO 5) Indrajit Deshmukh, FO 6) Vishwjeet Thakur, SSO 7) Dayanand Tare, JSO 8) Dhananjay Nanekar, JSA 9) Smita Wagh, SO 10) Bhimraj Chavan, JSA
22.	20.02.2023 to 22.02.2023	SGGS IE and T, Nanded	Enforcement of Hazardous and other waste (Management and transboundary movement Rules, 2016)	**2**	1) Rajendra Patil, FO 2) Shripad Kulkarni, SRO

23.	20.03.2023 to 24.03.2023	TERI, New Delhi	Air quality monitoring (Ambient and source emission) Analysis, Data implementation, Quality assurance and testing of various parameters and meteorology	**1**	1) Nilesh Patil, FO
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ANNEXURE 6. FINANCE AND ACCOUNTS FOR THE YEAR 2022-23

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MAHARASHTRA POLLUTION CONTROL BOARD

Receipt & Payment Account for the Year ended 31st March, 2023

Previous Year 2021-22		Receipt	Schedule No.	Current Year 2022-23		Previous Year 2021-22		Payment	Schedule No.	Current Year 2022-23	
Major Head	Sub Head			Sub Head	Major Head	Major Head	Sub Head			Sub Head	Major Head
92,64,29,847.91		OPENING BALANCE			72,61,78,556.00			1) CAPITAL EXPENDITURE			
	92,61,91,324.96	i) Cash at Bank		72,59,88,167.00		11,39,82,550.00		Fixed Assets Purchased	I		30,82,67,765.00
	2,38,522.95	ii) Cash in Hand		1,90,389.00							
	0.00	iii) DD in Hand		0.00				2) REVENUE EXPENDITURE			
						45,25,08,918.00		a) SALARY & ALLOWANCES			49,52,47,961.00
0.00		1) GRANT RECEIVED			0.00		43,32,69,910.00	i) Core Activity Segment		47,81,25,640.00	
	0.00	i) From State Government		0.00			70,84,339.00	ii Cess Activity Segment		21,81,740.00	
	0.00	ii) From Government of India		0.00			1,21,54,669.00	iii) Cess Activity Temporary Establishment		1,49,40,581.00	
4,11,03,333.00		2) FINANCIAL ASSIATANCE			4,26,20,784.00	2,53,72,043.00		b) CPF BOARD CONTRIBUTION			2,82,10,228.00
	5,00,000.00	i) From Other State Government		-			2,40,84,455.00	i) Core Activity Segment		2,70,71,689.00	
	4,06,03,333.00	ii) From Government of India / CPCB		4,26,20,784.00			12,87,588.00	ii) Cess Activity Segment		11,38,539.00	
0.00		3) Fund from UNIDO			35,94,044.00	1,78,04,415.00		c) Gratuity Fund			1,90,56,825.00
						27,14,60,630.64		d) Office Expenditure	A		26,81,26,125.00
3,54,30,60,711.41		4) REVENUE RECEIPT			4,07,39,33,881.00	1,20,88,262.00		e) Running Expenditure of Laboratory	B		1,46,96,581.00
	3,50,27,89,168.05	i) Consent Fees		4,01,54,10,597.00		2,05,61,156.00		f) Expenditure For Vehicles	C		2,15,06,909.00
	4,02,71,543.36	ii) Analysis Charges		5,85,23,284.00		15,87,99,778.00		g) Maintainance & Repairs	B1		13,73,58,063.00
						5,31,35,091.00		h) Expenditure For Employee Welfare	D		6,08,81,012.00
7,40,31,214.00		5) Other Receipt	H		19,27,91,562.00	51,96,67,641.00		i) Projects Expenditure	E		33,49,46,990.00
1,46,21,71,367.41		6) Interest on Investment			1,17,52,09,453.00	29,96,88,36,687.80		3) Investment [New]			17,06,35,29,643.00
						1,00,87,247.00		4) Miscellaneous Advances			1,46,22,019.00
1,92,41,000.00		7) Miscellaneous Advances			1,18,59,651.00	0.00		5) Environmental Compensation Fund			2,00,000.00
0.00		8) Fund For VOC Monitoring			3,10,000.00	1,99,04,811.50		6) Sundry Payables			2,72,33,765.00
95,989.00		9) Other Payables			2,21,613.00	0.00		7) Security Deposit With Others			8,32,872.00
26,28,19,03,585.00		10) Investment (Matured)			12,72,15,97,214.00	0.00		9) Fund For Voc Monitoring			20,11,900.00
2,56,65,391.50		11) Sundry Payables			4,51,33,577.00	12,71,24,917.00		12) Funds for NCAP Payment			78,15,51,298.00
0.00		12) Amount Received from State Government			99,75,30,668.00	25,75,00,000.00		10) Amount Paid on behalf of State Government			64,57,49,876.00
5,72,74,145.00		13) Reimburesement of Cess			4,23,63,025.00	2,19,10,696.20		11) Fund from UNIDO			0.00
12,57,45,316.00		14) Funds for NCAP Received			66,61,08,121.00	0.00		12) Fund from Cess Account			9,05,91,716.00
6,70,96,190.00		15) Environmental Compensation Fund			38,41,90,401.00	13,59,30,630.00		13) Fund for Abatement of Pollution			0.00
5,04,55,546.45		16) Fund from Cess Account			1,23,72,067.00	4,211.00		14) Other Payables			0.00
0.00		17) Fund for NANMN			6,12,00,000.00						
23,85,84,605.00		18) Fund for Abatement of Pollution			30,07,526.00	72,61,78,556.54		CLOSING BALANCES			84,56,00,595.00
							72,59,88,167.59	i) Cash at Bank	F	84,53,50,651.00	
							1,90,388.95	ii) Cash in Hand	G	2,49,944.00	
							0.00	iii) DD in Hand		0.00	
32,91,28,58,241.68					**21,16,02,22,143.00**	**32,91,28,58,241.68**					**21,16,02,22,143.00**

Chief Accounts Officer
Maharashtra Pollution Control Board

Member Secretary
Maharashtra Pollution Control Board

Chairman
Maharashtra Pollution Control Board

For Kirtane & Pandit LLP
Chartered Accountants
FRN : 105215W / W100057

Aditya Kanetkar
Partner
M.No. 149037
05/12/2023

KIRTANE & PANDIT LLP * Chartered Accountants *

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MAHARASHTRA POLLUTION CONTROL BOARD
Income & Expenditure Account for the Year ended 2022-23

Previous Year 2021-22		Expenditure	Schedule No.	Current Year 2022-23		Previous Year 2021-22		Income	Schedule No.	Current Year 2022-23	
Major Head	Sub Head			Sub Head	Major Head	Major Head	Sub Head			Sub Head	Major Head
45,25,08,918.00		1) SALARY & ALLOWANCES			49,52,47,961.00			1) GRANT RECEIVED			
	43,32,69,910.00	i) Core Activity Segment		47,81,25,640.00		0.00		i) From State Government			0.00
	70,84,339.00	ii) Cess Activity Segment		21,81,740.00		0.00		ii) From Government of India			0.00
	1,21,54,669.00	iii) Cess Activity Temporary Establishment		1,49,40,581.00							
2,53,72,043.00		2) CPF BOARD CONTRIBUTION			2,82,10,228.00	4,11,03,333.00		2) FINANCIAL ASSIATANCE			4,26,20,784.00
	2,40,84,455.00	i) Core Activity Segment		2,70,71,689.00			5,00,000.00	i) From State Government		-	
	12,87,588.00	ii) Cess Activity Segment		11,38,539.00							
							4,06,03,333.00	ii) From Government of India / CPCB		4,26,20,784.00	
27,14,60,630.64		3) OFFICE EXPENDITURE	A		26,81,26,125.00						
1,20,88,262.00		4) RUNNING EXPENDITURE OF LABORATORY	B		1,46,96,581.00	5,72,74,145.00		3) CESS REIMBURSEMENT			4,23,63,025.00
2,05,61,156.00		5) EXPENDITURE FOR VEHICLES	C		2,15,06,909.00						
15,87,99,778.00		6) MAINTAINANCE & REPAIRS	B1		13,73,58,063.00	3,54,30,60,711.41		4) REVENUE RECEIPT			4,07,39,33,881.00
	4,65,81,101.00	i) Land & Building		1,40,47,608.00			3,50,27,89,168.05	i) Consent Fees		4,01,54,10,597.00	
	1,14,23,274.00	ii) Furniture & Fixture		1,36,34,519.00							
	10,07,95,403.00	iii) Scientific Instruments & Office Appliances		10,96,75,936.00			4,02,71,543.36	ii) Analysis Charges		5,85,23,284.00	
5,31,35,091.00		7) EXPENDITURE FOR EMPLOYEE WELFARE	D		6,08,81,012.00						
51,96,67,641.00		8) PROJECTS EXPENDITURE	E		33,49,46,990.00	7,40,31,214.00		5) OTHER RECEIPT	H		19,27,91,562.00
12,33,99,112.24		9) DEPRECIATION	J		14,61,94,750.00	1,46,21,71,367.41		6) INTEREST ON INVESTMENT			1,17,52,09,453.00
3,54,06,48,138.94		10) EXCESS OF INCOME OVER EXPENDITURE			4,01,97,50,086.00						
5,17,76,40,770.82					**5,52,69,18,705.00**	**5,17,76,40,770.82**					**5,52,69,18,705.00**

Chief Accounts Officer
Maharashtra Pollution Control Board

Member Secretary
Maharashtra Pollution Control Board

Chairman
Maharashtra Pollution Control Board

For Kirtane & Pandit LLP
Chartered Accountants
FRN : 105215W / W100057

Aditya Kanetkar
Partner
M.No. 149037
05/12/2023

KIRTANE & PANDIT LLP Chartered Accountants

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MAHARASHTRA POLLUTION CONTROL BOARD

Balance Sheet as on 31st March, 2023

Previous Year 2021-22		Liabilities	Schedule No.	Current Year 2022-23		Previous Year 2021-22		Assets	Schedule No.	Current Year 2022-23	
Major Head	Sub Head			Sub Head	Major Head	Major Head	Sub Head			Sub Head	Major Head
2,08,42,88,884.18		A) CAPITAL FUND			2,72,54,60,420.00			1) WORKS (Form K-IV)			
	1,97,03,06,334.18	Opening Balance		2,08,42,88,883.82		99,62,63,300.92		2) FIXED ASSETS	I,J,K		1,49,12,40,087.00
							60,86,56,683.48	A) Land & Building		59,66,19,996.00	
	11,39,82,550.00	Add:- Transfer from Excess of Income over Expenditure for Capital Expenses		64,11,71,536.00							
							6,99,59,792.73	B) Laboratory Equipment		5,56,67,423.00	
18,46,19,047.69		B) Fund for NCAP	P		6,83,98,642.00		3,18,77,807.76	C) Vehicle		26,30,96,724.00	
72,97,634.30		C) Fund from UNIDO	Z		1,08,89,667.00		8,47,74,890.27	D) Furniture & Fixture		7,53,95,331.00	
13,16,95,728.50		D) CURRENT LIABILITIES			7,15,97,504.00		20,09,94,126.68	E) Scientific Instruments		50,04,60,613.00	
	3,81,91,079.50	1) Sundry Payables / Deposits	Q	5,60,90,892.00							
	16,93,394.00	2) Other Payables	R	19,15,007.00		29,96,23,03,046.00		3) INVESTMENT	L		34,30,42,35,475.00
	9,18,11,255.00	3) Fund From Cess Account	S	1,35,91,605.00							
						1,11,62,33,800.41		4) CURRENT ASSETS			88,74,48,972.00
23,87,95,473.00		E) Funds for Assistance to Abatement of Pollution	T		40,18,331.00		1,90,19,786.87	A) Miscellaneous Advances	M	2,17,60,840.00	
2,99,45,71,065.09		F) RESERVES			3,16,37,14,240.00		1,32,58,768.00	B) Security Deposit with others	N	1,40,91,640.00	
	2,89,54,07,063.00	1) Pension Fund	U	3,08,36,07,063.00							
	9,91,64,002.09	2) Gratuity Fund	V	8,01,07,177.00			35,77,76,689.00	C) Amount Paid on behalf of State Government	O	59,95,897.00	
2,70,800.00		G)Fund for Health Impact Assessment Study	W		6,45,800.00			D) CLOSING BALANCES			
							72,59,88,167.59	i) Cash at Bank	F	84,53,50,651.00	
27,79,543.00		H) Fund for VOC Monitoring	X		10,77,643.00		1,90,388.95	ii) Cash in Hand	G	2,49,944.00	
							0.00	iii) DD in Hand		0.00	
8,29,93,517.00		I) Environmental Compensation Fund	Y		46,70,87,603.00						
0.00		J) Fund for NANMN	AB		6,12,00,000.00						
26,34,74,88,454.58		K) INCOME & EXPENDITURE APPROPRIATION ACCOUNT	AA		30,10,88,34,684.00						
32,07,48,00,147.33					36,68,29,24,534.00	32,07,48,00,147.33					36,68,29,24,534.00

Significant Accounting Policies and Notes to Accounts (Schedule AC)

Chief Accounts Officer
Maharashtra Pollution Control Board

Member Secretary
Maharashtra Pollution Control Board

Chairman
Maharashtra Pollution Control Board

For Kirtane & Pandit LLP
Chartered Accountants
FRN : 105215W / W100057

Aditya Kanetkar
Partner
M.No. 149037
05/12/2023

KIRTANE & PANDIT LLP * Chartered Accountants *

MAHARASHTRA POLLUTION CONTROL BOARD

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