Maharashtra Pollution Control Board

# ANNUAL REPORT

2021-2022

# *Foreword*

*Maharashtra Pollution Control Board is committed to protect the Environment by prevention, control or abatement of pollution in the State and to secure the execution thereof by effective law enforcement and regulatory mechanisms. The MPCB will proactively adopt best Environmental Management Practices that respect Mother Earth and keep State's Health and Environment on course of sustainable development and to improve the Board's functional efficiency, transparency in operation and adequate response to growing needs of environmental protection and sustainable development in the State of Maharashtra.*

*To protect and improve the environment is India's constitutional mandate which also reflects in the international commitments of India. Article 48 Ag the Constitution of India says that the State shall endeavour to protect & improve the environment & to safeguard the forests & wild life of the country & Article 51-(g) of the Constitution says that it is the duty of every citizen of India to protect and improve the natural environment including forest, lakes, river and wildlife and to have compassion for living creatures.*

*Maharashtra has been a pioneer in development of initiatives toward protection of environment and constantly endeavouring to achieve the sustainable development. The Maharashtra Pollution Control Board has truly acquired a significance of its own in the national as well as in the global context with a view to have ready information on the activities of Maharashtra Pollution Control Board, an attempt is made to present the relevant and latest statistics about key indicators and parameters of MPCB's various activities.*

*This annual report is a tool for providing wider information on activities carried out and services provided by the MPCB. The information in this report should allow stakeholders, the community and other public to assess how local authorities have performed during the year in relation to stewardship of community assets, and the efficiency, effectiveness and cost-effectiveness of operations. The annual report links forecast performance with actual performance and compares forecast expectations to actual results which subsequently feed into the next year's forecast. The report therefore signals any intended changed in direction, services, or actions based on an analysis of the current year's performance. For providing an analysis of performance, the MPCB possesses a set of appropriate measures and robust systems to collect the results that are interpreted and translated into action plans. The first and foremost purpose of this report is directed towards people, whose wellbeing is the ultimate goal of all environment and development policies. In particular, the Board is addressing this to the youth, citizens groups, non-governmental organizations, educational institutions, and to the scientific community as this will ultimately, in one way or the other, pave the way for communities to become more sustainable.*

*To this end, I want to acknowledge the extraordinary efforts made by all our staff members as they have all played indispensable roles in the creation of this report and information dissemination.*

- *Shri. A. L. Jarhad [IAS]*
  *Chairman, Maharashtra Pollution Control Board*

# *Preface*

*It is quintessential to have a perspective on organisation's performance with respect to mainstreaming concerns of environmental protection and natural resource management in developmental policies and programmes even as we pursue our goals for various compliances.*

*It gives me pleasure to present herewith Annual report of FY 2021-2022 publishing latest activities of MPCB whose priority is to sensitize each & every concerned associated with activities of MPCB directly or indirectly. This report is a tool for providing wider information on activities carried out and services provided by the Board. during the year. The information in this report should allow stakeholders, the community and other public to assess how local authorities have performed during the year in relation to stewardship of community assets, and the efficiency, effectiveness and cost-effectiveness of operations*

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

*-Shri. Ashok Shingare [IAS]*
*Member Secretary,*
*Maharashtra Pollution*
*Control Board*

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## ANNEXURES

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# 1. INTRODUCTION

The Maharashtra Water (Prevention and Control of Pollution) Act, 1969's provisions allowed for the establishment of the Maharashtra Pollution Control Board (MPCB) on September 7th, 1970. On June 1st, 1981, Maharashtra adopted the Water (P & C. P) Act, 1974, and as a result, the Maharashtra Pollution Control Board was established in accordance with Section 4 of the Water (P & CP) Act, 1974. In Maharashtra, the Air (P & CP) Act 1981 was adopted in 1983, and on May 2, 1983, some areas were first designated as Air Pollution Control Areas. Since November 6th, 1996, the entire state of Maharashtra has been designated as an air pollution control area. In accordance with Section 5 of the Air (P & CP) Act of 1981, the Board also serves as the State Board.

Prudent environmental management is required to address natural resource depletion and environmental degradation. Due to the variety of environmental issues, there must be regionally appropriate remedies. An obligatory requirement is the preparation of annual reports, which are intended to produce an informed assessment of the environmental circumstances and the strategy for achieving sustainable growth. Twelve Regional Offices and forty-three Sub-Regional Offices have been created by MPCB throughout the State to carry out various provisions in the acts and regulations to protect the environment and reduce pollution with required control measures.

In order to evaluate the quality of the surrounding air and water, the Board has further improved its monitoring network. The National Ambient Air Monitoring Program compiles information on ambient air quality (NAMP). Similar data is tracked by the State Water Quality Monitoring Program for both surface water and groundwater (SWMP). The MPCB website compiles and updates all relevant information on a regular basis. Regular noise monitoring is done during festivals, and the analysed data is updated on the internet so that the public can access the information. Additionally, efforts are being made to raise awareness about the importance of eco-friendly festival celebration.

The Board has digitised its operations and processes through the Integrated Management Information System (IMIS) in order to maintain transparency and improve overall efficiency. Consent management, laboratory management, waste management, human resource management, and financial management are all included in this system. This data is used to assess whether the pollution control measures adopted by the implementing authority are lowering pollution levels and producing the desired results, or whether new or additional measures are needed to achieve the desired levels. The Board has put in place a framework to quickly handle applications for consent and authorisation submitted by businesses and other projects under environmental protection laws. As a result of MPCB's actions, it is now easier for businesses and developers to monitor the status of their apps. The website is regularly updated with information on the consents and authorizations the Board has given.

Facilities have been set up all around the state to provide common facilities for the treatment and disposal of hazardous and bio-medical waste as part of the Common Infrastructure for Environment Protection. In industrial regions, there are also facilities for common effluent treatment. At Taloja, Mahape, Ranjangaon, and Butibori, common facilities for the management of hazardous waste have been established. The Board additionally exhorts local organisations to handle Municipal Solid Waste (MSW) in a methodical and regulated manner. The Board encourages businesses to implement pollution-control strategies and greener technologies. The Board continuously works to undertake various awareness initiatives including journalists, media, NGOs, artists, and students throughout the State in order to raise broad public knowledge about environmental issues. Street dramas are also staged as part of environmental campaigns by NGOs in schools, colleges, and public locations like train stations, and the public generally enjoys them.

## 2. CONSTITUTION OF THE BOARD

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

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

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

**Table 1.0 Constitution of M.P.C. Board during 2021-22**

| | |
|---|---|
| **Shri. Abasaheb L. Jarhad** | **Chairman** |
| **Principal Secretary, Environment Department, Government of Maharashtra** | **Member** |
| **Additional Chief Secretary** Public Health Dept. Government of Maharashtra, Mantralaya, Mumbai | **Member** |
| **Principal Secretary-II** Urban Development Dept., Government of Maharashtra, Mumbai | **Member** |
| **Principal Secretary** Water Supply and Sanitation, Government of Maharashtra, Mantralaya, Mumbai | **Member** |
| **Secretary** Home (Transport) Dept., Government of Maharashtra, Mantralaya, Mumbai | **Member** |
| **Chief Executive Officer** MIDC, Mahakali Caves Road, Andheri (E), Mumbai | **Member** |
| **Member Secretary (Technical)** Maharashtra Jeevan Pradhikaran, Express Towers, Nariman Point, Mumbai | **Member** |
| **Shri. Ashok Shingare [IAS]** Member Secretary, MPCB, Mumbai. | **Member Secretary** |

## 3. MEETINGS OF THE BOARD

**1.0 During the reporting year, the 177th meeting of the Maharashtra Pollution Control Board was held. The major decisions taken in the meeting are as below.**

**A. Provision of Penal fees for occupiers violating combined consent regime prescribed under air/water act.**

The MPC Board published Enforcement Policy for issuance of directions on account of degree of violation by imposing/forfeiting proportionate Bank Guarantee. The matter of such violations was discussed during Consent Appraisal Committee/Consent Committee and proposes to penalize for violation based on degree/extent of violations. Hence, it is important to discourage the defaulting industries by adopting "Polluter Pays" principal and penalization by imposing appropriate cost for violation of provisions of Environment enactments. Board has discussed the agenda in detail and resolved that;

1. In order to discourage the defaulting industries by adopting penalization by imposing appropriate penal fees towards violation of Environment enactments, the penal fees shall be imposed as below:

<table>
<tr><th>Sr. No.</th><th>Violation</th><th colspan="2">Cost of Violation</th></tr>
<tr><td></td><td></td><td>CI Above 100 Cr</td><td>CI below 100 Cr</td></tr>
<tr><td>01</td><td>Taking effective steps towards establishment of project/unit prior to obtain Consent to Establish from the Board</td><td>0.1% of the total project cost X no. of years of violation*</td><td rowspan="7">Red category: *5 times of one term consent fee X no. of years of violation.<br><br>Orange category: *3 times of one term consent fee X no. of years of violation.<br><br>Green category: *1 time of one term consent fee X no. of years of violation</td></tr>
<tr><td>02</td><td>Taking effective steps without revalidating Consent to Establish of the Board</td><td>0.1% of the total project cost X no. of years of violation*</td></tr>
<tr><td>03</td><td>Industry: Starting Commercial production prior to obtain Consent to Operate of the Board</td><td>Industry:<br>0.15% of the total project cost X No. of years of violation*</td></tr>
<tr><td></td><td>Infrastructure Project: Handing over occupancy prior to obtain Consent to Operate of the Board</td><td>Infrastructure Project:<br>0.15% of the total project cost X No. of years of violation*</td></tr>
<tr><td>04</td><td rowspan="2">Operating the Industry/ activity without valid consent to operate of the Board and applying after lapse of validity period</td><td>Industry:<br>0.15% of the total project cost X No. of years of violation*</td></tr>
<tr><td></td><td>Infrastructure Project:<br>0.15% of the total project cost X No. of years of violation*</td></tr>
</table>

* Calculations of number of years shall be calculated on the basis of number of days of non-compliance.

The penal fees amount to be paid by PP through online e-payment gateway. Member Secretary is authorized to take further course of action.

**B. Regarding provision of financial grant of Rs. 100 crores for my Vasundhara Abhiyan**

1) As per Government resolution no. Abhiyan 2021, file no. 57 / TB. 1 dated 8th July 2021 The Department of Environment and Climate Change, Government of Maharashtra had informed the Maharashtra Pollution Control Board that an amount of Rs.100 crore should be provided for Mazhi Vasundhara Abhiyan. Pursuant to this government resolution, a provision of Rs.100 crores from the fund of the Maharashtra Pollution Control Board should be made on a temporary basis and the said funds are approved on the condition that the Department of Environment and Climate Change, Government of Maharashtra makes provision of the said amount of Rs.100 crores in its budget and returns it to the Maharashtra Pollution Control Board is being done.

2) Incorporating and approving the sum of Rs.2 Crores as provided in the 176th meeting of the Board and the Department of Environment and Climate Change as per Govt. Resolution No. Abhiyan 2021, file no. 57 / TB 1 dated 8th July 2021 to be given to designated best local bodies

3) Earlier the amount paid by MPC Board on behalf of the government is Rs.25.75 crore, these amounts should be including in Rs. 100 crore funds. The disbursed amount of Rs.25.75 crore is being sanctioned for ex-works.

4) It has been shown in the accounts of the board that the said expenditure has been made on behalf of the government for the reward of Mazhi Vasundhara Abhiyan. The said amount will be adjusted after getting back to the Board from the Department of Environment and Climate Change, Government of Maharashtra.

**2.0 During the reporting year, the 178th meeting of the Maharashtra Pollution Control Board was held. The major decisions taken in the meeting are as below.**

**A. Revision of sampling and analysis charges as per CPCB**

It is resolved that, the MPC Board shall revise scheduled rates of Analysis of various: parameters and sampling charges for the Water, Wastewater, Soil, Hazardous Waste, Air/fugitive emissions, source emission, noise monitoring etc. as per enclose schedule - II. Further the Board has authorized Chairman / MS, MPCB to issue amendment/revision of sampling and analysis charges as and when required, with the approval of Department of Environment & Climate Change, Government o Maharashtra. The revised rates shall be made applicable w.e.f 1st April 2022. Member Secretary is authorized to take further course of actions in the matter.

**B. Violation of Consent regime prescribed under Air/Water Act**

Earlier, in 177th Board meeting held on 03/9/2021 vide item No. 7, Board has considered to adopt penalization by imposing appropriate penal fees towards violation of Environmental enactments in order to discourage the defaulting industries. However, some discrepancies observed during calculation of penalty. Hence, it is proposed to revisit the calculation/proposed cost of violation and same is as below:

MPC Board discussed the agenda in detailed and resolved that -

1. In order to discourage the defaulting industries by adopting penalization by imposing appropriate Compensation for violation of Environment enactments, the Compensation shall be imposed as below:

| Sr. No. | Violation | Cost of Violation |
|---|---|---|
| 1 | Taking effective steps towards establishment of project/unit prior to obtain Consent to Establish from the Board | Red Category:<br>5 times of one term consent fee X no. of years of violation *<br><br>Orange Category:<br>3 times of one term consent fee X no. of years of violation*<br><br>Green Category:<br>1 time of one term consent fee X no. of years of violation* |
| 2 | Taking effective steps without revalidating Consent to Establish of the Board, of violation | |
| 3 | Industry:<br>Starting Commercial production prior to obtain Consent to Operate of the Board. | |
| | Infrastructure Project:<br>Handing over possession prior to obtaining Consent to Operate of the Board and Occupancy certificate from Local Body. | |
| 4 | Operating the industry/activity without valid consent to operate of the Board and applying after lapse of validity period. | |

*Calculations of number of years shall be calculated on the basis of number of days of non - compliance.

The penal fees amount to be paid by PP through online E-payment gateway. Member Secretary is authorized to take further course of action.

## 4. COMMITTEES CONSTITUTED BY THE BOARD

With a view to have smooth functioning of the Board, as provided under section 9 of the Water (Prevention and Control of Pollution) Act 1974 and section 11 of the Air (Prevention and Control of Pollution) Act 1981; the Board has constituted various committees for efficient and effective implementation of the Acts and Rules. During the year 2021-22, the following Committees were in existence.

### 4.1 Consent Appraisal Committee (CAC)

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

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

- Terms of Reference

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

'RED' Category : Projects with capital investment above Rs. 150 Crores

'ORANGE' Category : Projects with capital investment above Rs. 1500 Crores

'GREEN' Category : All Projects beyond Rs. 4000 Crores / All Municipal Corporations.

There were 10 Meetings (in 18 sittings) of Consent Appraisal Committee held during the year 2021-22 wherein 1131 CAC applications were discussed, and 873 approvals were granted.

### 4.2 Consent Committee (CC)

The Consent Committee comprises of following members:

| Sr.No. | Members | Designation |
|---|---|---|
| 1. | Dr. Y. B. Sontakke<br>Water Pollution Abatement Engineer,<br>Maharashtra Pollution Control Board | Convenor |
| 2. | Dr. V. M. Motghare<br>Air Pollution Abatement Engineer (APAE),<br>Maharashtra Pollution Control Board | Member |
| 3. | Mr. R. G. Pethe<br>Retired Water Pollution Abatement Engineer (WPAE),<br>Maharashtra Pollution Control Board | Member |
| 4. | Assistant Secretary (Technical)<br>Maharashtra Pollution Control Board | Member |

➢ **Terms of Reference**

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

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

There were 23 meetings of Consent Committee held during the year 2021-22 and total 1387 applications were discussed and 1387 were disposed off.

### 4.3 Committees formed for Solid Waste Management Rule, 2016

There were 3 meetings of Technical advisory committee held during the year 2021-22 for implementation of SWM in the state & 29 Divisional level committee held during year 2021-22 for monitoring of implementation of SWM in the state.

| Sr.No. | Name of Committee | Date of Formation | Division/Area of work |
|---|---|---|---|
| 1. | Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra | 17/01/2019 | Nashik |
| 2. | Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra | 20/12/2018 | Pune |
| 3. | Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra | 17/01/2019 | Nagpur |
| 4. | Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra | 03/12/2018 | Aurangabad |
| 5. | Divisional Level Committee for Monitoring of Implementation of Solid Waste Management in the State of Maharashtra | 03/12/2018 | Konkan |
| 6. | Committee for scrutiny of authorizations for all Corporations/Councils as per the Municipal Solid Waste (M & H) Rules, 2000, dated 02/04/2014 | 17/04/2015 | Scrutiny of applications for MSW authorizations |

During the year 2021-22, Authorization Committee for Scrutiny of applications for MSW Authorizations is comprised of following members:

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

Total 33 applications were discussed by the Committee for Scrutiny of applications for MSW authorizations and 20 were rejected due to non-compliance of MSW Rules and 13 applications were granted/ renewed during the year 2021-22

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

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

During the year 2021-22, Authorization Committee for Environment Sound Management of Hazardous & Other Waste and E-Waste is comprised of following members:

| | | |
|---|---|---|
| 1. | Shri. R.K. Garg,<br>Former Managing Director, Indian Rare Earths Ltd | Chairman |
| 2. | Shree. B. Sharma,<br>Regional Director, Pune, CPCB | Member |
| 3. | Shri Dr. B. R. Naidu,<br>Ex Regional Director, West Zone, CPCB Vadodara. | Member |
| 4. | Shri. Bharat Nimbarte,<br>Ex Joint Director (WPC), MPCB | Member |

| | | |
|---|---|---|
| 5. | Shri P.K. Mirashe,<br>Assistant Secretary (Tech) HQ, MPCB, Mumbai | Member |
| 6. | Scientist – 1 or 2,<br>Environment Department, Govt. of Maharashtra | Member |
| 7. | Shri N.N. Gurav,<br>Regional officer, HQ, MPCB, Mumbai | Member Convener |

- **Terms of Reference**

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

There were 8 Meetings of Authorization Committee for Hazardous waste held during the year 2021-22. During the meeting total number of 195 applications of authorization under HW Rules were discussed; out of which 124 were approved and 88 number of applications for authorization under E-waste Rules, 2016 were discussed and 46 were approved.

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

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

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

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

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

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

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

Central Pollution Control Board initiated National Ambient Air Quality Monitoring (NAAQM) program in the year 1984 to get spatial and temporal variation of ambient air concentrations for a wide range of pollutants that are considered relevant for evolving strategic management plans. The program was subsequently renamed as NAMP (National Air Quality Monitoring Program). Under NAMP, three air pollutants viz., Sulphur dioxide ($SO_2$), nitrogen dioxides ($NO_2$) and Respirable Suspended Particulate Matter (RSPM/$PM_{10}$) have been identified for regular monitoring at all the locations. Monitoring of pollutants is carried out for 24 hours (4-hourly sampling for gaseous pollutants and 8-hourly sampling for particulate matter) with a frequency of twice a week, to have 104 observations in a year as per CPCB monitoring protocol.

As per CPCB monitoring protocol, locations are selected to represent different land use categories such as residential, industrial, and commercial, to capture air quality levels under different activity profiles. MPCB, with a presence across the state through its 12 Regional Offices (RO), regularly monitors pollutant levels through a medium of an established network

of Ambient Air Quality Monitoring Stations (AAQMS) installed in various regions across Maharashtra. These AAQMS are installed under the National Air Monitoring Program (NAMP) and State Air Monitoring Program (SAMP). In the year 2021-22, there are 92 active AAQMS in Maharashtra of which 61 are under NAMP, 04 SAMP and 23 Continuous AAQMS (CAAQMS) are in operation. MPCB has commissioned 40 new manual monitoring station during 2021-2022. Also, Board is in process of installing 47 numbers of new CAAQMS stations at various cities. These air quality monitoring stations are operated through educational institutes, local bodies which are having infrastructure to monitor air quality stations as per Central Pollution Control Board (CPCB) monitoring protocol. As these agencies have long agreement with MPCB for operation of monitoring stations their performance is reviewed by the Board. The data generated by these stations are verified at HQ level before forwarding it to CPCB. These stations are connected to the AQI server at CPCB, New Delhi.

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

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

Air quality in the State is assessed through routine and specific monitoring. To assess the ambient air quality with respect to criteria pollutants as per National Ambient Air Quality standards, data has been collected for the year 2021-22. The data is analysed for $SO_2$, $NO_X$ and particulate matter ($PM_{10}$) or respirable suspended particulate matter (RSPM). The locations under different class areas like industrial, residential, and commercial were monitored Region-wise and the observations have been made using NAAQM standards annual average concentration as represented in following sections. Further Exceedance Factor (E.F. = Annual Average/ Standard Value) has also been calculated for Particulate Matter to understand the data sets and approximate average numbers of samples exceeded the standard limit. To represent the analysis of data, colour coding system is used for identification and comparison as shown in below;

**Air Quality classification based on colour coding**

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

### 5.1.1 Amravati

Amravati Region contains 3 Ambient Air Monitoring Stations out of which one is present in residential area, one is in industrial area, and one is in rural and other area. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.1. It is observed that the annual average concentrations of $SO_2$ and NOx were within the NAAQM standard limits at all the locations However, $PM_{10}$ concentrations at two locations were beyond NAAQM standard limit. Details of annual average statistical data recorded throughout the year 2021-2022 are represented in **Table 5.1.**

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

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards ($\mu g/m^3$) | | |
| | 50 | 40 | 60 |
| Govt. College of Engineering | 11.6 | 12.9 | 55 |
| A-23 MIDC Amravati | 12.9 | 15.1 | 64.4 |
| Raja Kamal Chowk, Amravati | 13.8 | 16 | 71 |

Form table5.1, minimum $SO_2$ concentration of 11.6µg/$m^3$ & NOx concentration of 12.9µg/$m^3$ was found at Govt. College of Engineering. The maximum $SO_2$ concentration and maximum NOx concentration was 13.8µg/$m^3$ and 16µg/$m^3$ was found at Raja Kamal Chowk. The Minimum $PM_{10}$ concentration of 55µg/$m^3$ was found at Govt. College of Engineering and the maximum concentration of 71µg/$m^3$ was found at Raja Kamal Chowk, Amaravati. The minimum and maximum exceedance factors for $PM_{10}$ are shown in Table 5.2.

**Table 5.2 Exceedance factor for $PM_{10}$ for Amravati Region**

| Exceedance Factor – Amravati | |
|---|---|
| Min | 0.91 |
| Max | 1.18 |

### 5.1.2 Aurangabad

In the jurisdiction of Regional Office, MPCB, Aurangabad, major air polluting industries are Steel Industries, Re-rolling mills, Stone Crushers, Thermal Power Plant, etc. The main contributors of environmental pollution are the parameters like SPM/TPM, $SO_2$ and $NO_X$. Most of the industries have provided air pollution control systems with adequate height of Chimney. There are 4 Air Quality Monitoring stations in this Region, 3 in residential areas, 1 in industrial area. The annual average concentration of all the parameters analysed at all locations is represented in Table 5.3. It is observed that $SO_2$ concentrations at all locations were within the NAAQM standard limits. However, $NO_X$ concentrations at two locations and $PM_{10}$ concentrations at all locations were beyond NAAQM standard limit. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.3.

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

| Location | Parameters | | |
|---|---|---|---|
| | **$SO_2$** | **NOx** | **$PM_{10}$** |
| | **Standards (µg/m³)** | | |
| | **50** | **40** | **60** |
| MIDC Walunj, Auranagabad | 17.7 | 13.7 | 74.1 |
| CADA Office | 18.1 | 40.8 | 85.5 |
| SBES College | 18.2 | 40.9 | 86.2 |
| Collector Office, Aurangabad | 16.9 | 38.3 | 79.9 |

From Table 5.3, minimum $SO_2$ concentration of 17.7µg/m³ & minimum NOx concentration of 13.7µg/m³ was found at the MIDC Walunj. Minimum $PM_{10}$ concentration of 74.1µg/m³ was found at MIDC Walunj. Maximum $SO_2$ concentration of 18.2µg/m³ was found at SBES College while maximum NOx concentration of 40.9µg/m³ was found at SBES College. Maximum $PM_{10}$ concentration of 86.2µg/m³ was found CADA Office. The exceedance factors for NOx and $PM_{10}$ for Aurangabad Region are shown in **Table 5.4**.

**Table 5.4 Exceedance factors for $PM_{10}$ for Aurangabad Region**

| Exceedance Factor - Aurangabad | | |
|---|---|---|
| | NOx | $PM_{10}$ |
| Min | 1.02 | 1.23 |
| Max | 1.02 | 1.43 |

### 5.1.3 Chandrapur

There are 7 Air Monitoring stations in Chandrapur Region out of which 4 are located in industrial area. The annual average concentration of all the parameters analyzed at all locations is represented in **Table 5.5.**

From Table 5.5. it was observed those concentrations of $SO_2$ and NOx were within the NAAQM standard limits at all locations. However, $PM_{10}$ concentrations at all the given locations were beyond the NAAQM standards. Details of annual average statistical data

recorded throughout the year 2021-22 are represented in **Table 5.5**

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

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards (µg/m³) | | |
| | 50 | 40 | 60 |
| Old MIDC Chandrapur (CAAQMS) | 11.6 | 12.4 | 86.6 |
| SRO Office, Chandrapur | 11.2 | 22.3 | 127.8 |
| MIDC, Chandrapur | 9.6 | 28.1 | 98.5 |
| Ghuggus | 8.7 | 23.7 | 234.2 |
| Rajura | 8.7 | 24.2 | 193.6 |
| Ballarshah | 8.6 | 25.9 | 137.8 |
| Tadali MIDC | 9.3 | 23.9 | 131.1 |

It can be observed from Table 5.5. that minimum $SO_2$ concentration of 8.7µg/m$^3$ was recorded Ghuggus and Rajura stations. Minimum NOx concentration of 12.4µg/m$^3$ was found at Old MIDC Chandrapur. Whereas, maximum $SO_2$ concentration of 11.6µg/m$^3$ and maximum NOx concentration of 28.1µg/m$^3$ were found at Old MIDC Chandrapur and MIDC Chandrapur, respectively. Minimum $PM_{10}$ concentration of 86.6µg/m$^3$ was recorded at Old MIDC Chandrapur. Maximum $PM_{10}$ concentration of 234.2µg/m$^3$ was observed at SRO Office, Chandrapur. The exceedance factors for $PM_{10}$ for Chandrapur Region are shown in **Table 5.6**

**Table 5.6 Exceedance factors for $PM_{10}$ for Chandrapur Region**

| Exceedance Factor - Chandrapur | |
|---|---|
| $PM_{10}$ | |
| Min | 1.44 |
| Max | 3.90 |

### 5.1.4 Kalyan

There are 2 Air Monitoring stations in Kalyan Region. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.7. It is evident that concentrations of $SO_2$ at all locations were within the NAAQM standard limits. Similarly, concentrations of NOx at all locations except MPCB RO Kalyan Office and Powai Chowk were within the NAAQM standard limits. Concentrations of $PM_{10}$ exceeded the standard limits at both locations. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.7

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

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards (µg/m³) | | |
| | 50 | 40 | 60 |
| Kalyan | 11.8 | 20.0 | 121.1 |
| MPCB RO Kalyan Office | 29.7 | 41.5 | 62.61 |

From Table 5.7, minimum $SO_2$ concentration of 11.8µg/$m^3$ and NOx concentration of 20µg/$m^3$ was found at MPCB RO Kalyan Office. The minimum $PM_{10}$ concentration of 62.61µg/$m^3$ was found at MPCB RO Kalyan Office. The maximum $SO_2$ concentration of 29.7µg/$m^3$ and maximum NOx concentration of 41.5µg/$m^3$ was found MPCB RO Kalyan Office. Maximum $PM_{10}$ concentration of 121.1µg/$m^3$ was found at Kalyan. The exceedance factors for NOx and $PM_{10}$ for Kalyan Region are shown in Table 5.8.

**Table 5.8 Exceedance factors for NOx and $PM_{10}$ for Kalyan Region**

| Exceedance Factor - Kalyan | | |
|---|---|---|
| | NOx | $PM_{10}$ |
| Min | 1.03 | 2.01 |
| Max | 1.03 | 1.04 |

### 5.1.5 Kolhapur

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

From Table 5.9. It can be observed that $SO_2$ and NOx concentrations at all locations was within the NAAQM standard limits. $PM_{10}$ concentrations were above prescribed standards at 2 locations. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.9.

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

| Location | Parameters | | |
|---|---|---|---|
| | **$SO_2$** | **NOx** | **$PM_{10}$** |
| | **Standards (µg/$m^3$)** | | |
| | **50** | **40** | **60** |
| Shivaji University | 9.5 | 15.7 | 52.2 |
| Ruikar Trust | 20.9 | 36.1 | 111.52 |
| Mahadwar Road | 15.5 | 24.8 | 80.9 |

It is evident from Table 5.9. that Shivaji University has minimum $SO_2$ concentration of 9.5µg/$m^3$ and NOx concentration of 14.7µg/$m^3$ and the minimum $PM_{10}$ concentration of 52.2µg/$m^3$. The maximum $SO_2$ concentration of 20.9µg/$m^3$ and maximum NOx concentration of 36.1µg/$m^3$ was found at Ruikar Trust. Maximum $PM_{10}$ concentration of 241.6µg/$m^3$ was found at Ruikar Trust. The exceedance factors for $PM_{10}$ for Kolhapur Region are shown in Table 5.10.

**Table 5.10 Exceedance factors for NOx and $PM_{10}$ for Kolhapur Region**

| Exceedance Factor - Kolhapur | |
|---|---|
| | $PM_{10}$ |
| Min | 1.85 |
| Max | 1.34 |

### 5.1.6 Mumbai

Mumbai has 13 Ambient Air Monitoring Stations. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.11.

From Table 5.11, it can be observed that the average $SO_2$ concentrations were well within the NAAQM standard limits whereas concentration of NOx exceeded the standards at 8 locations and $PM_{10}$ concentration exceeded at all 13 locations. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.11.

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

| Location | Parameters | | |
|---|---|---|---|
| | **$SO_2$** | **NOx** | **$PM_{10}$** |
| | **Standards (µg/m$^3$)** | | |
| | **50** | **40** | **60** |
| Sion | 4 | 31.67 | 91.78 |
| Bandra | 20.89 | 42.8 | 72.34 |
| Vasai | 27.52 | 56 | 113.26 |
| Kandivali | 16.01 | 46.59 | 97.77 |
| Mulund | 25.06 | 133.61 | 108.41 |
| Borivali | 15.72 | 36.53 | 84.8 |
| Vile Parle | 11.65 | 31.41 | 120.37 |
| Kurla | 18.71 | 78.94 | 153.8 |
| Powai | 5.76 | 22.4 | 92.17 |
| Airport | 9.83 | 94.03 | 124.51 |
| Colaba | 20.71 | 19.21 | 94 |
| KJ Somaiyya Hospital | 9.38 | 70.37 | 106.08 |
| Worli | 20.37 | 44.24 | 99.86 |

From Table 5.11. it is observed that minimum $SO_2$ concentration of 4µg/m$^3$ was found at Sion and a maximum of 27.52µg/m$^3$ was found at Vasai. Minimum NOx concentration of 19.21µg/m$^3$ was found at Colaba and a maximum of 133.61µg/m$^3$ was found at Mulund. Similarly, Minimum $PM_{10}$ concentration of 72.34µg/m$^3$ was found at Bandra whereas maximum $PM_{10}$ concentration of 153.8µg/m$^3$ was found at Kurla. The exceedance factors for $PM_{10}$ for Mumbai Region are shown in Table 5.12.

**Table 5.12 Exceedance factors for NOx & $PM_{10}$ for Mumbai Region**

| Exceedance Factor – Mumbai | | |
|---|---|---|
| | NOx | $PM_{10}$ |
| Min | 1.07 | 1.20 |
| Max | 3.34 | 2.56 |

### 5.1.7 Nagpur

Nagpur has 5 Ambient Air Monitoring Stations. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.13.

From Table 5.13. It can be observed that $SO_2$ & NOx concentrations at all locations are within the NAAQM standard limits. $PM_{10}$ concentrations at all locations are beyond the prescribed limits. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.13.

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

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards (µg/m$^3$) | | |
| | 50 | 40 | 60 |
| Civil Lines Nagpur | 7.53 | 18.26 | 58.58 |
| Divisional Commissioner Office | 9.13 | 24.50 | 75.85 |
| North Ambazani road | 7.11 | 20.45 | 83.45 |
| Hingna Road | 8.38 | 23.53 | 102.22 |
| Sadar | 7.05 | 18.66 | 83.40 |

From Table 5.13, minimum $SO_2$ concentration of 7.05µg/m$^3$ was recorded at Sadar. Minimum NOx concentration of 18.26µg/m$^3$ and minimum $PM_{10}$ concentration of 58.58µg/m$^3$ was recorded at Civil Lines, Nagpur. Maximum $PM_{10}$ concentration of 102.22µg/m$^3$ was recorded at Hingna Road. The exceedance factors for $PM_{10}$ for Nagpur Region are shown in Table 5.14.

**Table 5.14 Exceedance factors for $PM_{10}$ for Nagpur Region**

| Exceedance Factor – Nagpur | |
|---|---|
| | $PM_{10}$ |
| Min | 1.2 |
| Max | 1.7 |

### 5.1.8 Nashik

There are 5 AAQMS in this Region & the annual average concentration of all the parameters analyzed at all locations is represented in Table 5.15.

From Table 5.15, it can be observed that $SO_2$, NOx as well as $PM_{10}$ concentrations at all locations are within the NAAQM standard limits. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.15

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

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards (µg/m$^3$) | | |
| | 50 | 40 | 60 |
| SRO Office Nashik | 5.53 | 26.59 | 50.46 |
| KTHM College | 4.47 | 10.52 | 56.18 |
| MIDC Satpur | 4.53 | 26.35 | 49.3 |
| RTO Colony | 4.53 | 26.24 | 51.35 |
| NMC Nashik | 4.80 | 26.73 | 52.24 |

From Table 5.15, it can be observed that minimum $SO_2$ concentration of 4.47µg/m$^3$ and minimum NOx concentration of 10.49µg/m$^3$ was recorded at KTHM College. Minimum $PM_{10}$ concentration of 50.46µg/m$^3$ was recorded at SRO Office Nashik. Maximum $SO_2$ concentration of 5.53µg/m$^3$ was recorded at SRO Office Nashik. Highest NOx concentration of 26.59µg/m$^3$ was observed at SRO Office Nashik. Maximum $PM_{10}$ concentration of 69.33µg/m$^3$ was recorded at MIDC Satpur.

### 5.1.9 Navi Mumbai

For the 5 AAQMS in Navi Mumbai Region, the annual average concentration of all the parameters analyzed at all locations is represented in Table 5.16.

From Table 5.16, It can be observed that the average $SO_2$ concentrations at all locations are within the NAAQM standard limits. However, NOx concentrations at all locations were beyond the prescribed standard. $PM_{10}$ concentrations at all locations except D.Y. Patil, Nerul were beyond the NAAQM standard limit. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.16.

**Table 5.16 Statistical Monitoring of Annual Average Air Quality in Navi Mumbai Region**

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards (µg/m$^3$) | | |
| | 50 | 40 | 60 |
| Mahape | 18.2 | 74.32 | 113.62 |
| STP Nerul | 13.8 | 52.1 | 146.53 |
| D.Y. Patil Nerul | 21.52 | 46.75 | 52.57 |
| Rabale | 23.86 | 54.39 | 62.69 |
| MPCB Mahape | 23.04 | 53.05 | 63.05 |

It can be observed that minimum $SO_2$ concentration of 13µg/$m_3$ was found at STP Nerual. Minimum NOx concentration of 46.75µg/m$^3$ was recorded at D.Y. Patil Nerul. Minimum $PM_{10}$ concentration of 52.57µg/m$^3$ was found at the same location. Maximum $SO_2$ concentration of 23.86µg/m$^3$ was observed at Rabale. Maximum NOx concentration (74.32µg/m$^3$) and maximum $PM_{10}$ concentration (146.53µg/m$^3$) was observed at STP Nerul. Table 5.17 represents the exceedance factor for NOx and $PM_{10}$.

**Table 5.17 Exceedance factors for NOx & $PM_{10}$ for Navi Mumbai Region**

| Exceedance Factor - Navi Mumbai | | |
|---|---|---|
| | NOx | $PM_{10}$ |
| Min | 1.30 | 1.04 |
| Max | 1.85 | 2.44 |

### 5.1.10 Pune

There are 5 AAQMS in this Region of which 3 are in residential areas, 1 in an industrial and 1 in a rural area. The annual average concentration of all parameters is represented in Table 5.18.

From Table 5.18, It can be observed that the $SO_2$ concentrations at all locations are within the NAAQM standard limits. NOx concentrations at all locations except 1 location were beyond the standard limits. $PM_{10}$ concentrations at all locations were beyond the standard limits. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.18

**Table 5.18 Statistical Monitoring Annual Average Air Quality in Pune Region**

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards (µg/m³) | | |
| | 50 | 40 | 60 |
| Pimpri-Chinchwad | 17.44 | 42.57 | 82.86 |
| Karve Road CAAQMS | 13.44 | 36.91 | 62.07 |
| Nal Stop | 14 | 45.62 | 125.92 |
| Bhosari | 12.84 | 55.55 | 142.76 |
| Swargate | 13.35 | 57.75 | 153.98 |

From Table 5.18, it can be observed that minimum $SO_2$ concentration of 12.84µg/m³ was found at Bhosari. Minimum NOx concentration of 36.91µg/m³ & $PM_{10}$ concentration of 62.07µg/m³ was found at Karve Road. Maximum $SO_2$ concentration of 17.44µg/m³ was found at Pimpri chinchwad. Maximum NOx concentration of 57.75µg/m³ & $PM_{10}$ concentration of 153.98µg/m³ was found at Swargate. The exceedance factors for NOx and $PM_{10}$ for Pune Region are shown in Table 5.19

**Table 5.19 Exceedance factors for NOx and $PM_{10}$ for Pune Region**

| Exceedance Factor – Pune | | |
|---|---|---|
| | NOx | $PM_{10}$ |
| Min | 1.06 | 1.03 |
| Max | 1.44 | 2.56 |

### 5.1.11 Thane

There are 4 AAQMS established in this Region, of which 1 is in a residential area, 2 are in an industrial area and 1 is in a rural area. The annual average concentration of all the parameters analyzed at all locations is represented in Table 5.20.

From Table 5.20, It is evident that $SO_2$ and NOx concentrations at all locations are within the NAAQM prescribed standard limits. However, the $PM_{10}$ concentrations at all locations are beyond the standard limits. Details of annual average statistical data recorded throughout the year 2021-22 are represented in Table 5.20.

**Table 5.20 Statistical Monitoring of Annual Average Air Quality in Thane Region**

| Location | Parameters | | |
|---|---|---|---|
| | $SO_2$ | NOx | $PM_{10}$ |
| | Standards (µg/m³ ) | | |
| | 50 | 40 | 60 |
| Kolshet | 12.5 | 16 | 75.5 |
| Balkum/Glaxo | 13.2 | 26.14 | 87.98 |
| Naupada | 14.85 | 28.12 | 86.25 |
| Kopri | 15.05 | 28.52 | 108.65 |

From Table 5.20, minimum $SO_2$ concentration of 12.5µg/m³ was found at Kolshet while the maximum 15.05µg/m³ was found at Kopri. Minimum NOx concentration of 16µg/m³ was found at Kolshet while the maximum NOx concentration of 28.52µg/m³ was found at Kopri. Minimum $PM_{10}$ concentration of 75.5µg/m³ was found at Kolshet while the maximum $PM_{10}$ concentration

of 108.65µg/$m^3$ was found at Kopri. The exceedance factors for NOx and PM10 for Pune Region are shown in Table 5.21.

**Table 5.21 Exceedance factors for $PM_{10}$ for Thane Region**

| Exceedance Factor – Thane | |
|---|---|
| Min | 1.26 |
| Max | 1.81 |

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

An overview of the AQI for the reading recorded by the AAQMS in Maharashtra has been calculated using three parameters, viz., $SO_2$, NOx and RSPM as per the calculation and AQI categories released by CPCB and IIT Kanpur in October 2014. After determining the sub-indices for a region, the highest sub-index from that AAQMS has been considered as the AQI for the area thus represented.

In the year 2021-22, air quality monitoring was carried out across 58 active AAQMS installed in various regions of Maharashtra. As shown in Figure 5.2, around 83% observations came under the 'Good' and 'Satisfactory' categories, as compared to 81% in the previous year 2020-21. Thus, an increase in the percentage of non-polluted days by almost 2% was recorded. In 'Moderate' category, 16 % observations were recorded this year as similar to last year. Increasing trend was found in 'Poor' category, 1% in year 2021-22 as compared to 0.64% in last year. No observations were found in 'Very Poor' and 'Severe' category, while a very minute part came under 'No Data'. Table 5.22 represents colour codes for various ranges of AQI.

**Table 5.22 Legend for reading AQI.**

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

Air Quality Index (AQI) is a comprehensive index value calculated by transforming weighted values of impacts of individual air pollutants (e.g., $SO_2$, CO, NOx,) into a single number or set of numbers. It reflects air quality of an area in terms of health impacts on the population. This makes it an easy-to-understand parameter of air quality that can be communicated to the masses and can be used by decision makers for devising policies on air pollution abatement. The standard AQI values in India are based on health breakpoints for the following eight pollutants- CO, $NO_2$, $SO_2$, $PM_{10}$, $PM_{2.5}$, $O_3$, Pb and $NH_3$. AQI has diverse uses and applications for policy makers, researchers and the public. It is a key tool in air quality monitoring and regulation. The subsequent sections elaborate the AQI trend in Maharashtra during the year 2021-22.

#### 5.2.1 Trend Analysis of AQI share over 5 years.

Analysis of the trend of share of mean Air Quality Index between the years 2016 and 2021 was carried out in order to compare and study the contributions of each AQI category during these years. Figure 5.3, shows the trends of share of categories of AQI during the years 2017-18, 2018-19 ,2019-20, 2020-21 and 2021-22.

Figure 5.2 represents share of AQI categories for air quality of monitored observations across all AAQMS in Maharashtra (2021-22). From Figure 5.3, it can be observed that, the highest

share in 2021-22 is of ‘Satisfactory’ category, which is similar to that of previous trend. In this year, ‘Good’ category follows second to the ‘Satisfactory’ category. The share of the AQI categories of ‘Poor’, ‘Very Poor’ and ‘Severe’ was negligible during all years.

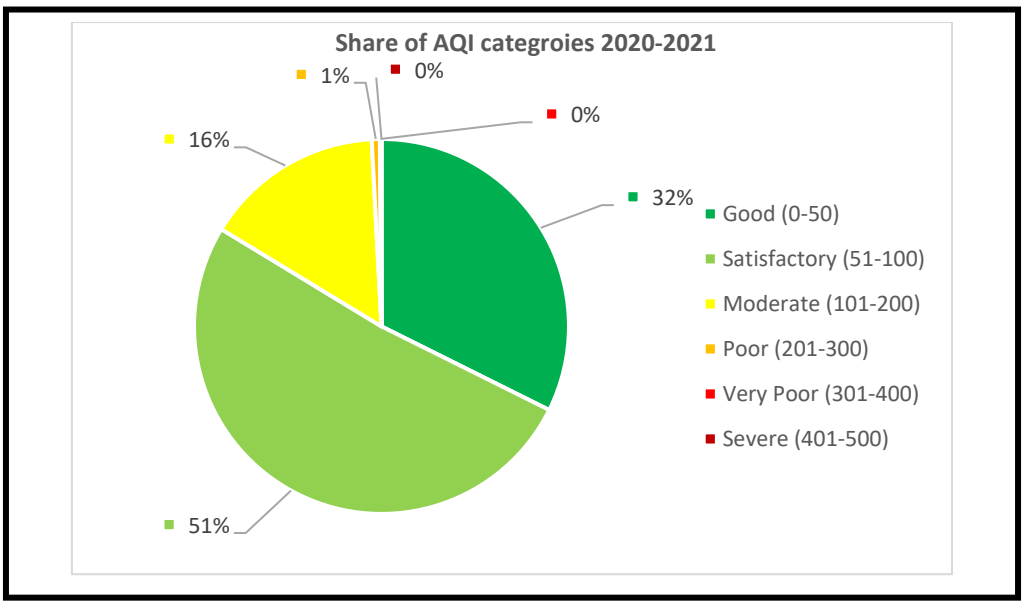



**Figure 5.2 Share of AQI categories for air quality of monitored observations across all AAQMS in Maharashtra (2021-22)**

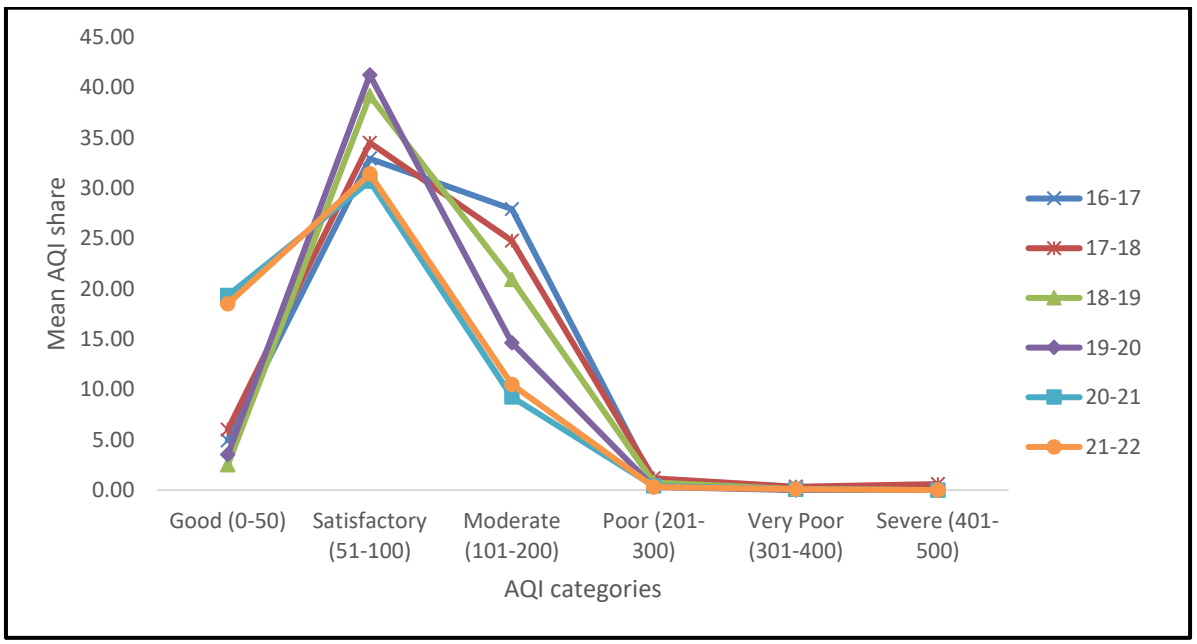



**Figure 5.3. Trends in year-wise share of AQI categories**

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

Noise pollution is a significant environmental problem in many urban areas. This problem has not been properly recognized even though it is steadily growing in developing countries. Undoubtedly, the most important source of noise pollution in urban areas is related to road vehicles. Hearing is one of the most important of the human senses. The location of sounds that may warn of danger is essential and the enjoyment of pleasant sounds such as music and the natural environment and, most importantly for humans, the development of speech

and language for communication. The World Health Organization (WHO) states that there is sufficient evidence that noise exposure at night causes self-reported sleep disturbance and noise induced sleep disturbance is viewed as a health problem. WHO also states there is evidence, albeit limited, that disturbed sleep causes fatigue, accidents and reduced performance. Various physical disorders due to higher noise include temporary deafness, headache and increase in blood pressure. Rise in cholesterol level causes constriction of blood vessels which increases the incidence of heart attacks. Effect of exposure to excessive noise can be harmful during pregnancy. Regular exposure to highway traffic noise pollution leads to impaired hearing. Information provided by ENT specialists and psychiatrists indicates that cases of hearing loss, mental disorder and anxiety are increasing in day-to-day life.

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

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

**Table 5.23 Noise Standards by CPCB.**

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

MPCB monitors noise periodically and during festivals, expecting higher variations and impact on the environment and people. Monitoring is carried out for a minimum of 75% of the prescribed day time (06.00 to 22.00) and night time (22.00 to 06.00). The exercise is carried out for 6 to 8 hours in the prescribed time frame of day and night. Details of noise pollution monitoring and analysis per region are discussed in detail in following sections.

1. Mumbai - The noise level in Mumbai ranged from 49.6 dB(A) to 81.2 dB(A) this year. The increase in noise level in some location is mainly due to road traffic and rain. In comparison to the noise level last year there is a tremendous decrease in the range of noise level generated.

2. Navi Mumbai - The noise level in Navi Mumbai ranged from 43.5 dB(A) to 79.8 dB(A) this year. The noise level on 28"' August 2020 (7th day of Ganesh festival) on all five locations was higher this year. There reason for increase in nose level was due to the crowd in locations and vehicular activities.
3. Thane - In Thane the noise level ranged from 49.7 dB(A) to 77.9 dB(A) this year. The increase in noise levels was due to the traffic congestion and rain.
4. Pune - Out of 18 locations monitored, the noise level was high only at Shivaji Nagar, Mahatma Phule Mandai, Khadki Bazar, M G Road and Aundh Parihar Chowk as compared to last year. In Pune also the noise level due to festival was very less due to Covid 19. In many locations the level of noise was 10 dB less than what was generated last year. The noise level in Pune ranged from 42.9 dB(A) to 86.3 db(A).
5. Nashik - In Nashik the noise level ranged from SO dB(A) to 72 dB(A). The noise level was less at all locations in Nashik on all 5 days as compared to last year. There was no much crowd or traffic congestions also in Nashik region.
6. Aurangabad - The noise level was less at all locations in of Aurangabad also on all 5 days as compared to last year. The noise level in Aurangabad ranged from 42 dB(A) to 72 dB(A). The noise level generated was due to traffic.
7. Nagpur - The noise level in Nagpur ranged from 49.7 dB(A) to 79.9 dB(A) this year. The level of noise was high in commercial zones and was caused due to traffic mainly.
8. Kalyan - The noise level in Kalyan ranged from 50.2 dB(A) to 77.5 dB(A) this year. The noise level was high mainly due to the crowd and traffic. Ulhasnagar station showed higher noise level and to an extent the honking of trains also contributed to the increase in noise level.
9. Amravati - The noise level in Amravati ranged from 54.3 dB(A) to 73.7 dB(A) this year. Irvin Hospital Square showed a little increase in noise level this year and the main reason was due to the crowd and traffic
10. Jalgaon - The noise level was less at all locations in of Jalgaon on all 5 days as compared to last year. The noise level in Jalgaon ranged from SO dB(A) to 79.1 dB(A) this year. The noise level in Jalgaon also was due to traffic at commercial zone.
11. Kolhapur - The noise level was less at all locations in of Kolhapur also on all 5 days as compared to last year. The noise level in Kolhapur ranged from 37 dB (A) to 79.1 dB (A) this year. The noise level near Khas Baug Maidan of Jalgaon had highest noise levels.
12. Sangli - The noise level was less at all locations in of Sangli also on all 5 days as compared to last year. The noise level in Sangli ranged from 59 dB(A) to 80.8 dB(A) this year. The noise level was high at Miraj Market between 6 pm to 8 pm due to the crowd and traffic congestions.
13. Mira Bhayander - The noise level in Mira - Bhayander ranged from 51dB(A) to 90 B(A) this year. The noise level was high at Golden police chowki in the peak time between 6pm to 9 pm and was caused due to the traffic congestions.
14. Vasai Virar - The noise level in Vasai - Virar ranged from 50 dB(A) to 77.2 dB(A) this year. There was some procession for Ganesh idol visarjan in Vasai area but the crowd was of maximum 4 people and contributed less noise level.
15. Ulhasnagar - The noise level generation in Ulhasnagar was also mainly due to . traffic and crowd. The noise level in Ulhasnagar ranged from 49.6 dB(A) to 76.1dB(A) this year.
16. Bhiwandi Nizampur - The highest noise levels of Bhiwandi-Nizampur was observed at Shelar Near Nadi naka with 73.7 dB(A) on 1st September and the reason for increase in noise level was due to the use of crowd for visarjan.
17. Chandrapur - The noise level in Chandrapur ranged from 57.2 dB(A) to 81.6 dB(A) this year and the reason for such high level of noise is due to traffic.

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

**Conclusion**

Maharashtra Pollution Control Board have carried out Noise monitoring at 104 locations from 27 Municipal Corporation of Maharashtra for 2 days period including one working and one non-working day i.e. on 21st (Non-working day) and 22nd (Working day) February 2021 for 24 hours for each location which comprise of residential, commercial and silence zone. The study reveals comparing the laid down noise norms for respective zones (Industrial, Commercial, Residential or Silence) the noise levels are exceeded at many locations. The ever-increasing use of automobiles is a major cause of this pollution. People honk unnecessarily in the traffic and listen to loud music on the way which creates high levels of noise.

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

There are many measures taken by the government and people to reduce the effect of noise pollution. Soundproof walls and windows are now being installed in many houses. Many flyovers in cities have soundproof walls to bring down the noise level to a nearby resident from

vehicles running. As a responsible citizen, we must contribute towards bringing down the noise pollution. Needless honking should be stopped and officials should fine people doing it heavily. Hospitals and schools are build in silent zone. There should be rules to avoid noise in residential and sensitive areas. It is important for people to be aware of health Hazard from noise pollution. One of the best ways to bring down the noise pollution is by planting more and more plants. This process of planting tress can help to reduce the travelling of noise from one place to another.

### 5.4 Water Quality in Maharashtra

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

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

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

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

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

### 5.4.1 Water Quality Index

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

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

#### 5.4.1.1 WQI for Surface Water

Given the parameters monitored in India under the NWMP and to maintain the uniformity while comparing the WQI across the nation, the NSF WQI has been modified and relative weights been assigned by CPCB. The modified weights as per CPCB are given in Table 5.24 and the equations used to determine the sub-index values are given 5.25. Upon determining the Water Quality Index, water quality is described for easy understanding and interpretation. The description used in the report for classifying and the describing the water quality is presented in Table 5.26.

**Table 5.24 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 5.25 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 |
| | 1 – 103 | 97.2 - 26.6 × log FC |

| | | |
|---|---|---|
| Fecal Coliform (FC) (counts/100 ml) | 103 – 105 | 42.33 - 7.75 × log FC |
| | >105 | 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 5.26 Surface Water Classification based on Water Quality Index.**

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

### 5.4.1.2 WQI for Groundwater

MPCB monitors ground water quality for parameters like pH, total hardness, calcium, magnesium, chloride, total dissolved solids, fluoride, manganese, nitrates, and Sulphates once in six months. Based on the stringency of the parameters and its relative importance in the overall quality of water for drinking purposes each parameter has been assigned specific weight by CPCB. These weights indicate the relative harmfulness when present in water. The relative weights of the nine parameters (pH, Total Hardness, Calcium Hardness, Magnesium Hardness, Chloride, Total Dissolved Solids, Fluoride, Nitrate, Sulphate) have been determined and presented in **Table 5.27.** for water samples monitored by MPCB in the year 2019-20. Based on the absolute value of the index determined from calculations, water quality is classified as presented in **Table 5.28**

**Table 5.27 Relative Weights of Each Parameter for WQI of Groundwater**

| Chemical Parameters | Indian Standards for Drinking Water Quality | | Weight (Wi) | | | |
|---|---|---|---|---|---|---|
| | Acceptable Limit | Permissible Limits | Weight | Relative Weight | Weight w/o Iron, | Relative Weight w/o Iron, |
| | | | | | Manganese & Bicarbonate | Manganese & Bicarbonate |
| pH | 6.5-8.5 | No relaxation | 4 | 0.09756 | 4 | 0.13333 |
| Total Hardness (TH) | 300 | 600 | 2 | 0.04878 | 2 | 0.06667 |
| Calcium | 75 | 200 | 2 | 0.04878 | 2 | 0.06667 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Magnesium | 30 | No relaxation | 2 | 0.04878 | 2 | 0.06667 |
| Bicarbonate | 244 | 732 | 3 | 0.07317 | - | - |
| Chloride | 250 | 1000 | 3 | 0.07317 | 3 | 0.10000 |
| Total Dissolved Solids (TDS) | 500 | 2000 | 4 | 0.09756 | 4 | 0.13333 |
| Fluoride | 1 | 1.5 | 4 | 0.09756 | 4 | 0.13333 |
| Manganese | 0.1 | 0.3 | 4 | 0.09756 | - | - |
| Nitrate | 45 | No relaxation | 5 | 0.12195 | 5 | 0.16667 |
| Sulphate | 200 | 400 | 4 | 0.09756 | 4 | 0.13333 |
| **Total** | | | **41** | **1** | **30** | **1** |

**Table 5.28 Groundwater Classification Based on Water Quality Index**

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

### 5.4.2 Analysis of Surface Water Quality with Statistical details

As per provisions made by Water Quality Assessment Authority constituted under Sub-Sections (1) and (3) of Section 3 of the Environment (Protection) Act, 1986 (Act No. 29 of 1986) water quality in Maharashtra is monitored by various agencies namely Hydrology Project (SW), Groundwater Surveys & Development Agency (GSDA), Central Pollution Control Board (CPCB), Maharashtra Pollution Control Board (MPCB), Central Water Commission (CWC) and Central Ground Water Board (CGWB). Water quality testing under CPCB's NWMP in Maharashtra is monitored by MPCB (State nodal agency). Maharashtra has the highest number of monitoring stations under NWMP across all states in India. MPCB possesses infrastructure to monitor 44 parameters covering field observations, general parameters, core parameters and trace metals. The samples are monitored at monthly and six-monthly frequencies for surface water and groundwater stations respectively. In order to have continuous vigilance check on water quality, MPCB has installed WQMS (Water Quality Monitoring Stations) across the State.

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

#### 5.4.2.1 Tapi Basin

The intra-basin performance of Tapi Basin across six districts in the Maharashtra is depicted in Figure 5.4 It can be observed that the water quality index (WQI) in Dhule district was 'good to excellent' during the months of April 2021, August 2021, September 2021, October 2021, November 2021, December 2021, January 2022, February 2022 and March 2022. The water quality during all these months was not polluted. In the months of May 2021, June 2021 and July 2021 WQI was not recorded as locations were dry and samples couldn't be collected.

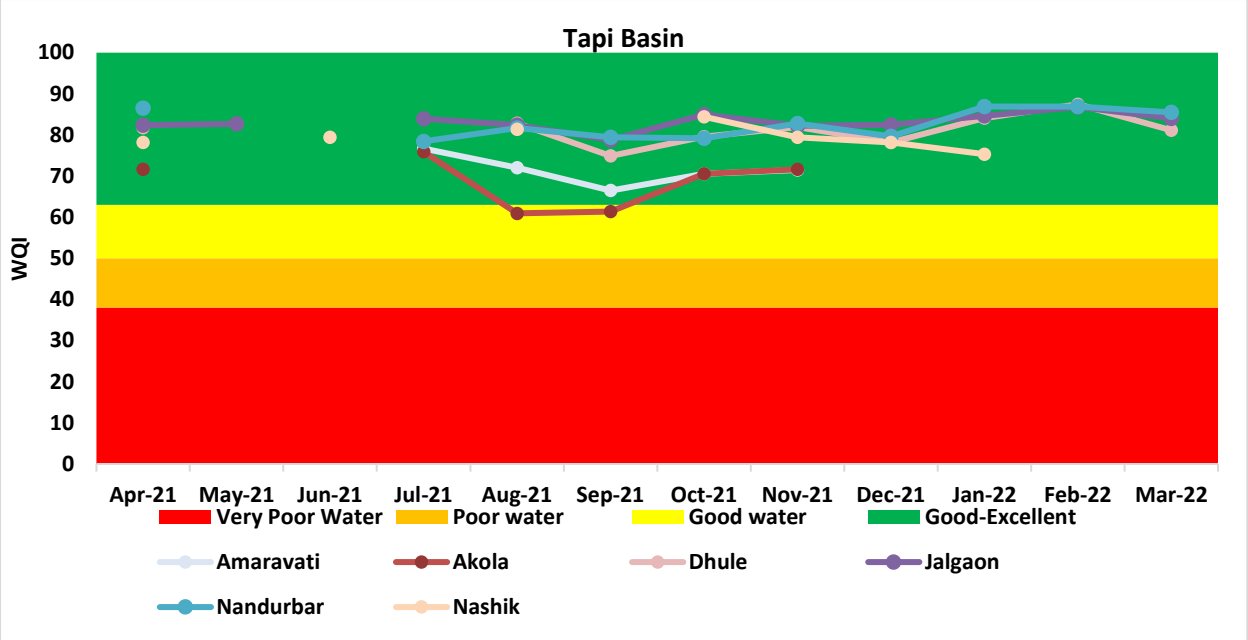



**Figure 5.4. The intra-basin performance of Tapi Basin across six districts in the Maharashtra FY 2021-22**

### 5.4.2.2 Godavari Basin 1

Figure 5.5 shows the monthly trend in WQI along Godavari Basin 1 across 7 districts during the year 2021-22. From the figure it is evident that the WQI of all districts in this basin was recorded as 'good to excellent' during the year 2021-22 and the water was not polluted throughout the year. However, WQI was not recorded from October 2021 to March 2022 in Aurangabad, Beed, Jalna, Nanded and Parbhani. In case of Jalna and Beed district, WQI was not recorded during September 2021 to March 2022. WQI was not recorded throughout the year in Latur district. This was because the locations were dry and hence, it was not possible to collect samples.

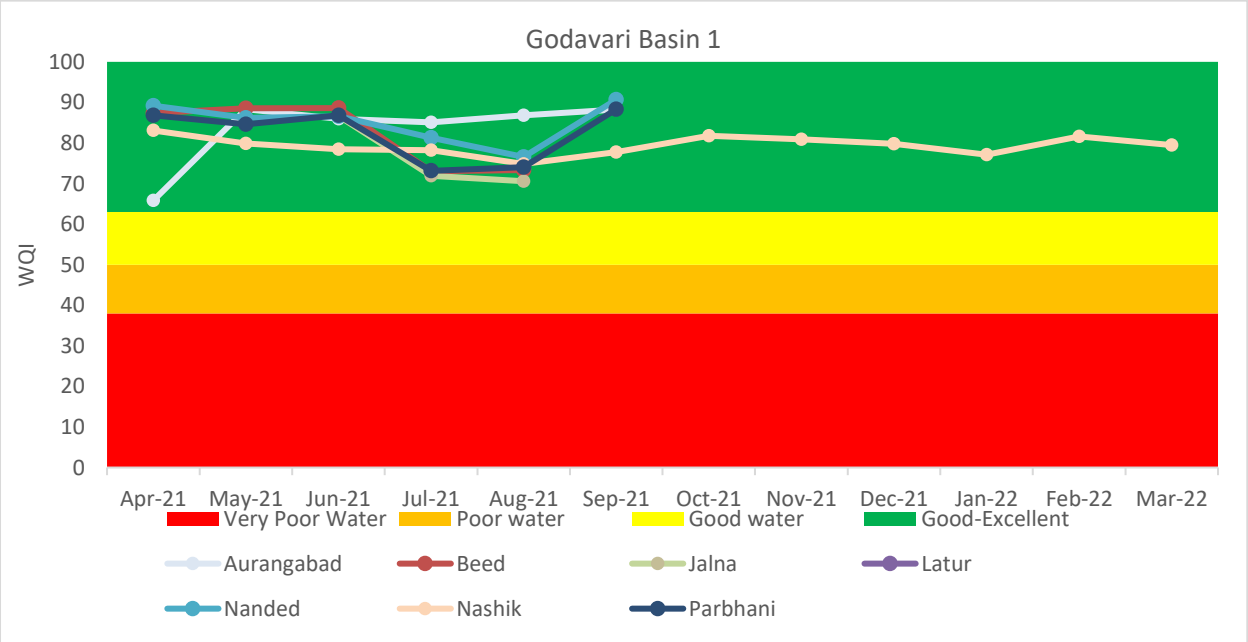



**Figure 5.5 The intra-basin performance of Godavari Basin 1 across six districts in the Maharashtra FY 2021-22**

### 5.4.2.3 Godavari Basin 2

Figure 5.6 shows the monthly trend in WQI along Godavari Basin 2 across 5 districts during the year 2021-22. In Bhandara district the WQI was recorded as 'good to excellent' from April 2021 March 2022. The WQI of Chandrapur district was recorded as 'good to excellent' throughout the year 2021-22 and the water was not polluted. In Nagpur district the WQI was found to be 'good to excellent' during all months and the water was not polluted throughout the year. In the district of Wardha the WQI was recorded as 'good to excellent' during the months of April, July, August, September, October, November, December 2021 and January, February and March 2022. The water was not polluted during these months. During May and June 2021 WQI was not recorded as locations were dry and samples couldn't be collected.

In Yavatmal district the WQI was recorded as 'good to excellent' throughout the year 2021-22 and the water was not polluted.

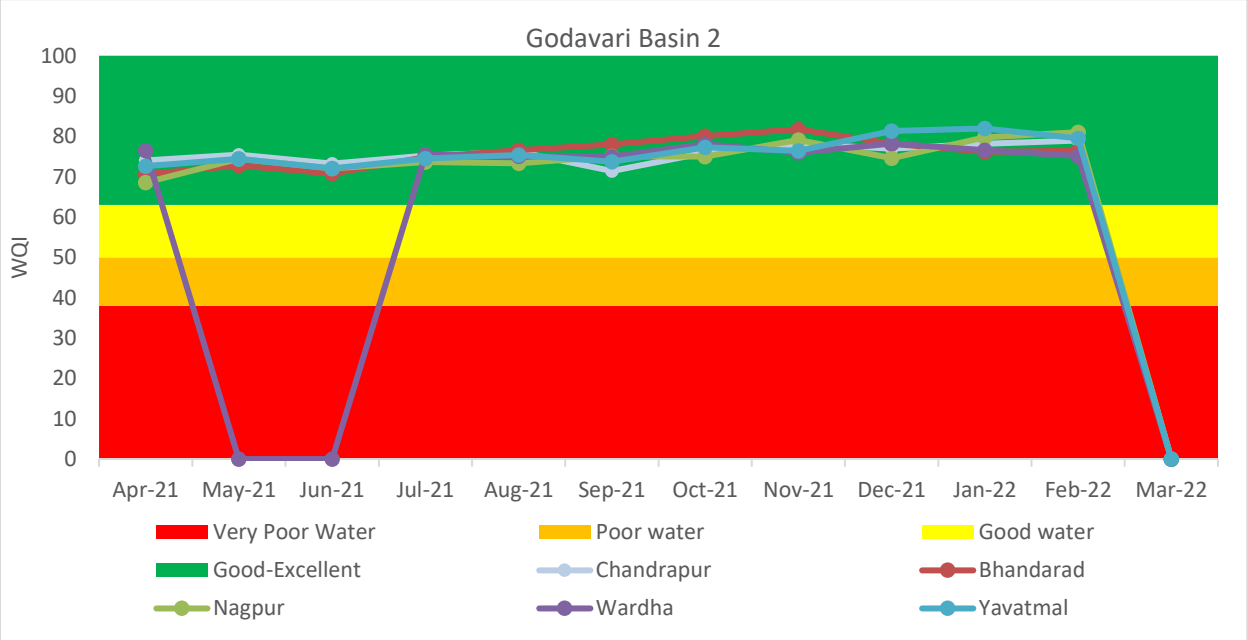



**Figure 5.6 The intra-basin performance of Godavari Basin 2 across six districts in the Maharashtra FY 2021-22**

### 5.4.2.4 Krishna Basin

Figure 5.7 shows the monthly trend in WQI along Krishna basin across five districts during the year 2021-22. In Kolhapur district the WQI was recorded as 'good to excellent' during all months of the year 2021-22. The water quality was not polluted throughout the year. In Pune district, the WQI was recorded as 'good-excellent' for all the months from August 2021 to Feb 2022 and "good water" during the months April 2021 to July 2021. The water was not polluted during these months. In Sangli, Satara and Solapur districts, the WQI was found to be 'good to excellent' throughout the year. The water was not polluted throughout these months.

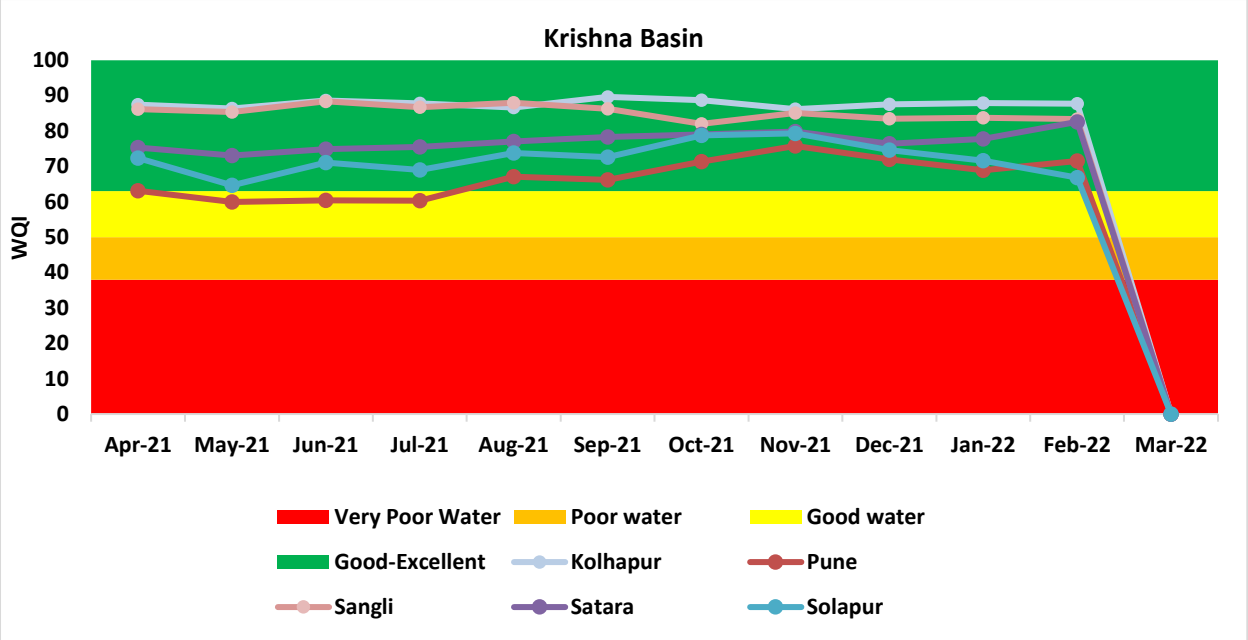



**Figure 5.7 The intra-basin performance of Krishna Basin 1 across six districts in the Maharashtra FY 2021-22**

### 5.4.2.5 Coastal Basin

#### 5.4.2.5.1 West Flowing Rivers

The monthly trend of WQI along the basin of west flowing rivers across four districts in Maharashtra during the year 2021-22 is shown in Figure 5.8. In the districts of, Mumbai, Ratnagiri and Thane, the WQI was recorded as 'good to excellent' during all months of the year 2021-22 and the water quality was recorded as not polluted throughout the year. In Raigad, the WQI was recorded as 'very poor' during the months October, November 2021 and January and February 2022.The water was heavily polluted during these months. In the months of April, May, July and August 2021, the WQI was observed to be poor and the water was polluted. The WQI was recorded to be 'good to excellent' in the months of June, September and December 2021 and the water was not polluted during this time.

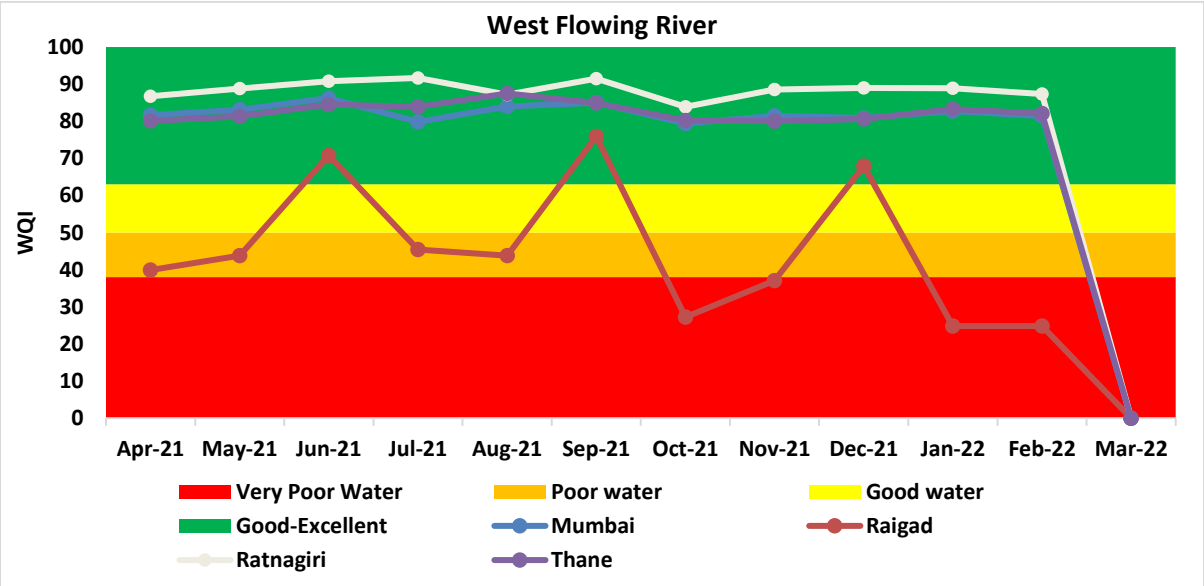



**Figure 5.8 The intra-basin performance of West Flowing Rivers across six districts in the Maharashtra FY 2021-22**

#### 5.4.2.5.2 Saline (Sea and Creek) Basin

Figure 5.9 shows the monthly trend in WQI along the Saline (sea & creek) basin across 5 districts during the year 2021-2022. In Kalyan, the WQI was recorded as 'good to excellent' during all the months from April 2021 to Jan 2022. The water was not polluted throughout the year except in the month of February 2022, when the WQI was recorded as poor.

In Mumbai, the WQI was recorded as 'good' during the months of June, August, September, October, November, December 2021 and January, February 2022 and the water was not polluted during these months. The WQI was recorded as 'poor' during the months of April, May and July of 2021 and the water was polluted during these months.

In Raigad district the WQI was recorded as 'good to excellent' throughout the year except from November 2021 to February 2022, when the WQI was recorded as 'good'. The water was not polluted throughout the year.

In Ratnagiri district, the WQI was recorded as 'good to excellent' during all months of the year 2021-22 and the water was not polluted throughout the year.

In Thane district, the WQI was recorded as 'good to excellent' from August to November 2021. During the months of April, May, June, July and December 2021 and January, February 2022, the WQI was recorded as 'good' and the water quality was not polluted throughout the year.

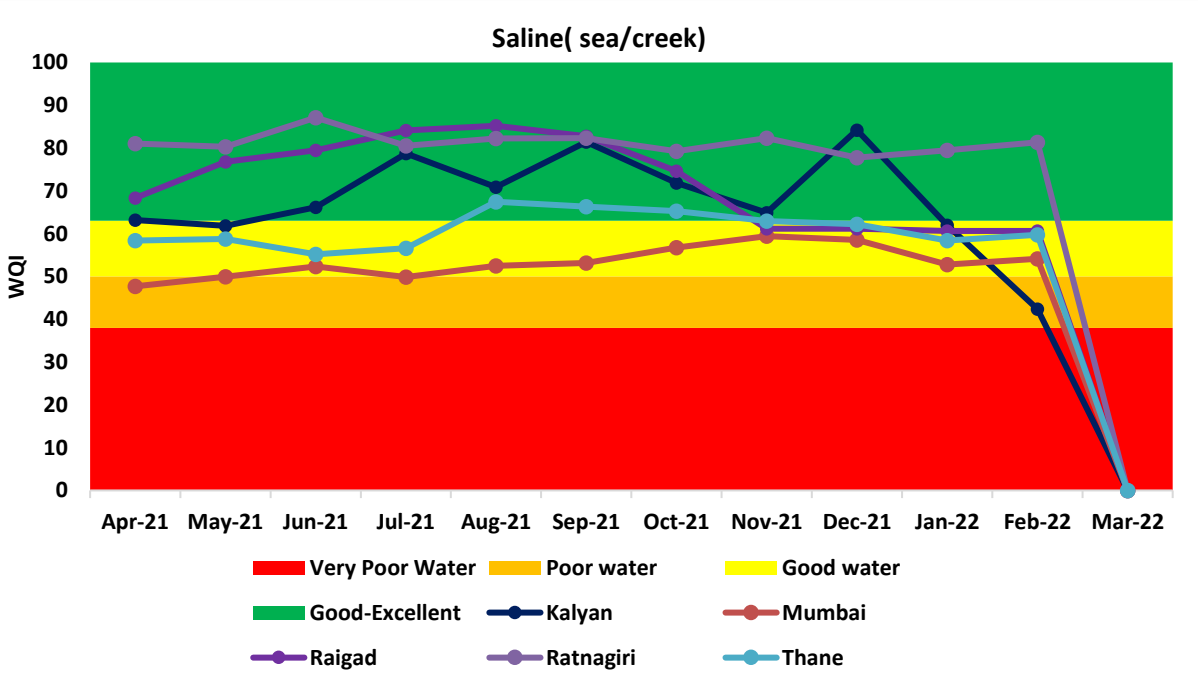



**Figure 5.9 The intra-basin performance of Saline Basin across six districts in the Maharashtra FY 2021-22**

### 5.4.3 Analysis of Groundwater Quality with Statistical details

In Maharashtra, CGWB (Central Ground Water Board), GSDA (Groundwater Survey and Development Agency) and MPCB monitor the ground water quality across various districts of the State. MPCB has 66 ground water monitoring stations which monitor water quality twice a year for parameters like pH, Nitrate, TDS, Hardness, Fluoride, microbial content, and sulphates. The water quality for groundwater across various Regions in the State is represented in **Table 5.29.**

**Table 5.29 Legend for WQI for Ground Water in Various Regions**

| Excellent | Good | Poor | Very Poor | Not suitable for drinking | Dry | No Data |
|---|---|---|---|---|---|---|

**Table 5.30 WQI for Ground Water in Various Region**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Apr-21 | N/A | 77.63 | 58.66 | NA | NA | 160.85 | N/A | 243.24 | 82.75 | 78.07 |
| Oct-21 | N/A | 90.43 | 36.86 | 86.47 | 90.16 | N/A | N/A | 124.39 | 36.92 | 47.8 |
| Station Code | 2001 | 2002 | 2003 | 1993 | 2200 | 2201 | 2824 | 2825 | 1994 | 2828 |
| Region | Amravati | | | Aurangabad | | | | | Chandrapur | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apr-21 | 199.39 | 112.2 | 77.42 | NA | NA | NA | 96.04 | 69.54 | NA | 30.2 | 52.88 | 83.41 | 52.9 |
| Oct-21 | 85.93 | 158 | 146.93 | 433.95 | 358.38 | N/A | 146.43 | 77.96 | 74.03 | 29.6 | 29.62 | 28.38 | 29.03 |
| Station Code | 2004 | 2005 | 2006 | 2007 | 2008 | 2202 | 2829 | 2830 | 2831 | 2832 | 2833 | 2834 | 2835 |
| Region | Kolhapur | | | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Apr-21 | 29.67 | 359.88 | 619.1 | 171.38 | 448.56 | N/A | 159 | N/A | 79.08 | N/A |
| Oct-21 | 87.39 | 311.95 | 119.75 | 116.75 | 117.69 | N/A | 137.2 | N/A | 70.63 | N/A |
| Station Code | 1992 | 2819 | 2821 | 2822 | 2823 | 1984 | 1985 | 1986 | 1987 | 1988 |
| Region | Pune | | | | | Thane | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Apr-21 | 90.5 | 85.9 | 125.93 | 138.97 | 89.45 | 87.91 | 24.66 |
| Oct-21 | 243.72 | 145.62 | 27 | N/A | 40.49 | N/A | 29.23 |
| Station Code | 1990 | 1991 | 2204 | 2816 | 2817 | 2818 | 1989 |
| Region | Nashik | | | | | | Navi Mumbai |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Apr-21 | 87.11 | N/A | N/A | N/A | N/A | N/A | 61.15 | 46.11 | N/A |
| Oct-21 | 42.42 | 43.21 | 55.08 | 43.62 | 52.44 | N/A | 54.2 | 75.42 | N/A |
| Station Code | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2203 | 2826 | 2827 |
| Region | Nagpur | | | | | | | | |

During 2021-22, 6 groundwater WQMS recorded WQI in the category 'Water Unsuitable for Drinking' (2007,2008, 2819, 2821, 2823, 2834). This number has drastically increased since last year as only one location was recorded under this category. Also 2 locations (1990, 2825) show WQI in "Very Poor" category reason being high levels of TDS, hardness, calcium, and chlorides.

### 5.4.4 Trend Analysis of WQI across basins over 5 years

Analysis of the trend of WQI across basins was carried out to study the status and changes in WQI over the period of 5 years between 2017 and 2022. **Figure 5.4, 5.5, 5.6, 5.7, 5.8 and 5.9** show the graphical representation of the trends in WQI over 4 years in each river basin.

#### 5.4.4.1 WQI Trend analysis for Tapi Basin

Figure 5.10 shows the trend of WQI over the years 2017-18,2018-19, 2019-2020, 2020-2021 and 2021-2022 for Tapi Basin.
The mean WQI was recorded as 'good to excellent' in the months of May, June, September,

October 2017 and January and March 2018. The mean WQI was recorded as ‘good’ during the months of April, July, August, November and December 2017 and during February 2018. The water quality was therefore ‘non-polluted’ throughout the year.

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

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

In the year 2021-2022, the WQI was recorded as ‘good-excellent’ throughout the year from April 2021 to February 2022. (Except March 2022 for the years 2021-22 as data was not recorded.)

Hence, it can be inferred that the overall water quality was not polluted in the Tapi basin during all the five years.

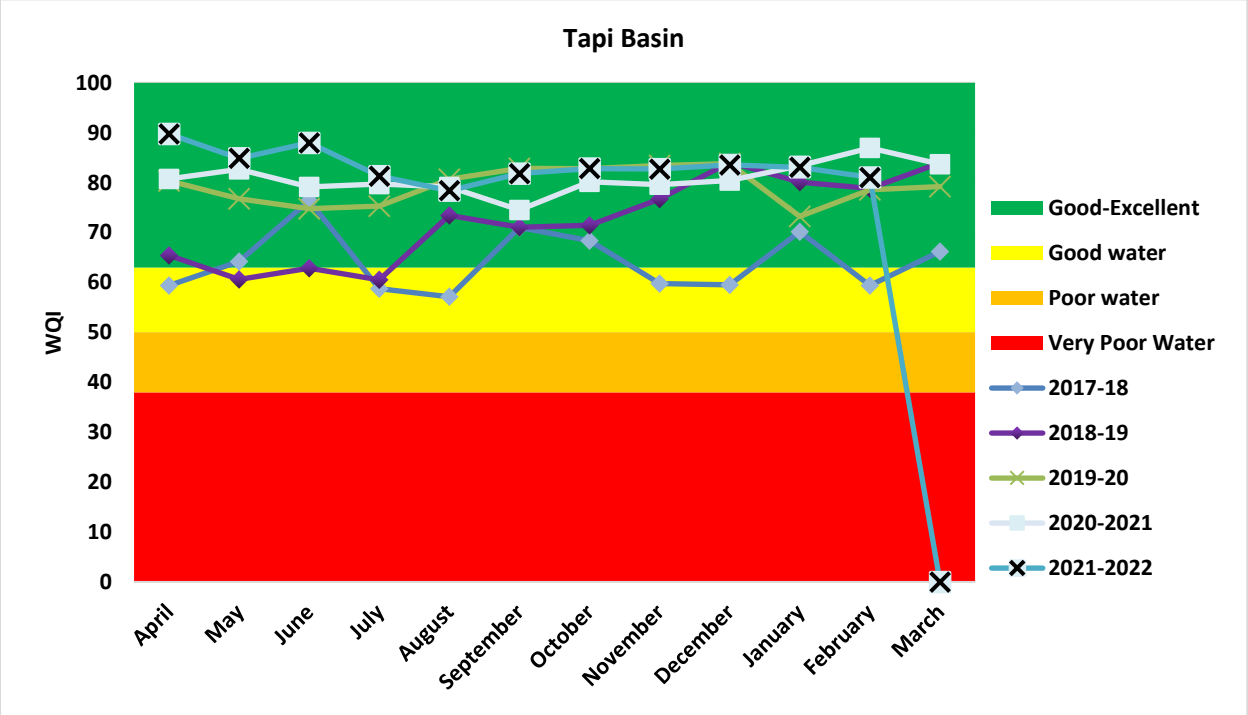



**Figure 5.10 Trend Analysis for Tapi Basin**

### 5.4.4.2 WQI Trend analysis for Godavari Basin 1

Figure 5.11 shows the trend of WQI over the years 2017-18,2018-19, 2019-2020, 2020-2021 and 2021-2022 for Godavari Basin 1.

From Figure 5.5. During the years 2017-18, the mean WQI was recorded as ‘Good to excellent’ during all months. The mean WQI was recorded as ‘good’ during the months of May, June and July 2018 during the year 2018-19, while it was recorded as ‘good to excellent’ during the remaining months. During the years 2019-20 and 2020-2021 as well as 2021-2022, it was recorded as ‘Good to Excellent’ for all the months. (Except March 2022 for the years 2021-22 as data was not recorded.)

### 5.4.4.3 WQI Trend analysis for Godavari Basin 2

Figure 5.12 shows the trend of WQI over the years 2017-18,2018-19, 2019-2020, 2020-2021 and 2021-2022 for Godavari Basin 2.

From Figure 5.12 it can be observed that the water quality was non-polluted during the years 2017-18,2018-19, 2019-2020, 2020-2021 and 2021-2022.

During the year 2017-18, the mean WQI was recorded as 'good' in the months of November 2017 and March 2018. The mean WQI was recorded as 'good to excellent' between April and October 2017, during December 2017 and during January and February 2018.

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

During the years 2020-2021 as well as 2021-2022, it was recorded as 'Good to Excellent' for all the months.

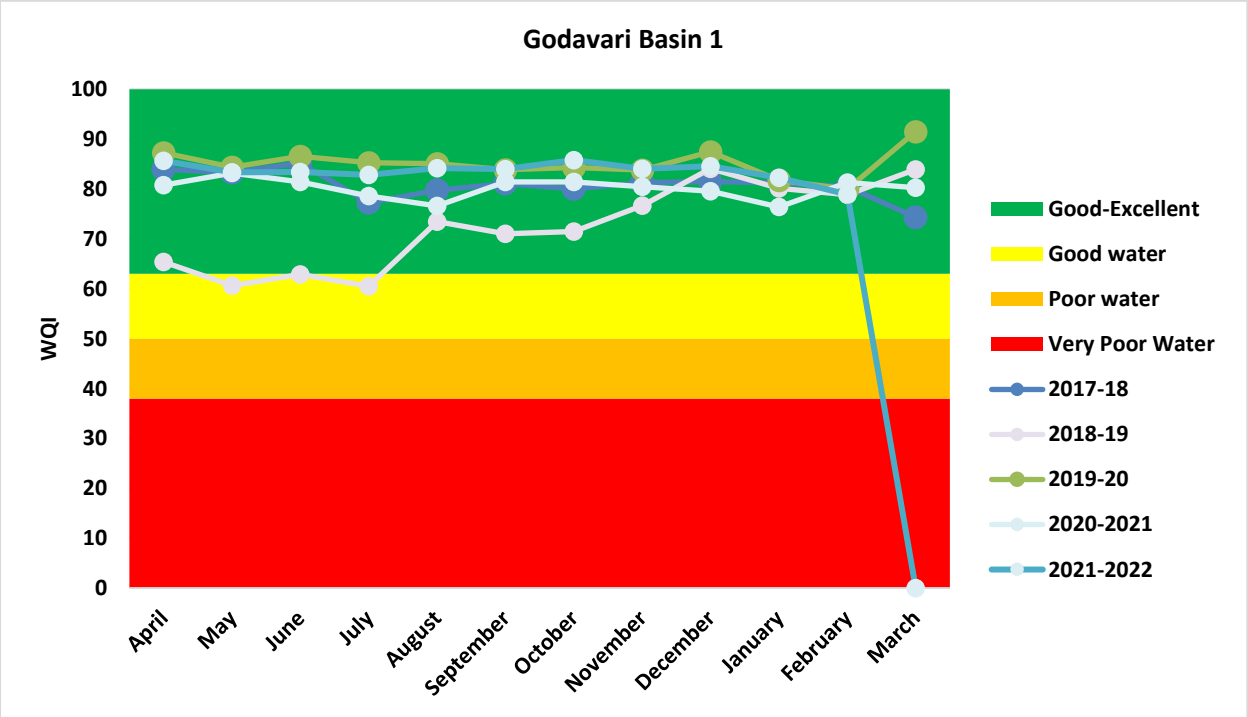



**Figure 5.11 Trend Analysis for Godavari Basin 1**

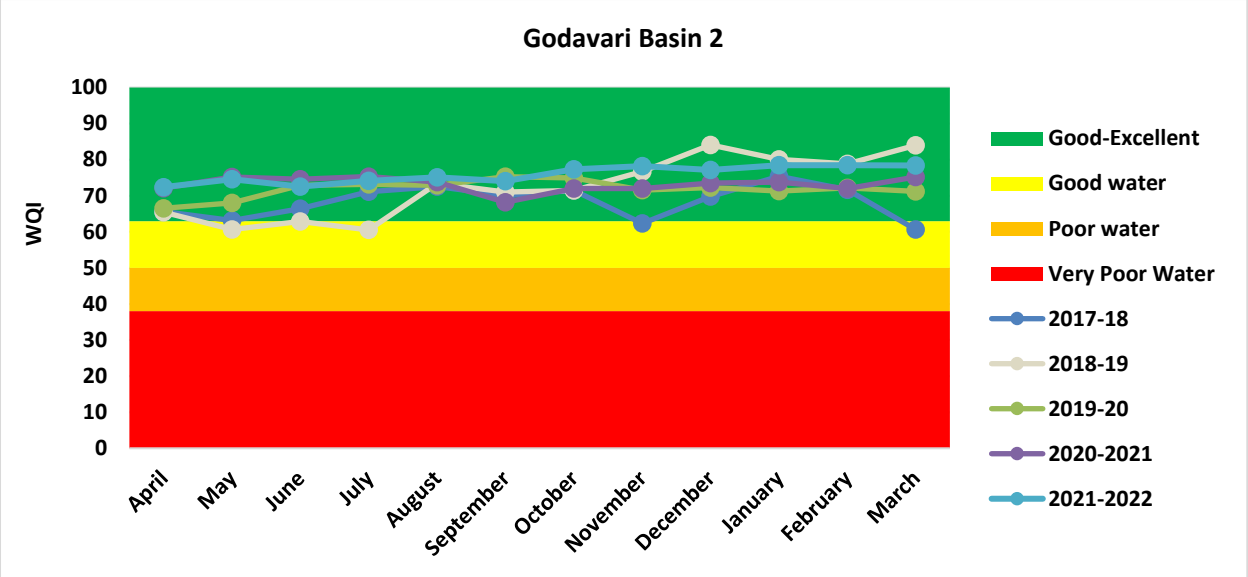



**Figure 5.12 Trend Analysis for Godavari Basin 2.**

### 5.4.4.4 WQI Trend Analysis for Krishna Basin

Figure 5.13 shows the trend of WQI over the years 2017-18,2018-19, 2019-2020, 2020-2021 and 2021-2022 for Krishna Basin. It is evident from Figure 5.7. that the overall water quality was non-polluted during all the 5 years.

During 2017-18, the mean WQI was recorded as 'Good to Excellent' in all months except during April, May, and June 2017. During the year 2018-19, the mean WQI was recorded as 'Good to Excellent' in all the months.

During 2019-20, the mean WQI was recorded in the 'Good to Excellent' category from September' 19 to March' 20 and the water quality was 'Non-Polluted' during these months. However, at the beginning of the year, i.e., from May 2019 to August 2020, the WQI was recorded as 'good'. The WQI was recorded as 'good – excellent' during all the months in the year 2020- 2021 as well as in the year 2021-2022. (Except March 2022 for the years 2021-22 as data was not recorded.)

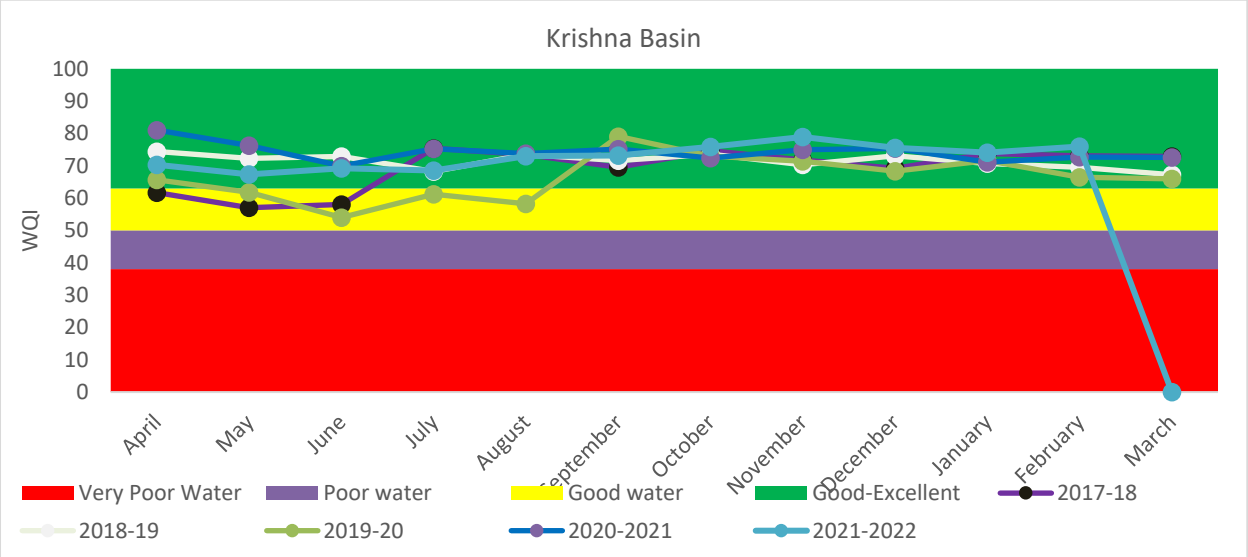



**Figure 5.13 Trend analysis for Krishna Basin**

### 5.4.4.5 WQI Trend Analysis for West Flowing Rivers

Figure 5.14 shows the trend of WQI over the years 2017-18,2018-19, 2019-2020, 2020-2021 and 2021-2022 for the basin of West Flowing Rivers.

From the above figure it can be observed that during the years 2018-19, 2019-20, 2020-2021 and 2021-2022 the mean WQI was recorded as 'Good to Excellent' during all months of the year. (Except March 2022 for the years 2021-22 as data was not recorded.)

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

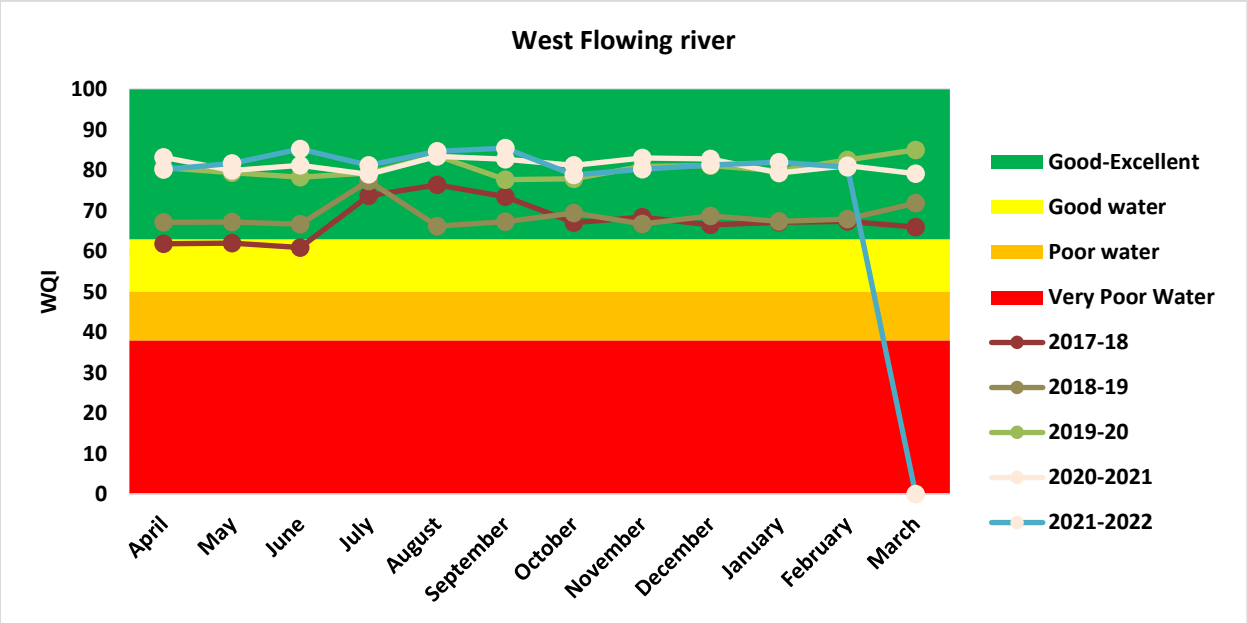



**Figure 5.14 Trend Analysis for West Flowing Rivers.**

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

Figure 5.15 shows the trend of WQI over the years 2017-18,2018-19, 2019-2020, 2020-2021 and 2021-2022 for the sub-basin of Saline (sea and creek).

From Figure 5.9, During the year 2017-18, the WQI was recorded as 'good to excellent; during the months of July, August and September 2017. The mean WQI was recorded as 'good' during the months of April, May, June, October, November and December 2017 and January, February and March 2018. The water quality was non-polluted throughout the year.

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

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

In the year 2020-2021, the WQI was recorded as good during April, May, June 2020 and from November 2020 to March 2021.The WQI was recorded as 'good-excellent' during July, August, September and October 2020. The water was not polluted throughout the year.

In the year 2021-2022, The mean WQI was recorded as ‘good’ during all the months. (Except March 2022 for the years 2021-22 as data was not recorded.)

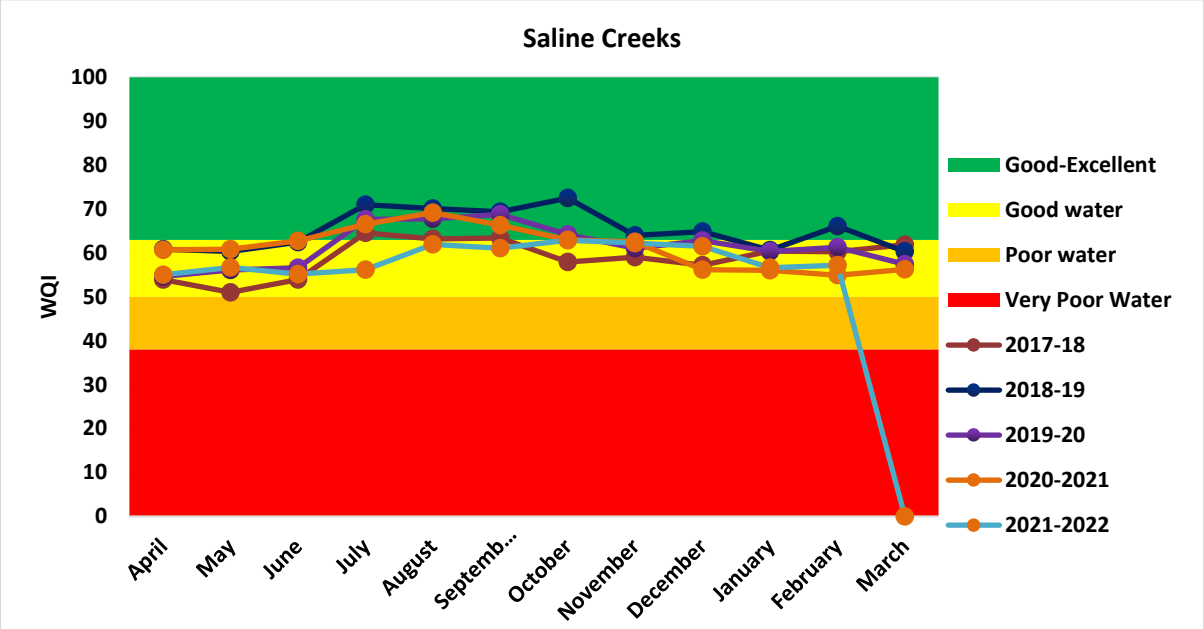



**Figure 5.15 Trend Analysis for Saline (Sea and Creek) sub-basin.**

## 5.5 Industrial Pollution

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

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

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

Maharashtra is one of the most highly industrialized states in India. With a rise in industrial estates in the State, areas like Mumbai, Thane, Navi Mumbai, Kalyan, Nashik, Pune, and Pimpri-Chinchwad that have many pollution-prone industries are facing chronic industrial pollution. To maintain a safe distance between industrial units and rivers to avoid discharge of effluent into waterbodies, the State has its policy which also states that no industry will be

allowed to establish along a riverbank. Industries are being encouraged to recycle and reuse waste.

Maharashtra Pollution Control Board has 12 Regions viz. Mumbai, Navi Mumbai, Raigad, Thane, Kalyan, Pune, Nashik, Aurangabad, Nagpur, Amaravati, Kolhapur and Chandrapur. The total number of industries under these categories in Maharashtra is 1,11,928. These industries are categorized as red, orange, and green and white, and are further divided into small, large, medium and health care units based on their pollution index. The categorization as well as size of industries within Maharashtra is given in **Table 5.31**

**Table 5.31 Categorization of industries in Maharashtra.**

| | Large | Medium | Small |
|---|---|---|---|
| **Red** | 3632 | 645 | 12068 |
| **HCEs** | 10019 | | |
| **Orange** | 3263 | 1304 | 24574 |
| **Green** | 917 | 733 | 43988 |
| **White** | 10785 | | |

### 5.5.1 Analysis and Performance of CETP with Statistical Details

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

Region wise information regarding the number of industries under each category as well as the amount of effluent generated, and amount treated along with the performance of CETPs operating in these regions is illustrated below. Standards of 100 mg/l for BOD and 250 mg/l for COD as determined by the CPCB have been considered for evaluation of performance of CETPs. The tables in the following paragraphs show the minimum and maximum values recorded by individual CETPs for BOD and COD during the year 2021-22 along with the annual mean as well as standard deviation (SD).

| Amravati | | |
|---|---|---|
| **LSI** | **MSI** | **SSI** |
| 2 | 13 | 4783 |
| 27 | 18 | 1848 |
| 29 | 5 | 122 |
| **White total - 554** | | |

| Aurangabad | | |
|---|---|---|
| LSI | MSI | SSI |
| **62** | **71** | **5550** |
| **129** | **108** | **2301** |
| **314** | **37** | **502** |
| **White total – 219** | | |

| Chandrapur | | |
|---|---|---|
| LSI | MSI | SSI |
| **9** | **4** | **698** |
| **19** | **33** | **451** |
| **139** | **41** | **99** |
| **White total - 162** | | |

| Thane | | |
|---|---|---|
| LSI | MSI | SSI |
| **35** | **24** | **1946** |
| **233** | **38** | **968** |
| **206** | **46** | **936** |
| **White Total - 165** | | |

| Kolhapur | | |
|---|---|---|
| **LSI** | **MSI** | **SSI** |
| 44 | 24 | 7449 |
| 91 | 108 | 4485 |
| 270 | 72 | 1172 |
| **White total - 3716** | | |

| Navi Mumbai | | |
|---|---|---|
| LSI | MSI | SSI |
| **71** | **69** | **2063** |
| **164** | **98** | **1179** |
| **198** | **51** | **1053** |
| **White total - 564** | | |

| Nagpur | | |
|---|---|---|
| LSI | MSI | SSI |
| **18** | **28** | **2640** |
| **124** | **86** | **2725** |
| **252** | **28** | **992** |
| **White Total - 307** | | |

| Nashik | | |
|---|---|---|
| LSI | MSI | SSI |
| **107** | **76** | **5883** |
| **175** | **128** | **2961** |
| **387** | **83** | **1607** |
| **White Total - 2562** | | |

| Mumbai | | |
|---|---|---|
| **LSI** | **MSI** | **SSI** |
| 26 | 35 | 2425 |
| 604 | 219 | 1098 |
| 273 | 27 | 679 |
| **White total – 74** | | |

| Pune | | |
|---|---|---|
| LSI | MSI | SSI |
| **467** | **327** | **7863** |
| **1469** | **359** | **4644** |
| **1188** | **145** | **2452** |
| **White total - 1810** | | |

| Raigad | | |
|---|---|---|
| LSI | MSI | SSI |
| **42** | **28** | **677** |
| **111** | **43** | **622** |
| **228** | **46** | **452** |
| **White Total - 68** | | |

| Kalyan | | |
|---|---|---|
| LSI | MSI | SSI |
| **34** | **34** | **2011** |
| **117** | **66** | **1292** |
| **148** | **64** | **2002** |
| **White total - 549** | | |

**Figure 5.16 Industrial categorization in the state**

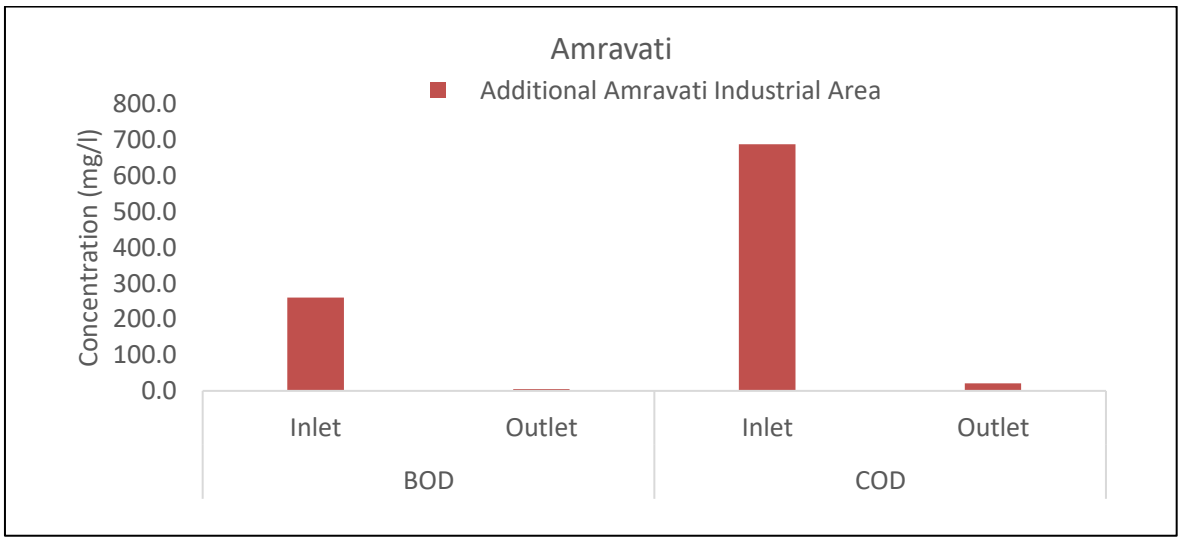
### 5.5.1.1 Amravati

There is one CETP in Amravati Region. The treatment capacity of this CETP is 5MLD. The total industrial effluent received at this CETP was 1.5MLD and all the received effluent was treated during the year 2021-22. The annual performance of the CETP for the year 2021-22 is represented in Table 5.32. The total number of industries in Amravati under each category is demonstrated in Figure 5.16

**Table 5.32 Statistical Analysis Data for CETP Performance in Amaravati Region**

| Parameters | | | Location |
|---|---|---|---|
| | | | Additional Amravati Industrial Area |
| Inlet | BOD (mg/L) | min | 190.0 |
| | | max | 420.0 |
| | | mean | 260.4 |
| | | SD | 56.0 |
| | COD (mg/L) | min | 512.0 |
| | | max | 1120.0 |
| | | mean | 688.7 |
| | | SD | 166.1 |
| Outlet | BOD (mg/L) | min | 4.0 |
| | | max | 9.5 |
| | | mean | 4.6 |
| | | SD | 0.9 |
| | COD (mg/L) | min | 18.0 |
| | | max | 24.0 |
| | | mean | 21.2 |
| | | SD | 1.5 |

From **Table 5.32** it can be observed that the in BOD at the CETP at Additional Amravati Industrial Area was 97.87% whereas the COD was being reduced with about 97.33% efficiency.




### 5.5.1.2 Aurangabad

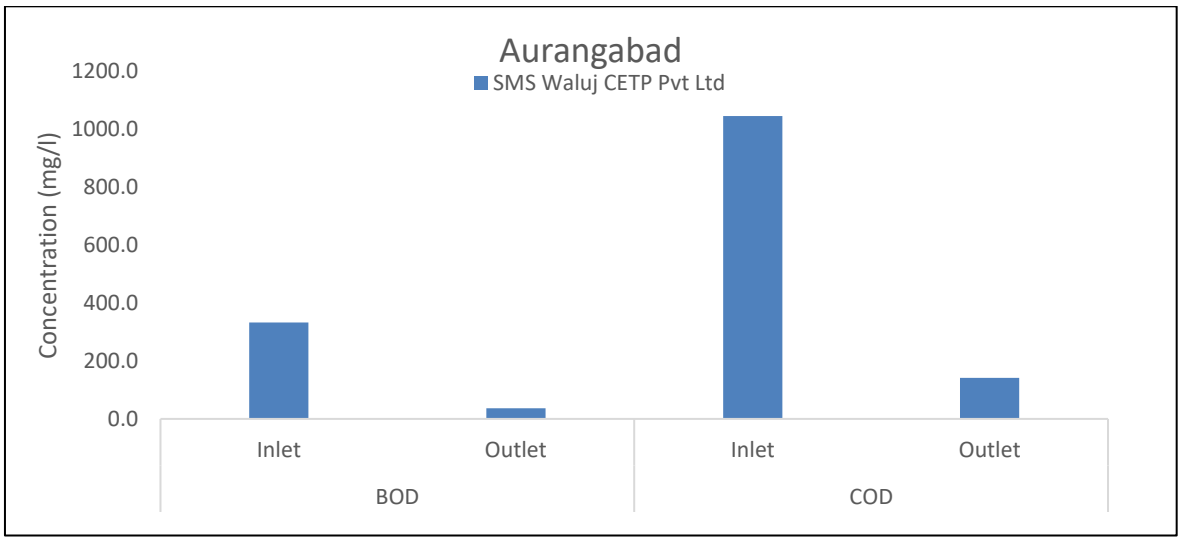
There is one operational CETP provided viz. M/s. Waluj CETP Pvt. Ltd. located at MIDC Area, Waluj with a treatment capacity of 10 MLD. Total industrial effluent treated at CETP in the year 2021-22 was 4-5 MLD. The total number of industries in Aurangabad under each category is

presented in **Figure 5.16** and performance of the CETP is presented in **Table 5.33.**

**Table 5.33 Statistical Analysis Data for CETP Performance in Aurangabad Region**

| **Parameters** | | | **Location** |
|---|---|---|---|
| | | | **SMS Waluj CETP Pvt Ltd** |
| Inlet | BOD (mg/L) | min | 92.0 |
| | | max | 920.0 |
| | | mean | 332.4 |
| | | SD | 167.9 |
| | COD (mg/L) | min | 304.0 |
| | | max | 3552.0 |
| | | mean | 1046.5 |
| | | SD | 554.4 |
| Outlet | BOD (mg/L) | min | 9.0 |
| | | max | 87.6 |
| | | mean | 36.9 |
| | | SD | 15.8 |
| | COD (mg/L) | min | 36.0 |
| | | max | 228 |
| | | mean | 141.3 |
| | | SD | 44.6 |

From **Table 5.33,** it is evident that the CETP at Aurangabad was performing with 88.89% efficiency in reducing BOD and about 86.49% efficiency in reducing COD. Also, the post treatment concentration of BOD and COD was within the prescribed discharge limits of 100 mg/l and 250 mg/l respectively.



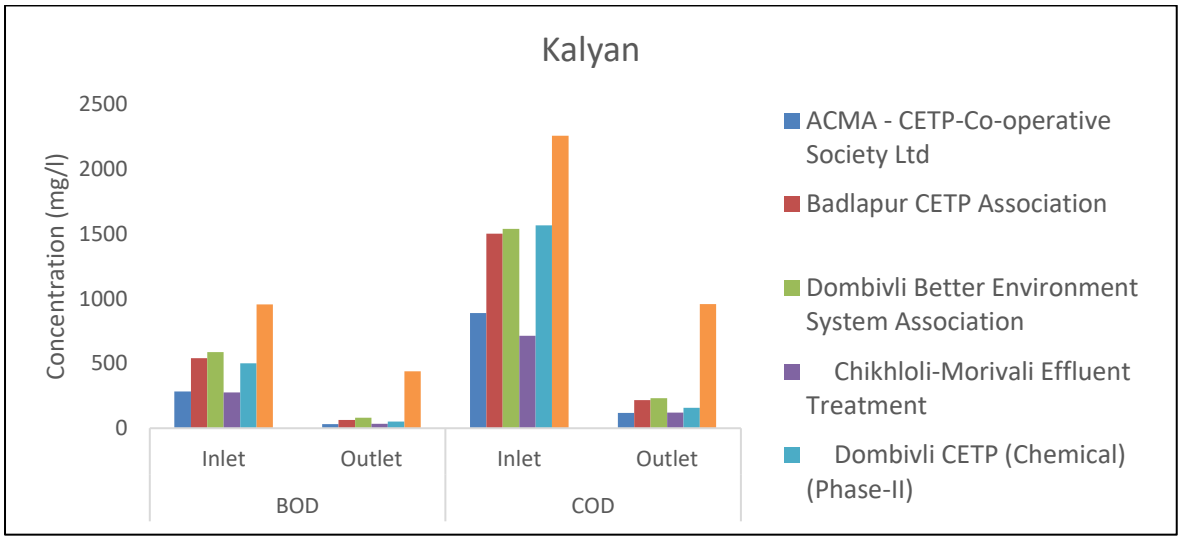

### 5.5.1.3 Kalyan

There are 6 operational CETPs in this Region. The collective treatment capacity of these CETPs is 34.05 MLD. The total effluent received by CETPs during the year 2021-22 was 25.791 MLD, all of which was treated by these CETPs during the year 2021-22. The total number of industries in Kalyan under each of the categories is demonstrated in **Figure 5.16** and the performance of these CETPs during the year 2021-22 is presented in **Table 5.33**

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

| Parameters | | | Location | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | ACMA - CETP-Co-operative Society Ltd | Badlapur CETP Association | Dombivli Better Environment System Association | Chikhloli-Morivali Effluent Treatment | Dombivli CETP (Chemical) (Phase-II) | Additional Ambernath CETP |
| Inlet | BOD (mg/L) | min | 108.0 | 210.0 | 240 | 114.0 | 85.0 | 241.0 |
| | | max | 470.0 | 975.0 | 1075 | 550.0 | 1200.0 | 1550.0 |
| | | mean | 282.6 | 540.1 | 587.8 | 277.2 | 501.6 | 956.8 |
| | | SD | 96.1 | 134.6 | 179.0 | 107.4 | 236.0 | 449.4 |
| | COD (mg/L) | min | 284.0 | 828.0 | 676 | 250.0 | 228.0 | 696.0 |
| | | max | 1472.0 | 2416.0 | 2672 | 1736.0 | 3760.0 | 3328.0 |
| | | mean | 889.6 | 1502.9 | 1539.7 | 714.6 | 1567.1 | 2258.7 |
| | | SD | 283.1 | 346.2 | 430.3 | 326.3 | 719.8 | 971.9 |
| Outlet | BOD (mg/L) | min | 8.0 | 20.0 | 8.0 | 5.0 | 16.0 | 3.6 |
| | | max | 70.0 | 240.0 | 210 | 120.0 | 240.0 | 725.0 |
| | | mean | 32.8 | 63.1 | 81.3 | 34.4 | 51.7 | 440.6 |
| | | SD | 13.6 | 39.1 | 34.4 | 25.2 | 39.7 | 247.8 |
| | COD (mg/L) | min | 40.0 | 140.0 | 32 | 48.0 | 56.0 | 16.0 |
| | | max | 196.0 | 668.0 | 608 | 308.0 | 744.0 | 1520.0 |
| | | mean | 117.2 | 216.0 | 230.8 | 121.6 | 157.9 | 959.3 |
| | | SD | 34.2 | 102.9 | 89.2 | 64.3 | 110.4 | 543.3 |

From **Table 5.34** The performance of all the CETPs was more than 85% in BOD and COD reduction. Also, the avergae outlet values at all CETPs were within the prescribed discharge limits of 100 mg/l for BOD and 250 mg/l for COD except for Additional Ambernath CETP.



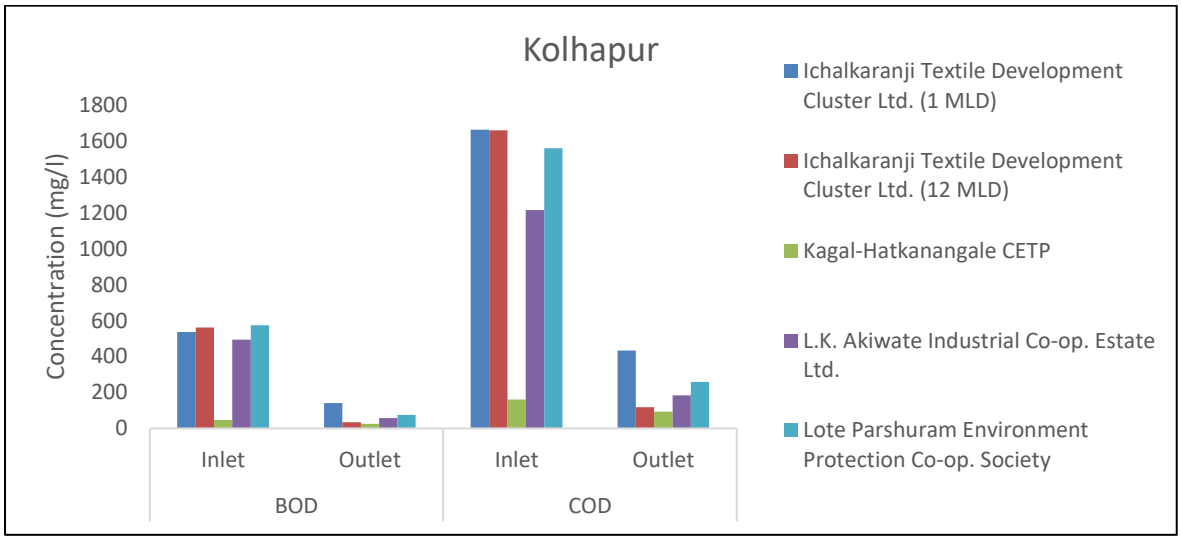

### 5.5.1.4 Kolhapur

There are 5 operational CETPs in this Region. The collective treatment capacity of these CETPs is 29.8 MLD. The total effluent generated and treated by industries in this Region was 15.4 MLD. The total number of industries in Kolhapur under each of the categories is demonstrated in **Figure 5.16.** and performance of CETPs is presented in **Table 5.35**

**Table 5.35 Statistical Analysis Data for CETP Performance in Kolhapur Region**

| Parameters | | | Location<br>Ichalkaranji Textile Development Cluster Ltd. (1 MLD) | Location<br>Ichalkaranji Textile Development Cluster Ltd. (12 MLD) | Location<br>Kagal-Hatkanangale C.E.T.P., | Location<br>L.K. Akiwate Industrial Co Op, Estate Ltd | Location<br>Lote Parshuram Environment Protection Co-op Society |
|---|---|---|---|---|---|---|---|
| Inlet | BOD (mg/L) | min | 40.0 | 30.0 | 4.6 | 6.1 | 30.0 |
| | | max | 1800.0 | 1100.0 | 140.0 | 2900.0 | 4600.0 |
| | | mean | 536.4 | 561.6 | 46.1 | 492.5 | 573.5 |
| | | SD | 332.9 | 273.7 | 33.3 | 601.0 | 893.5 |
| | COD (mg/L) | min | 139.2 | 116.0 | 36.8 | 47.6 | 104.0 |
| | | max | 5032.0 | 3756.8 | 606.4 | 4992.0 | 9192.0 |
| | | mean | 1659.7 | 1657.5 | 161.0 | 1213.7 | 1557.0 |
| | | SD | 999.6 | 764.5 | 108.0 | 1205.1 | 2113.5 |
| Outlet | BOD (mg/L) | min | 12.0 | 6.2 | 3.8 | 5.2 | 12.0 |
| | | max | 475.0 | 94.0 | 105.0 | 110.0 | 340.0 |
| | | mean | 141.3 | 34.8 | 25.1 | 56.9 | 75.8 |
| | | SD | 113.5 | 20.8 | 21.4 | 29.3 | 57.9 |
| | COD (mg/L) | min | 40.0 | 16.4 | 20.4 | 24.4 | 46.0 |
| | | max | 1508.8 | 252.8 | 258.0 | 323.6 | 1738.4 |
| | | mean | 433.6 | 118.5 | 92.7 | 184.6 | 259.0 |
| | | SD | 334.2 | 48.7 | 61.4 | 74.4 | 271.9 |

It is evident from **Table 5.35** that, Kagal-Hatkanangale CETP was performing with the least efficiency of about 45.4% in BOD reduction and 42.79% in COD reduction. The CETP at L. K. Akiwate Industrial Co-op. Estate Ltd. was performing at 95.32% efficiency in reducing BOD and at 98.23% efficiency in reducing COD. The Lote Parshuram Environment Protection Co-op. Society were performing with 86.7% efficiency in reducing BOD and at 83.36% efficiency in reducing COD. CETP with capacity 12 MLD at Ichalkaranji Textile Development Cluster Ltd operated at more than 90% efficiency in BOD and COD reduction. However, the CETP with capacity 1 MLD at Ichalkaranji Textile Development Cluster Ltd performed with efficiency of about 73.65% in BOD reduction and 73.38% in COD reduction. The prescribed discharge limits were met at all CETPs except Ichalkaranji Textile Development Cluster Ltd. (1 MLD) and outlet value for COD was exceeded at Lote Parshuram Environment Protection Co-op Society.



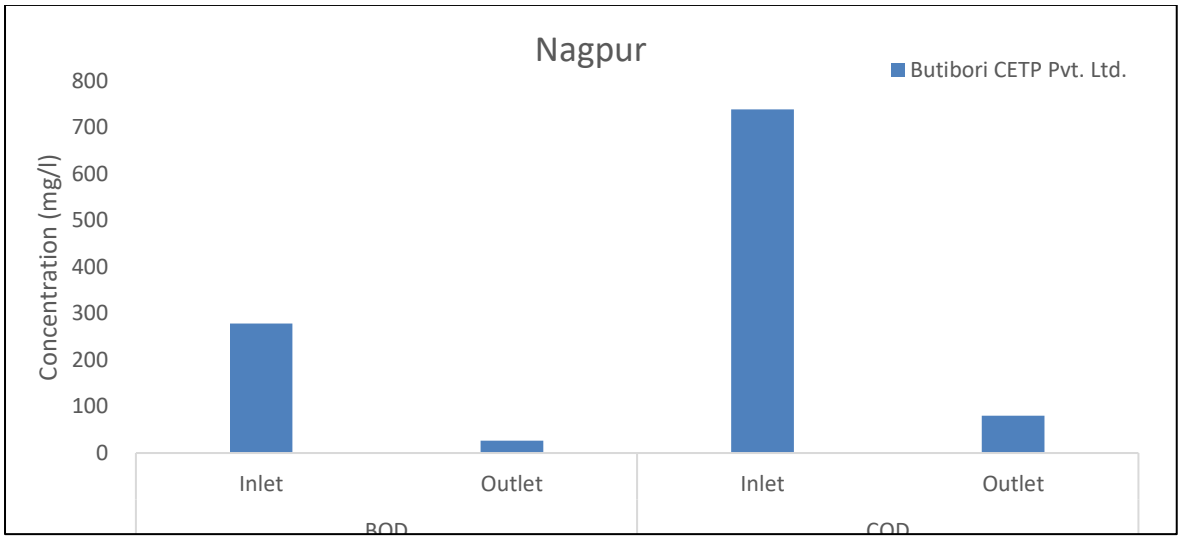
### 5.5.1.5 Nagpur

There is one CETP provided in Nagpur Region. The treatment capacity of this CETP is 5 MLD. The total industrial effluent received at the CETP during the year 2021-22 was 4.5 MLD, all of which was treated at this CETP. Total number of industries in Nagpur under each category is presented in **Figure 5.16** and performance of the CETP is presented in **Table 5.36.**

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

| **Parameters** | | | **Location** |
|---|---|---|---|
| | | | **Butibori CETP Pvt. Ltd.** |
| Inlet | BOD (mg/L) | min | 170.0 |
| | | max | 490.0 |
| | | mean | 278.3 |
| | | SD | 83.6 |
| | COD (mg/L) | min | 456.0 |
| | | max | 1382.4 |
| | | mean | 738.3 |
| | | SD | 229.1 |
| Outlet | BOD (mg/L) | min | 18.0 |
| | | max | 29.0 |
| | | mean | 26.3 |
| | | SD | 2.6 |
| | COD (mg/L) | min | 52.0 |
| | | max | 96.0 |
| | | mean | 80.0 |
| | | SD | 11.3 |

From the Table 5.36, the CETP at Butibori is performing with 90.54% efficiency in BOD reduction and 89.16% efficiency in COD reduction. The BOD and COD outlet values after treatment are well within the prescribed limits.



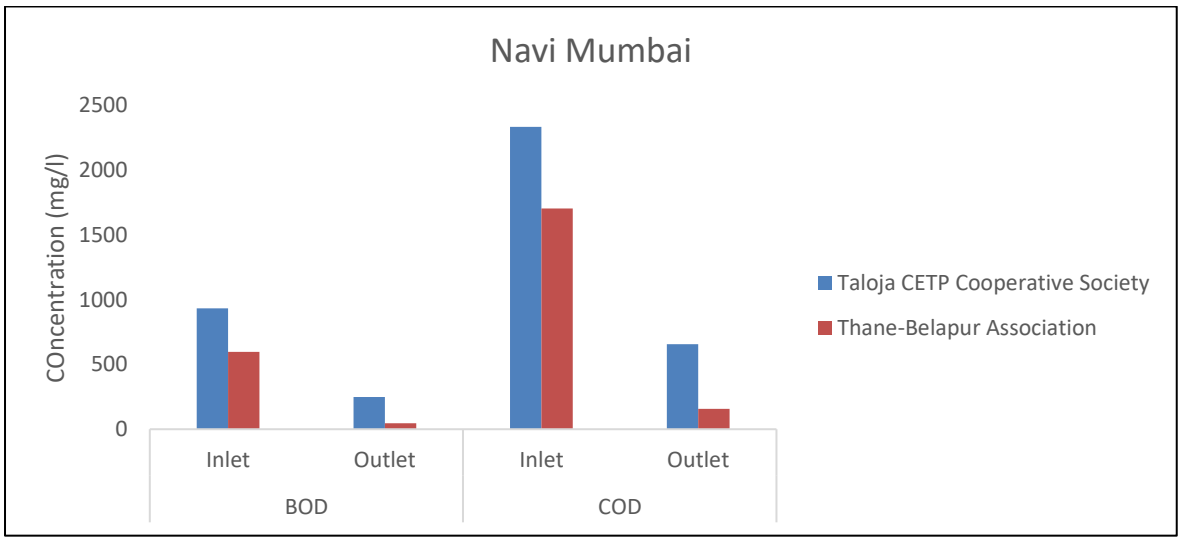

### 5.5.1.6 Navi Mumbai

There are two operational CETPs in this Region with a collective treatment capacity of 49.5 MLD. The total numbers of industries under each category in this Region are shown in **Figure 5.16** and performance of the CETPs is shown in **Table 5.37**

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

| Parameters | | | Location | |
|---|---|---|---|---|
| | | | Taloja CETP Co Operative Society | Thane-Belapur Association |
| Inlet | BOD (mg/L) | min | 230.0 | 225.0 |
| | | max | 1650.0 | 1150.0 |
| | | mean | 933.8 | 596.9 |
| | | SD | 312.9 | 258.5 |
| | COD (mg/L) | min | 592.0 | 624.0 |
| | | max | 4880.0 | 3200.0 |
| | | mean | 2334.3 | 1704.6 |
| | | SD | 885.3 | 660.0 |
| Outlet | BOD (mg/L) | min | 44.0 | 10.0 |
| | | max | 750.0 | 110.0 |
| | | mean | 248.6 | 45.4 |
| | | SD | 155.2 | 22.6 |
| | COD (mg/L) | min | 116.0 | 72.0 |
| | | max | 1616.0 | 288.0 |
| | | mean | 655.4 | 158.3 |
| | | SD | 405.5 | 46.4 |

From **Table 5.37** that the CETP at Thane-Belapur Association is performing well with 84.02% efficiency in reducing BOD and at 82.14% efficiency in reducing COD. The Taloja CETP Cooperative Society has about 72.7% efficiency in reducing BOD and 71.27% in reducing COD. However, the outlet values of BOD and COD post treatment were beyond the prescribed limits of 100 mg/l and 250 mg/l respectively at Taloja CETP Co Operative Society but were under limits at Thane-Belapur Association.



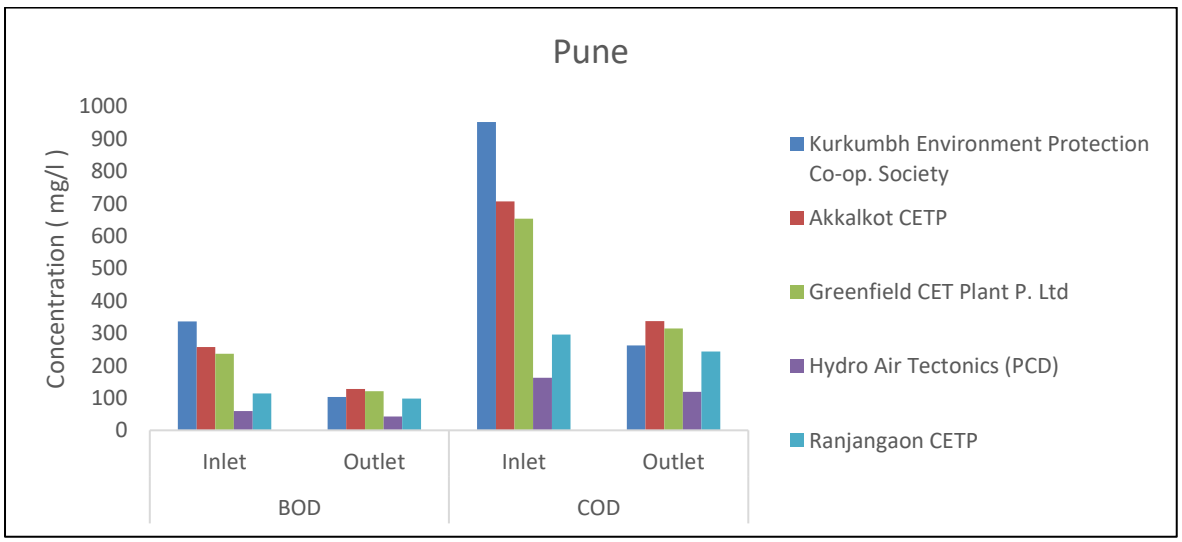

### 5.5.1.7 Pune

There are 5 operational CETPs in Pune Region. Their collective treatment capacity is 12.5 MLD. The total industrial effluent generated in this Region during the year 2021-22 was 6.37 MLD. The total number of industries under each category in this Region is shown in **Figure 5.16 a**nd performance of the CETPs is shown in **Table 5.38**

**Table 5.38 Statistical Analysis Data for CETP Performance in Pune Region**

| Parameters | | | Location<br>Kurkumbh Environment Protection Co. op. Society | Location<br>Akkalkot CETP | Location<br>Greenfield CET Plant P. Ltd | Location<br>Hydro Air Tectonics (PCD) | Location<br>Ranjangaon CETP |
|---|---|---|---|---|---|---|---|
| Inlet | BOD (mg/L) | min | 110.0 | 105.0 | 130.0 | 26.0 | 44.0 |
| | | max | 1100.0 | 550.0 | 530.0 | 135.0 | 140.0 |
| | | mean | 335.8 | 257.3 | 236.3 | 59.1 | 113.9 |
| | | SD | 190.6 | 80.5 | 65.7 | 26.1 | 21.5 |
| | COD (mg/L) | min | 356.0 | 276.0 | 372.0 | 75.6 | 132.0 |
| | | max | 3148.0 | 1320.0 | 1288.0 | 352.0 | 398.0 |
| | | mean | 951.9 | 706.6 | 653.1 | 162.5 | 295.4 |
| | | SD | 551.9 | 201.8 | 170.9 | 65.9 | 56.2 |
| Outlet | BOD (mg/L) | min | 66.0 | 78.0 | 86.0 | 14.0 | 44.0 |
| | | max | 140.0 | 250.0 | 165.0 | 98.0 | 125.0 |
| | | mean | 103.0 | 128.0 | 121.0 | 43.0 | 97.6 |
| | | SD | 15.2 | 29.7 | 14.6 | 24.6 | 18.9 |
| | COD (mg/L) | min | 184.0 | 232.0 | 248.0 | 36.0 | 128.0 |
| | | max | 380.0 | 660.0 | 496.0 | 284.0 | 284.0 |
| | | mean | 262.4 | 337.5 | 314.1 | 118.9 | 243.4 |
| | | SD | 29.9 | 85.8 | 48.2 | 70.3 | 36.1 |

From **Table 5.38,** it is evident that the CETP at Kurkumbh Environment Protection Co-op. Society is performing at about 69.3% efficiency in reducing BOD and 72.43% efficiency in reducing COD. The CETP at Hydro Air Tectonics (PCD) had the performance of about 27.24% in reducing BOD and 26.83% in reducing COD. Akkalkot CETP was performing with 50.25% efficiency in reducing BOD and 52.25% in reducing COD. The Greenfield CET Plant P. Ltd. was performing at 48.79 % efficiency in reducing BOD and at 51.90% efficiency in reducing COD. The Ranjangaon CETP was performing with 14.31% at reducing BOD and with 17.60% efficiency in reducing COD. The discharge limit for BOD was not met at any CETPs except Hydro Air Tectonics (PCD) and Ranjangaon CETP while limit for COD was not met at any CETPs except Hydro Air Tectonics (PCD)




### 5.5.1.8 Raigad

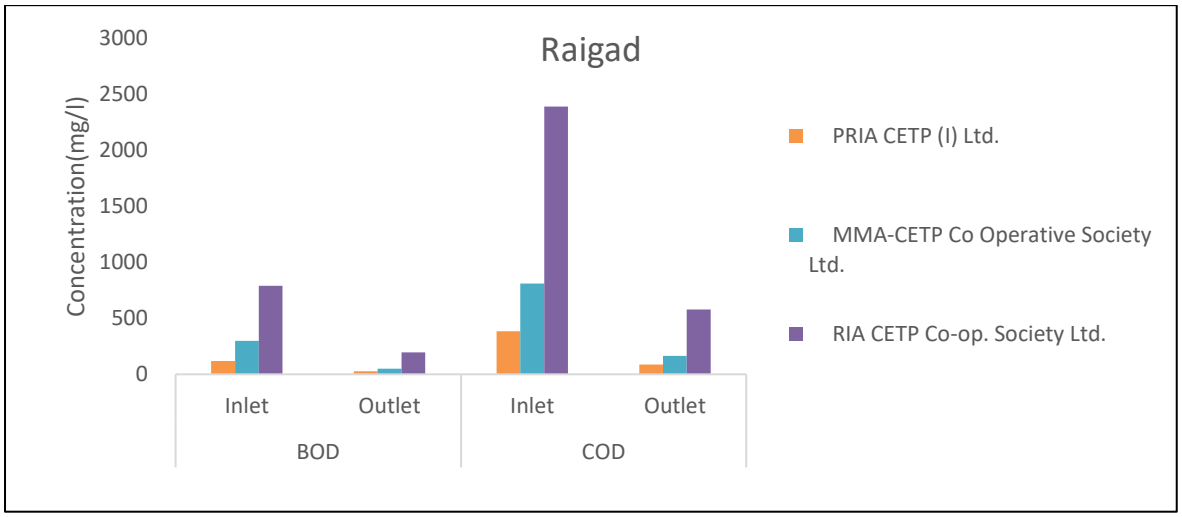
There are 3 operational CETPs in this Region with a collective treatment capacity of 32.5 MLD.

The total amount of effluent generated by industries in this Region during the year 2021-22 was 33 MLD, all of which was treated by these CETPs. The total number of industries under each category in this Region is shown in **Figure 5.16** and performance of the CETPs is shown in **Table 5.39.**

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

| **Parameters** | | | **Location** | **Location** | **Location** |
|---|---|---|---|---|---|
| | | | **PRIA CETP (I) Ltd.** | **MMA-CETP Co Operative Society Ltd.** | **RIA CETP Co-op. Society Ltd.** |
| Inlet | BOD (mg/L) | min | 4.0 | 40.0 | 72.0 |
| | | max | 440.0 | 925.0 | 1700.0 |
| | | mean | 119.3 | 297.3 | 790.2 |
| | | SD | 128.5 | 210.9 | 289.3 |
| | COD (mg/L) | min | 16.0 | 147.2 | 272.0 |
| | | max | 1496.0 | 1964.8 | 4880.0 |
| | | mean | 385.7 | 810.4 | 2390.6 |
| | | SD | 435.4 | 438.8 | 875.5 |
| Outlet | BOD (mg/L) | min | 5.0 | 11.0 | 25.0 |
| | | max | 120.0 | 110.0 | 950.0 |
| | | mean | 26.9 | 51.8 | 196.8 |
| | | SD | 27.8 | 26.3 | 168.3 |
| | COD (mg/L) | min | 24.0 | 41.6 | 88.0 |
| | | max | 256.0 | 322.0 | 2096.0 |
| | | mean | 88.6 | 163.8 | 579.8 |
| | | SD | 56.9 | 57.0 | 439.1 |

From **Table 5.39,** it is evident that the The PRIA CETP (I) Ltd. was performing with 77.4% efficiency in reducing BOD and with 77.02% efficiency in reducing COD. The RIA CETP Co-op. Society Ltd. was performing with 80.94% efficiency in reducing BOD and 80.18% efficiency in reducing COD. The MMA-CETP Co Operative Society Ltd. was performing at 86.01% and 84.64% efficiency in reducing BOD and COD. The discharge limits of 100 mg/l BOD and 250 mg/l for COD respectively were being attained at all stations except at RIACETP Co-op. Society Ltd.



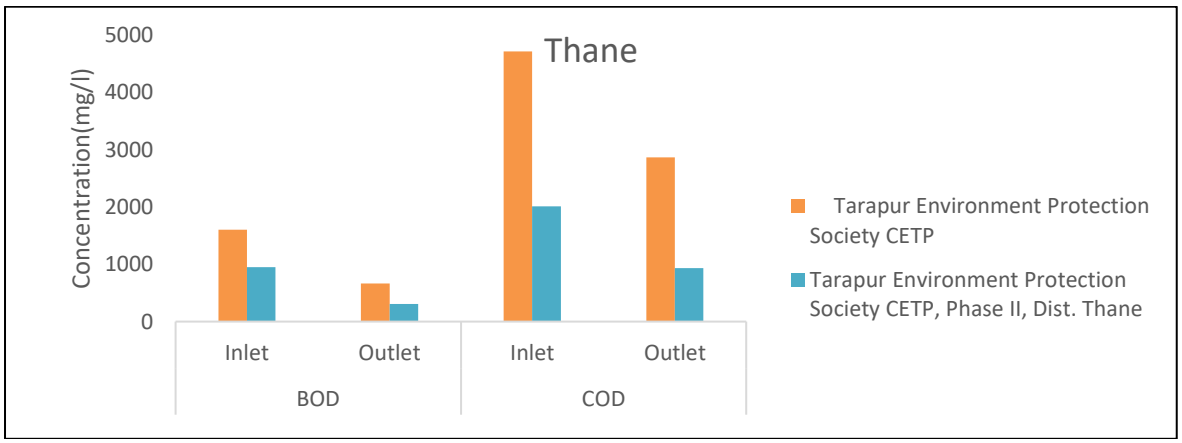
### 5.5.1.9 Thane

There are two CETPs of total 50 MLD capacity in Thane Region. The total industrial effluent generated during the year 2021-22 was 45 MLD, all of which was treated at these two CETPs. The total number of industries under each category in this Region is shown in **Figure 5.16.** And performance of the CETP is shown in **Table 5.40.**

**Table 5.40 Statistical Analysis Data for CETP Performance in Thane Region**

| Parameters | | | Location | |
|---|---|---|---|---|
| | | | Tarapur Environment Protection Society CETP | Tarapur Environment Protection Society CETP, Phase II, Dist. Thane |
| Inlet | BOD (mg/L) | min | 525.0 | 340.0 |
| | | max | 4200.0 | 3000.0 |
| | | mean | 1602.4 | 952.4 |
| | | SD | 898.2 | 526.9 |
| | COD (mg/L) | min | 1472.0 | 480.0 |
| | | max | 13760.0 | 13440.0 |
| | | mean | 4710.8 | 2862.4 |
| | | SD | 2610.5 | 1919.7 |
| Outlet | BOD (mg/L) | min | 160.0 | 145.0 |
| | | max | 2000.0 | 950.0 |
| | | mean | 664.8 | 305.0 |
| | | SD | 500.5 | 121.6 |
| | COD (mg/L) | min | 544.0 | 480.0 |
| | | max | 5200.0 | 2880.0 |
| | | mean | 2010.0 | 934.9 |
| | | SD | 1419.2 | 374.6 |

From **Table 5.40,** it is observed that the Tarapur Environment Protection Society CETP was performing with 57.41% in reducing BOD and 54.32% in reducing COD and 56.01% in reducing BOD and 60.09% in reducing COD in Tarapur Environment Protection Society CETP, Phase II, and However, the outlet values of BOD and COD were beyond the prescribed discharge limits of 100 mg/l and 250 mg/l of both the CETPs.



#### 5.5.1.10 Mumbai

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

#### 5.5.1.11 Nashik

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

#### 5.5.1.12 Chandrapur

There presently exists no CETP in this Region. However, industries are treating their effluent individually within the premises. Therefore, all the effluent generated was treated during the year 2021-22. The total number of industries in Chandrapur under each of the category is demonstrated in **Figure 5.16.**

### 5.6 Domestic Wastewater Treatment

#### 5.6.1 Analysis of Performance of Sewage Treatment Plants with Statistical Details

Details of STPs according to Regions in the State of Maharashtra are presented in the following sections and the performance of STPs is analyzed based on standards of 10 mg/l for Biochemical Oxygen Demand (BOD) and 20 mg/l for Total Suspended Solids (TSS) as prescribed by CPCB in the Environment (Protection) Rules, 1986 in Schedule – VI.

**Sewage generated & treated in urban local bodies of the State during 2021-22;**

- **Estimated sewage generation: 5,464.59 MLD**
- **Treatment Capacity (installed): 7,367.77 MLD**

#### 5.6.1.1 Pune

There are 41 STPs in this region of which 39 are operation during the year 2021-2022. The Old Naidu STP is now in operation. The total domestic effluent received at these STPs during the year 2021-22 was 918.42 MLD of which total 918.42 MLD was the total sewage treated. The mean of annual performance and analysis of all STPs provided in Pune Region are represented in **Table 5.41.**

**Table 5.41 Mean of Annual Performance of STPs in Pune Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| Erandwane STP | … | 7.5 | … | 32 | … | 12 |
| Bopodi STP | … | … | … | … | … | … |
| Tanajiwadi | … | 7.4 | … | 32 | | 16 |
| Bhairoba STP | … | 7.23 | … | 40 | … | 29 |
| Mundhawa STP | … | 8.12 | … | 62 | … | 34 |
| Vithalwadi STP | … | 7.2 | … | 64 | … | 133 |
| Old Naidu STP | … | 7.6 | … | 51 | … | 38 |
| Baner STP | … | 7.7 | … | 36 | … | 22 |
| Kharadi STP | … | 7.85 | … | 48 | … | 33 |
| New Naidu STP | … | 7.9 | … | 37 | … | 32 |
| Lonavala | … | … | … | … | … | … |
| Lonavala | … | … | … | … | … | … |
| Pune Cantonment Board | … | 8.2 | … | 42 | … | 26 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Khadaki Cantonment Board | … | 7.1 | … | 29.5 | … | 44.5 |
| Khadaki Cantonment Board (8MLD) | --- | 7.3 | -- | 290 | -- | 78 |
| Khadaki Cantonment Board (1.2MLD) | - | 7.7 | - | 110 | - | 22 |
| Chikhali Phase I | Inlet sample not taken for analysis. | 7.3 | Inlet sample not taken for analysis. | 19 | Inlet sample not taken for analysis. | 10.5 |
| Chikhali Phase II | | 7.3 | | 17.3 | | 9.0 |
| Akurdi | | 7.2 | | 35 | | 26.5 |
| Ravet | | 7.4 | | 32.0 | | 11.5 |
| Chinchwad Phase I (Bhatnagar) | | 7.3 | | 26 | | 15.5 |
| Chinchwad Phase II | | 7.3 | | 26.5 | | 8.0 |
| Kasarwadi I | | 7.2 | | 38.0 | | 23.0 |
| Kasarwadi II | | 7.6 | | 32.0 | | 13.5 |
| Kasarwadi III | | 7.3 | | 24.0 | | 14.0 |
| Chahroli Phase I | | 7.3 | | 36.5 | | 11.5 |
| Sangvi Phase I | | 7.4 | | 25.5 | | 14.5 |
| Sangvi Phase II (Dapodi) | | 7.4 | | 23 | | 13.0 |
| Pimple Nilekh | | 7.4 | | 32.5 | | 26.0 |
| Charoli Phase II | | 7.2 | | 26.0 | | 19.5 |
| Karad Municipal Council, Sr.No.342-B, Baradabari, Shaniwar Peth, Karad, Tal-Karad, Dist-Satara Karad, | Not collected | 7.2 | Not collected | 34 | Not collected | 10 |
| Malkapur Municipal Council, Gat No.214 , 215,Mali Nagar, Malkapur, Tal-Karad,Dist-SataraMalkapur, Tal-Karad, Dist-Satara | Not collected | 8.3 | Not collected | 32 | Not collected | Not collected |
| MalkapurAt Sr.No.10, A/P-Malkapur, Tal-Karad, Dist-Satara | Not collected | 8.5 | Not collected | 36 | Not collected | Not collected |
| Mahabaleshwar Municipal Council STP No.1- at compartment no. 79(City Survey no.257/1) behind Karmachari Vasahat, At-Mahabaleshwar, Tal-Mahabaleshwar, Dist-Satara | Not collected | 7.9 | Not collected | 130 | Not collected | 154 |
| Mahabaleshwar Municipal Council STP No.2- at Survey No.626, near Dhobi Ghat,At-Mahabaleshwar, Tal-Mahabaleshwar, Dist-Satara | Not collected | 8.2 | Not collected | 36 | Not collected | 30 |
| Panchgani Municipal Council STP No.1- at Survey No. 83/2 near Siddharthnagar,At-Panchgani, Tal- | Not collected | 8.3 | Not collected | 32 | Not collected | 26 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Mahabaleshwar, Dist-Satara | | | | | | |
| Panchgani Municipal Council STP No.2- at Plot no. 497/4 & 5 near Shivajinagar,At-Panchgani, Tal-Mahabaleshwar, Dist-Satara | Not collected | 8.4 | Not collected | 32 | Not collected | 16 |
| Panchgani Municipal Council STP No.3- at Hindu Crematorium,At-Panchgani, Tal-Mahabaleshwar, Dist-Satara | Not collected | 8.3 | Not collected | 34 | Not collected | 16 |
| Degaon STP | 7.8 | 7.68 | 80 | 6.07 | 151 | 15.88 |
| Kumathe STP | … | 7.6 | -- | 6 | -- | 9.3 |
| Pratap Nagar STP | -- | 7.8 | -- | 5 | -- | 11.9 |
| Gopalpur STP | -- | 8.11 | -- | 24 | -- | 11.83 |
| STP, 65 Acre,Pandharpur | 7.3 | 7.85 | 135 | 46.66 | 9 | 9 |

It can be observed from **Table 5.41.** that the outlet values of BOD were within limit of prescribed discharge standard of 10 mg/l only at Degaon, Kumathe, Pratap Nagar STP and for the remaining STPs outlet values of BOD were greater than prescribed discharge standard of 10 mg/l. The outlet values of suspended solids were greater than the prescribed discharge standard of 20 mg/l at Bhairoba, Mundhawas, Vithalwadi, Old Naidu, Baner, Kharadi, New Naidu, Akurdi, Kasarwadi I, Pimple Nikesh, Pune Cantonment Board, Khadaki Cantonment Board, Mahabaleshwar Municipal Council STP No.1 & 2, Panchgani Municipal council STP No.1. BOD removal efficiency of Degaon STP was observed to be 92.41% and 65 Acre Pandharpur STP was 65.44%. Also, SS removal efficiency of Degaon STP was 89.48%.

### 5.6.1.2 Chandrapur

There are 2 operational STPs in this Region provided by Chandrapur Municipal Corporation. The collective treatment capacity of these STPs is 70 MLD. The total quantity of domestic effluent received and treated at these STPs during the year 2021-22 was 35.5 MLD. The mean of annual performance and analysis of all STPs provided in Chandrapur Region are represented in **Table 5.42.**

**Table 5.42 Mean of Annual Performance of STPs in Chandrapur Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| Pathanpura | 7.76 | 8.02 | 42.05 | 17.07 | 142.6 | 40.45 |
| Rehmat Nagar | 7.74 | 8.09 | 32.16 | 9.14 | 127.7 | 52.08 |

It is evident from **Table 5.42.** that the outlet values of pH are within prescribed discharge standards but the outlet values of BOD at Pathanpura as well as the outlet values of suspended solids at both STPs were not within the prescribed discharge standards in Chandrapur region. BOD and S.S removal efficiency at Pathanpura STP was 59.41% & 71.62%. Also, BOD and S.S removal efficiency at Rehmat Nagar STP was 71.58% & 59.21%.

### 5.6.1.3 Nagpur

There are 14 operational STPs in this Region provided by Nagpur Municipal Corporation (NMC). The collective treatment capacity of these STPs was 426 MLD. The total effluent received at these STPs was 520 MLD of which 424 MLD was treated during the year 2021-22. The mean of annual performance and analysis of all STPs provided in Nagpur Region are represented in **Table 5.43.**

**Table 5.43 Mean of Annual Performance of STPs in Nagpur Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| Bhandewadi, Nagpur | NA | 8.3 | NA | 22 | NA | 28 |
| Bhandewadi, Nagpur | NA | 8.4 | NA | 20 | NA | 56 |
| Mankapur, Nagpur | NA | 8.47 | NA | 6 | NA | 26 |
| Mokhdham, Nagpur | NA | 7.7 | NA | 18 | NA | - |
| Kachimet, Nagpur | NA | 7.4 | NA | 18 | NA | 89 |
| Sonegaon, Nagpur | NA | 7.3 | NA | 18 | NA | 116 |
| Hazari Pahad, Nagpur | 7.6 | 7.7 | 15 | 9 | 128 | 59 |
| Somalwada-1, Nagpur | NA | 7.5 | NA | 12 | NA | 59 |
| Somalwada-2, Nagpur | NA | 7.6 | NA | 8 | NA | 18 |
| Ambazari, Nagpur | NA | 7.7 | NA | 14 | NA | 72 |
| Dabha, Nagpur | NA | 7.6 | NA | 12 | NA | 68 |
| Ittabhatti, Nagpur | NA | 7.5 | NA | 9 | NA | 25 |
| Kamptee, Kamptee | NA | -- | NA | -- | NA | -- |
| Hingangaht | NA | -- | NA | -- | NA | -- |

From **Table 5.43** it can be observed that outlet values for BOD at, Mankapur, Hazari Pahad, Somalwada-2 and Ittabhatti were within the standard limit of 10mg/l. Similarly, the outlet value of suspended solids at Somalwada-2 STP was lesser than the prescribed discharge standard of 20 mg/l for remaining STPs the outlet values were greater than prescribed discharge standard. BOD & S.S removal efficiency at Hazari Pahad was 40% and 53.9%.

### 5.6.1.4 Nashik

There are 15 operational STPs in this Region, & the collective treatment capacity of these STPs is 413.5 MLD. The total domestic effluent generated in this Region during the year 2021-22 was 395MLD. The mean of annual performance and analysis of all STPs provided in Nashik Region are represented in **Table 5.44.**

**Table 5.44 Mean of Annual Performance of STPs in Nashik Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| Chehedi STP (20 MLD) | NA | 8.3 | NA | 10.3 | NA | 16.5 |
| Chehedi STP (22 MLD) | NA | 8.03 | NA | 16.3 | NA | 20 |
| Panchak (7.5 MLD) | NA | 8.17 | NA | 11.7 | NA | 21.33 |
| Panchak (21 MLD) | NA | 7.8 | NA | 18.7 | NA | 48 |
| Panchak (32 MLD) | NA | 8.02 | NA | 12.42 | NA | 48 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Tapvan (78 MLD) | NA | 7.8 | NA | 18.21 | NA | 22.5 |
| Tapvan (52 MLD) | NA | 8.1 | NA | 16.37 | NA | 42 |
| Agar Takali (70 MLD) | NA | 7.6 | NA | 27.12 | NA | 73.5 |
| Agar Takali (40 MLD) | NA | 7.87 | NA | 9.2 | NA | 21.5 |
| Gangapur (18 MLD) | NA | 8 | NA | 13.5 | NA | 23 |
| Municipal Council Trimbak (1 MLD) | NA | 7.3 | NA | 75 | NA | NA |
| Shirdi Nagarpanchayat, Shirdi, Tal-Rahata Dist-Ahmednagar. | 8.5 | 7.4 | 250 | 6 | 200 | 10 |
| Shrirampur Municipal Council, Tal. Shrirampur, Dist. Ahmednagar | 8.4 | 8.3 | 250 | 8 | 200 | 10 |
| Municipal Council - Shirpur , Tq Shirpur Dist Dhule | NA | 7.8 | NA | 16 | NA | 18 |
| Municipal Council - Nandurbar , Tq Dist-Nandurbar. | NA | 7.7 | NA | 8.08 | NA | 26 |

From **Table 5.44.** It is evident that the outlet values for suspended solids were within the prescribed standard of 20 mg/l only at Chehadi (20 MLD), Shirdi Nagarpanchayat, Shrirampur Municipal Council, Municipal Council Shirpur and the outlet values for BOD were within the prescribed standard of 10 mg/l at Agar Takali (40 MLD), Shirdi Nagarpanchyat, Shirur Municipal Council and Nandarbur Municipal Council. Also the outlet values for pH were within prescribed range of 6.5 – 7.5 at all the STPs. Outlet value for suspended solids at Municipal Council Trimbak was not recorded. BOD removal efficiency of STP at Shirdi Nagarpanchyat was 97.6% and at Shrirampur Municipal Council was 96.8%, similarly Suspended solids removal efficiency at both STPs was 95%.

### 5.6.1.5 Navi Mumbai

There are 7 operational STPs in Navi Mumbai Region. The collective treatment capacity of these STPs is 454 MLD. The total effluent received at these STPs was 215 MLD all of which was collectively treated during the year 2021-22 by these STPs. The mean of annual performance and analysis of all STPs provided in Navi Mumbai Region are represented in **Table 5.45.**

**Table 5.45 Mean of Annual Performance of STPs in Navi Mumbai Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| STP CBD Belapur Sector-12 | - | 7.2 | - | 5.8 | - | 14 |
| STP Sector-18 Vashi | - | 7 | - | 6 | - | 15 |
| STP Sanpada Sector-20 | - | 7.1 | - | 4.5 | - | 16 |
| STP Nerul Sector-50 | - | 7 | - | 7 | ` | 17 |
| Ghansoli STP, Sector 15 | - | 7.4 | 75.5 | 18.1 | 43.5 | 25.4 |
| Airoli STP, Sector 18 | - | 7.6 | 85.4 | 7.8 | 52 | 15.6 |
| Koperkhairne STP | - | 7.6 | 115.6 | 8.5 | 77.2 | 13.8 |
| Nil (Uran Municipal council has not provided STP) | - | NA | NA | NA | NA | NA |

** NC = Not collected*

The sewage load of STP Nerul Sector-2 was diverted to STP Sanpada Sector-20 by Navi Mumbai Municipal corporation. From **Table 5.45,** it can be observed that outlet values for BOD were greater than the prescribed discharge standards of 10 mg/l only at Sector-18 Vashi. Outlet values of suspended solids exceeded prescribed limits of 20mg/l only at Nerul Sector – 50. The outlet values of pH were well within prescribed range of 6.5 to 8.5 at all the STPs.

### 5.6.1.6 Thane

There are 15 operational STPs in Thane Region with a collective treatment capacity of 443.37 MLD. The total quantity of domestic effluent treated by these STPs 232.5 MLD. The mean of annual performance and analysis of all STPs provided in Thane Region are represented in **Table 5.46.**

**Table 5.46 Mean of Annual Performance of STPs in Thane Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| TMC STP Kopri, Thane | 7 | 7.4 | 58 | 8 | 42 | 14 |
| TMC STP Mumbra, Thane | 6.6 | 6.7 | 210 | 23 | NC | NC |
| TMC STP Vartak Nagar | _ | 6.9 | _ | 7.5 | _ | 20 |
| Vitava | 7.3 | 7.8 | 2550 | 7.5 | 80 | 10 |
| Everest World, Kolshet | 7.3 | 8.1 | 56 | 6.5 | 94 | 18 |
| Lodha | 7.5 | 7.6 | 26 | 20 | 32 | 12 |
| Shanti Nagar, Mira Road (E), Nr. Ayappa Mandir | NC | 7.7 | NC | 250 | NC | 536 |
| Shanti Park, Sanghavi, Mira Road (E) | NC | 7.5 | NC | 14 | NC | 36 |
| Kanakiya, Mira Road (E) | NC | 7.5 | NC | 55 | NC | 120 |
| S. No. 233, Ghodbunder Mira Road Hatkesh to Highway Kashigaon, Maschapada, Bhayandar (E) | NC | 7.6 | NC | 5 | NC | 24 |
| Golden nest road, Bhayander (E) | NC | 7.4 | NC | 35 | NC | 140 |
| Bhayander (W) Near Garden Court Tower | NC | 7.4 | NC | 15 | NC | 40 |
| Mhada Colony | NC | 7.5 | NC | 18 | NC | 52 |
| Reservation No. 170, Kanugo, Mira Road (E ) | NC | 7.7 | NC | 14 | NC | 44 |
| Viilage: Bolinj, Survey No. 397A, Opposite Vinay Unique, Near Aggrawal Meadows, Gokul Township, Virar (W) | 7.3 | 7.3 | 380 | 20 | 600 | 56 |

STP at Kharegoan is non-operational (Commissioning under progress). From **Table 5.46** The outlet values of BOD were within Prescribed standard of 10 mg/l at Kopri, Vartak Nagar, Vitava, Everest World, S.No. 233, Ghodbandar. However, the outlet value of suspended solids was lesser than the prescribed standard of 20 mg/l at Kopri, Vartak nagar, Vitava Everest world, Lodha. The outlet values of pH were well within the prescribed range of 6.5 to 8.5. BOD

removal efficiency of Vithava STP was maximum with value of 99.71% and Lodha STP performed with 23.07% BOD removal efficiency. Outlet suspended solids value was not recorded at Mumbra STP.

### 5.6.1.7 Aurangabad

There are 7 STPs in this Region, 4 of which have been provided by Aurangabad Municipal Corporation. The STPs at Bondar and Elichpur & Sangavi have been provided by the Nanded-Waghala City Municipal Corporation. The total treatment capacity of these STPs is 343MLD. The total domestic effluent received at these STPs during the year 2021-22 was 148MLD and 148MLD was treated by these STPs. The mean of annual performance and analysis of all STPs provided in Aurangabad Region is represented in **Table 5.47.**

**Table 5.47 Mean of Annual Performance of STPs in Aurangabad Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| Kanchanwadi, Aurangabad | - | 7.3 | - | 38.6 | - | 28 |
| Padegaon, Aurangabad | - | 8.04 | - | 62.5 | - | 117 |
| Salim Ali Lake, Aurangabad | - | 8.4 | - | 88.5 | - | 66 |
| At Zalta, Aurangabad | - | 7.82 | - | 38.7 | - | 80 |
| Bondar STP | - | 7 to 8.7 | - | 35.93 | - | 35.93 |
| Elichpur STP | - | 7.6 to 8.6 | - | 38.18 | - | 37.33 |
| Sangvi STP | - | 7.4 to 8.6 | - | 45.92 | - | 60.17 |

It can be observed from **Table 5.47.** that the outlet values of BOD as well as Suspended Solids were not within the prescribed standards at all STPs.

### 5.6.1.8 Amaravati

There are 4 STPs in this region, two of which are located in Amaravati District while one is located in Buldana district and one at Washim. The total treatment capacity of these STPs is 89.5 MLD and the same quantity of total sewage load was received at these STPs during the year 2021-22. All the received domestic effluent was treated at these STPs. The mean of annual performance and analysis of all STPs provided in Amaravati Region is represented in **Table 5.48.**

**Table 5.48 Mean of Annual Performance of STPs in Amaravati Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| STP-I Lalkhadi Amravati | 7.50 | 7.50 | 26 | 23 | 138 | 116 |
| STP-II Lalkhadi Amravati | 8.00 | 7.60 | 29 | 22 | 156 | 76 |
| STP Washim | 7.3 | 7.6 | 9 | 7.2 | 189 | 121 |
| located at Shegaon, Dist. Buldana. | 8.1 | 7.7 | 48 | 12 | 289 | 24 |

From **Table 5.48** it is evident that the outlet values for BOD were beyond the prescribed discharge standard of 10 mg/l at the STPs except STP at Washim. The outlet values for suspended solids were beyond the prescribed standard of 20 mg/l at all the STPs. Shegaon STP was performing best among these STPs with BOD removal efficiency 75% and S.S.

removal efficiency of 91.69% and Lalkhadi STP-I was performing lowest with 11.53% BOD performance and 15.94% S.S. performance

### 5.6.1.9 Kolhapur

There are 6 STPs in this Region, the collective treatment capacity of which is 172.7 MLD. The total effluent generated in this Region was 214.8 MLD. The total domestic effluent received at these STPs was 191.7MLD of which 156.7MLD was treated during the year 2021-22. The mean off annual performance and analysis of all STPs provided in Kolhapur Region are represented in **Table 5.49.**

**Table 5.49 Mean of Annual Performance of STPs in Kolhapur Region**

| Location of STP | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (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 |
| Dhulgaon | - | 7.2 | - | 7 | - | 18 |
| Miraj | - | 7.5 | - | 44 | - | 18.5 |
| 100 ft. Road | - | 7.3 | - | 58 | - | 18 |

From **Table 5.49** it can be observed that the outlet values for BOD were within the prescribed discharge standards of 10 mg/l at Kasba Bawda, Dudhali, Dhulgaon STPs. However, the outlet values for suspended solids at all STPs were within the prescribed standards of 20 mg/l except Ichalkaeanji STP respectively.

### 5.6.1.10 Raigad

There are 9 STPs in this Region which have a collective treatment capacity of 338 MLD. The total sewage generated in this Region was 188.5 MLD. There is no any STP provided by Municipal Councils under the jurisdiction of SRO Raigad-2 & SRO Mahad. M/s Roha Municipal Council has proposed to installed 5 MLD capacity STP. At present municipal council is in process to get approval form Government for installation of STP. The amount of domestic sewage received and treated during the year 2021-22 was the same and it was 160 MLD. The mean of annual performance and analysis of all STPs provided in Raigad Region are represented in **Table 5.50.**

**Table 5.50 Mean of Annual Performance of STPs in Raigad Region**

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

From the **Table 5.50** it can be observed that the outlet values for BOD and Suspended solids, were beyond the prescribed standards of 10 mg and 20 mg respectively at Sector -16, Kharghar, Sector - 32, Kamothe and Kalundare. There is no any STP provided by Municipal Councils under the jurisdiction of SRO Raigad-2 & SRO Mahad. M/s Roha Municipal Council has proposed to installed 5 MLD capacity STP. At present municipal council is in process to get approval form Government for installation of STP.

### 5.6.1.11 Kalyan

There are 13 STPs in this Region, the collective treatment capacity of which is 249 MLD. The total domestic effluent received at these STPs was 429 MLD of which 147 MLD was treated during the year 2021-22. The mean off annual performance and analysis of all STPs provided in Kalyan Region are represented in **Table 5.51.**

**Table 5.51 Mean of Annual Performance of STPs in Kalyan Region**

| Location | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| Barve STP: Mouje - Barve, Tal. Kalyan | - | 7.1 | - | 31 | - | 67 |
| Adharwadi STP: Tal. Kalyan | - | 7.3 | - | 14.2 | - | 16.5 |
| Chinchapada STP: Mouje- Kate Manivali | - | 7.3 | - | 6.7 | - | 28 |
| Dombivali Thakurli STP: Motagon, Dombivali | Operational | | | | | |
| Titwala (E) STP: Mouje- Manda (E), Tal. Kalyan | - | 7.5 | - | 5.3 | - | 18.5 |
| Titwala (W) STP: Mouje- Manda (E), Tal. Kalyan. | - | 7.5 | - | 6.6 | - | 18.5 |
| Bhiwandi Nizampur City Municipal Corporation, Bhiwandi, Tal.-Bhiwandi, Dist.-Thane | - | 7.32 | - | 53.33 | - | 23.67 |
| Vadalgaon | 6.9 | 7.5 | 73 | 14 | 37 | 18 |
| Chikloli | 6.9 | 7.1 | 103 | 25 | 47.3 | 26 |
| Badlapur | 7 | 7.2 | 205 | 4.4 | 362 | 12.9 |
| Ulhasnagar Vadolgaon | 7 | 7.7 | 55 | 5 | 22 | 17 |
| Ulhasnagar Shantinagar-1 | 7.2 | 6.9 | 55 | 9 | 58 | 28 |
| Ulhasnagar Shantinagar-2 | 7.3 | 7.1 | 24 | 6 | 84 | 18 |

From **Table 5.51,** it can be observed that the outlet values of BOD were greater than the prescribed discharge standard of 10 mg/l at Barve, Adharwadi, Bhiwandi Nizampur, Vadalgaon, Chikloli. The outlet values of suspended solids exceeded prescribed discharge standard of 20 mg/l at Barve, Chinchpada, Bhiwandi Nizampur City Municipal Corporation, Chikloli STP. The maximum BOD and S.S. removal efficiency was achieved at Badlapur STP with values as 97.85% & 96.43% respectively.

### 5.6.1.12 Mumbai

There are 8 operational STPs in Mumbai Region. The collective treatment capacity of these STPs is 2835 MLD. The total effluent received at these STPs was 1421.79 MLD of which 1321.79 MLD was collectively treated during the year 2021-22 by these STPs. The mean of annual performance and analysis of all STPs provided in Mumbai Region are represented in **Table 5.52.**

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

| Location | Parameters (mg/l) | | | | | |
|---|---|---|---|---|---|---|
| | pH | | BOD (Mean) | | S.S. (Mean) | |
| | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet |
| Colaba | 7.1 | 7.5 | 97.83 | 13.91 | 103.8 | 15.16 |
| Worli | 7.1 | 7.1 | 108.5 | 104.5 | 151 | 143 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Bandra | 6.95 | 6.93 | 81.91 | 71.25 | 68.8 | 68.5 |
| Varsova | 6.9 | 7.1 | 105 | 57 | 77 | 62.8 |
| Bhandup | 7.18 | 7.08 | 50.66 | 23.13 | 50.66 | 26 |
| Ghatkopar | 7.04 | 7.1 | 45.83 | 40.28 | 42 | 29.78 |
| Malad | 5.65 | 5.71 | 103.17 | 85.17 | 77.17 | 92.67 |
| Charkop | 5.68 | 6.08 | 83.08 | 17.42 | 76.83 | 21 |

From **Table 5.52**, it can be observed that outlet values for BOD were greater than the prescribed discharge standard of 10 mg/l at all STPs whereas the outlet values for suspended solids was within the prescribed standard of 20 mg/l only at Colaba STP. The outlet values for BOD and S.S at Worli STP was 104.5 & 143 respectively which was highest among all STPs. The BOD and S.S. removal efficiency was maximum at Colaba STP with values 85.78%, 85.39% respectively.

### 5.7 Solid Waste Management in Maharashtra

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

The inventory of solid waste generation and disposal from the state during the year 2020 is presented in following sections. **Table 5.53** shows total number of local bodies and cantonment board in the state responsible for generation of the waste **Table 5.54** represents quantity of solid waste generated from these local bodies whereas **Table 5.55** represents treatment (%) of generated waste.

**Table 5.53 Total number of local bodies: 396 and Cantonment Board: 07**

| | | |
|---|---|---|
| 1. | Municipal Corporations | **27** |
| 2. | 'A' Class Municipal Council | **18** |
| 3. | 'B' Class Municipal Council | **70** |
| 4. | 'C' Class Municipal Council | **150** |
| 5. | Nagar Panchayat | **131** |
| 6. | Cantonment Board | **07** |

**Table 5.54 Solid Waste Generation**

| Local Body | No. of ULBs | Qty (MT/Day) | Percentage (%) |
|---|---|---|---|
| Municipal Corporation | 27 | 19480.19 | 82.79 |
| A Class Municipal Councils | 18 | 1040.44 | 4.42 |
| B Class Municipal Councils | 70 | 1280.05 | 5.44 |
| C Class Municipal Councils | 150 | 1087.8655 | 4.62 |
| Nagar Panchayats | 131 | 494.01 | 2.10 |
| **Total** | **396** | **23382.56** | **-** |
| Cantonment Board | 07 | 148.01 | 0.63 |
| **Gross Total** | **403** | **23530.57** | **100** |

**Table 5.55 Solid Waste Treatment**

| Local Body | No. of ULBs | Qty (MT/Day) | Percentage (%) |
|---|---|---|---|
| Municipal Corporation | 27 | 16585.7 | 83.01 |
| A Class Municipal Councils | 18 | 885.69 | 4.43 |
| B Class Municipal Councils | 70 | 1082.78 | 5.42 |

| | | | |
|---|---|---|---|
| C Class Municipal Councils | 150 | 939.6457 | 4.70 |
| Nagar Panchayats | 131 | 355.393 | 1.78 |
| **Total** | 396 | 19849.205 | - |
| Cantonment Board | 07 | 131.01 | 0.66 |
| **Gross Total** | **403** | **19980.21** | **100** |

### 5.7.1 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 in Maharashtra during the year 2021-22 is given in **Table 5.56.**

**Table 5.56 Region-wise Statistical analysis of MSW (Generation & Treatment)**

| Sr.No. | Region | MSW Generation (MT) | MSW treated (MT) | Treatment (%) |
|---|---|---|---|---|
| 1. | Mumbai | 6750 | 6166 | 91.34% |
| 2. | Navi Mumbai | 675 | 623 | 92.29% |
| 3. | Raigad | 584.16 | 437.68 | 74.94% |
| 4. | Thane | 2181.6 | 2087.01 | 95.69% |
| 5. | Kalyan | 1676 | 1020.5 | 60.86% |
| 6. | Pune | 4116.18 | 4054.08 | 98.49% |
| 7. | Nashik | 2028.14 | 1549.45 | 76.40% |
| 8. | Aurangabad | 1760.08 | 1429.463 | 81.21% |
| 9. | Nagpur | 1496.155 | 684.045 | 45.72% |
| 10. | Amravati | 847.17 | 634.212 | 74.87% |
| 11. | Kolhapur | 796.118 | 742.048 | 93.22% |
| 12. | Chandrapur | 471.95 | 421.72 | 89.53 |
| **Total** | | **23382.553** | **19849.208** | **84.89%** |

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

Analysis of the trends of Municipal Solid Waste generation and treatment in all Regions over the years 2017-18, 2018-2019, 2019-2020, 2020-2021 and 2021-22 has been carried out to study and compare the trends of generation and treatment of MSW over duration of 5 years. **Figures 5.17** and **5.18** graphically represent the trends of average MSW generation and treatment over the span of 5 years in all regions.

From **Figure 5.17** the generation of MSW shows an increasing trend over the 5 years in most of the regions in the State. The most striking increase in generation of MSW since the year 2018 is observed in the Raigad. Mumbai, Nagpur and Pune show a slight increase in the amount of waste generated since 2019 while Navi Mumbai shows a decrease in the amount of waste generated since 2019.

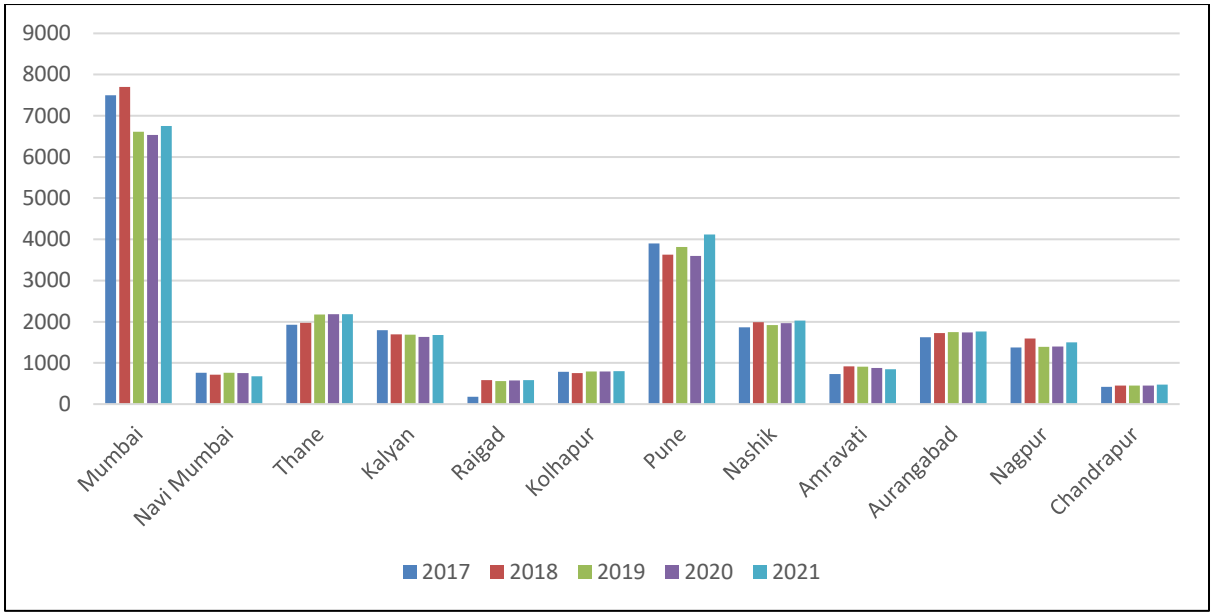



**Figure 5.17 Trend Analysis of MSW generation over 5 years.**

### 5.7.3 Trend Analysis of MSW treatment over 5 years

Trends analysis of MSW treatment over past 5 years in the state of Maharashtra reveals quantity of MSW treated has definitively increased with considerably high differences in most regions.

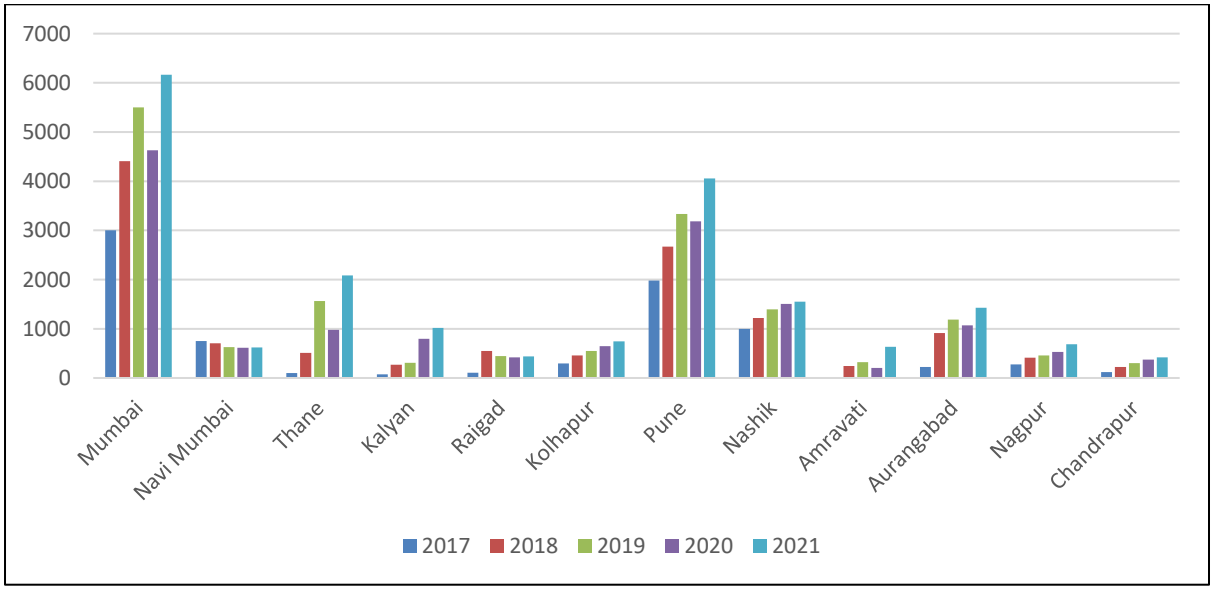



**Figure 5.18. Trend Analysis of MSW treatment over 5 years.**

In the region of Mumbai, Thane, Kalyan, Pune, Aurangabad, Chandrapur, Kolhapur, Nagpur & 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 & Aurangabad Region.

## 5.8 Hazardous Waste Generation during the year 2021-22

In the State of Maharashtra there are total 6610 nos. of registered units in 36 districts as represented in Table 5.57. The total hazardous waste generated during the FY 2021-22 is elaborated in Table 5.58.

**Table 5.57 District wise Updation for HW authorizations**

| Authorizations – District wise Updation as of 31st March-2022 | | |
|---|---|---|
| **Sr. No.** | **Districts** | **Total No. of Units** |
| 1 | Ahmednagar | 153 |
| 2 | Akola | 37 |
| 3 | Amravati | 41 |
| 4 | Aurangabad | 390 |
| 5 | Beed | 12 |
| 6 | Bhandara | 22 |
| 7 | Buldhana | 23 |
| 8 | Chandrapur | 70 |
| 9 | Dhule | 45 |
| 10 | Gadchiroli | 3 |
| 11 | Gondia | 4 |
| 12 | Hingoli | 4 |
| 13 | Jalgaon | 81 |
| 14 | Jalna | 19 |
| 15 | Kolhapur | 329 |
| 16 | Latur | 22 |
| 17 | Mumbai | 282 |
| 18 | Mumbai Suburban | |
| 19 | Nagpur | 281 |
| 20 | Nanded | 17 |
| 21 | Nandurbar | 13 |
| 22 | Nashik | 329 |
| 23 | Osmanabad | 22 |
| 24 | Palghar | 842 |
| 25 | Parbhani | 7 |
| 26 | Pune | 1129 |
| 27 | Raigad | 597 |
| 28 | Ratnagiri | 134 |
| 29 | Sangli | 89 |
| 30 | Satara | 229 |
| 31 | Sindhudurg | 10 |
| 32 | Solapur | 139 |
| 33 | Thane | 1187 |
| 34 | Wardha | 15 |
| 35 | Washim | 4 |
| 36 | Yavatmal | 29 |
| **Total** | | **6610** |

**Table 5.58 Details on total generation Hazardous Waste during the year 2021-22**

| HW INVENTORY | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Total No. of Units** | **Name of the District** | **Landfillable** | **Recyclable** | **Incinerable** | **Utilizable Qty.** | **TOTAL** |
| 1 | 153 | Ahmednagar | 7810.68 | 15202.82 | 2204.00 | 9890.99 | 35108.49 |
| 2 | 37 | Akola | 593.55 | 115.98 | 519.78 | 573.10 | 1802.41 |
| 3 | 41 | Amravati | 2567.41 | 129.93 | 179.59 | 166.50 | 3043.43 |
| 4 | 390 | Aurangabad | 82492.26 | 15516.73 | 38544.88 | 71897.13 | 208451.00 |
| 5 | 12 | Beed | 68.67 | 147.97 | 113.90 | 29.60 | 360.14 |
| 6 | 22 | Bhandara | 3004.05 | 747.49 | 152.64 | 93.84 | 3998.02 |
| 7 | 23 | Buldhana | 1839.50 | 16.70 | 217.45 | 379.76 | 2453.41 |
| 8 | 70 | Chandrapur | 629.26 | 1844.30 | 181056.30 | 25129.42 | 208659.28 |
| 9 | 45 | Dhule | 9463.02 | 4274.27 | 84.34 | 398.00 | 14219.63 |
| 10 | 3 | Gadchiroli | 0.00 | 7.00 | 4.00 | 0.00 | 11.00 |
| 11 | 4 | Gondia | 100.00 | 400.89 | 0.00 | 412.00 | 912.89 |
| 12 | 4 | Hingoli | 0.00 | 0.96 | 78.37 | 0.00 | 79.33 |
| 13 | 81 | Jalgaon | 3795.63 | 2479.63 | 1321.28 | 746.00 | 8342.54 |
| 14 | 19 | Jalna | 18556.62 | 863.97 | 726.06 | 13.72 | 20160.37 |
| 15 | 329 | Kolhapur | 40770.88 | 3706.81 | 13401.66 | 1799.73 | 59679.08 |
| 16 | 22 | Latur | 638.78 | 31.81 | 148.48 | 1.70 | 820.77 |
| 17 | 282 | Mumbai | 10641.82 | 90481.64 | 3980.31 | 5422 | 110525.77 |
| 18 | | Mumbai Suburban | | | | | |
| 19 | 281 | Nagpur | 24367.97 | 39717.20 | 7887.63 | 1220.53 | 73193.33 |
| 20 | 17 | Nanded | 127.03 | 811.58 | 7.47 | 36.40 | 982.48 |
| 21 | 13 | Nandurbar | 117.01 | 367.08 | 136.99 | 0.00 | 621.08 |
| 22 | 329 | Nashik | 19380.05 | 104120.86 | 12204.73 | 4541.00 | 140246.64 |
| 23 | 22 | Osmanabad | 218.96 | 44.54 | 1939.25 | 539.32 | 2742.07 |
| 24 | 842 | Palghar | 57215.01 | 46544.54 | 15629.02 | 176623.18 | 296011.75 |
| 25 | 7 | Parbhani | 0.00 | 12.88 | 4.51 | 0.00 | 17.39 |
| 26 | 1129 | Pune | 67073.04 | 111089.84 | 43095.87 | 180868.92 | 402127.67 |
| 27 | 597 | Raigad | 130779.61 | 683143.30 | 42679.07 | 371783.80 | 1228385.78 |
| 28 | 134 | Ratnagiri | 25850.31 | 47986.95 | 23108.00 | 351418.45 | 448363.71 |
| 29 | 89 | Sangli | 4662.07 | 7742.66 | 16771.60 | 774.12 | 29950.45 |
| 30 | 229 | Satara | 5070.78 | 7292.20 | 6720.32 | 93.00 | 19176.30 |
| 31 | 10 | Sindhudurg | 1.58 | 22.56 | 3.80 | 20.00 | 47.94 |
| 32 | 139 | Solapur | 7260.21 | 19964.28 | 2482.98 | 24528.04 | 54235.51 |
| 33 | 1187 | Thane | 118118.65 | 285116.56 | 48644.97 | 94442.11 | 546322.29 |
| 34 | 15 | Wardha | 2256.04 | 3357.10 | 80.11 | 64.80 | 5758.05 |
| 35 | 4 | Washim | 64.00 | 10.50 | 0.96 | 0.00 | 75.46 |
| 36 | 29 | Yavatmal | 117.84 | 261.15 | 6605.50 | 2.59 | 6987.08 |
| **Total** | **6610** | | **645652.29** | **1493574.68** | **470735.82** | **1323909.75** | **3933872.54** |

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

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

7257 industries are member of these 4 facilities and disposing their Hazardous Waste.

**Table 5.59 Summary of Individual Capacities of CHWTSDFs.**

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

There are 6610 industries that generate Hazardous Waste. Various methods viz. SLF, INC and onsite hydroclave are used for the treatment of this Hazardous Waste. 351531.94 MT/A of HW is treated by SLF method and 58575.16 MT/A by INC method while 617844.87 MT of HW is recycled.

**Table 5.60 Summary of Hazardous Waste Received at disposal sites in 2021-22**

| Sr. No. | SITE | SLF (MT/A) | INC (MT/A) | TOTAL (MT/A) |
|---|---|---|---|---|
| 1 | MWML - TALOJA | 228751 | 31479 | 260230 |
| 2 | TTCWMA - MAHAPE | 18417.492 | 0 | 18417.49 |
| 3 | MEPL - RANJANGAON | 85588.443 | 24475.16 | 110063.60 |
| 4 | VEPL - BUTIBORI | 18775 | 2621 | 21396 |
| | **TOTAL** | **351531.94** | **58575.16** | **410107.1** |

Further, in Maharashtra, during year 2021-22 there are 411 No of Facilities authorized for recycling / utilization / Pre-processing/ Co-processing of HW for Commonly Recyclable HW and 238 nos. of non-captive utilization based on CPCBs SOPs as shown in Table 5.60

**Table 5.61 Summary of authorized recycling facilities for different type of waste**

| S. No | Type of Recycling Facilities | No of Facilities authorized for recycling / utilization / Pre-processing/ Co-processing of HW (MT) |
|---|---|---|
| **A** | **Commonly Recyclable HW** | |
| 1 | Brass Dross | 44 |
| 2 | Zinc Bearing Wastes | 67 |
| 3 | Copper Bearing Waste | 71 |
| 4 | Spent catalyst containing nickel, cadmium, Zinc, copper, arsenic, vanadium and cobalt | 28 |
| 5 | Lead bearing waste including battery waste | 91 |
| 6 | Paint and ink Sludge/residues | 7 |
| 7 | Used oil | 67 |
| 8 | Waste Oil | 36 |
| | **Total** | **411** |

| B | Non-captive utilization based on CPCBs SOPs | |
|---|---|---|
| 1 | Recovery of solvents from spent solvents | 85 |
| 2 | Utilization of Spent Catalyst - to recover - Platinum, Iridium, Osmium, Palladium, Rhodium, Ruthium, Rhenium, Gold & Silver | 4 |
| 3 | Utilization of Spent Acid containing Molybdenum generated from filament industries for producing Molybdenum Trioxide by heating process | 1 |
| 4 | De-contamination of contaminated drums/containers/barrels | 89 |
| 5 | Spent Acid / Spent Sulfuric Acid | 4 |
| 6 | Utilization of Aluminium Dross / Aluminium Scrap generated from refining and casting house of Aluminium smelter units to recover Aluminum Metal | 40 |
| 7 | Spent Bromine | 10 |
| 8 | Tin Scrap/ Ash | 3 |
| 9 | Tyre Scrap | 1 |
| 10 | Tungsten Scrap for Manufacturing of Recycled Tungsten Powder | 1 |
| | **Total** | **238** |

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

Analysis of the trends of Hazardous Waste received at all disposal sites in the State over the years 2017-18, 2018-19, 2019-20, 2020-21 and 2021-22 has been carried out. **Figure 5.19** graphically represents the trend of average Hazardous Waste received over the span of 5 years at disposal sites.

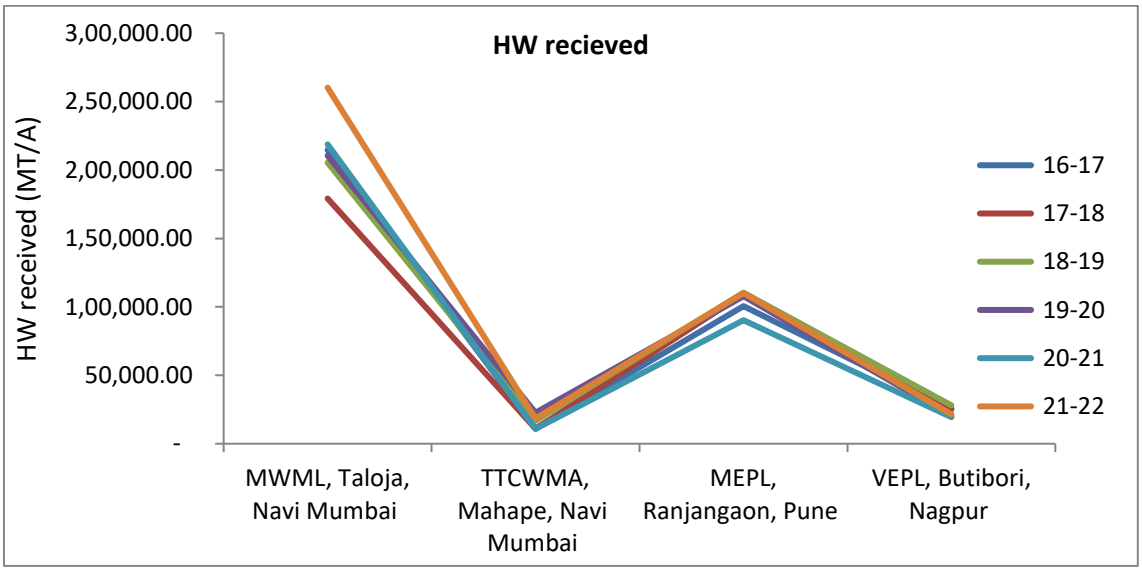



**Figure 5.19 Trend Analysis of Hazardous Waste received at disposal sites over 5 years**

It can be observed from Figure 5.13. That the quantity of Hazardous Waste received at MWML, Taloja was the least during the years 2017-18 followed succeeding years till 2022. The quantity of HW received at this site was maximum during the year current year. At TTCWMA, the quantity of HW received during the years 2017-18 & 2020-21 was almost similar, with a slight increase during the year 2019-20. The amount of HW received again dropped during

2020-21 and was the lowest the amount was again increased during 2021-22 though the highest amount was received in 2019-20.

The quantity of Hazardous Waste received at MEPL, Ranjangaon (Pune) increased from 2017-18 to 2019-2020. However, it reduced during the year 2020-2021 and again slightle increased during year 2021-22. Amount of HW received at MEPL, Butibori (Nagpur) has been relatively constant over these 5 years with only a slight increase in the year 2018-19. The summary of HW received at these sites over last 5 years is also represented in Tabular form in Table 5.61.

**Table 5.62 HW inventory at disposal site for past 5 years**

| Facility Name | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 |
|---|---|---|---|---|---|---|
| MWML, Taloja, Navi Mumbai | 2,14,679 | 1,79,173 | 2,05,430 | 2,10,528 | 2,18,757 | 2,60,230 |
| TTCWMA, Mahape, Navi Mumbai | 11,050 | 10,961 | 16,758 | 22,695 | 10,829 | 18,417 |
| MEPL, Ranjangaon, Pune | 1,00,450 | 1,09,479 | 1,10,288 | 1,07,765 | 90,325 | 1,10,063 |
| VEPL, Butibori, Nagpur | 25,288 | 25,463 | 28,071 | 20,200 | 19,326 | 21,396 |

## 5.9 Bio-medical Waste

### 5.9.1 Implementation of Biomedical Waste Management Rules, 2016

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

### 5.9.2 Status of Bio-medical Waste Treatment Facilities

(1) Total no. of Health Care Facilities/Occupiers: 64,989

(2) Total No. of beds: 3,22,873

**(3) Status of authorization**

(i) Total no. of occupiers applied for authorization : 7482

(ii) Total no. of occupiers granted authorization : 6445

(iii) Total no. of applications under consideration : 346

(iv) Total no. of applications rejected : 931

(v) Total no. of occupiers in operation without applying for authorization :160

**(4) Bio-medical waste generation**

(i) Bio-medical waste generated by bedded hospitals: 63297Kg/day

(ii) Bio-medical waste generated by non-bedded hospitals: 16977Kg/day

(iii) Any other: 40

**(5) Bio-medical waste treatment and disposal**

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

(i) Number of Health Care Facilities having captive treatment and disposal facilities: 259
(ii) Total bio-medical waste treated and disposed by captive treatment facilities: 213 Kg/day

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

(i) Number of CBMWTF in Operation : 30
(ii) Number of CBMWTF under construction : 3
(iii) Total bio-medical waste treated by CBMWTF : 80101 Kg/Day
(iv) Total treated bio-medical waste disposed through authorized recyclers: 18188 Kg/day

### 5.10 Electronic Waste

Electronic Waste or E-waste describes discarded electrical or electronics devices. Used electronics which are destined for reuse, resale, salvage, recycling, or disposal are also considered e- waste informal processing of e- waste in developing countries can lead to adverse human health effects and environmental pollution. Electronic scrape components, such as CPUs, contain potentially harmful components such as lead cadmium, Beryllium, or Brominated flame retardants. Recycling and disposal of e-waste may involve significant risk to heath of worker's and communities in developing countries and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfill and incinerator ashes.

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

- E- Waste (Management) Rules, 2016 notified on 23rd March 2016 and came into force from 1st oct. 2016.
- Applicability of these newly modified rules expanded to manufacturer, dealer, refurbisher and producer Responsibility Organizations (PRO) producers are responsible for setting up collection Centre on own or in association.
- Obtaining Authorization for producer from multiple SPCs is removed. Single EPR authorization for producers from CPCB is introduced.
- Target based approach for collection under EPR is introduce.
- Simplification of permission by giving only authorization instead of authorization and registration.

- Responsibility is fixed on manufactures to collect E- Waste and channelized it for recycling at authorized site.
- Responsibility is fixed on dealers and refurbisher.
- Responsibility is of the state industry Department to earmark or allocate industrial space for E- waste dismantling and recycling facilities.
- Department of Labouré is responsible for recognition and registration of workers in dismantling and recycling. Annual monitoring and ensuring safety and health of works is also the responsibility of the department.
- State Government to prepare integrated plan for effective implementation of these rules and to submit annual report to MoEF & CC.
- Concept of manifest system for transportation of E – Waste is introduced.
- Concept of liability provisions is introduced.
- Maharashtra Pollution control Board has constituted a Technical Committee for scrutiny of applications received for grant/ renewal of Authorization for dismantling/recycling/refurbishing of E- Waste under the Chairmanship of Mr. R. K. Garg (Former Director, Indian Rare Earth Ltd.)
- MPC Board has carried out E- waste inventory for 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/ recyclers/collection /producers are as shown in Table 5.63

**Table 5.63 Present Status of E-Waste Generation and Recycling in Maharashtra State**

| Present Status of E-Waste dismantling and recycling capacity | | | |
|---|---|---|---|
| 1 | E-Waste Dismantlers | 125 | 117392 MTA. |
| 2 | E-waste Recyclers | 11 | |
| | **Total** | **136** | |

**5.11 Plastic Waste Management in the State of Maharashtra**

The plastic waste generation is 3,05,663.7 TPA, collected is 3,05,059 TPA and disposal is 2,46,533 TPA as per the information obtained from Annual Report submitted by Urban Local Bodies for financial year 2021-22. Out of this, following are main modes of use:

- Plastic waste used for Refuse Derived Fuel (RDF) = 166,845 tonnes
- Plastic waste sent for co-processing= 46,881 tonnes
- Plastic waste used for granule making= 46,351 tonnes
- Plastic waste used for pyrolysis= 5,486 tonnes
- Plastic waste used for road construction= 11,518 tonnes
- Plastic waste sent to landfilling facility= 19,045 tonnes

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

Under Plastic Waste Management Rules, 2016 and amendment thereto, 234 nos. of Plastic waste Recyclers of capacity 5,97,449 Tonnes per annum and 14 nos. of Compostable Material Producers have been registered with Maharashtra Pollution Control Board as of 31st March 2022. Out of 234 recyclers, 71 have been registered in FY 2021-22. The list of registered Plastic Waste Recyclers and Compostable Material Producers is published and updated in MPCB's website regularly.

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

Effective implementation of Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018 has resulted in around 39.12% reduction in plastic waste generation in the urban local bodies of the state, from 5.01 lakh tonnes in FY 2017-18, 4.09 lakh tonnes in FY 2018-19, 4.43 Lakh Tons in FY 2019-20 and 3.11 Lakhs in 2020-21.

Regular surveys have been carried out in jointly by local body authorities and MPCB officials within Corporation limits and separately by MPCB officials for industries, to implement the said notification. The status of inspection, action taken, fine collected and banned items seized during FY 2021-22 is represented as below:

| Period | No of shops visited | Action initiated against no. of shops | Total fine collected (Rs. Cr) | Total Qty of banned items seized (MT) |
|---|---|---|---|---|
| FY 2021-22 | 490304 | 15772 | 1.75 | 43.394 |

As per the Plastic Waste Management Rules, 2016 and amendment thereto "Every local body shall prepare and submit an annual report in Form –V to the concerned Secretary-in-charge of the Urban Development Department under intimation to the concerned State Pollution Control Board or Pollution Control Committee. Each State Pollution Control Board or Pollution Control Committee shall prepare and submit an annual report in Form VI to the CPCB on the implementation of these rules". Accordingly, MPCB has prepared an online portal for submission of annual report from urban local bodies for speedy submission of the report. The region-wise information on plastic waste generation, collected and disposal for the year 2021-22 obtained from ULB's Annual Report is represented as below:

| 10.5 | No. of ULBs | Plastic Waste generated (in tons) | Plastic Waste collected (in tons) | Plastic Waste channelized for recycling (in tons) |
|---|---|---|---|---|
| Amravati | 41 | 2823 | 2673 | 2218 |
| Aurangabad | 80 | 41895 | 41814 | 7619 |
| Chandrapur | 45 | 8821 | 8795 | 6031 |
| Kalyan | 8 | 35818 | 35818 | 26368 |

| | | | | |
|---|---|---|---|---|
| Kolhapur | 43 | 5272 | 5272 | 5095 |
| Mumbai | 1 | 12680.7 | 12680.7 | 12680 |
| Nagpur | 47 | 17834 | 17779 | 12967 |
| Nashik | 64 | 30088 | 29796 | 23563 |
| Navi Mumbai | 2 | 8732 | 8732 | 3117 |
| Pune | 48 | 109105 | 109105 | 109009 |
| Raigad | 15 | 6328 | 6328 | 5836 |
| Thane | 9 | 26195 | 26195 | 25596 |
| **Grand Total** | **403** | **305663.7** | **305059.7** | **240164** |

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

| Disposal mode | Processing (tonnes) |
|---|---|
| Recycling | 46351.3 |
| Co-processing | 16332.5 |
| Aggregator | 11518.5 |
| RDF | 166845 |
| Pyrolysis | 5486.84 |
| **Grand Total** | **266534.1** |

### 5.12 Construction & Demolition Waste

Annual report in form III submitted by 403 ULBs for the financial year 2021-22 including Cantonment Boards as represented below;

Total 6312094.7MT/A Construction & Demolition (C&D) Waste is generated by these ULBs. Total 148331.69 MT/A Waste processed / recycled by ULBs. The C&D disposed by land filling without processing (last option) or filling low lying area waste quantity is 2169199.34MT/A. These ULBs having 1538 storage facilities to store C&D waste securely. Total 158 Municipal magistrates appointed for taking penal action for non-compliance with these rules by these ULBs and 153 No's of cases were registered under this rule.

| C & D Waste Abstract of ULBs and Cantonment Boards | | | | | | |
|---|---|---|---|---|---|---|
| **ULBs** | **Total Qty of C & D waste Generated during whole year in MT** | **Total Qty of C & D waste processed/recycled in MT** | **Total Qty of C & D waste Disposed by landfilling without processing (last option) or filling low lying area** | **Number of Storage Facilities for C&D Waste Storage** | **Municipal magistrates appointed for taking penal action for non-compliance with these rules** | **No of Penal action cases registered** |
| Municipal Corporation | 6256093 | 129304 | 2125958 | 107 | 10 | 73 |
| "A" Class Municipal council | 11933.8 | 2745.7 | 5363.3 | 35 | 11 | 10 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 'B' Class Municipal Council | 11214.02 | 4448.32 | 2316.28 | 146 | 34 | 11 |
| "C" Class Municipal council | 11459.46 | 5249.29 | 3218.9 | 1139 | 64 | 42 |
| Nagar panchayats | 21282.42 | 6579.38 | 32230.86 | 111 | 39 | 17 |
| Cantonment Boards | 112 | 5 | 112 | 0 | 0 | 0 |
| **Total** | **6312094.7** | **148331.69** | **2169199.34** | **1538** | **158** | **153** |

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

**Table 5.64 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 |
| 5 | Pune Municipal Corporation | 300 | In operation |

Maharashtra Pollution control Board 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 Hon'ble National Green Tribunal, Principal Bench, New Delhi in the matter of OA 606/2018.

## 5.13 Performance of MPCB Laboratories

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

All MPCB laboratories function as 'Board Laboratories' as defined under Water and Air Act, and Environment (Protection) Act, 1986 and rules made there under to analyze the samples collected by officers authorized to collect samples from respective jurisdictions for analysis of water, air and hazardous waste, Municipal Solid Waste, Biomedical Waste samples and submit the reports to respective authorities for further actions. Regional Laboratory Chandrapur has facility to analyze only air samples. MPCB's laboratories are well equipped with modern sophisticated instruments and equipment UV Spectrophotometer, Gas Chromatograph (GC), Mass Spectrophotometer, Atomic Adsorption Spectrophotometer (AAS), Ion Chromatography (IC), Inductive Couple Plasma (ICP), Absorbable Organic Halide Analyzer (AOx), CHNS Analyzer and others. Table 5.65 represents total numbers of samples

and parameters analysed in these laboratories over the FY 2021-22 and Figure 5.20, 5.21 & 5.22 graphically represents total number of water, air & HW samples analysed respectively.

**Table 5.65 Analysis of Performance of Board Laboratories (2021-22)**

| Sr. No | Laboratory | Samples Analyzed | | | | Total | Parameters Analyzed | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Water | Air | H.W | Coal | | Water | Air | H.W | Coal | |
| 1 | C. Lab.*, Navi Mumbai | 4364 | 939 | 28 | 0 | **5331** | 65683 | 7656 | 283 | 0 | **73622** |
| 2 | R. Lab.*, Nagpur | 1758 | 493 | 31 | 1 | **2283** | 27302 | 1434 | 245 | 2 | **28983** |
| 3 | R. Lab., Pune | 4250 | 612 | 44 | 0 | **4906** | 54259 | 1631 | 466 | 0 | **56356** |
| 4 | R. Lab., Nashik | 1171 | 335 | 7 | 0 | **1513** | 16474 | 1807 | 51 | 0 | **18332** |
| 5 | R. Lab., Aurangabad | 1206 | 324 | 0 | 0 | **1530** | 14048 | 973 | 0 | 0 | **15021** |
| 6 | R. Lab., Chiplun | 2273 | 565 | 10 | 0 | **2848** | 32243 | 1991 | 69 | 0 | **34303** |
| 7 | R. Lab., Thane | 1124 | 598 | 0 | 0 | **1722** | 7471 | 2581 | 0 | 0 | **10052** |
| 8 | R. Lab., Chandrapur | 36 | 237 | 0 | 5 | **278** | 256 | 1521 | 0 | 10 | **1787** |
| **TOTAL** | | **16182** | **4103** | **120** | **6** | **20411** | **217736** | **19594** | **1114** | **12** | **238456** |

(-) Indicates Facility Not Available
C. Lab- Central Laboratory.
R. Lab - Regional Laboratory.

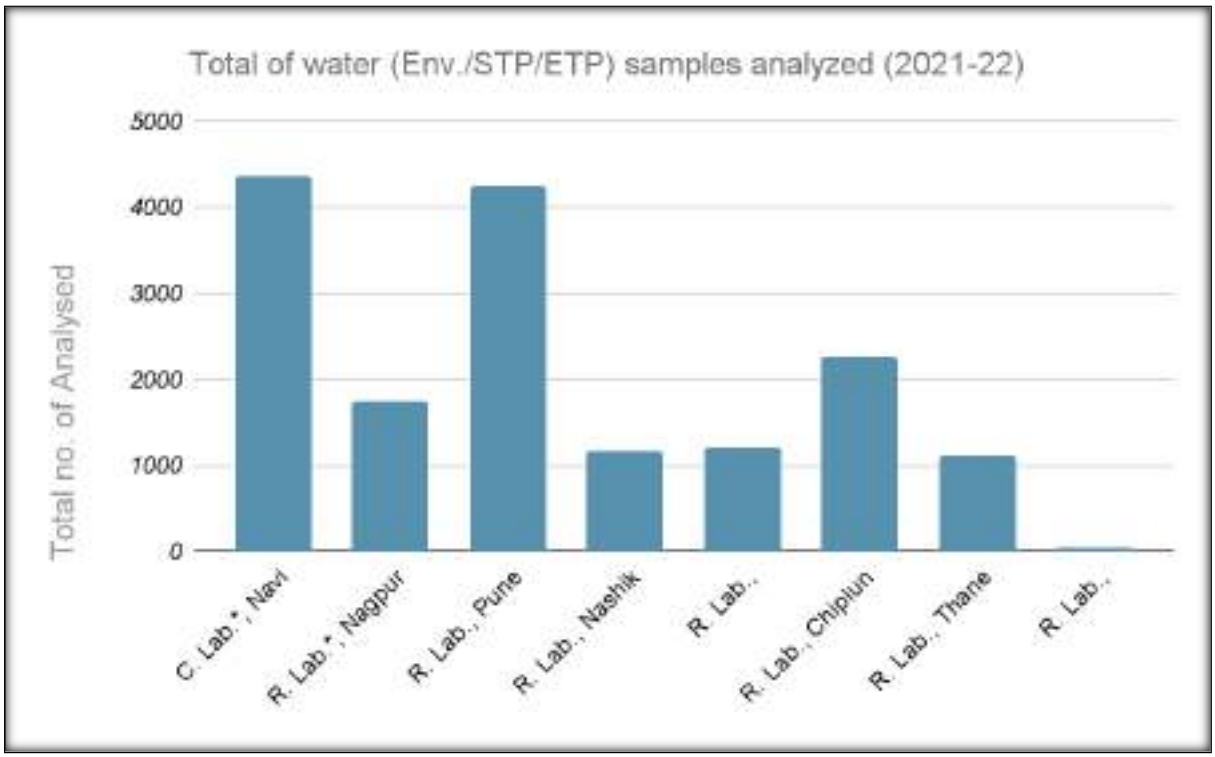



**Fig 5.20 Annual total of water samples analyzed at each MPCB laboratory (2021-22)**

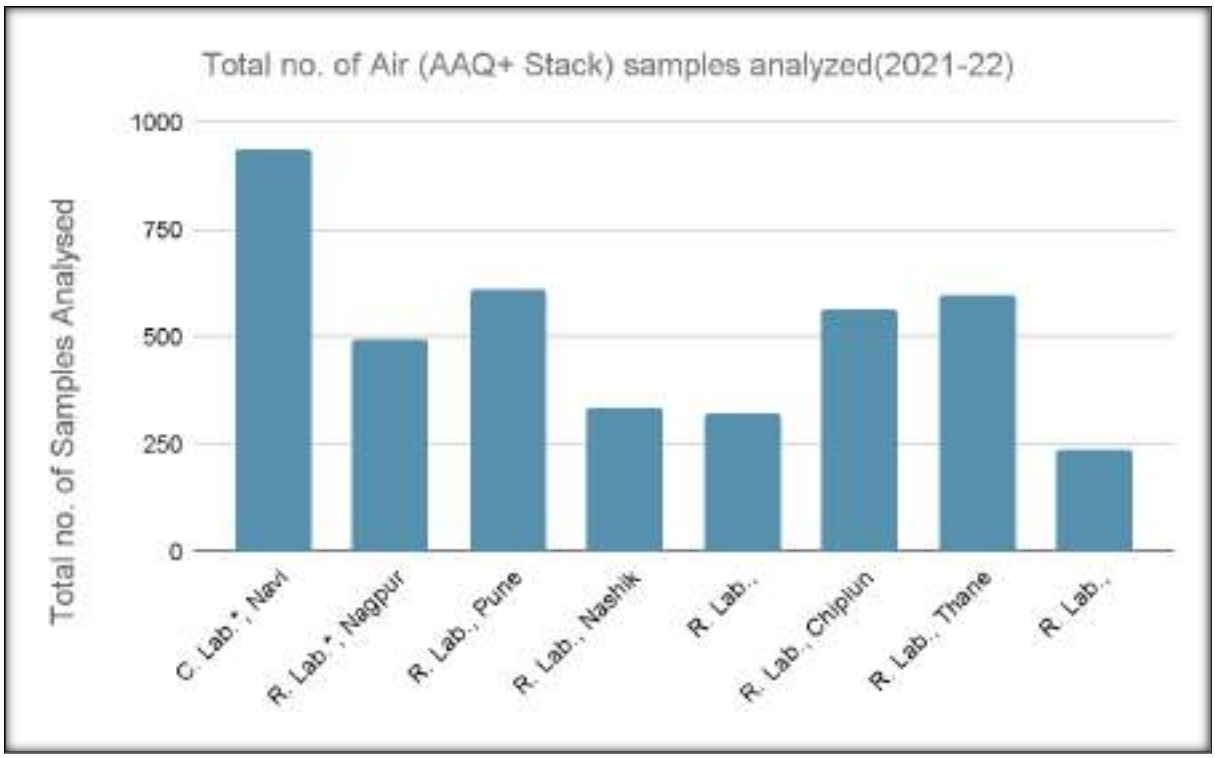



**Fig 5.21 Annual total of air samples analyzed at each MPCB laboratory (2021-22)**

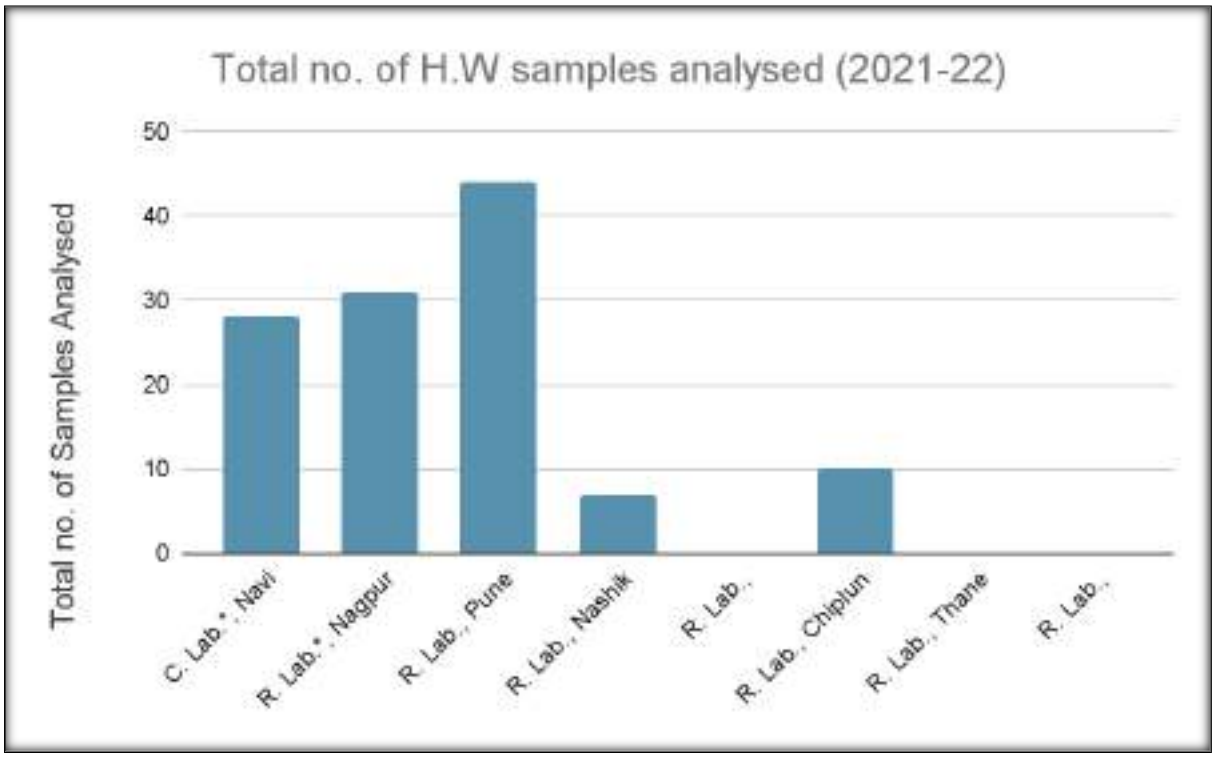



**Fig 5.22 Annual total of hazardous waste samples analyzed at each MPCB laboratory (2021-22)**

*Note: there was no hazardous waste sample analysed at Aurangabad, Thane & Chandrapur Laboratory during year 2021-22*

### 5.13.1 Achievements of MPC Board Laboratories

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

Maharashtra Pollution 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, has awarded certification for Quality and Management Standard (QMS) ISO 9001:2015 and Occupational Health and Safety Assessment Standard OHSAS 18001:2007 from Appave Assessment Ind Pvt Ltd.

### B. Strong support in Judicial matters

- As per direction of High Court Bombay (No. PIL 17/2011 dt 01/03/2011) and order vide No. MPCB/PSO/B-27 dt 02.03.2011, MPCB laboratories are completing weekly analysis of CEPT Joint Vigilance Sample analysis across the state and submitting analysis report well within time for hoisting the performance of CETPs on MPCB web site
- All laboratories are equipped for Coal Analysis (Ash Content) as per NGT directions in application No. 19/2014 dtd. 15.10.2015.

### C. Special Monitoring of Ambient Air during Deepawali Festival:

In compliance of Hon'ble Supreme Court Judgment dtd. 23.10.2018, during Deepawali festival MPCB Laboratories analyse Ambient Air Quality Monitoring Samples as per CPCB protocol regarding bursting of firecrackers across the state and submit analysis.

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

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

## 6.1 Amravati

### 6.1.1 Air Pollution issue

**The Sub-Regional Office Amravati**
The Municipal Corporation Amravati, having population 6.48 lacs souls falls under D Class Municipal Corporation. There are 3 NAMP Monitoring Stations in operation within the Corporation Area, viz. Rajkamal Chowk, Govt. Engineering College premises and MIDC Amravati. The Government College of Engineering Amravati is the agency appointed for operation of these station. From the Analysis Results of these stations, it is observed that, the parameter RSPM is exceeding the limit, particularly during summer and winter session. The Board has already given directions to Municipal Corporation Amravati to take all precautionary measures to minimise the Air Pollution. Also 2 C.A.A.Q.M.S stations have been installed in Amravati city at premises of Shivaji Science College, Amravati and M.P.C.B proposed Office premises.

**Sub-Regional Office Amravati-II**: is consisting of jurisdiction of Washim District. The Washim District comprises of 4 Municipal Councils and 2 Nagar Panchayats. There is mainly one MIDC Industrial Area located in the Washim District, viz. MIDC Industrial Area Washim. There are mainly about 3 Air Polluting Industries located in the Washim District which includes distillery (1 nos.), and veg oil refineries (2 nos.) All these industries have provided adequate Air Pollution Control Systems. The Field Officers of this office visiting the said industry and conducting the Air Monitoring.

**Sub-Regional Office, Akola**: The Sub-Regional Office, Akola is consisting of jurisdiction of Akola & Buldana Districts. The Akola District comprises 1 Municipal Corporation, 5 nos. of Municipal Councils & 1 nos of Nagarpanchyat. The Buldana District comprises 11 nos. Municipal Councils & 2 nos. of Nagar Pamchyat. There is mainly one MIDC Industrial Areas located in the Akola District & Khamgaon, Malkapur & Chikhali MIDC located in Buldana District. There are mainly about 15 Air Polluting Industries located in the Akola MIDC & Buldana District. All these industries have provided Air Pollution Control Systems. The Board Officials of this office visiting the said industries and verifying the compliances towards pollution control systems provided by the concern industries & also issue appropriate directivies to the non-complying industries. There are various illegal Brick kiln mfg. unit into the Akola & Buldhana district & causes of air pollution. There is 1 C.A.A.Q.M.S station have in Akola city at premises of Shivaji Science College, Akola & same is under commissioning.

#### 6.1.1.1 Current status of Action Plans

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| Sub-Regional Office Amravati-I: The Maharashtra Pollution Control Board has issued work order to IIT Mumbai and NEERI Mumbai to prepare the action plan in respect of Air Quality within the Municipal Corporation area. The work of preparation of Action Plan is at final stage. The Amravati Municipal Corporation has submitted micro | Sub-Regional Office Amravati-I: The Maharashtra Pollution Control Board has issued directions to the Municipal Corporation Amravati to minimise the Air Pollution by way of taking measures regarding prevention of | Sub-Regional Office Amravati-I: The Maharashtra Pollution Control Board has issued work order to IIT Mumbai and NEERI Mumbai to prepare the action plan in respect of Air Quality within the Municipal Corporation area. The work of preparation of Action Plan is |

| | | |
|---|---|---|
| action plan in respect of the NCAP in the PRANA Portal. 2 C.A.A.Q.M.S stations have been installed in Amravati city in the premises of Shivaji Science College, Amravati and M.P.C.B proposed Office premises . Sub-Regional Office Amravati-II: NIL<br>Sub-Regional Office Akola: This office has installed 3 nos of NAMP stations at Akola to monitor the Ambient Air Quality.There is 1 C.A.A.Q.M.S station have in Akola city at premises of Shivaji Science College,Akola & same is under commissioning. | burning of Municipal Solid Waste, etc. 2 C.A.A.Q.M.S stations have been installed in Amravati city in the of premises of Shivaji Science College, Amravati and M.P.C.B proposed Office premises<br>Sub-Regional Office Amravati-II: NIL<br>Sub-Regional Office Akola: NIL | at final stage. Sub-Regional Office Amravati-I: The MPCB has proposed 3 NAMP stations at washim to monitor the Ambient Air Quality. Sub-Regional Office Akola: There is 1 C.A.A.Q.M.S station have in Akola city at premises of Shivaji Science College,Akola & same is under commissioning. |

### 6.1.2 Water Pollution issue

**Sub-Regional Office Amravati-I:** There are mainly about 15 industries located in the Amravati district those are generating the industrial effluent from their manufacturing process. All these industries have provided adequate effluent treatment arrangements. Out of 15 industries, there are 5 Textile Processing industries, located within Additional MIDC Industrial Area Nandgaon Peth. The CETP of capacity 5 MLD is provided to treat the industrial effluent generated from these industries. The CETP is provided by MIDC and the same is operated by M/s. SMS Ltd. MIDC Nandgaon Peth. CETP is operating on ZLD. The river purna and pedhi river stretches are included in the polluted river stretches by CPCB. The river stretch from Asegaon purna to Wathoda Shukleshwar (Amravati District Border) and river stretch from Narayanpur to Bhatkuli are covered in the polluted river stretches. The MPCB has submitted the action plan to CPCB for restoration of the water quality of the said river.The Municipal Corporation Amravati has provided STP's of capacities 30.5 and 44 MLD.However the sewage generation is 93 MLD. The gap of 18.5 MLD is still unattended. The Municipal Corporation of Amravati has proposed 2 STPs of 28 MLD to treat the unattended sewage.

**Sub-Regional Office Amravati-II:** There are mainly about 3 industries located in the washim district those are generating the industrial effluent from their manufacturing process. All these industries have provided adequate effluent treatment arrangements. Out of 3 industries, there are 2 veg oil refineries and 1 distillery unit. The river penganga river stretch is included in the polluted river stretches by CPCB. The river stretches from Mehkar Dist. Buldana through washim district upto to the border of hingoli district. The MPCB has submitted the action plan to CPCB for restoration of the water quality of the said river.

**Sub-Regional Office Akola**: There is mainly one MIDC Industrial Areas located in the Akola District & Khamgaon, Malkapur & Chikhali MIDC located in Buldana District. There are mainly about 10 Water Polluting Industries located in the Akola MIDC & Buldana District. All these industries have provided Effluent Treatment Plant. The Board Officials of this office visiting the said industries and verifying the compliances towards pollution control systems provided by the concern industries & also issue appropriate directives to the non-complying industries. The stretch of Morna River from Akola to Takali Jalam is covered under polluted river stretch.

#### 6.1.2.1 Current Status of Action Plan

Sub-Regional Office Amravati-I: The MPCB has submitted the action plan to CPCB for restoration of the water quality of the polluted river stretches of purna and pedhi rivers.

Sub-Regional Office Amravati-II: The MPCB has submitted the action plan to CPCB for restoration of the water quality of the polluted river stretches of penganga river.

Sub-Regional Office Akola: Akola Municipal Corporation has proposed 2 nos. of STP's having capacity of 37 MLD. The 2 Nos. AMC STP under commissioning & located at Shiloda.

### 6.1.3 Solid Waste Pollution issue

Sub-Regional Office Amravati-I: There are 1 Municipal Corporation, 10 Municipal Councils and 3 Nagar Panchayats located within the jurisdiction of SRO Amravati-I. The Municipal Solid Waste generation from Amravati Municipal Corporation area is about 6.48 lacs souls. The Amravati Municipal Corporation has provided site for treatment and disposal of Municipal Solid Waste at Peth (Sukali), Tq. & Dist. Amravati. The Municipal Solid Waste generation is 250 Ton/D. The Municipal Corporation has installed two processing facilities one at Sukali of capacity 200 TPD and second at Akoli of capacity 100 TPD and third facility is proposed at Kondeshwar of capacity 50 TPD. At present the legacy Municipal Solid Waste is present at the site & biomining of the same is proposed by Amravati Municipal Corporation, Amravati. The remining legacy waste which is yet to be biomined is creating Environmental Problems. The leachate collection & treatment system provided at the MSW site is not designed properly. Also, it seems to be inadequate which is leading to Environmental Problems.

Sub-Regional Office Amravati-II: There are 4 Municipal Councils located within the jurisdiction of SRO Amravati-II. The Municipal Solid Waste generation from Washim Municipal Council area is about 19.5 Ton/Day. The population of Washim town is 78524 souls. The Washim Municipal Council has provided site for treatment and disposal of Municipal Solid Waste at S. No. 83/1 Washim. The Municipal Solid Waste generation is 19.5 Ton/D. The Municipal Council has not provided any waste processing facility at the said site. The Municipal Solid Waste is only dumped on the site without any segregation, leading to the environmental problems.

Sub-Regional Office Akola: Akola Sub-Region having 1 no. of Municipal Corporation. In Municipal Corporation approx. 200 MT/Day Municipal Solid Waste generated. Akola Municipal Corporation has not followed the SOPs given in solid waste management Rule, 2016. They have dumped the generated municipal solid waste at Naigaon area without any process. Remaining 16 no of municipal council & 3 nos. of Nagarpanchyat does not having Municipal Solid Waste processing plant. All municipal councils were dumping all municipal solid waste authorized dumping site.

#### 6.1.3.1 Current Status of Action Plan

Sub-Regional Office Amravati-I: The bioming of remaining legacy waste is required to be carried out on war footing. Also, the accumulated legacy waste on the sites of the remaining Municipal Council/Nagarpanchyat needs to biomined.

Sub-Regional Office Amravati-II: The Maharashtra Pollution Control Board has issued notices/directions to the Municipal Council to setup a treatment facility for Municipal Solid Waste. The biomining of remaining legacy waste is required to be carried out on war footing.

Sub-Regional Office Akola: The Maharashtra Pollution Control Board has issued notices/directions to the Municipal Council to setup a treatment facility for Municipal Solid Waste. The Akola Municipal Corporation proposed site located at Bhod Vill., Tal. Dist. Akola & same is under construction.

## 6.2 Aurangabad

### 6.2.1 Air Pollution issue

1.The CPCB has declared Aurangabad, Jalna & Latur cities as non-attainment city out of 17

cities from Maharashtra state. Accordingly, Action Plan has prepared & approved by CPCB. Implementation work of action plan is in progress. The regular meetings with all concerns have been conducted also submitted micro action plans.

2. The area of Aurangabad City, MIDC Waluj, MIDC Chikalthana, MIDC Railway station & Paithn Road units are comes in CEPI area and accordingly implementation of action plan approved by CPCB is in progress.

3.In the Jalna MIDC there are 14 nos. of steel units engaged in manufacturing of ingots from M.S. scrap. During manufacturing process there are air emissions, mainly during loading of raw material into the furnace and unloading of molten metal from the furnace. Board has issued Directions and given six months' time period for upgradation of existing APCS i.e. venturi scrubber and primary system to bag filter and secondary/alternative APCS within six months period.

4.The other sources of Air Pollution are by two ways i.e from Industrial activities and Urban Air Pollution due to commercial activity, vehicular & construction activity. The major industrial pollution is due to fuel burning in the Boiler and dust pollution due to Stone Crusher units, Manufacturing of traditional bricks.

### 6.2.1.1 Current Status of Action Plan

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| The Aurangabad, Jalna & Latur cities as non-attainment city out of 17 cities from Maharashtra state. Accordingly, Action Plan implementation is in progress. The regular meetings with all concerns have been conducted for upgradation of existing APCS & Operating existing Pollution control devices round the clock in the Aurangabad MIDC areas. Apart from this, directions issued to change the fuel pattern/ clean fuel. Also for Control of industrial air pollution in MIDC Jalna area M.P.C. Board is taking continuous follow up with the industries to provide adequate capacity of Dust Collector, Bag Filter, Wet Scrubber & ESP system It is also directed to the industries to submit the evaluation report from IIT/VNIT for upgradation of existing APCS. The vigilance is kept on pollution due to stone crusher & hot mix activity. | CAAQMS installed at Deogiri College & MPCB, Aurangabad, LMC installed fountains in LMC Area at Basweshwar Chowk & Rajiv Gandhi Chowk, 01 nos of CAAQMS installed at Nana Nani Park, Behind, Latur municipal corporation, Latur, Jalna M C installed 01 nos of CAAQMS installed in Jalna City Area at JES College, New Jalna. It is informed local bodies to reduce the air pollution in city arises due to commercial activity, vehicular & construction activity, burning of MSW in open space & also to the entrepreneur time to time for upgradation in the APC system to meet the consented standards. | As per action plan upgradation of system in industrial area is going on, as per the provision of Air act (P&CP) 1981 consent granted to all industries under Air act conditions as per stipulated conditions almost all major industry provided APC system such as Dust Collector, Bag Filter, Wet Scrubber & ESP system & also adopted green fuel technology by using agro base/LPG fuel to reduce air emission in the environment and for Stone Crusher units activity most of the stone crusher units has provided water sprinkler system, covered vibrating scree & conveyer belts by tin sheet, wind breaking wall, Metallic road & Massive tree plantation. |

### 6.2.2 Water Pollution Issues

1. Ground water contamination at Waluj Industrial area, in this context the process of remedial measures is in progress.

2. Polluted River Stretches - Godavari Reiver D/S of Paithan to Shahgad (Aurangabad District) Manjra Reiver LATUR TO NANDED ROAD BRIDGE at Vill. Bhatkeda (Latur District), Godavari River at Gangakhed, Dist- Parbhani, Bindusara River at Beed & Godavari River at Nanded are identified as Critically Polluted stretches and accordingly action plan implementation is going on.

#### 6.2.2.1 Current Status of Action Plan

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| 1) As per the decision in Technical Core Committee meeting conducted on 26.08.2020 and decided to take the opinion / suggestion / comments or any other technology from NEERI & ICT, Jalna and will be discussed in the next meeting which will be schedule very soon. Presently Pump & Treat plant is made operational.<br>2) 8.7 MLD STP is under construction for Paithan, 2 nos of STP of Capacity 32 MLD & 40 MLD is proposed by Latur municipal corporation, 35 MLD STP is under progress at Beed & 5 MLD STP is proposed at Gangalhed. And Nanded Waghala Municipal Corporation has provided 3 STP of capacity Bondar- 87 MLD, Elichpur- 30 MLD & Sangvi - 15 MLD Also Nanded Waghala Municipal Corporation has provided 07 Nos. of integrated compacted STP of capacity 150 KLPD - 450 KLPD in various location of city & proposed 8 Nos. of integrated compacted STP of capacity 150 KLPD -450 KLPD in various location of the city to treat the sewage and AMC has provided 5 Nos STPs having total capacity of 211 MLD.<br>3)Task Force Committee was constituted at District levels for follow up and regular meetings are conducted for implementation and execution.<br>4.The industries generating industrial effluent have installed full-fledged ETP and operate those ETP. The treated effluent used for garden in own premises, No any industrial treated / untreated effluent is allowed to discharge outside the premises to meet any river / water bodies and adopted ZLD system. 5.During Ganesh & Durga Festivals insisted ULB's to provide artificial ponds for immersion of idols also awareness programmers are conducted by | 1.As per remediation plan work is going on in MIDC Waluj Area.<br>2. Strict vigilance is on Operation & maintenance of existing Pollution control devices of units round the clock.<br>3.Nanded Waghala Municipal Corporation has submitted the proposal of 10 MLD Sewage Treatment Plant for treatment of untreated sewage meet to godavari river through 34 Nalls causing river water pollution & work of same is in progress. Also Nanded Waghala Municipal Corporation has provided 07 Nos. of integrated compacted STP of capacity 150 KLPD - 450 KLPD in various location of city & proposed 8 Nos. of integrated compacted STP of capacity 150 KLPD - 450 KLPD in various location of the city to treat the sewage. | 1.As per remediation plan work is in progress in MIDC Waluj Area.<br>2.Upgradation of system of ETP's of units is going on.<br>3. 8.7 MLD STP is proposed for Paithan, 2 nos of STP of Capcaity 32 MLD & 40 MLD is proposed by Latur municipal corporation, 35 MLD STP is under progress at Beed & 5 MLD STP is proposed at Gangalhed. And Nanded Waghala Municipal Corporation has provided 3 STP of capacity Bondar- 87 MLD, Elichpur- 30 MLD & Sangvi - 15 MLD also the Nanded Waghala Municipal Corporation has sanction funding under the scheme of State River Conservation in which 80% Share of State Govt. and 20% Nanded Waghala Municipal Corporation (ULB). The proposed STP cost is Rs.16.91 Crs. Funds not received from Govt. Work is started and is in progress and AMC |

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|---|---|---|
| this office to reduce use of Plaster of Paris, use of artificial color and use more of cellouse material / bio degradable material for making Ganpati idol so as to reduce water pollution & to enjoy environmentally eco-friendly festival. | | has provided 5 Nos STPs having total capacity of 211 MLD. |

### 6.2.3 Solid Waste pollution Issues

There are 79 ULB's & 1 cantonment Board is in the jurisdiction of RO Aurangabad. There is no scientific process for treatment and disposal followed by any of the municipal councils/ Nagarpanchayat except Aurangabad city AMC has obtained MSW authorization for Padegaon, Harsul & Chikalthana of 150 TPD each and 30 TPD Biogas plant at Kanchanwadi and all plants except Harsool are made operational, for MSW collection, storage, treatment & disposal of Latur city. LMC has obtained MSW authorization for Warvanti Site of 150 TPD & said mechanical processing plant is in operation. LMC has not provided secured land fill with leachate collection system, Nanded Wagala Municipal Corporation has installed Municipal solid waste processing plant in the tune of 100 MT/Day at Tuppa dumping site.

#### 6.2.3.1 Status of Current Action Plan

1.AMC's MSW processing plant at Harsool of capacity 150 TPD is under construction.
2. All other ULB's have been instructed by the Board to provide the scientific treatment facility and accordingly most of the ULB's have prepared DPR's & got sanction for the same, the actual installation work will be started very soon.
3. The biomining activity on remaining MSW legacy waste at dumping site is in process.

### 6.3 Kolhapur

### 6.3.1 Air Pollution Issues

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

#### 6.3.1.1 Status of Current Action Plan

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

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| city the MPCB has taken special task in association with Sangli Municipal Corporation, Sangli. The air action plan has been prepared and submitted to Government for further approval and necessary action. | has taken short term measures, such as maintained of roads, cleaning of Municipal Solid waste, banning on open burning of solid waste etc. | |

### 6.3.2 Water Pollution Issues

1. Panchaganga River & Vashishti River from village Dalvatane to Kherdi is categorized in priority-V by CPCB under “Most polluted river stretches in the country”.
2. Marine water pollution at Mirkarwada (fishing harbor), Ratnagiri due to disposal of untreated sewage by Ratnagiri Nagarpalika & disposal of waste by Fisherman at jetty.

#### 6.3.2.1 Status of Current Action Plan

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| 1. Increased vigilance of CETP & industrial waste water generating units.<br>2. Regular follow up with local bodies for completion of sewerage system & installation of new STP.<br>3. Action plan for rejuvenation of Panchganga river is prepared by the board.<br>4. 68 textile processing industries have been directed to achieve zero liquid discharge & 6 major textile units of five star MIDC have been directed to provide Zero Liquid Discharge for 50% of their existing effluent quantity. This unit has provided 50% ZLD facilities. Repair & Maintenance work of five star MIDC CETP is proposed & will be completed within short period.<br>5. Kolhapur Municipal Corporation has been directed to earmark a sum of Rs. 2.6 lacs per day in a separate account for expenses towards remedial measures.<br>6. Kolhapur Municipal Council - out of 96 MLD daily sewage, 91 MLD sewage is treated in 2 No. of STPs having total capacity 93 MLD, additional 2 New STPs are under commissioning capacity 4 MLD & 6 MLD.<br>7. Board has agreed to provide soft loans to five STP's for clusters of Villages on the bank of Panchganga River.<br>8. MPCB has prepared an action plan for clean -up of Polluted Stretch of Vashishti River.<br>9. Issued Prosecution Notice to Ratnagiri nagarpalika for provision of Sewage treatment plant & scientific disposal of Solid Waste.<br>10. The Government has declared River | 1. Implementation of Short-term action plan as proposed in the action plan prepared by the board for rejuvenation of Panchganga river by various stake holders.<br>2. Implementation of short term action plan as per action plan prepared.<br>3. Provision of STP through Ratnagiri & Malvan Nagarpalika<br>4. Local Bodies in Sangli District are the other sources of water pollution. Necessary follow up has been taken with them to adopt good sewage management practices & provide STP of adequate capacities.<br>In addition to above solid waste generation form local bodies are also sources of water pollution. Necessary follow up has been taken for scientific collection, segregation, treatment & disposal of MSW generated so as to avoid leachate generation mixing the same with storm water | 1. Implementation of Long-term action plan as proposed in the action plan prepared by the board for rejuvenation of Panchganga river by various stake holders.<br>Implementation of Long- term action plan as per action plan prepared.<br><br>2. All local bodies located on the bank of rivers in Sangli district are directed to install adequate capacities of STP's for treatment and disposal of sewage generated from their cities. Special Environment Surveillance Task Force has been formed as per the orders of Hon'ble National Green Tribunal. |

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| Action Plans/Polluted River Stretches for improvement of River Water Quality of Krishna River & its tributaries, the implementation of said project is in progress. | & cause water pollution in various areas. This is being followed. | |

### 6.3.3 Solid Waste Pollution Issues

1. Handling, Treatment & Disposal of domestic solid waste by Corporation, Councils & Grampanchayats.
2. Burnt/used sand from foundry industries - its handling & disposal.
3. Unscientific disposal of Solid waste by all the local bodies in the jurisdiction. Nagarpalika/ Nagarpanchayat have not provided proper treatment facilities.
4. Solid Waste generated from Sangli, Miraj & Kupwad City Municipal Corporation area is about 220 TPD. Existing solid waste treatment is partially composting & partially disposal is on open dumping yard in an unscientific manner.

#### 6.3.3.1 Status of Current Action Plan

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| Current Action Plan:-<br>1. Kolhapur Municipal Corporation has installed solid waste processing plant of 180 Ton/Day capacity & is converting waste to RDF. And also 2 Nos of Biogas plants for treatment of organic wet waste.<br>2. Ichalkaranji Municipal Council is treating 40 Ton/Day by composting & remaining 100 MT/Day by dumping on MSW site.<br>3. Municipal Councils & Grampanchayat are directed by the board to collect, segregate & scientific disposal of domestic waste generated.<br>4. Presently 100% of Bio Medical Waste is segregated & scientifically disposed off in the Bio Medical Waste facility provided.<br>5. 25% of total budget of corporations & councils has been reserved separately for provision of environmental facilities.<br>6. Biomining of legacy waste is started by Kolhapur Municipal Corporation.<br>7. Biomining of legacy waste is started by Ichalkaranji Municipal Council.<br>8. The Board has taken initiative for upgradation of Municipal Solid Waste Treatment and disposal facilities as per the NGT orders. All sites of MSW has been authorized by the district level committee and authorizations has been given to the local bodies for treatment and disposal of solid waste.<br>9.Directions have been issued to local bodies to identify sites and prepare action plan for setup of solid waste processing facilities. | 1. All the local bodies to provide scientific municipal waste collection, segregation & scientific processing facilities.<br>2.Implementation of action plan by local bodies<br>3. The villages on the bank of rivers disposing waste on the bank of rivers to develop solid waste management projects with the help of Z. P. authorities as eco village development point of view. | 1. All the local bodies to provide scientific municipal waste collection, segregation & scientific processing facilities and same shall operate regularly.<br>2. Implementation of action plan by local bodies |

### 6.3.4 Noise pollution Issues

Religious programs are the occasions of causing noise pollution.

#### 6.3.4.1 Status of current action plan

The Sangli, Miraj & Kupwad City Municipal Corporation, Sangli is in process of preparing the action plan for control of Noise Pollution in Sangli city.
The Police department and Municipal Corporation is being taken effective steps and measures for control of Noise pollution during festivals.

## 6.4 Navi Mumbai

### 6.4.1 Air pollution Issues

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

#### 6.4.1.1 Status of Current Action Plan

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

### 6.4.2 Water Pollution Issues

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

#### 6.4.2.1 Current Status of action Plan

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

### 6.4.3 Solid Waste Pollution Issues

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

#### 6.4.3.1 Current status of Action Plan

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

## 6.5 Nagpur

### 6.5.1 Air Pollution Issues

1) Higher emissions from the Old plant of Koradi Thermal Power Plant, Khaperkheda Thermal Power Plant.
2) Vehicular Pollution in the city.

#### 6.5.1.1 Current Status of Action Plan

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

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

### 6.5.2 Water Pollution Issue

1) Issue of polluting river stretches
2) Non availability of CETP at MIDC Hingna, Nagpur, which is located in the vicinity of Ambazari Lake.

#### 6.5.2.1 Status of Current Action Plan

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

### 6.5.3 Solid Waste Pollution Issue

Municipal solid waste is not treated scientifically before disposal

#### 6.5.3.1 Current status of Action Plan

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

## 6.6 Raigad

### 6.6.1 Air Pollution Issue

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

#### 6.6.1.1 Status of Current Action Plan

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

### 6.6.2 Water Pollution Issue

**Untreated sewage from Municipal Councils are being discharged into River**

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

#### 6.6.2.1 Status of Current Action Plan

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

### 6.6.3 Solid Waste Pollution Issue

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

#### 6.6.3.1. Status of Current Action Plan

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

## 6.7 Pune

### 6.7.1 Air Pollution Issue

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

**Solapur District**

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

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

#### 6.7.1.1 Status of Current Action Plan

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

### 6.7.2 Water Pollution Issue

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

#### 6.7.2.1 Status of Current Action Plan

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

### 6.7.3 Solid Waste Pollution Issue

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

#### 6.7.3.1 Status of Current Action Plan

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

### 6.8 Chandrapur

### 6.8.1 Air Pollution Issue

Chandrapur is declared as critically polluted area in the year 2009 by CPCB, New Delhi. Thereafter, by proper implementation of CEPI, score was reduced by providing proper APC provisions.
Chandrapur city is listed under Non-Attainment Cities
Activity of coal mines, coal storage, transport & trading (loading & unloading) near to the highways creating air pollution problem.

#### 6.8.1.1 Status of Current Action Plan

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

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

### 6.8.2 Water Pollution Issue

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

#### 6.8.2.1 Status of Current Action Plan

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| MPCB has formed District Level Committee under the Chairmanship of Hon'ble District Collector, Chandrapur and directed to stakeholders not to discharge untreated effluent into nearby rivers.<br>Action Plan was submitted by Chandrapur Municipal Corporation to comply the same.<br>Directions were issued & Bank Guarantees were forfeited & directed WCL authorities to provide settling tanks for mine water treatment & reuse the mine water for sprinkling purpose. | 1) Survey & sampling of water polluting industries/activities nearby to the rivers.<br>2) Initially, temporary barriers to be suggested to stop the discharge of sewage directly into rivers. | Providing underground sewer line till STPs so as to treat 100% sewage & to stop excess discharge into Erai & Zarpat River.<br><br>Implementation of District Environment Plan for each district under jurisdiction of RO, Chandrapur |

### 6.8.3 Solid Waste Pollution Issue

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

#### 6.8.3.1 Status of Current Action plan

1. Formation of District Level Committee under the Chairmanship of Hon'ble District Collectors. Issuing MSW authorizations to ULBs.
2. Initial segregation at source is directed to implement to all the ULBs.
3. Directed to Finalize the MSW sites as per MSW Rules, 2016

### 6.8.4 Noise Pollution Issue

1) Noise Pollution from Handling, Processing and Recycling of End-of-Life Vehicles (ELVs)
2) Noise pollution due to old vehicles & heavy activities like construction, etc.

#### 6.8.4.1 Status of Current Action Plan

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

| | | |
|---|---|---|
| (ELVs)" | End-of-Life Vehicles (ELVs) | Environment Plan for each district under jurisdiction of RO, Chandrapur. |

### 6.9 Kalyan

#### 6.9.1 Air Pollution Issue

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

##### 6.9.1.1 Status of Current Action Plan

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

#### 6.9.2 Water Pollution Issue

1. Illegal jean wash units were in operation without provision of ETP and untreated effluent was being discharged into Nalla which further meets to creek.
2. Kalyan Dombivali Municipal Corporation are operating their STPs under capacity due to lack of drainage arrangement.
3. Due to incomplete work of underground drainage network, partial quantity of domestic effluent in Kalyan - Dombivali area is also disposed into Nalla which creates water pollution problem.
4. Breakages/leakages of effluent carrying pipeline/Chambers in the MIDC area lead to water pollution.
5. Illegal disposal of unknown tankers in the MIDC area creates air pollution and water pollution

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

### 6.9.3 Solid Waste Pollution Issue

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

#### 6.9.3.1 Status of Current Action Plan

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

### 6.10 Nashik

#### 6.10.1 Air Pollution Issue

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

#### 6.10.1.1 Status of Current Action Plan

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

### 6.10.2 Water Pollution Issue

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

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| Nashik Municipal corporation had provided 10 no's of Sewage Treatment plant on the bank of the Godavari river.<br>For Godavari River Pollution problems PIL No.176/2012 was filed in the Bombay High Court same is disposed on 18/12/2018. As per the directions in the PIL No.176/2012, Committee constituted under the chairmanship of Divisional Commissioner, Nashik for the implementation of the Judgement as follow.i) Municipal Corporation , Nashik, ii) MPCB, iii) District Council, iv) Publicity of Godavari Conservation. v) MIDC. These committees prepare plan of work for Godavari Pollution control at their respective office level | Presently Nashik Municipal Corporation does not have underground drainage network for newly added villages. They have started laying of pipeline for these villages, drainage network coverage 210 KM.<br><br>Additional STP 43 MLD is proposed by NMC at<br><br>Malegaon MC has started construction work of STP which is 64 % complete.<br><br>As the CETP in MIDC Satpur & MIDC Ambad is not taken progressed hence metal surface treatment industries has installed ZLD treatment individually for the treatment of Effluent generation.<br><br>Till the entire sewage is not collected due to poor maintenance / Break up/ Chock up/ Overflow of Sewer line issue & find its way to River Godavari by Nalla etc.<br><br>The ULB/ Village situated on River Godavari / Darana has not provided STP, which further deteriorate the quality of Rivers Godavari & Darana at downstream.<br><br>Excessive use of fertilizer in the farm field by farmers on the bank of Godavari/Darana which further lead the run off by rain / percolate through ground water etc. to nearby water bodies may lead to increase eutrophication problems in water bodies & problems to aquatic life. | Revamping & Upgradation of existing STPs for achieving new standards. Construction of STPs for other local bodies like Municipal Councils, Nagar Panchayat/ Villages.<br><br>CEPT Construction for SSI unit in MIDC area Nashik. |

## 6.11 Mumbai

### 6.11.1 Air Pollution Issues

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

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

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

#### 6.11.1.1 Current Status of Action Plan

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

### 6.11.2 Water Pollution Issue

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

#### 6.11.2.1 Current Status of Action Plan

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

### 6.11.3 Solid Waste Pollution Issue

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

### 6.11.4 Noise Pollution Issues

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

#### 6.11.4.1 Status of Current Action Plan

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

## 6.12 Thane

### 6.12.1 Air Pollution Issues

Smell nuisance is observed during monsoon & winter season.
Severe air pollution problem nearby residence, Chitralaya , Boisar, Salwad, Pasthal, Kolwade, Pam, Kumbhvali & adjacent area.
Air pollution problem is also caused by frequent burning of solid waste and plastic waste by

local Grampanchayat in MIDC area i.e. Salwad, Kolawade, Boisar & Khairapada Railway Bridge.

#### 6.12.1.1 Current Status of Action Plan

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

### 6.12.2 Water Pollution Issue

1. Frequent MIDC breakages of sewerage/treated effluent carrying pipeline network.
2. Overflow of MIDC raw water & treated water collection sumps.
3. Removal of old sewerage collection pipeline which causes effluent (substandard) flowing through nallah instead of reaching TEPS-CETP for further treatment.
4. Untreated domestic effluent emerging from adjacent villages & public toilets flowing through natural nallah passing through MIDC.
5. Illegal activity of washing chemically contaminated plastic in natural nallah.

#### 6.12.2.1 Current Status of Action Plan

| Current Action Plan | Mid Term Action Plan | Long Term Action Plan |
|---|---|---|
| 1. MIDC to provide temporary Bondharas over natural nallah & pumping system to nearest chamber to present downstream pollution.<br>2. Up-gradation of TEPS-CETP.<br>3. Provide continuous monitoring system with Two way SCADA for I/L & O/L of industries.<br>4. MIDC to stop illegal water supply through tanker & bore-well.<br>5. To monitor ZLD & partially ZLD units.<br>6. MPCB to grant consent for washing of chemically contaminated plastic waste. | 1. MIDC to identify & remove old pipeline of the sewerage collection system.<br>2. Lock & Key arrangement to individual industries.<br>3. Identify & dispose of high COD stream of individual industries to M/s. TEPS-CETP | 1. Segregation & disposal of high COD stream of individual industries to M/s. TEPS-CETP.<br>2. To make operational 50 MLD CETP.<br>3. Extend disposal pipeline of existing 25 MLD TEPS-CETP.<br>4. Adjoining local bodies provide STP for treatment for domestic.<br>5. To make mandatory for all the LSI & MSI units to provide separate STP for domestic effluent generated & use of same for gardening purpose. |

### 6.12.3 Solid Waste Pollution Issue

1. Illegal storage of spent solvents & ETP sludge in factory premises & illegal storage sites.
2. Illegal transportation & dumping of process waste by industries located in MIDC Tarapur area & adjacent nearby area.
3. Chocking of raw effluent carrying pipeline due to accumulation of sludge.

#### 6.12.3.1 Status of Current Action Plan

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

### 6.12.4 Noise Pollution Issue

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

#### 6.12.4.1 Status of Current Action Plan

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

# 7. ENVIRONMENTAL STUDIES AND SURVEYS

## 7.1 Noise Monitoring during Ganesh Festival 2021

Ambient noise monitoring was carried out during the period of Ganesh Festival at 132 locations which are covered under 27 Municipal Corporations all over the State of Maharashtra. Monitoring was carried out for 5 days considering the noise that was generated during the festival. Noise monitoring was carried out for 6 hours between 6PM to 12AM on 10th, 11th, 14th, 16th and 19th September 2021. In the study of noise level during the period of Ganesh festival this year was decreased as compared to the previous years. The reason behind the reduction in noise level is due to the restrictions imposed by the Covid-19 pandemic. Noise level is increased by the drums and instruments played during the possession to Idol Immersion and due to traffic congestions.

Noise monitoring was carried out using calibrated Sound Level Meters (Type I). The number of noise monitoring locations in different Municipal Corporations all over Maharashtra is provided in Table 7.1.

**Table 7.1 Noise monitoring locations in Maharashtra during Ganesh Festival 2021**

| Municipal Corporation | No of locations |
|---|---|
| Mumbai | 25 |
| Navi Mumbai | 05 |
| Thane | 08 |
| Pune | 18 |
| Nashik | 05 |
| Aurangabad | 05 |
| Nagpur | 05 |
| Kalyan | 03 |
| Amaravati | 03 |
| Jalgaon | 03 |
| Kolhapur | 03 |
| Sangli | 03 |
| Mira Bhayander | 03 |
| Vasai – Virar | 03 |
| Ulhasnagar | 03 |
| Bhiwandi- Nizampur | 03 |
| Chandrapur | 03 |
| Nanded Waghala | 03 |
| Ahmednagar | 03 |
| Dhule | 03 |
| Malegaon | 03 |
| Pimpri- Chinchwad | 03 |
| Parbhani | 03 |
| Latur | 03 |
| Akola | 03 |
| Solapur | 04 |
| Panvel | 03 |
| **Total No of stations** | **132** |

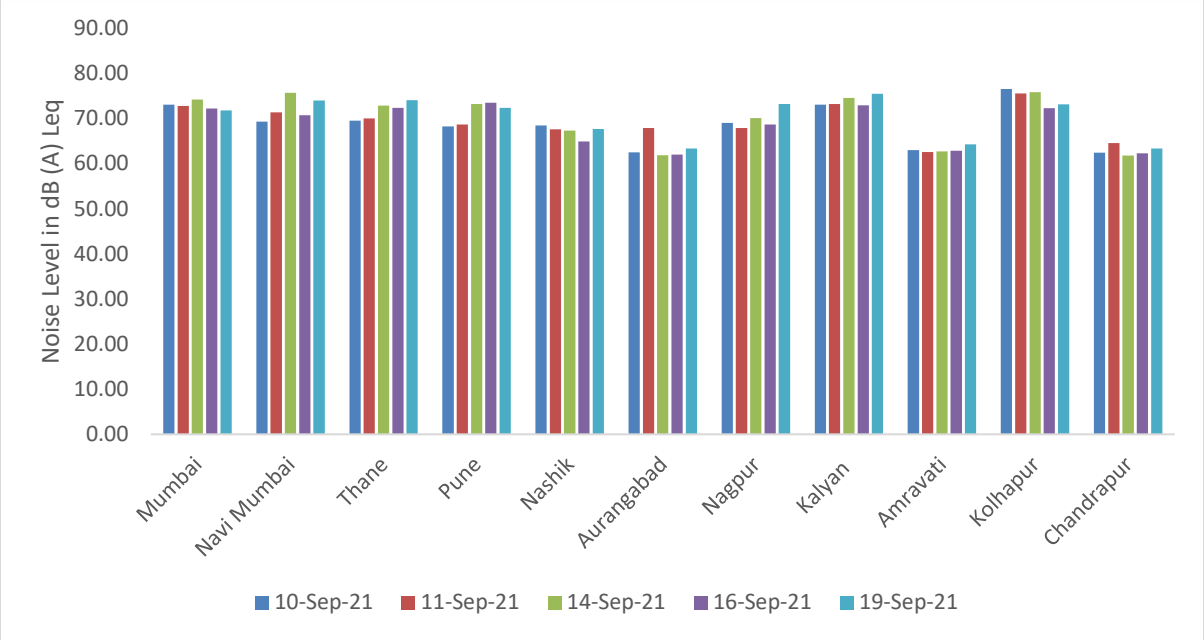



**Figure 7.1 Noise levels during Ganesh Festival 2021 at different locations**

From **Figure 7.1**, it can be observed that the highest mean noise level recorded on 10th September 2021 was 76.57 dB (A) at Kolhapur. On 11th September 2021, which was the second day of noise monitoring, the highest mean noise level recorded was 75.60 dB(A) again at Kolhapur. On 14th September 2021, the highest mean noise level recorded was 75.83 dB(A) again at Kolhapur. On 16th September 2021, 73.52 dB(A) was the highest noise level which was recorded at Pune. On the last day of noise monitoring during Ganesh festival, that is on 19th September 2021, the highest noise level was 75.50 dB(A) and was recorded at Kalyan.

The lowest mean noise level recorded on 10th September 2021 which was the first day of noise monitoring during Ganesh festival, was 62.47 dB(A) at Chandrapur. On 11th September 2021, which was the second day of noise monitoring, the lowest mean noise levels were 62.57 dB at Amravati. On 14th September 2021, 61.80 dB (A) was the lowest mean noise level recorded at Chandrapur. On 16th September 2021, 62.00 dB (A) was the lowest mean noise level recorded at Aurangabad. On 19th September 2021, 63.34 dB (A) was the lowest mean noise level recorded at Aurangabad.

### 7.1.1 Conclusion- Noise Monitoring during Ganesh Festival'2021

Ganesh festival is the biggest festival celebrated in Maharashtra since decades. This year 132 locations from 27 Municipal Corporation of Maharashtra for 5 days period during Ganesh Festival i.e. on 10th, 11th, 14th, 16th and 19th September 2021 for 6hours from 6 PM to 12 AM for each location which comprise of residential, commercial and silence zone.

There was a significant decrease in the noise levels observed in almost all areas Municipal Corporation like Mumbai, Pune, Thane, Kalyan, Nagpur etc. showed tremendous decrease in the noise levels. The main noise level increase is more due to the increase in traffic and lesser due to the festival.

The awareness of noise pollution is increased within the public through different media like newspaper, television etc. Many people celebrate an Eco-friendly Ganesh Festival to control environmental pollution. The decrease in noise pollution is also a result of this awareness.

**The observed Higher Levels are due to the following reasons:**

1. Use of a greater Number of vehicles as trains or public transport were mostly halted.

2. More two-wheelers and Cars are on road, and the noise is from vehicular traffic.
3. Honking was relatively less, as most of the vehicles were driven by owners.
4. Congestion should be avoided on procession routes.
5. The increased noise level beyond the Noise Level standards is due to collective noise of human population, traffic and as such no one source or activity was responsible for the exceedance of the noise level.
6. Vehicular traffic should be avoided on the procession routes.
7. General awareness of the public should be increased by sensitizing them for increased noise level
8. Festival should emphasize on noise nuisance in the urban areas in general as the background levels itself during the high-activity time period is exceeding the average noise levels.
9. dB(A) $L_{eq}$ values over the period would be relatively significantly less vis-à-vis peak values that are measured due to sensitive dB(A) measurements.

Further, city specific general common observations in detail are given in "Noise Monitoring during Ganesh Festival'2021" report which is available at Board's official website.

### 7.2 Noise Monitoring during Diwali 2021.

In order to assess the ambient noise levels in the environment during Diwali festival, the MPCB has taken an initiative to carry out noise monitoring at 158 locations from 29 Municipal Corporation of Maharashtra for a period of 3 days during Diwali Festival i.e. on 29th October (before Diwali), 4th November (Laxmi Poojan) and 6th November (Bhaubhij) 2021 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 at various areas in the cities over different land uses and to create awareness about noise pollution through availability of scientific noise level data.
Noise monitoring was carried out using calibrated Sound Level Meters (Type I) kept at fast response mode keeping in view the quickly changing nature of noise levels, and using 'A' filter. The number of noise monitoring locations in different Municipal Corporations all over the State of Maharashtra is provided in **Table7.2.**

**Table 7.2 Noise Monitoring Locations in Maharashtra during Diwali 2021.**

| Municipal Corporation | Nos |
|---|---|
| Mumbai South | 15 |
| Mumbai western suburbs | 15 |
| Mumbai Eastern Suburbs | 15 |
| Navi Mumbai | 09 |
| Thane | 05 |
| Pune | 15 |
| Nashik | 05 |
| Aurangabad | 05 |
| Nagpur | 10 |
| Kalyan | 03 |
| Amaravati | 03 |
| Jalgaon | 03 |
| Kolhapur | 07 |
| Sangli | 03 |
| Mira Bhayander | 03 |
| Vasai – Virar | 03 |
| Ulhasnagar | 03 |
| Bhiwandi- Nizampur | 03 |
| Chandrapur | 03 |
| Nanded Waghala | 03 |

| | |
|---|---|
| Ahmednagar | 03 |
| Dhule | 03 |
| Malegaon | 03 |
| Pimpri- Chinchwad | 03 |
| Parbhani | 03 |
| Latur | 03 |
| Akola | 03 |
| Solapur | 03 |
| Panvel | 03 |
| **Total No of stations** | **158** |

From Figure 7.2. it is observed that during daytime on 29th October the highest mean noise levels of 74.43 dB(A) was recorded at Kalyan. During daytime on 4th November, the highest mean noise level of 79.36 dB (A) was recorded at Pune. Similarly on 6th November, the highest mean noise levels of 76.92 dB (A) was recorded again at Pune. The highest mean noise levels of 67.23 dB (A) at Kalyan, 69.56 dB (A) at Nashik and 64.94 dB (A) at Nashik were recorded during night time on 29th October, 4th and 6th November

The lowest mean noise levels of 61.12 dB(A), 66.7 dB(A) and 61.00 Db(A) were recorded during day time on 29th October, 4$^{th}$ and 6$^{th}$ November respectively, at Aurangabad, Amravati and again at Amravati in order. The lowest mean noise levels of 51.9 dB(A), 51.98 dB(A) and 53.12 dB(A) were recorded during night-time on 29$^{th}$ October, 4$^{th}$ and 6$^{th}$ November respectively, at Amravati, Aurangabad and again at Aurangabad in order.

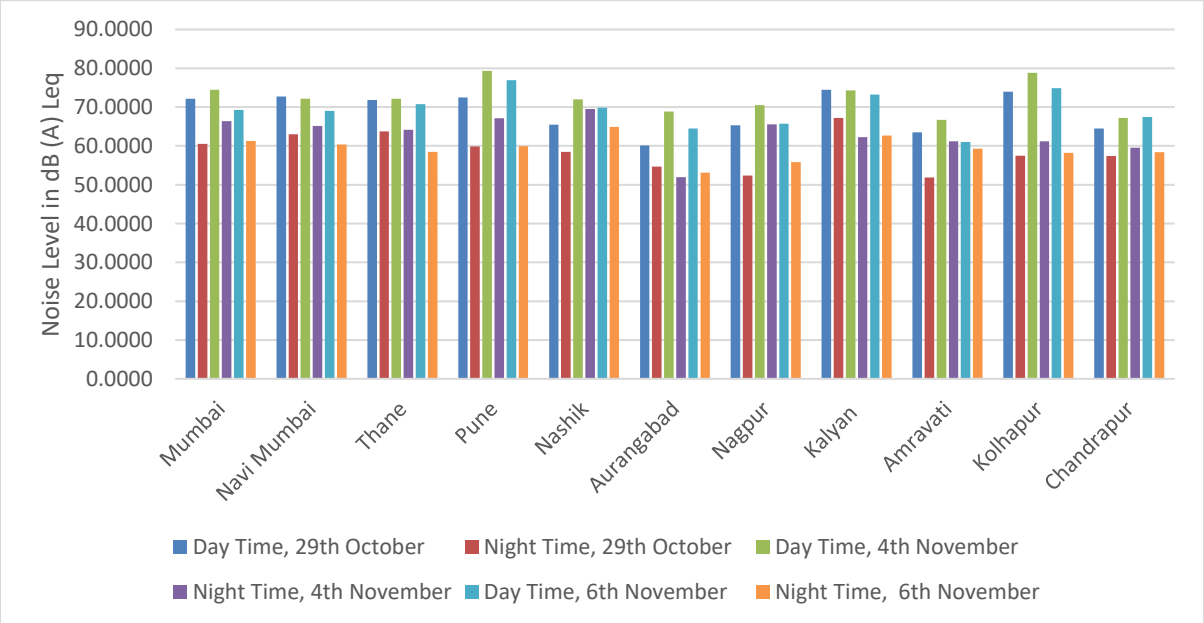



**Figure 7.2 Noise levels during Diwali 2021 at different locations in Maharashtra**

### 7.2.1 Conclusion – Noise Monitoring During Diwali'2021

Last year with the outbreak of Covid-19 the Diwali festival which was celebrated all over the India in a different way. This year Guidelines were published by Government in controlling the spread of any kind of infectious ailment in the festive season. The pollution level of noise is more this year comparing to the previous years in many municipal corporations. People have celebrated the festival being more enthusiastic as compared to the previous year. This year noise level enhancement has been observed just because of the flexibility in the Guidelines for use of crackers.

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

1. **Mumbai** - The noise level in Mumbai ranged from 46.4 dB(A) to 82.7 dB(A) this year. The increase in noise levels in Mumbai South, Mumbai Western Suburbs and Mumbai Eastern Suburbs was mainly due to usage of crackers and traffic congestions.

2. **Navi Mumbai** - The noise level in Navi Mumbai ranged from 54.4 dB(A) to 80dB(A) this year. The noise levels are high as 6 out of 9 locations falls in the commercial zone and the noise level increased due to crowd and traffic.

3. **Thane** - In Thane the noise level ranged from 50.6 dB(A) to 78.8 dB(A) this year. The increase in noise level was due to the busting of crackers.

4. **Pune** - The noise level in Pune ranged from 54.8 dB(A) to 83 dB(A). The increase in the level was mainly due to traffic and crowd.

5. **Nashik** - In Nashik the noise level ranged from 57.7 dB(A) to 73.6 dB(A). There is not much increase in the level of noise due to the festival in Nashik region.

6. **Aurangabad** - The noise level in Aurangabad ranged from 45.5 dB(A) to 70.8 dB(A). The noise level increase was due to crackers.

7. **Nagpur** - The noise level in Nagpur ranged from 41 dB(A) to 81.1 dB(A) this year. The increase in the levels of noise was due to the bursting of crackers.

8. **Kalyan** - The noise level in Kalyan ranged from 59.4 dB(A) to 75.9 dB(A) this year the increase in noise level was due to crackers and traffic congestions.

9. **Amravati** - The noise level in Amravati ranged from 51 dB(A) to 74.7 dB(A) this year. Lesser noise level is observed in Amravati region this year.

10. **Jalgaon** - The noise level in Jalgaon ranged from 53.3 dB(A) to 77.7 dB(A) this year. The noise level in Jalgaon also was due to traffic at commercial zone.

11. **Kolhapur** - The noise level in Kolhapur ranged from 50.9 dB(A) to 80.5 dB(A) this year. The increase in noise level was due to the bursting of crackers.

12. **Sangli** - The noise level in Sangli ranged from 47.1 dB(A) to 80.3 dB(A) this year. The increase in noise levels was mainly due to crackers bursting.

13. **Mira Bhayander** - The noise level in Mira – Bhayander ranged from 51.6 dB(A) to 74.9 dB(A) this year. The noise level was high mainly due to the bursting of crackers.

14. **Vasai Virar** - The noise level in Vasai - Virar ranged from 56.3 dB(A) to 76.3 dB(A) this year. The increase in noise level was due to crackers and traffic congestions.

15. **Ulhasnagar** - The noise level in Ulhasnagar ranged from 56.5 dB(A) to 74 dB(A) this year. The noise level generation in Ulhasnagar was also due to the bursting of crackers.

16. **Bhiwandi Nizampur** - The noise level in Bhiwandi – Nizampur ranged from 58.4 dB(A) to 76.3 dB(A) this year. Noise level was high at the commercial spots of city mainly due to traffic.

17. **Chandrapur** - The noise level in Chandrapur ranged from 50.9 dB(A) to 72.5 dB(A) and was less as compared last year.

18. **Nanded Waghala** - The noise level in Nanded – Waghala ranged from 50.2 dB(A) to 65.5 dB(A) this year. The increase in noise level was due to crackers and traffic congestions.

19. **Ahmednagar** - The noise level in Ahmednagar ranged from 60.9 dB(A) to 68.6 dB(A) this year. The noise level is very less this year and has no relation with the festival celebration.

20. **Dhule** - The noise level in Dhule ranged from 59 dB(A) to 69.9 dB(A) this year. The noise level is very less as compared to last year.

21. **Malegaon** - The noise level in Malegaon ranged from 60.4 dB(A) to 69.2 dB(A) this year. The increase in noise level is due to traffic and crowd.

22. **Pimpri Chinchwad** - The noise level in Pimpiri – Chinchwad ranged from 57.1 dB(A) to 84.4 dB(A) this year. The noise level in Pimpiri – Chinchwad also was due to bursting of crackers.

23. **Parbhani** - The noise level in Parbhani ranged from 45 dB(A) to 65.6 dB(A) this year. The noise levels in Parbhani were very less.

24. **Latur** - The noise level in Latur ranged from 47.5 dB(A) to 66.6 dB(A) this year. The noise levels in Latur also were very less.

25. **Akola** - The noise level in Akola ranged from 59.1 dB(A) to 80dB(A) this year. The increase in noise level was observed due to traffic congestion and bursting of crackers.

26. **Solapur**- The noise level in Solapur ranged from 56.2 dB(A) to 75.5 dB(A) this year. The increase in noise level was due to traffic.

27. **Panvel** -The noise level in Panvel ranged from 47.5 dB(A) to 77.4 dB(A) this year. The increase in noise was due to the heavy traffic and bursting of crackers

## 8. ENVIRONMENTAL TRAINING

Any learning and development process includes training as an essential and ongoing step. Effective training programmes given to each accountable member of the Staff and Officers of the Board are the key to understanding technological advancements and new environmental provisions, work quality, responsibilities in respective fields, and overall development in the field of environment and work.

Planning and organizing these training programmes with a variety of capacities in many areas of pollution prevention, abatement, and control is therefore one of the Board's main responsibilities. In order to properly prepare its employees and officers to carry out their duties with the greatest efficiency, the Board deputises its staff and officers for training in various aspects of environment protection and pollution control, cleaner technologies, waste minimization, and amendments to the relevant Acts and Rules.

During the year 2021-22, the Board had deputed 73 officers to attend training in technical, scientific and administrative courses, organizing 11 training programs during the year. **Table 8.1** shows the total number of training programs conducted with the total number of participants.

**Table 8.1 Training Abstract for the year 2021-22.**

| Total Training Programs Conducted | Total Participants |
|---|---|
| 11 | 73 |

# 9. FINANCE AND ACCOUNTS

Annual Accounts of Maharashtra Pollution Control Board for the Financial Year 2021-22 are prepared as per section 40 of the Water (P & CP) Act, 1974 and as per the guidelines given in the Water (P & CP) Rule 1983, in the form Receipt & Payments, Income & Expenditure and Balance Sheet along with schedule of Fixed Assets.

Comptroller & Auditor General of India (CAG) have allotted the statutory audit work of Board to M/s. Kirtane & Pandit LLP, Chartered Accountant. The Audit of Final Accounts was done by M/s. Kirtane & Pandit LLP, Chartered Accountant for the Financial Year 2021-22.

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

The gist of annual Receipts and Payment Accounts, Income and Expenditure Accounts and Balance Sheet for the year 2021-22 is given in this chapter.

**A) Total Income of Board for the year 2021-22 is Rs. 517.76 Crores**

| | |
|---|---|
| 1. Consent Fees | Rs. 350.28 Crores |
| 2. Analysis Charges | Rs. 4.02 Crores |
| 3. Interest on Investment | Rs. 146.21 Crores |
| 4. Reimbursement of Cess | Rs. 5.72 Crores |
| 5. Other Income | Rs. 11.53 Crores |

**B) Total Expenditure of Board for the year 2021-22 is Rs. 163.70 Crores.**

| | |
|---|---|
| 1. Salary & CPF Contribution Expenditure | Rs. 45.25 Crores. |
| 2. Expenditure from Cess Fund | Rs. 5.3 Crores. |
| 3. Expenses on Projects from Cess Fund | Rs. 51.97 Crores. |
| 4. Office Expenditure & Depreciation | Rs. 61.17 Crores. |

C) Excess of Income over expenditure for the year : Rs. 354.06 Crores.

D) Capital Expenditure : Rs. 11.40 Crores.

E) Investment in Fixed Deposits as on 31/03/22 : Rs. 2996.23 Crores.

**Details of accounts for the year 2021-22 are attached as Annexure 6.**

## 10. IMPLEMENTATION OF ACTS & RULES

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

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

    (i) The Environment (Protection) Rules, 1986 and (Amendment Rules, 2016).
    (ii) The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
    (iii) The Bio-Medical Waste Management Rules, 2016.
    (iv) The Solid Waste Management Rules, 2016.
    (v) The Construction and Demolition Waste Management Rules, 2016.
    (vi) The Plastic Waste Management Rules 2016
    (vii) The E-waste (Management) Rules, 2016
    (viii) The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
    (ix) The Noise Pollution (Regulation and Control) Rules, 2000.
    (x) The Batteries (Management and Handling) Rules, 2001
    (xi) The Wetlands (Conservation and Management) Rules, 2010

10. Notifications:
    (i) Environment Impact Assessment Notification, 2006 and amendments thereof.
    (ii) Coastal Regulation Zone Notification, 2011.
    (iii) Maharashtra Plastic and Thermal Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018 (As amended)
    (iv) Various Notifications issued by MoEF, GoI in respect of Environmental Sensitive Areas such as:
        a) Dahanu Notification,
        b) Murud Janjira Notification
        c) Mahabaleshwar-Panchgani Notification
        d) Matheran Notification
        e) Antop Hill Notification etc.
        f) Western Ghat Notification.

**As per these Acts and Rules the following prosecutions have been launched and convictions have been accordingly secured for the year 2021-22**

**1.1 Status of Legal Enforcement for the year April 2021- March 2022**

**I) Status of cases filed before Hon'ble Trial Courts**

| SN. | Name of the Act | No. of cases filed | No. of cases disposed off | No. of cases pending |
|---|---|---|---|---|
| 1. | Water (P&CP) Act, 1974 | 2 | -- | 2 |
| 2. | Air (P&CP) Act, 1981 | -- | -- | -- |
| 3. | Environment (Protection) Act, 1986 & Rules made thereunder | 47 | -- | 47 |

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

| SN. | No. of Writ Petitions/PILs filed | No. of Writ Petitions /PILS disposed off | No. of Writ Petitions pending |
|---|---|---|---|
| 1. | 81 | 26 | 55 |

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

| SN. | No. of Special Leave Petitions/ PILs filed | No. of Special Leave Petitions /PILS disposed off | No. of Special Leave Petitions pending |
|---|---|---|---|
| 1. | 21 | 9 | 12 |

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

| SN. | No. of Appeals/ Applications filed | No. of Appeals/ Applications disposed off | No. of Appeals /Applications pending |
|---|---|---|---|
| 1. | 74 | 22 | 52 |

**V) Status of Appeals/Applications filed before the Public Information Officer/Appellate Authority (P&L Divn.), MPCB, Mumbai under the Right to information Act, 2005 during the period from April,2021 to March, 2022**

| SN. | Particulars | No. of Appeals/ Applications filed | No. of Appeals /Applications disposed off | No. of Appeals /Applications pending |
|---|---|---|---|---|
| 1. | Application | 29 | 29 | -- |
| 2. | Appeals | -- | -- | -- |

## 11. ENVIRONMENTAL AWARENESS & PUBLIC PARTICIPATION

Environmental awareness among communities, corporations, and governments must be promoted in order to achieve sustainable development. As a result, the Board also coordinates a variety of environmental education initiatives throughout the State of Maharashtra. The following environmental awareness initiatives were carried out by the Board in 2021–2022:

- **On the occasion of World Environment Day on 5th June, newspaper awareness headlines**

On the occasion of World Environment Day, environmental awareness headlines were published on the front page and inside pages of Mumbai editions of Maharashtra Times, Loksatta, Sakal, Lokmat, Saamna, Indian Express. At the same time, a one-page awareness message was published in the other edition of the same newspaper in the state. On this occasion Times of India, Mid-Day, Hindustan Times, Punyanagari, Pudari, Navakal, Navbharat and other leading newspapers of the state published awareness messages/messages.

- **Environmentally Friendly Home Ganapati Competition Organized by MPCB and Loksatta**

MPCB and Loksatta jointly organized the Eco Friendly Domestic Ganeshotsav Competition at six divisional levels of Loksatta dailies i.e. Mumbai, Pune, Nashik, Nagpur, Ahmednagar and Aurangabad. In this competition, more than three thousand contestants had participated.

- **Times Green Ganesha**

MPCB, Department of Environment, Government of Maharashtra and Times of India Group organized “Green Ganesha” competition for Mumbai and Pune. An eco-friendly Ganesh competition was organized for the Public Ganeshotsav Mandal and Housing Society in the city of Mumbai. In this campaign, public awareness activities were conducted at various malls, cinema theaters in Mumbai city, Ganesh idol workshop for school students, Ganesh idol workshop for Eco-friendly Ganesh ambassadors, various activities for college students, cleanliness campaign was implemented at Girgaon Chowpatty, Mumbai city during Ganesh Visarjana.

- **ABP My Environmentally Friendly Ganesh Utsav Competition**

MPCB and ABP Mazha; a news channel, had organized a special public awareness campaign to celebrate eco-friendly Ganeshotsav in housing societies in major cities of the state. A special headline was also broadcast on the eco-friendly Ganeshotsav celebrated in the housing societies in Mumbai, Pune, Nashik and Nagpur. This time a special half hour talk show was organized on ABP Mazha. In this initiative, ABP Mazha presented a special program on housing societies celebrating the environmentally friendly Ganeshotsav through a newsletter. Also, popular television artists Samrudhi Kelkar and Harshad Atkari promoted the competition through advertisements.

- **Ganesh Utsav Idol Competition organized by MPCB and Loksatta**

A Ganesh Utsav idol competition was organized by Loksatta wherein MPCB participated in the competition as a co-convenor. In this competition, a special prize was awarded in the category of Best Eco-Friendly Ganesh Murthy.

- **MPCB and Dainik Saamana organised Eco-friendly public Ganesh Utsav competition**

MPCB organized environment friendly public Ganeshotsav competition in collaboration with Dainik Saamana newspaper in Mumbai, Pune and Aurangabad. Public Ganesha Utsav Mandals were invited to participate in this competition through wide notices.

- **News18 Lokmat and MPCB organised Eco-friendly public Ganpati competition**

I.B.N. Lokmat and MPCB in association organised Ganeshotsav Competition for citizens. Contestants were invited to participate through special promos. Four special episodes were aired on this channel under this initiative.

- **Eco-friendly domestic Ganpati competition organized by MPCB and Zee 24 Taas**

MPCB And Zee 24 Taas organised “Home Eco Friendly Ganeshotsav” Competition. Awareness was created through special promos to participate in this competition. On the occasion of this competition, news capsules were broadcast on eminent persons celebrating eco-friendly domestic Ganesh Utsav during the festival.

- **Environment-friendly Ganapati competition for school students and housing societies organized by Sam Marathi and MPCB**

Sam TV and MPCB organised Environmentally Friendly Ganpati event for the state's housing society, school children. Sam TV had appealed for participation in the competition through promos for the event.

- **09 September World Electric Vehicle Day**

September 9 is celebrated all over the world as World Electric Vehicle Day. To justify this day, the Times of India, Indian Express, Hindustan Times, The Hindu, Maharashtra Times, Loksatta, Sakal, Lokmat, Saamana, Pudhari, Punyanagari, Prahar, Nawakal, published a one-page public awareness message.

- **Pollution Free Diwali Awareness Campaign**

In order to celebrate pollution free Diwali, through various public awareness activities, for the last decade, a wide public awareness campaign has been carried out on behalf of MPCB. As part of this, a one-page awareness message was published in all local newspapers. At the same time, Marathi news channels Zee 24 Hours, ABP Mazha, TV 9, News 18 Lokmat, Sam TV, Jai Maharashtra, Lokshahi Varta, Doordarshan broadcasted awareness messages through famous film artists Abhijeet Khandkekar and Tejashree Pradhan.

- **Photothon**

Photothon 2021 is an innovative competition for photographers, in this competition 5 Photographs of any environmental issues over a period of 24 hours are presented. For the winning contestants Excellent Photograph, micro photograph etc are given. The award ceremony was held at the main event of World Environment Day. The competition was organized in Mumbai, Pune and Nashik.

- **December 02 National Pollution Control Day**

On the occasion of this day, a leading public awareness message on pollution control was published in the leading Marathi and English newspapers in the state.

- **Extensive public awareness in the newspaper about the successful completion of two years of state government**

On the completion of two years of the tenure of the state government, the leading newspapers of the state published extensive information about the Majhi Vasudhanra Abhiyan. On this occasion, important information was published about Maji Vasudhanra Abhiyan, which plays an important role in pollution control by involving the common citizens for environmental conservation and protection of the entire India and the positive changes achieved through it.

- **01 January 2022**

In order to make environmental resolutions while welcoming the new year, the leading newspapers of the state, public awareness messages were published in Indian Express, Loksatta, Sakal, Free Press Journal and other newspapers.

➢ **February 2022**

Dilip Kulkarni and Mrs. Kulkarni, who have done valuable work in environmental conservation, were honoured with the Mata Samman Award on behalf of both the Maharashtra Pollution Control Board and the Maharashtra Times at the Mata Samman Award ceremony of the newspaper Maharashtra Times. In Loksatta newspaper's Tarun Tejnakit award ceremony, in which dignitaries in various fields such as art, sports, industry, health, environment, social causes are awarded, MPCB participated as an eco-friendly partner. In one such award-winning ceremony, an attempt was made to increase the environment conservation movement by participating in the unique honour award ceremony given on behalf of Zee 24.

➢ **Eco Friendly Holi**

The message of pollution free Holi was published in the leading newspapers of the state to ensure that the environmentally friendly Holi is celebrated in compliance with the Corona rules.

| | |
|---|---|
|  | **On behalf of Maharashtra Times and MPCB, Shri. Dilip Kulkarni awarded with Mata Samman 2022 for outstanding achievements in the field of environment** |
|  | **Officers and Staff of the Board at the ABP Maja Home Ganeshotsav Competition 2021 Prize Distribution** |

## 12. IMPORTANT MATTERS DEALT WITH BY THE BOARD

### 12.1 Achievements of Air Pollution Control section;

Following are the achievements of Air Pollution Control Section during the reporting year;

1. Implementation of City Clean Air Action Plans under the National Clean Air Programme (NCAP): MPC Board 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%–30% reduction of $PM_{2.5}$ and $PM_{10}$ concentration by 2024.
2. Fund of Rs. 2,981 Cr. has been allocated to Maharashtra State under Fifteenth Finance Commission (XV-FC) grants. Utilization of funds released to the State under NCAP [Rs. 63.15 Cr.] and XV-FC grants [Rs. 1,193 Cr.] for air quality improvement through implementation of various activities such as E-vehicle procurement for public transport, greening of traffic corridors & open spaces, management of C&D waste, purchase of mechanical sweepers, public outreach and capacity building activities, etc.
3. In addition, under XV-FC Rs. 41.34 Cr. has been released to Maharashtra State as incentive grants for good performance of the six million-plus Urban Agglomerations/Cities of the State.
4. To strengthen the existing air quality monitoring network of the State which comprises of 139 monitoring stations [23 CAAQMS + 116 Manual Stations], the Board has installed 47 Continuous Ambient Air Quality Monitoring Stations (CAAQMS).
5. Work order issued for procurement of 15 Nos. mobile monitoring vans and the inauguration shall be done shortly.
6. Provided assistance in Deployment of E-mobility - Maharashtra Electric Vehicle Policy, 2021.
7. Development of Mobile Application “ROKO” for calculation of carbon footprint for first time in India.
8. MPC Board is working on the development of “Maharashtra State Clean Air Action Plan” based on airshed approach, hotspots and emission inventory of polluting sources, etc.
9. 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 2040’s or sooner.
10. "Sensitization-cum-Review Workshop under NCAP and XV-FC Million Plus Cities Challenge Fund for Western Region (Gujarat, Goa, Madhya Pradesh and Maharashtra)" was organized on 23$^{rd}$ & 24$^{th}$ November 2021 in Mumbai under the chairmanship of Hon’ble Minister (Ministry of Environment, Forest and Climate Change, GoI).
11. Conducted studies for assessment of Low- Cost Sensor based $PM_{2.5}$ and $PM_{10}$ Monitoring Network in Maharashtra.
12. For improvisation of the city action plans prepared under NCAP and to achieve tangible results in improvement of air quality, Board is undertaking Source Apportionment (SA) & Emission Inventory (EI) Studies along with IIT (Bombay) and NEERI, Nagpur for 19 non-attainment/million-plus cities.

13. The Board is also associated with various advanced studies related with Air Pollution in recent past such as- Pre & Covid Period Air Quality monitoring and its analysis, low sensor-based Air Quality monitoring, Drone based Air Quality monitoring, etc.

## 12.2 Achievements of IT Division

Software developments in various Integrated Management Information System (IMIS) modules, which is heart of Board's digitalisation of Core Office processes and enhancement/ upgradation in IT infrastructure have been initiated during the reporting year. The efforts taken for this have been fruitful, as end-users are able to add greater value to their work and has also received appreciation from those concerned.

### 1. Software related initiatives

The functioning of the various Office functions of the Board is very much entangled with the development of the Integrated Management Information System (IMIS) deployed by the Board. As for the increasing demand for enabling IT for Board's various work process, new modules are developed as per the requirement, as shown below.

**A. Bank Guarantee, JVS & Sample registration module with Consent Processing**

Initially, these modules functioned as stand-alone systems. Now, as required, all the modules are linked to consent processing and concerned MPCB official can get all the details required for processing the application under a single head. This integration has simplified an important task of checking details such as Bank Guarantee details associated with the application.

**B. Hazardous Waste Manifest Dashboard**

The manifest. generated by industries with respect to their facility needs to be checked on daily basis. For convenience and accuracy, a dashboard has been developed and provided to all Common Hazardous Waste Treatment Storage and Disposal Facilities (CHWTSDFs) to generate online reports for manifest submitted with respect to their facility.

**C. Hazardous Waste Generating Inventory & Auto Generation of Hazardous waste Annual Report**

The module for online inventory for Hazardous waste generating industries has been developed now. The new software developed allows auto consent to be linked to the Inventory module and Hazardous waste inventory is generated in a finalized format.
The module also enables Board to generate auto annual report of Hazardous waste which needs to be submitted to CPCB every year.

**D. Integration of new services with MAITRI**

As a step to Ease of Doing Business (EoDB), Board developed a module for integration of EC-MPCB portal with MAITRI-– 'Maharashtra Industrial Trade & Investment' facilitation cell for online services. IT development team at MPCB now has enhanced the ability of this module to integrate further services like Construction & Demolition Authorization, Bio-Medical waste Authorization, Battery Dealer Authorization and MSW Authorization with MAITRI, achieving a single window portal for any services.

### 2. Enhancement of Digital Signature for Consent Application and Blockchain

In view of total Office automation and move towards Digital First, Board has implemented e-Signature in PFX format (no hardware key required). This does away with manual signature and the document gets authenticated digitally. This process is integrated with the IMIS application. Provision has been made to digitally sign the consent certificate which are generated automatically using the auto consent module.

Initially, Board has procured the signatures for Member Secretary and HoDs as a pilot project. With its success the usage of e-signatures was also employed for use by all Regional and

Sub-Regional Officers of the Board. Also, this digital signature is incorporated with Block chain technology as well to ensure end-to-end enhanced security while issuing Consent Grant copy.

**3. Optimization of IT Infrastructure Security**

**A. Information Security Certification:**
To optimize Board's work processes and as a step towards best practices, Board has recently qualified itself with ISO 9001:2015 for Quality Management Systems for its Offices and ISO 27001 Information Security Management Systems for Board's Data Center. As a mandatory requirement Internal Audit has also been conducted. After completing the First-year audit Board was granted ISO 27001 Certification for its Data Centre at Head Office, in June 2021. Thereafter, second year Surveillance Audit was also completed successfully in June 2022.

**B. Information Systems Security Audit:**
Committed to best practices, Board employed CERT empanelled Information Security Auditor to perform Information Security audit of Data Center Infrastructure, Desktops and Servers in the Data Centre as well as the applications it is using for its work processes.

Both the initial and final Audits were carried, and vulnerabilities of High and Medium nature were annihilated, certifying the Board as safe for its IT services.

**12.3 Achievements of Bio-Medical Waste Management Section during year 2021-22**

Development of Simplified Online Grant of Combined Consent and BMW Authorization Application for Health Care Establishments.

**A) Present Combined Consent and BMW Authorization Application Procedure and Lacunas-**

i. Applicant needs to apply two different applications for Consent Under Water (prevention & Control of Pollution) Act, 1974 and Air (prevention & Control of Pollution) Act, 1981 and BMW Authorization Under BMW Management Rules, 2016, creating confusion and many time Applicant submitting either the Authorization or Consent application resulting in Reapplication.
ii. Applicant is required to submit Separate fee for
    a) Consent and
    b) BMW Authorization

    in respective Application creating confusion about fees.
iii. Consent Application format is more industry oriented having fields related to industries such as information of Raw material, manufacturing process, Product Details etc. which is not related HCEs and hence posing difficult for HCEs.
iv. Information required for BMW Annual Report and for reporting to CPCB information's is not captured in system thereby increasing workload of calling information separately from applicant/ field offices.
v. Irrelevant documents are being collected such Manufacturing process, Industry registration, hazardous waste etc.
vi. No Details about Category wise BMW Generation Quantity as per Schedule I of BMWM Rules, 2016.
vii. No information regarding Sewage Treatment plant unit details, DG Set Details, Boiler etc.
viii. No detailed Water budget (Source and Consumption Quantity)
ix. No Geotagging of HCEs
x. No Bank Guarantee details.

xi. Sample format for Document to be submitted is not provided for guidance purpose.

Considering all the above difficulties MPCB developed new application module

**B) Highlights of New Online System**

**1) Non-Bedded HCEs-**

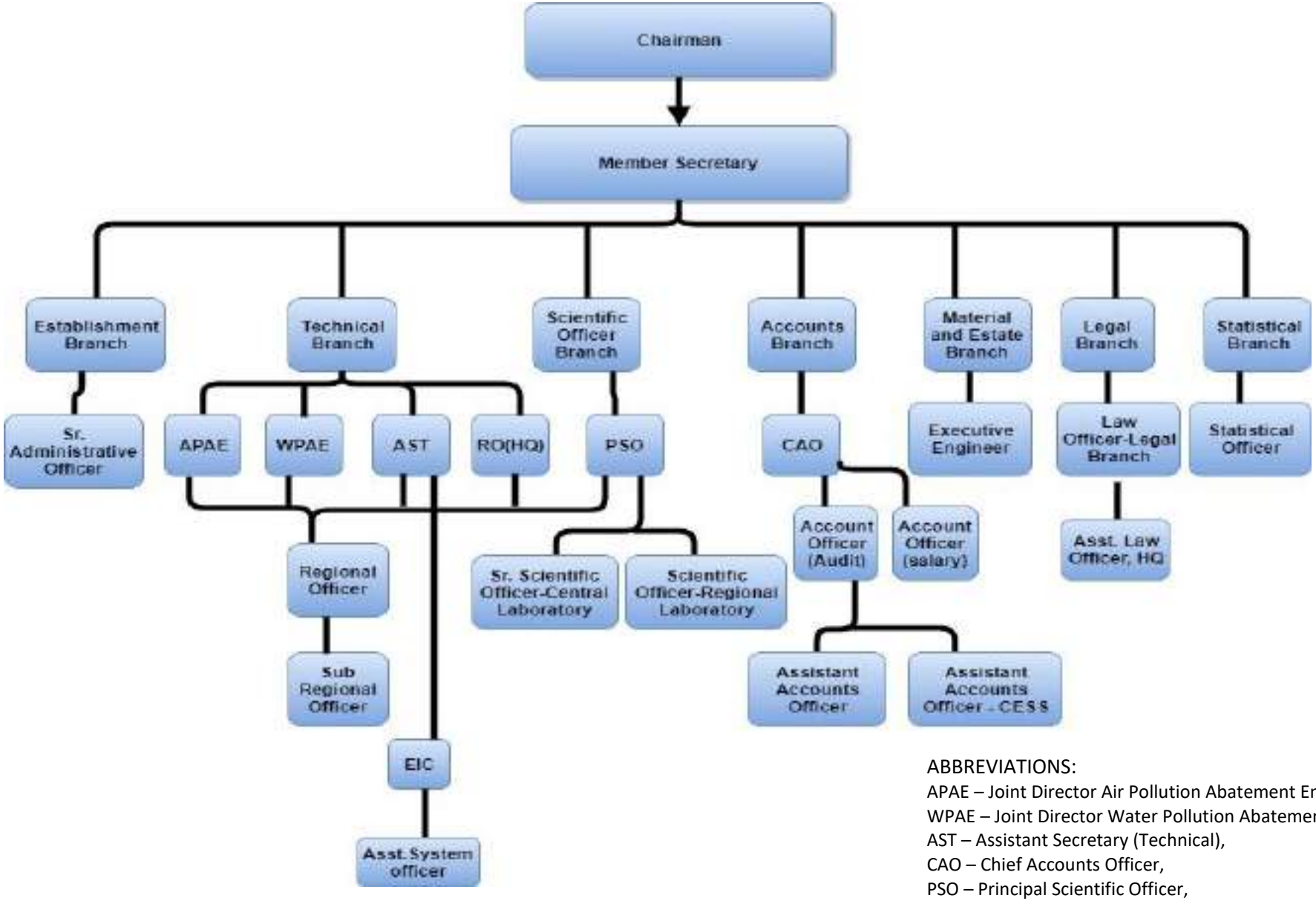
i. Separate Provision provided for Non-bedded HCE- i.e. clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks.
ii. Minimum requirement of Documents
iii. Removed requirement of CA certificate for Capital Investment which is Cuse of concern to Indian Medical Association / Applicant.
iv. Processing and Grant of Consent & BMW Authorization is Auto-processed without any human intervention based on self-declaration and submission of applicable fee through single window system with e-payment getaway option.
v. Easy process for change in Address or Amendments etc. without any financial charges.

**2) Bedded HCEs-**

i. Applicants need to submit Single Application for Consent and BMW Authorization eliminating confusion.
ii. Combined Consent an BMW Fee is calculated Automatically by system with option of Payment gateway.
iii. Removed Industry related fields from the application and fields relating only to HCE are available.
iv. Location of HCE is captured.
v. BMW generation Qty is taken as per Schedule I of BMWM Rules, 2016
vi. Water Consumption field along with CGWA NOC details.
vii. STP/ ETP unit details field is made available.
viii. Separate section to provide previous Bank Guarantee details.
ix. Field for JVS result and self-testing result is provided.
x. Field for Differentiation of Central/State/ULB/ Pvt hospital
xi. Field provided to capture Allied service provided by HCEs like Path lab, X ray, Pharmacy Etc.
xii. Separate filed provided for Boiler and DG set.

# ANNEXURES

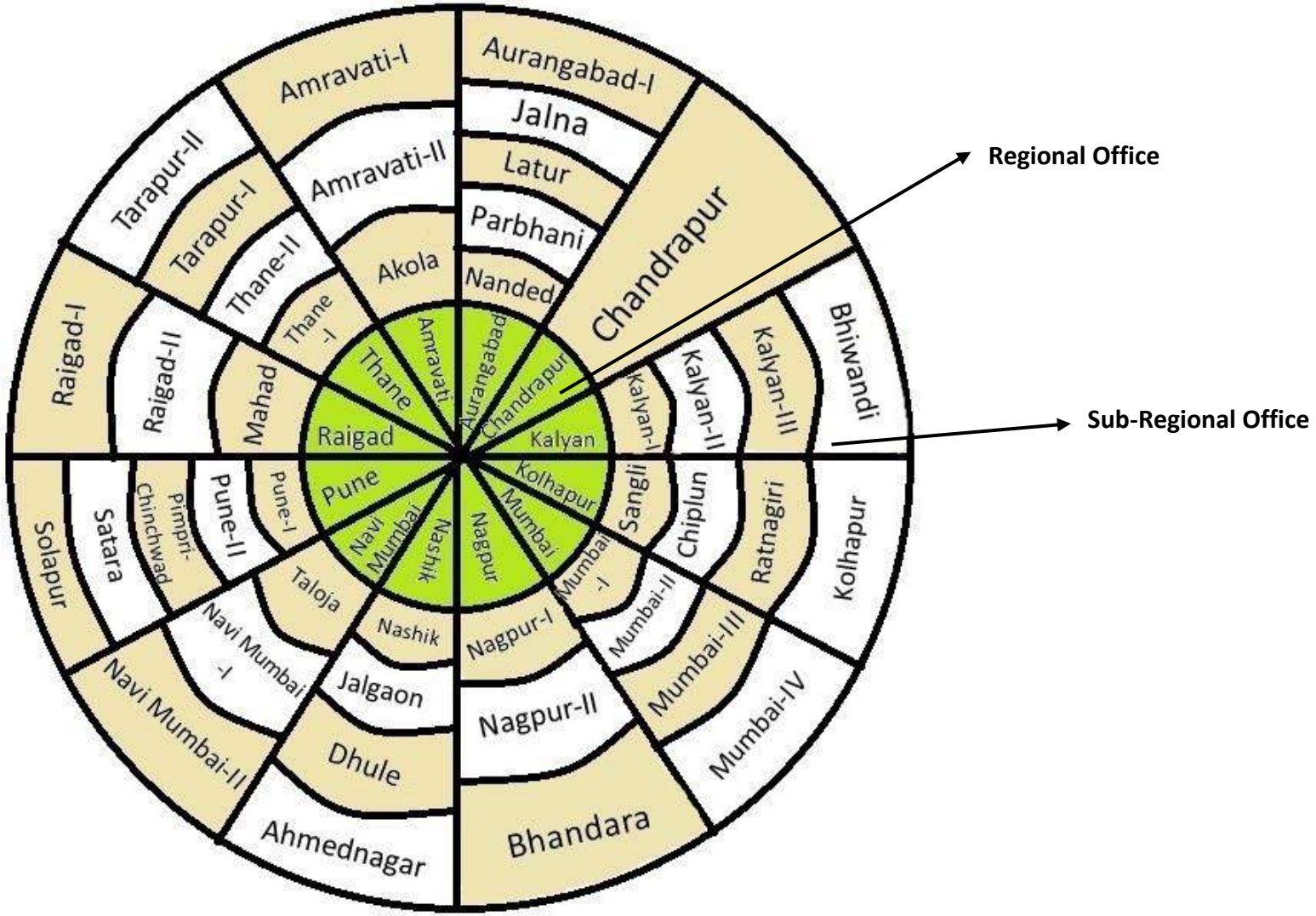
**ANNEXURE 1A - ORANIZATIONAL STRUCTURE OF THE BOARD**



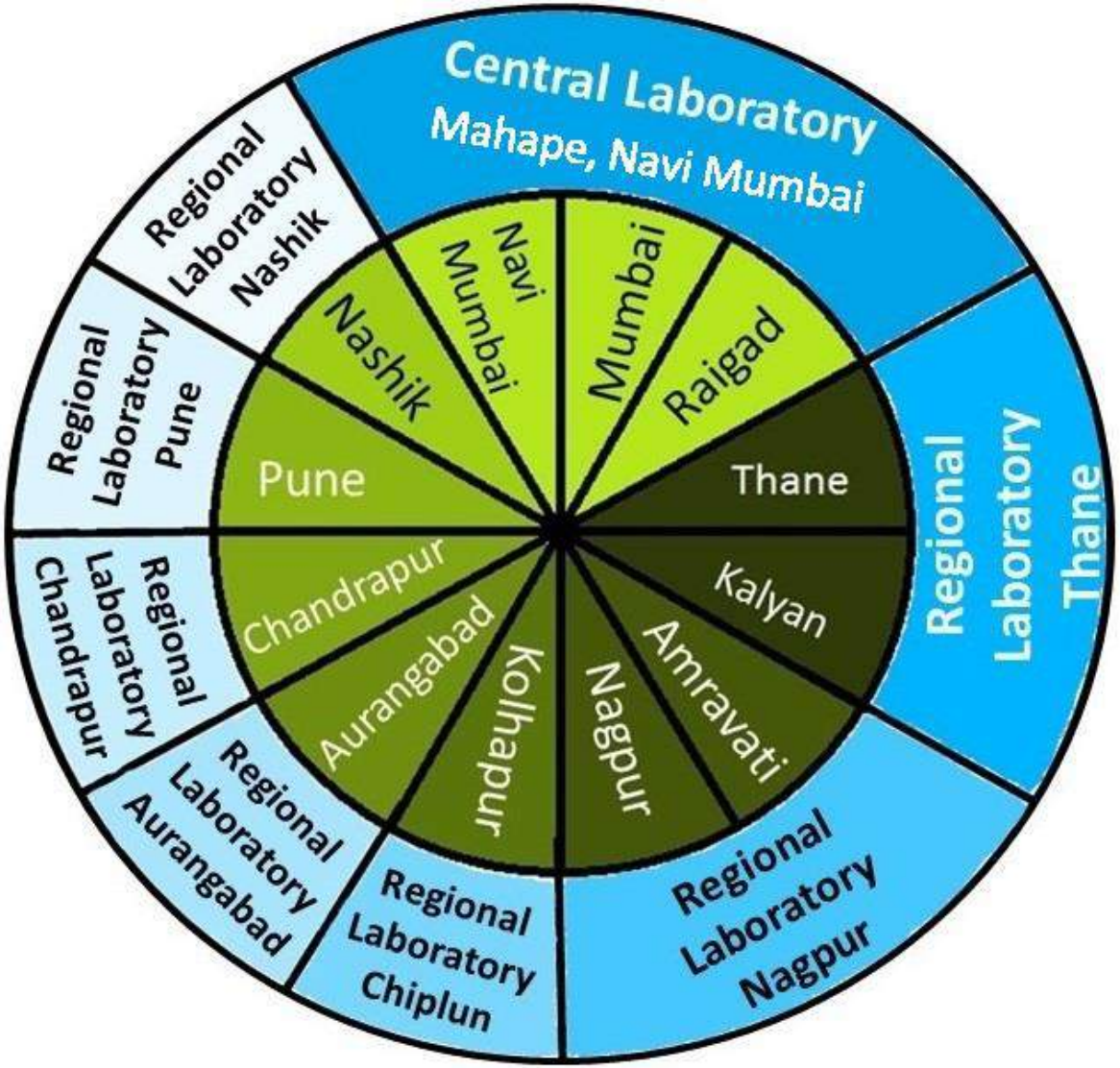

ABBREVIATIONS:
APAE – Joint Director Air Pollution Abatement Engineer,
WPAE – Joint Director Water Pollution Abatement Engineer,
AST – Assistant Secretary (Technical),
CAO – Chief Accounts Officer,
PSO – Principal Scientific Officer,
RO (HQ) – Regional Officer (Headquarter)
EIC – Environment Information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

**ANNEXURE 1B - CHARTS OF FIELD OFFICES AND BOARD LABORATORIES**

**FIELD OFFICES CHART**



**ANNEXURE 1C - BOARD LABORATORIES CHART**



## ANNEXURE 2 - STAFF STRENGTH AS ON 31/03/2022

| Sr. | Posts | Salary Band | Grade | Sanctioned | Filled | Vacant |
|---|---|---|---|---|---|---|
| 1 | Chairman | | | 1 | 1 | 0 |
| 2 | Member Secretary | (PB-4) 37400-67000 | 10000 | 1 | 1 | 0 |
| 3 | Joint Director (Water) | 15600-39100 | 7600 | 1 | 1 | 0 |
| 4 | Joint Director (Air) | 15600-39100 | 7600 | 1 | 1 | 0 |
| 5 | Principal Scientific | 15600-39100 | 7600 | 1 | 1 | 0 |
| 6 | Chief Accounts Officer | 15600-39100 | 7600 | 1 | 1 | 0 |
| 7 | Assistant Secretary | 15600-39100 | 7600 | 1 | 0 | 1 |
| 8 | Senior Law Officer | 15600-39100 | 7600 | 2 | 0 | 2 |
| 9 | Senior Administrative | 15600-39100 | 6600 | 1 | 0 | 1 |
| 10 | Executive Engineer | 15600-39100 | 6600 | 1 | 1 | 0 |
| 11 | Material Officer | 15600-39100 | 6600 | 1 | 0 | 1 |
| 12 | Regional Officer | 15600-39100 | 6600 | 15 | 11 | 4 |
| 13 | Law Officer | 15600-39100 | 6600 | 2 | 2 | 0 |
| 14 | Senior Scientific Officer | 15600-39100 | 6600 | 3 | 2 | 1 |
| 15 | Sub-Regional Officer | 15600-39100 | 5400 | 55 | 53 | 2 |
| 16 | Statistical Officer | 15600-39100 | 5000 | 1 | 1 | 0 |
| 17 | Assistant Secretary (EB) | 15600-39100 | 5000 | 1 | 1 | 0 |
| 18 | Private Secretary | 9300-34700 | 5000 | 2 | 0 | 2 |
| 19 | Administrative Officer | 14600-39100 | 5000 | 1 | 0 | 1 |
| 20 | Scientific Officer | 14600-39100 | 5000 | 9 | 7 | 2 |
| 21 | Account Officer | 14600-39100 | 5000 | 2 | 2 | 0 |
| 22 | Junior Scientific Officer | 9300-34700 | 4400 | 26 | 16 | 10 |
| 23 | Assistant Accounts | 9300-34700 | 4400 | 11 | 2 | 9 |
| 24 | Assistant Law Officer | 9300-34700 | 4400 | 3 | 1 | 2 |
| 25 | Deputy Engineer | 9300-34700 | 4400 | 1 | 0 | 1 |
| 26 | Senior Steno | 9300-34700 | 4400 | 5 | 5 | 0 |
| 27 | Junior Steno | 9300-34700 | 4300 | 27 | 9 | 18 |
| 28 | Field Officer | 9300-34700 | 4300 | 204 | 151 | 53 |
| 29 | Head Accountant | 9300-34700 | 4300 | 20 | 9 | 11 |
| 30 | Legal Assistant | 9300-34700 | 4300 | 4 | 0 | 4 |
| 31 | Junior Scientific | 9300-34700 | 4200 | 40 | 26 | 14 |
| 32 | First Clerk | 9300-34700 | 4200 | 17 | 13 | 4 |
| 33 | Statistical Assistant | 9300-34700 | 4200 | 1 | 0 | 1 |
| 34 | Draftsman | 4200-20200 | 2700 | 1 | 0 | 1 |
| 35 | Field Inspector | 4200-20200 | 2700 | 42 | 3 | 39 |
| 36 | Senior Clerk | 4200-20200 | 2400 | 50 | 31 | 19 |
| 37 | Assistant Draftsman | 4200-20200 | 2400 | 2 | 0 | 2 |
| 38 | Electrician | 4200-20200 | 2400 | 2 | 1 | 1 |
| 39 | Tracer | 4200-20200 | 2000 | 6 | 1 | 5 |
| 40 | Laboratory Assistant | 4200-20200 | 2000 | 7 | 3 | 4 |
| 41 | Junior Clerk | 4200-20200 | 1900 | 64 | 53 | 11 |
| 42 | Driver | 4200-20200 | 1900 | 74 | 48 | 26 |
| 43 | Instrument Fitter | 4200-20200 | 1900 | 1 | 1 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 44 | Daftari | 4200-20200 | 1900 | 14 | 0 | 14 |
| 45 | Naik | 4440-7440 | 1600 | 2 | 0 | 2 |
| 46 | Roneo Operator | 4440-7440 | 1600 | 1 | 0 | 1 |
| 47 | Peons | 4440-7440 | 1300 | 88 | 34 | 54 |
| 48 | Chowkidar | 4440-7440 | 1300 | 20 | 9 | 11 |
| 49 | Sweepers | 4440-7440 | 1300 | 3 | 3 | 0 |
| | | **Total** | | **839** | **505** | **334** |

**CONVERTED TEMPORARY ESTABLISHMENT AS ON 31/03/2022**

| SN. | Posts | Salary Band | Grade salary | Filled In |
|---|---|---|---|---|
| 1. | Junior Scientific Assistant | 9300-34800 | 4200 | 11 |
| 2. | Laboratory Assistant | 4200-20200 | 2000 | 5 |
| 3. | Junior Clerk | 4200-20200 | 1900 | 4 |
| 4. | Driver | 4200-20200 | 1900 | 1 |
| 5. | Peon | 4440-7440 | 1300 | 3 |
| **Total** | | | | **24** |

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

| Sr. No. | Name of the Region | Name and address | Jurisdiction | Telephone & Fax No. |
|---|---|---|---|---|
| **1** | **Head Office** | **Maharashtra Pollution Control Board Kalpataru Point, 3rd and 4th floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022** | | **Tel - 022-24010437/24020781** |
| **2** | **Central Lab** | **Central Laboratory, Maharashtra Pollution Control Board, "Nirmal Bhavan", P-3, MIDC Industrial Area, Mahape, Navi Mumbai- 400 701.** | | **Tel - 02267195031/67195032** |
| **Regional Offices, Sub-Regional Offices and Regional Laboratories of the Board** | | | | |
| **3** | **Regional Office Mumbai** | **Maharashtra Pollution Control Board, Kalpataru Point, 1st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022** | **Mumbai Municipal Corporation Area** | **Tel – 022-24020781** |
| **I)** | SRO Mumbai - I | Kalpataru Point, 1st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022 | Mumbai Island, Ward No. A.B.C. D.F F(South) F(North) G(South) and G(North) | Tel – 022-24020781 |
| **II)** | SRO Mumbai - II | Kalpataru Point, 1st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022 | Part Of Mumbai Suburb, Ward No. M(East) M(West), H(East) H(West) and L. | Tel – 022-24020781 |
| **III)** | SRO Mumbai - III | Kalpataru Point, 1st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022 | Part Of Mumbai Suburb, Ward No. (East) K(West), S, N, and P (South). | Tel – 022-24020781 |
| **IV)** | SRO Mumbai - IV | Kalpataru Point, 1st floor, Opp. PVR Theatre, Sion (E), Mumbai-400 022 | Suburb of Mumbai, Ward No. P(North), R(North), R(South) and T. | Tel – 022-24020781 |
| **4** | **Regional Office Thane** | **Maharashtra Pollution Control Board, Plot No P-30, 5th floor Office Complex Building, Near Mulund Checknaka, Thane- 400604.** | **Part of Thane district as mentioned against the Sub-Regional Offices.** | **Tel –022 -25802272** |
| | Thane Lab | Plot No. P-30, 5th floor, Office Complex Building Mulund Checknaka, Thane. | | Tel - 022- 25829582 |
| **I)** | SRO Thane - I | Maharashtra Pollution Control Board, Plot | Thane Municipal Corporation Area | Tel – 022 25829582 |

| | | | | |
|---|---|---|---|---|
| | | No P-30, 5th floor Office Complex Building, Near Mulund Checknaka, Thane | | |
| **II)** | SRO Thane - II | Maharashtra Pollution Control Board, Plot No P-30, 5th floor Office Complex Building, Near Mulund Checknaka, Thane | Thane taluka excluding Thane Municipal Corporation Area) Vasai taluka | Tel –022 25829582 |
| **III)** | SRO Tarapur - I | MIDC Office Building, Boisar Station, Post Taps, Tarapur, Dist.Thane | Tarapur MIDC and related area. | Tel - 02525 -273314 |
| **IV)** | SRO Tarapur - II | MIDC Office Building Boisar Station, Post Taps, Tarapur, Dist. Thane | Dahanu, Talasari, Mokhada, Javhar and Vikramgadh Taluka and Palghar taluka (Except SRO - Tarapur I jurisdiction). | Tel - 02525 -261581 |
| **5** | **Regional Office Navi Mumbai** | **Maharashtra Pollution Control Board, Raigad Bhavan, 7th floor, Sector - 11, C.B.D Belapur, Navi Mumbai** | **Part of Thane and Raigad district as mentioned against the Sub-Regional Offices** | **Tel – 022-27572739** |
| **I)** | SRO Navi Mumbai - I | Raigad Bhavan, 7th floor Sector - 11, C.B.D Belapur, Navi Mumbai | Southward direction of Road in front of CETP (Hills to Pune Highway). The following areas Mahape, Koparkhairne, Sarvali, Ghansoli, Rabale, Dive, Airoli, Dighe (NMMC) AAQM stations, TTC (WMA) activities + Diva Creek | Tel – 022-27572740 |
| **II)** | SRO Navi Mumbai - II | Raigad Bhavan, 7th floor, Sector - 11, C.B.D Belapur, Navi Mumbai | North limit Navi Mumbai Municipal Corporation (NMMC) starting with village-Dighe. The areas of Vashi, Borivli, Ravane, Turbhe, Sanpada, Belapur + CETP activities + Vashi Creek. | Tel – 022-27572740 |
| **III)** | SRO Taloja | Raigad Bhavan, 7th floor, Sector - 11, C.B.D Belapur, Navi Mumbai | MIDC Taloja and Uran Taluka. | Tel – 022-27572740 |
| **6** | **Regional Office Raigad** | **Maharashtra Pollution Control Board, Raigad Bhavan, 6th floor, Sector – 11, C.B.D Belapur, Navi Mumbai** | **Part of Raigad district as mentioned against the Sub-Regional Offices under him.** | **Tel – 022-27572620** |
| **I)** | SRO Raigad - I | Raigad Bhavan, 6th floor, Sector – 11, C.B.D Belapur, Navi Mumbai | Khalapur taluka and Panvel taluka (Except MIDC) | Tel -022-27572739 |
| **II)** | SRO Raigad - II | Raigad Bhavan, 6th floor, Sector – 11, C.B.D Belapur, Navi Mumbai | Pen, Karjat, Sudhagad taluka. | Tel – 022-27572739 |
| **III)** | SRO Mahad | Samaik Suvidha Kendra Bldg., MIDC - Mahad, District Raigad - 402 309 | Mahad, Mhasla, Mangaon, Mrwardhan and Poladpur taluka. | Tel – 02145-232372 |

| | | | | |
|---|---|---|---|---|
| **7** | **Regional Office Kalyan** | **Maharashtra Pollution Control Board, Sidhivinayak Sankul,3rd and 4th Floor, Station Road, Kalyan (West) - 421301** | **Kalyan, Bhiwandi, Ulhasnagar, Badlapur, Wada, Murbad and Shahapur talukas of Thane district.** | **Tel – 0251-2027343/0251-2310212** |
| **I)** | SRO Kalyan - I | Maharashtra Pollution Control Board, Sidhivinayak Sankul,3rd and 4th Floor, Station Road,Kalyan (West) - 421301 | Kalyan taluka. | Tel - 0251 - 2310167 |
| **II)** | SRO Kalyan - II | Maharashtra Pollution Control Board, Sidhivinayak Sankul,3rd and 4th Floor, Station Road,Kalyan (West) - 421301 | Ulhasnagar, Badlapur taluka. | Tel - 0251 - 2310167 |
| **III)** | SRO Kalyan - III | Maharashtra Pollution Control Board, Sidhivinayak Sankul,3rd and 4th Floor, Station Road,Kalyan (West) - 421301 | Wada, Murbad, Shahapur Taluka | Tel - 0251 - 2310167 |
| **IV)** | SRO Bhiwandi | Maharashtra Pollution Control Board, Sidhivinayak Sankul, 3rd and 4th Floor, Station Road, Kalyan (West ) - 421301 | Bhiwandi taluka. | Tel – 0251 - 2310167 |
| **8** | **Regional Office Pune** | **Jog Center, 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.** | **Pune, Satara and Solapur district.** | **Tel – 020-25811627** |
| | **Pune Lab** | **Jog Center, 3rd floor, Mumbai Pune Road, Wakdewadi, Pune - 411003.** | | **Tel - 020-25811694** |
| **I)** | SRO Pune - I | Jog Center, 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003. | Pune corporation area, Daund, Indapur, Baramati, Purandar, Bhor and Velhe taluka of Pune district. | Tel - 020 -25811694 |
| **II)** | SRO Pune - II | Jog Center, 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003. | Haveli taluka: (excluding Pimpri Chinchwad Corporation Area) Khed, Mulshi, Ambegaon, Junnar, Maval and Shirur taluka of Pune district. | Tel – 020-25816451 |
| **III)** | SRO Pimpri - Chinchwad | Jog Center, 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003. | Pimpri Chinchwad Municipal Corporation area including MIDC Pimpri, Bhosari and Akurdi. | Tel - 020-25810222 |
| **IV)** | SRO Satara | Sub-Regional Office, Satara New Government Bhavan, 2nd Floor, Near S.T. Sand, Sadar Bazar, Satara - 415 001 | Satara district. | Tel - 02162-233527/237789 |
| **V)** | SRO Solapur | 4/B, Bali Block, Civil Lines, Opp. Government Milk Scheme, Saat Rasta, Dist. Solapur - 413003 | Solapur district. | Tel - 0217– 2319850 |
| **9** | **Regional** | **Udyog Bhavan, First floor, Trimbak** | **Nashik, Ahmednagar, Jalgaon, Dhule, Nandurbar** | **Tel - 0253-2365150** |

| | | | | |
|---|---|---|---|---|
| | **Office Nashik** | **Road, Near ITI, Satpur, Nashik - 422 007** | **district.** | |
| | **Nashik Lab** | **Udyog Bhavan, First Floor, Trimbak Road, Near ITI, Satpur, Nashik - 422007** | | **Tel - 0253-2365161** |
| **I)** | SRO Nashik | Udyog Bhavan, first floor, Trimbak Road, Near ITI, Satpur, Nashik - 422 007 | Nashik distrct. | Tel - 0253-2365161 |
| **II)** | SRO Jalgaon | Old Mr Bhikamchand Jain Municipal Market Building, Hall No. A, 3rd floor, Jalgaon - 425 001 | Jalgaon district. | Tel - 0257-2221288 |
| **III)** | SRO Dhule | 2nd floor, Fulchand Plaza, B.C. College Road, Near S.S.V.P.S. Engineering College, Near Vidya Nagari, Devpur, Dhule – 424 001. | Dhule district | Tel - 07184-260629 |
| **IV)** | SRO Ahmednagar | Savitribai Fule Vyapari Sankul, 1st Floor, Hall No. 2 & 3, Near TV Center, Savedi, Ahmednagar- 414003 | Ahmednagar district. | Tel - 0241-2470852 |
| **10** | **Regional Office Aurangabad** | **Paryavaran Bhavan, A - 4/1, MIDC Area, Chikalthana, Near Seth Nandlal Dhoot Hospital, Jalna Road, Aurangabad - 431 210** | **Aurangabad, Jalna, Parbhani, Hingoli, Nanded, Beed, Latur, Osmanabad district of Marathawada** | **Tel - 0240-2473462** |
| | **Aurangabad Lab** | **Paryavaran Bhavan, A - 4/1 , MIDC Area , Chikalthana,Near Seth Nandlal Dhoot Hospital , Jalna Road , Aurangabad - 431 210** | | **Tel - 0240-2473463** |
| **I)** | SRO Aurangabad - I | Paryavaran Bhavan, A - 4/1, MIDC Area, Chikalthana, Near Seth Nandlal Dhoot Hospital, Jalna Road, Aurangabad - 431 210 | Aurangabad district | Tel - 0240-2473463 |
| **II)** | SRO Latur | Sub-Regional Office Latur, Dev Towers, Opposite Tahasil Office, Plot No. RL-2045, Main Road, Latur - 413512 | Latur, Osmanabad district | Tel - 02382-252672 |
| **III)** | SRO Parbhani | Sub-Regional Office Parbhani, Devkripa Building, 1st Floor, Rangnath Maharaj Nagar, Nandkheda Road, Parbhani - | Parbhani district (part), Hingoli and Parli | Tel - 02452-226687 |

| | | | | |
|---|---|---|---|---|
| | | 431401 | | |
| **IV)** | SRO Nanded | Sub-Regional Office Nanded, Lahuti Complex, 2nd Floor, Near Shivaji Statue, Vajirabad Nanded- 431601 | Nanded District | Tel - 02462-242492 |
| **V)** | SRO Jalna | Sub-Regional Office, Jalna, plot no. p 3/1 and p 3/2, Phase-2, MIDC Jalna, Near Hotel Aadarsh Palace, Jalna Aurangabad Road - 431203 | Jalna District | Tel - 02482-220120 |
| **11** | **Regional Office Nagpur** | **Maharashtra Pollution Control Board, Udyog Bhavan, 6th floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001** | **Nagpur, Wardha, Bhandara, Gondia, Chandrapur, and Gadchiroli district.** | **Tel - 0712-2565308** |
| | **Nagpur Lab** | **Udyog Bhavan , 5th floor , Near Sales Tax Office, Civil Line , Nagpur - 440 001** | | **Tel - 0712-2560152** |
| **I)** | SRO Nagpur - I | Udyog Bhavan, 5th floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001 | Nagpur Municipal Corporation area, Kamati Katol, Kalmeshwar, Ramtek and Parshivani, Narkhed talukas of Nagpur district. | Tel - 0712-2560152 |
| **II)** | SRO Nagpur - II | Udyog Bhavan, 5th floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001 | Wardha district, Hingana taluka, (excluding Nagpur Municipal Corporation area) Umred Bhivapur, Kuhi and Nagpur Gramin taluka of Nagpur district. | Tel -0712-2560152 |
| **III)** | SRO Bhandara | Sub-Regional Office, Bhandara, Tatya Tope ward near city petrol pump, Miskin Mahal Road, Bhandara-441 904 | Bhandara and Gondia District. | Tel - 07184-260629 |
| **12** | **Regional Office Amaravati** | **"Sahakar Surbhi" Bapatwadi near Vevekanand Colony, Amaravati - 444606** | **Amaravati, Akola, Buldhana, Vashim and Yavatmal District.** | Tel - **0721-2563592/93/94/97** |
| **I)** | SRO Amaravati – I | Sahakar Surbhi Bapatwadi near Vevekanand Colony, Amaravati - 444606 | Amaravati District. | Tel - 0721-2563592/93/94/97 |
| **II)** | SRO Amaravati – II | Sahakar Surbhi Bapatwadi near Vevekanand Colony, Amaravati - 444606 | Yavatmal district, Vashim District. | Tel - 0721-2563592/93/94/97 |
| **III)** | SRO Akola | ALSI Plot, in front of Hutatma Statue, Nehru Park Square, Akola - 444001 | Akola and Buldhana District. | Tel - 0724-2402344 |
| **13** | **Regional Office** | **Maharashtra Pollution Control Board, Udyog Bhavan Building, Near Collector** | **Sangli, Kolhapur and Sindhudurg district** | **Tel - 0231-2652952** |

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

## ANNEXURE 4 - INDUSTRY STATISTICS FOR THE YEAR 2021-22

| | Green | | | Green Total | Orange | | | Orange Total | Red | | | | Red Total | White | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RO/SRO | LSI | MSI | SSI | | LSI | MSI | SSI | | LSI | MSI | SSI | HCE | | | |
| RO Nashik | 107 | 76 | 5883 | 6066 | 175 | 128 | 2961 | 3264 | 387 | 83 | 1607 | 1498 | 3575 | 2562 | 15467 |
| RO-Amrawati | 2 | 13 | 4783 | 4798 | 27 | 18 | 1848 | 1893 | 29 | 5 | 122 | 398 | 554 | 589 | 7834 |
| RO-Aurangabad | 62 | 71 | 5550 | 5683 | 129 | 108 | 2301 | 2538 | 314 | 37 | 502 | 1591 | 2444 | 219 | 10884 |
| RO-Chandrapur | 9 | 4 | 698 | 711 | 19 | 33 | 451 | 503 | 139 | 41 | 99 | 171 | 450 | 162 | 1826 |
| RO-Kalyan | 34 | 34 | 2011 | 2079 | 117 | 66 | 1292 | 1475 | 148 | 64 | 2002 | 511 | 2725 | 549 | 6828 |
| RO-Kolhapur | 44 | 24 | 7449 | 7517 | 91 | 108 | 4485 | 4684 | 270 | 72 | 1172 | 931 | 2445 | 3716 | 18362 |
| RO-Mumbai | 26 | 35 | 2425 | 2486 | 604 | 219 | 1098 | 1921 | 273 | 27 | 679 | 1678 | 2657 | 74 | 7138 |
| RO-Nagpur | 18 | 28 | 2640 | 2686 | 124 | 86 | 2725 | 2935 | 252 | 28 | 992 | 751 | 2023 | 307 | 7951 |
| RO-Navi Mumbai | 71 | 69 | 2063 | 2203 | 164 | 98 | 1179 | 1441 | 198 | 51 | 1053 | 280 | 1582 | 564 | 5790 |
| RO-Pune | 467 | 327 | 7863 | 8657 | 1469 | 359 | 4644 | 6472 | 1188 | 145 | 2452 | 1225 | 5010 | 1810 | 21949 |
| RO-Raigad | 42 | 28 | 677 | 747 | 111 | 43 | 622 | 776 | 228 | 46 | 452 | 202 | 928 | 68 | 2519 |
| RO-Thane | 35 | 24 | 1946 | 2005 | 233 | 38 | 968 | 1239 | 206 | 46 | 936 | 783 | 1971 | 165 | 5380 |
| Grand Total | 917 | 733 | 43988 | 45638 | 3263 | 1304 | 24574 | 29141 | 3632 | 645 | 12068 | 10019 | 26364 | 10785 | 111928 |

*Note –
LSI: Large Scale Industries
MSI: Medium Scale Industries
SSI: Small Scale Industries

## ANNEXURE 5 - DETAILS OF TRAINING PROGRAMS ATTENDED BY MPCB OFFICIALS DURING THE YEAR 2021-2022.

| Sr. No. | Training/Workshop Dates and Period | Training Venue | Subject | No of Participants | Name of Participants |
|---|---|---|---|---|---|
| 1 | 25/05/2021 to 27/05/2021 | Online Training | Air pollution monitoring and modelling. | **2** | 1) Rekha Togre<br>2) Gajnan Khadkikar |
| 2 | 30/08/2021 to 31/08/2021 | Online Training | Microplastic analysis and persistent organic pollutants. | **2** | 1) Rutuja Bhalerao<br>2) Tanaji Yadav |
| 3 | 09-11-2021 | Online Training | Workshop on "Advanced metagenomics sensors and photocatalysis for antimicrobial resistance elimination. | **3** | 1) N N Gurav<br>2) Raju Injulkar<br>3) Shakhil Shaikh |
| 4 | 01/10/2021 to 12/10/2021 | Online Training | National workshop on continuous emission monitoring systems. | **8** | 1) V M Motghare<br>2) Sagar Warhekar<br>3) Bhagwan Maknikar<br>4) Nikhil More<br>5) Abhijit Kasbe<br>6) Sameer Hundlekar<br>7) Mahesh Chavan<br>8) Sangram Nimbalkar |
| 5 | 01/12/2021 to 10/12/2021 | Online Training | Industrial emissions identification of hotspots and implementation of action plans. | **9** | 1) V M Motghare<br>2) Sagar Warhekar<br>3) Bhagwan Maknikar<br>4) Nikhil More<br>5) Abhijit Kasbe<br>6) Sameer Hundlekar<br>7) Mahesh Chavan<br>8) Sangram Nimbalkar<br>9) Umesh Jadhav |
| 6 | 11.01.2022 | Online Training | Document pro software-Document management-ISO 9001:2015 | **33** | 1) A. A. Kasbe<br>2) A. V. Kadale<br>3) Archana Jagtap<br>4) Bhagwan Manikar<br>5) Dattatraya Gavali<br>6) Dhananjay Nanekar |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | 7) EIC<br>8) Helpdesk<br>9) J.S. sutar<br>10) M. V. Vatane<br>11) Manchak Jadhav<br>12) Pranav Pakhale<br>13) R.M. Togare<br>14) Rajendra Jadhav<br>15) Rajesh Singh<br>16) RO Pune<br>17) S.J.Shinde<br>18) S.M. Motegaonkar<br>19) SR Warhekar<br>20) S.S Vastre<br>21) Sandeep Shinde<br>22) Sandeep Motegaonkar<br>23) Sanajay Jadhav<br>24) Sarjerao Bhoi<br>25) Seema Salave<br>26) SRO Mumbai1<br>27) Tanaji Yadav<br>28) SRO Satara<br>29) Subodh Waikar<br>30) Sushma Kumbhar<br>31) Uday Yadav<br>32) Vandana Khabade<br>33) S. S Kendule |
| 7 | 08.02.2022 to 11.02.2022 | Offline | Revamping on-road vehicle emissions management in cities | **2** | 1) Arjun Jadhav, FO,<br>2) Sanjay Jirapur, FO |
| 8 | 07.03.2022 to 11.03.2022 | Online Training | Occupational health & safety management system as per ISO 45001:2018 | **2** | 1) N N Gurav, ROHQ<br>2) Ajay Chavan, SRO |
| 9 | 14.03.2022 to 16.03.2022 | Online Training | Design of solid waste management facility, common bio medical waste treatment facility | **2** | 1) Jyoti Sutar, FO<br>2) Promod Mane, SRO |

| | | | | | |
|---|---|---|---|---|---|
| 10 | 09.03.2022 to 11.03.2022 | Online Training | Environmental Management in Tanneries | **1** | 3) Seema Mangrulkar, FO |
| 11 | 14.03.2022 to 15.03.2022 | Online Training | Uncertainty of measurement and decision rule as per ISO/IEC 17025:2017 | **9** | 1) V R Thakur, SO<br>2) A V Mandavkar<br>3) B S Ghadari, SO<br>4) Dr. P D Khadkikar, SO<br>5) S H Nagre, SO<br>6) S D Mali<br>7) Mahesh Rakh<br>8) A N Sandansigh<br>9) B U Bhandari |
| **Total Number of Programmes -11** | | | **Total Number of Participants -73** | | |

# ANNEXURE 6 - FINANCE AND ACCOUNTS FOR THE YEAR 2021-22

1

**MAHARASHTRA POLLUTION CONTROL BOARD**

**Receipt & Payment Account for the Year 2021-22**

| Previous Year 2020-21 | | Receipts | Schedule No. | Current Year 2021-22 | | Previous Year 2020-21 | | Payments | Schedule No. | Current Year 2021-22 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Major Head | Sub Head | | | Amount | Amount | Major Head | Sub Head | | | Amount | Amount |
| 1,77,36,36,647.42 | | OPENING BALANCE | | | 92,64,29,847.91 | | | I) CAPITAL EXPENDITURE | | | |
| | 1,77,27,89,989.47 | i) Cash at Bank | | 92,61,91,324.96 | | 11,43,02,306.00 | | Fixed Assets Purchased | I | | 11,39,83,560.00 |
| | 2,59,307.95 | ii) Cash in Hand | | 2,38,522.95 | | | | | | | |
| | 6,37,230.00 | iii) DD in Hand | | 0.00 | | | | | | | |
| | | | | | | 53,63,89,975.00 | | II) REVENUE EXPENDITURE<br>1) SALARY & ALLOWANCES | | | 45,25,08,916.00 |
| 0.00 | | II) GRANT RECEIVED | | | 0.00 | | 10,22,00,249.00 | i) Core Activity Segment | | 43,32,60,910.00 | |
| | 0.00 | a) From State Government | | 0.00 | | | 2,03,22,106.00 | ii) Cess Activity Segment | | 70,84,339.00 | |
| | 0.00 | b) From Government of India | | 0.00 | | | 1,38,61,020.00 | iii) Cess Activity Temp Staff | | 1,21,84,669.00 | |
| 2,82,31,963.00 | | 2) FINANCIAL ASSISTANCE | | | 4,11,03,333.00 | 3,18,03,809.00 | | 2) CPC BOARD CONTRIBUTION | | | 2,53,72,643.00 |
| | 0.00 | a) From Other State Government | | 5,00,000.00 | | | 2,97,29,383.00 | i) Core Activity Segment | | 2,40,84,456.00 | |
| | 2,82,31,963.00 | b) From Government of India / CPCB | | 4,06,03,333.00 | | | 21,03,807.00 | ii) Cess Activity Segment | | 12,87,588.00 | |
| | | | | | | 3,13,90,720.00 | | 3) ONVALUTY FROM CESS FUND | | | 1,78,04,413.00 |
| 78,34,881.00 | | 3) Funds from UNIDO | | | 0.00 | | | | | | |
| | | | | | | 22,74,38,032.02 | | 4) OFFICE EXPENDITURE | A | | 97,14,60,630.64 |
| 3,59,03,86,620.12 | | 4) REVENUE RECEIPT | | | 3,54,30,60,711.41 | 1,13,42,698.00 | | 5) RUNNING EXPENDITURE OF LAB. | B | | 1,29,88,262.00 |
| | 3,56,52,11,907.12 | a) Consent Fees | | 3,50,27,89,168.05 | | 1,40,70,273.44 | | 6) EXPENDITURE FOR VEHICLES | C | | 2,05,61,156.00 |
| | 2,51,75,053.00 | b) Analysis Charges | | 4,02,71,543.36 | | 5,03,00,414.00 | | 7) MAINTANANCE & REPAIRS | | | 13,87,59,778.00 |
| 3,02,29,031.00 | | 5) OTHER RECEIPT | II | | 7,40,31,214.00 | 4,01,03,900.00 | | 8) EXPENDITURE FROM CESS FUND | D | | 5,31,35,091.00 |
| | | | | | | 50,55,01,232.17 | | 9) PROJECTS EXP. From Cess Fund | E | | 51,96,67,641.00 |
| 1,21,91,12,711.00 | | 6) INTEREST ON INVESTMENT | | | 1,48,21,71,267.41 | | | | | | |
| | | | | | | 18,17,84,12,117.00 | | 10) INVESTMENT ( Rev.) | | | 29,96,88,26,687.00 |
| 64,29,383.00 | | 7) MISCELLANEOUS ADVANCES | | | 1,02,41,000.00 | 95,70,706.00 | | 11) MISCELLANEOUS ADVANCES | | | 1,09,87,247.00 |
| 0.00 | | 8) SECURITY DEPOSIT WITH OTHERS | | | 0.00 | 1,82,30,068.50 | | 12) SUNDRY PAYABLES | | | 1,99,04,811.50 |
| | | | | | | 2,813.00 | | 13) CREDITOR | | | 4,211.00 |
| 13,96,55,69,167.00 | | 9) INVESTMENT (MATURED) | | | 26,38,19,03,583.00 | | | | | | |
| | | | | | | 0.00 | | 14) Fund for Abatement of Pollution | | | 13,39,30,630.00 |
| 5,26,19,650.50 | | 10) SUNDRY PAYABLES | | | 2,56,65,391.50 | 14,65,00,000.00 | | 15) Funds for NCAP Payment | | | 12,71,94,917.00 |
| 10,50,022.00 | | 11) CREDITORS | | | 95,569.00 | 0.00 | | 16) Amount Paid for Mahi Vasudhara Award on behalf State Government | | | 25,75,00,000.00 |
| | | 12) REIMBURSEMENT OF CESS | | | 5,73,74,145.00 | 0.00 | | 17)Fund from UNIDO | | | 2,19,19,696.20 |
| 11,40,00,000.00 | | 13) Funds for NCAP Received | | | 12,57,45,316.00 | 0.00 | | | | | |
| 1,27,25,587.00 | | 14) Environmental Compensation Fund | | | 6,70,96,190.00 | 92,64,29,847.91 | | CLOSING BALANCES | | | 73,61,78,556.54 |
| 0.00 | | 15) Fund from Cess Accounts | | | 5,04,55,546.45 | | 92,61,91,324.96 | i) Cash at Bank | F | 72,59,88,107.59 | |
| 19,40,000.00 | | 16) Fund for VOC Monitoring | | | 0.00 | | 2,38,522.95 | ii) Cash in Hand | G | 1,90,369.95 | |
| 0.00 | | 17) Fund for Abatement of Pollution | | | 23,85,84,605.00 | | 0.00 | iii) DD in Hand | | 0.00 | |
| 20,82,19,86,658.04 | | | | | 22,91,28,58,241.68 | 20,82,19,86,658.04 | | | | | 22,91,28,58,241.68 |

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

Milind Bhave
Partner
M. No. 037973
05/12/2022

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# MAHARASHTRA POLLUTION CONTROL BOARD

## Income & Expenditure Account for the Year 2021-22

| Previous Year 2020-21 | | Expenditure | Schedule No | Current Year 2021-22 | | Previous Year 2020-21 | | Income | Schedule No | Current Year 2021-22 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Major Head | Sub Head | | | Amount | Amount | Major Head | Sub Head | | | Amount | Amount |
| 53,63,89,975.00 | | 1) SALARY & ALLOWANCES | | | 45,25,08,918.00 | | | 1) GRANT RECEIVED | | | |
| | 50,22,06,249.00 | a) Core Activity Segment | | 43,32,69,910.00 | | | 0.00 | a) From State Government | | | 0.00 |
| | 2,03,22,106.00 | b) Cess Activity Segment | | 70,84,339.00 | | | 0.00 | b) From Government of India | | | 0.00 |
| | 1,38,61,620.00 | c) Cess Activity Temp Estb | | 1,21,34,669.00 | | | | | | | |
| 3,18,93,839.00 | | 2) CPF BOARD CONTRIBUTION | | | 2,53,72,043.00 | 2,82,31,963.00 | | 2) FINANCIAL ASSISTANCE | | | 4,11,03,333.00 |
| | 2,97,29,982.00 | i) Core Activity Segment | | 2,40,84,455.00 | | | 0.00 | a) From Other State Government | | 5,00,000.00 | |
| | 21,63,857.00 | ii) Cess Activity Segment | | 12,87,588.00 | | | | | | | |
| | | | | | | - | 2,82,31,963.00 | b) From Government of India / CPCB | | 4,06,03,333.00 | |
| 22,74,38,032.02 | | 3) OFFICE EXPENDITURE | A | | 27,14,60,620.64 | - | | | | | - |
| 1,13,42,658.00 | | 4) RUNNING EXPENDITURE OF LAB | B | | 1,20,88,262.00 | | | 3) Fund from Cess Accounts | | | 5,72,74,148.00 |
| 1,40,70,273.44 | | 5) EXPENDITURE FOR VEHICLES | C | | 2,05,61,196.00 | 3,09,05,86,620.12 | | | | | |
| 5,03,09,614.00 | | 6) MAINTAINANCE & REPAIRS | BB | | 15,87,99,778.00 | | | 4) REVENUE RECEIPT | | | 3,54,30,60,711.41 |
| | 75,31,190.00 | i) Land & Building | | 4,65,81,101.00 | | | 3,06,52,11,567.12 | a) Consent Fees | | 3,50,27,89,168.03 | |
| | 35,52,687.00 | ii) Furniture & Fixture | | 1,14,23,274.00 | | | - | | | - | |
| | 3,92,23,537.00 | iii) S.I. & O.A. | | 10,07,95,403.00 | | | 2,53,75,053.00 | b) Analysis Charges | | 4,02,71,543.38 | |
| | | | | | | | - | | | - | |
| 4,01,93,966.00 | | 7) EXPENDITURE FROM CESS FUND | D | | 5,31,35,091.00 | 3,82,39,031.00 | - | - | | | |
| 50,55,01,232.17 | | 8) PROJECTS EXP. From Cess Fund | E | | 51,96,67,641.00 | | - | 5) OTHER RECEIPT | E | | 7,40,31,214.00 |
| | | | | | | 1,24,98,12,711.00 | - | | | | |
| 8,66,76,190.15 | | 9) DEPRECIATION | J | | 12,33,99,112.24 | | - | 6) INTEREST ON INVESTMENT | | | 1,46,21,71,367.41 |
| | | | | | | | | | | | |
| 3,40,30,54,746.34 | | 10) Excess of Income Over Expenditure | | | 3,54,06,48,138.94 | | | | | | |
| | | | | | | | - | | | | |
| 4,90,68,70,325.12 | | | | | 5,17,76,40,770.82 | 4,90,68,70,325.12 | | | | | 5,17,76,40,770.82 |

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

Milind Bhave
Partner
M. No. 047273
05/12/2022

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# MAHARASHTRA POLLUTION CONTROL BOARD

## Balance Sheet at the Year End 31st March, 2022

| Previous Year 2020-21 | | Liability | Schedule | Current Year 2021-22 | | Previous Year 2020-21 | | Assets | Schedule | Current Year 2021-22 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Major Head | Sub Head | | | Amount | Amount | Major Head | Sub Head | | | Amount | Amount |
| 1,97,03,06,334.18 | | A) CAPITAL FUND | | | 2,08,42,88,884.18 | | | 1) WORKS (Form K-IV) | | | |
| | | 1) Grant received from Govt. for capital expenditure (including capital value of assets transferred from Ex Directorate to MSWPIC & WEC Delhi) | | | | | | 2) FIXED ASSETS | K | | |
| | | | | | | 62,16,84,879.36 | | A) Land & Building | | | 60,86,56,683.48 |
| | 1,85,60,04,028.18 | Amount utilised up to previous year (Opening Balance) | | 1,97,03,06,334.18 | | 5,36,45,460.96 | | B) Laboratory Equipments | | | 6,99,99,792.73 |
| | 11,43,02,306.00 | Add:- Transfer from Excess of Income over Expenditure for Capital Expenses | | 11,39,82,550.00 | | 3,58,00,930.09 | | C) Vehicle | | | 3,10,77,807.76 |
| | | | | | | 9,49,78,433.95 | | D) Furniture & Fixture | | | 8,47,74,890.27 |
| 18,59,98,048.69 | | B) Fund for MAP | P | | 18,46,19,047.69 | | | | | | |
| | | | | | | 19,95,65,938.20 | | E) Scientific Instruments | | | 20,09,94,126.66 |
| 2,92,08,330.50 | | C) Fund from UNIDO | S | | 72,97,634.30 | | | | | | |
| | | | | | | 26,28,19,03,585.00 | | 3) INVESTMENT | L | | 29,96,23,03,046.00 |
| 13,26,61,969.05 | | D) CURRENT LIABILITIES | | | 13,16,95,728.50 | 1,06,81,38,844.78 | | 4) CURRENT ASSETS | | | 1,11,62,33,800.41 |
| | 3,24,30,499.50 | 1) Sundry Payables / Deposits | Q | 3,81,91,079.50 | | | 2,81,13,939.87 | A) MISCELLENEOUS ADVANCES | M | 1,90,19,786.87 | |
| | 16,01,616.00 | 2) Creditors | R | 16,93,384.00 | | | | | | | |
| | 9,86,29,853.55 | 3) Fund From Cess Account | S | 9,18,11,255.00 | | | 1,32,58,768.00 | B) SECURITY DEPOSIT WITH OTHER | N | 1,32,58,768.00 | |
| | | | | | | | | | | | |
| 13,61,41,498.00 | | E) Funds for Assistance to Abatement of Pollution | T | | 23,87,95,473.00 | | 30,02,70,689.00 | C) Amount Paid on behalf State Government | O | 35,77,76,689.00 | |
| | | | | | | | | | | | |
| 2,78,56,60,495.09 | | F) RESERVES | | | 2,99,45,71,066.09 | | | D) CLOSING BALANCES | | | |
| | 2,71,86,92,078.00 | 1) Pension Fund | U | 2,89,54,87,063.00 | | | 92,61,91,324.95 | i) Cash at Bank | F | 72,99,88,167.59 | |
| | 6,69,68,417.09 | 2) Gratuity Fund | V | 9,91,84,002.09 | | | 3,38,522.95 | ii) Cash in Hand | G | 1,90,388.95 | |
| | | | | | | | | iii) DD in Hand | | | |
| 2,70,800.00 | | G)Fund from Health Impact Assessment Study | W | | 2,70,800.00 | | | | | | |
| 27,79,543.00 | | H) For for VOC Monitoring | X | | 27,79,543.00 | | | | | | |
| 1,58,97,327.00 | | I) Environmental Compensation Fund | Y | | 8,29,93,517.00 | | | | | | |
| | | | | | | | | | | | |
| 23,09,67,97,347.62 | | J) INCOME & EXPENDITURE APPROPRIATION ACCOUNT | AA | | 26,34,74,88,434.58 | | | | | | |
| 28,35,57,22,292.94 | | | | | 32,07,48,00,147.33 | 28,35,57,22,292.94 | | | | | 32,07,48,00,147.33 |

**Significant Accounting Policies and Notes on Accounts Schedule AB**

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

Milind Bhave
Partner
M. No. 047973
05/12/2022