



MAHARASHTRA
POLLUTION
CONTROL
BOARD

**Annual Report
2016-17**





MAHARASHTRA POLLUTION CONTROL BOARD

ANNUAL REPORT 2016-17

by TECHNOGREEN ENVIRONMENTAL SOLUTIONS

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Foreword

It gives me great pleasure to present the Annual Report of the Maharashtra Pollution Control Board for the year 2016-17. 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 changes 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.



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

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



TABLE OF CONTENTS

Sr. No.	Chapter	Pages
1.	Introduction	1-2
2.	Constitution of the Board	3-4
3.	Meetings of the Board	5-11
4.	Committees Constituted by the Board	12-14
5.	Air & Water Quality Monitoring Network and Present Status of the Environment	15-61
6.	Regional Environmental Problems & Control Measures taken in Respective Regions	62-63
7.	Environmental Studies & Surveys	64-66
8.	Environmental Training	67
9.	Environmental Awareness & Public Participation	68-76
10.	Implementation of Acts & Rules under Environmental Protection Act, 1986	77
11.	Prosecutions Launched and Convictions Secured	78-79
12.	Finance and Accounts	80
13.	Important Matters dealt with by the Board	81-82

LIST OF ANNEXURES

Annexure 1A	Organizational Structure	84
Annexure 1B	Field Office Diagram	85
Annexure 2	Staff Strength as on 31/10/2017	86-87
Annexure 3	Details of Regional & Sub-Regional Offices with their Jurisdictions	88-92
Annexure 4	Region-wise Industry Statistics	93
Annexure 5	Details of Training Programs Attended by MPCB Officials during year 2016-17	94-99
Annexure 6	Finance and Accounts for the year 2016-17	100-102



1. INTRODUCTION

Maharashtra is one of the most industrialized and urbanized states of India. The State has an impressive annual growth rate of seven percent over the past three years compared to 3.4 per cent during 2000-01. The target of 8 percent annual growth rate has been set in the 10th Five Year Plan. All major towns of Maharashtra are experiencing an unprecedented population growth and thereby exerting a tremendous pressure on the urban infrastructure and civic amenities. About 42 per cent of the State's population is living in urban areas although the levels of urbanization are uneven across regions and districts within the State. Both inter-state and intra-state migrations are responsible for the enormous growth in urban population.

In order to deal with resource depletion and environmental degradation, prudent environmental management is necessary in the State. Since environmental problems are diverse, their solutions have to be region-specific. Preparation of Annual Reports is a timely step, initiated by the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India (GoI) and State Pollution Control Boards (SPCBs) aimed at producing an informative account of the environmental conditions so as to achieve sustainable growth in each state.

The Maharashtra State government, in 1981, adopted the Water (Prevention and Control of Pollution) Act 1974 and under this MPCB (Maharashtra Pollution Control Board) was established in the year 1981. MPCB implements a range of environmental legislations via its 12 ROs (Regional Offices) in the State and functions under the administrative control of Environment Department, Government of Maharashtra. The Organizational structure of the Board and information of Regional and Sub-regional offices and staff strength are provided in **Annexures 1A, 1B and 2**.

The MPCB implements various environmental legislations in the State of Maharashtra, including mainly the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Water (Cess) Act, 1977 and some of the provisions under Environmental (Protection) Act, 1986 and the rules framed there under such as, Biomedical Waste (M&H) Rules, 1998, Hazardous Waste (M&H) Rules, 2000 and Municipal Solid Waste Rules, 2000.

The Central Pollution Control Board (CPCB) initiated the 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 a strategic management plan. AAQMS (Ambient Air Quality Monitoring Stations) are added periodically to expand the network of monitoring stations. There are 74 active AAQMS, 60 under NAMP (National Ambient Monitoring Program), 4 under SAMP (State Ambient Monitoring Program) and 10 under CAAQMS (Continuous Ambient Air Quality Monitoring) which recorded the air quality of 25 cities in Maharashtra during the year 2016-17.

The Board regularly monitors the water quality across 294 Water Quality Monitoring Stations (WQMS) for surface water (176 on rivers, 36 on sea/creeks, 12 on drains, 4 dams) and ground water (29 bore wells, 35 dug wells, 1 hand pump, 1 tube well) under the National Water Quality Monitoring Program (NWMP) and the State Water Quality Monitoring Program (SWMP).

The CPCB has constituted a National Committee of Experts on Noise Pollution Control. The Committee has recommended noise standards for ambient air and for automobiles, domestic appliances and



construction equipment, which were later notified under the Environment (Protection) Act, 1986. In order to assess ambient noise levels in the environment during a working and a non-working day, MPCB has taken an initiative to carry out noise monitoring at 94 locations all over Maharashtra for period of 2 days i.e. on 18th and 19th December, 2016 for 24 hours.

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

To assess the pollution potential the Board regularly analyzes water samples, air samples and hazardous waste samples in the Central Laboratory established at Navi Mumbai and seven Regional Laboratories at Nagpur, Aurangabad, Pune, Nashik, Thane, Chiplun and Chandrapur.

As a part of common environmental infrastructure for environmental protection, Common Effluent Treatment Plants (CETP) for treatment and disposal of industrial effluent, common facilities for treatment and disposal of hazardous waste and common facilities for treatment and disposal of bio-medical waste have been established across the State.

Through Integrated Management Information System (IMIS) the Board is computerizing its various process and operations to maintain transparency with its constituents and to increase the overall efficiency. The system is mainly designed for consent management, waste management, Cess collection, laboratory management and financial management. For tracking hazardous waste, the Board has also implemented a computer software program.

For creating general awareness among the people on environmental issues, the Board constantly endeavors to conduct various awareness programs involving press, media, NGOs, artists and students throughout the State. Efforts are also being made to create awareness to celebrate all festivals in an eco-friendly manner.



2. CONSTITUTION OF THE BOARD

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

The composition of the Board is as under:

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

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

Table 2.1. Constitution of M.P.C. Board during 2016-17.

Mrs. Malini Shankar, IAS Principal Secretary, Environment Department, Government of Maharashtra	Chairman, (Additional Charge) (from 28/05/2015 to 02/05/2016)
Mr. Satish Gavai, IAS Additional Chief Secretary, Environment Department, Government of Maharashtra,	Chairman, (Additional Charge) (From 02/05/2016 to 31/03/2017)
Additional Chief Secretary Public Health Department, Government of Maharashtra, Mantralaya, Mumbai	Member
Principal Secretary-II Urban Development Department, Government of Maharashtra, Mumbai	Member
Principal Secretary Water Supply and Sanitation, Government of Maharashtra, Mantralaya, Mumbai	Member



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



3. MEETINGS OF THE BOARD

During the year 2016-17, the 166th meeting of the Board was held on 20th August 2016. Major decisions taken by the Board during this year are listed below.

➤ **Strengthening of Ambient Air Quality Monitoring network by installing Continuous Automatic Ambient Air Quality Stations (CAAQMS) at Mumbai.**

During the reporting year, ambient air quality is monitored for 3 parameters manually, whereas the National Ambient Air Quality standard – 2009 specifies 9 parameters which are possible only by setting up CAAQMS. IITM SAFAR and MCGM jointly monitor 9 CAAQMS in Mumbai city at various places. However, data is not being shared with government agencies. As per CPCB guidelines based on the population density the minimum number of CAAQMS will be 14. To comply with revised air quality standards, strengthening of ambient air quality by setting up CAAQMS is necessary.

The Board may install 10 CAAQMS in Mumbai city at selected locations as per CPCB guidelines. The cost of Rs. 15 Crores towards installation of these stations is approved which can be made from Cess Fund. The process of procurement will be followed by e-tendering. Chairman/Member Secretary of the Board are authorized to take further action in this regard.

➤ **Marriage Halls/Lawns and Clubs to be covered under the Consent Regime of MPC Board.**

The Hon'ble National Green Tribunal (NGT)-WZ, Pune has passed an order in the application No. 53/2015 filed by Mr. Vivek Dakane v/s MTDC & Others regarding Marriage Halls/Lawns and Clubs and will be covered under the Consent Regime of MPC Board. In this regard, the Board has constituted a committee for preparation of guidelines to comply with the Hon'ble NGT order and to decide whether marriage halls/clubs/lawns should be brought under Consent Regime. The Committee has recommended that Marriage halls/lawns/Club Houses shall be defined in two groups, Group A and Group B.

The Board has considered the above proposal and principally agreed to the committee's recommendations for bringing marriage halls/lawns/club houses in Consent Regime of the Board. Further, the Board has resolved that -

Marriage halls/lawns/club houses as defined in Group A are located in Municipal Corporation or "A" class Municipal Council or MMRDA or PMRDA or CIDCO or NIT Nagpur or Cantonment Boards within Corporation/"A" class Municipal Council or Cantonment Boards within the surroundings (within 5 km radius from the boundary). Corporation or A class Municipal Council shall be brought under the purview of consent management regime of the Board and they shall apply to the Board for obtaining consent under Water Act and Air Act.

(In order to avoid ambiguity in calculation of the gathering capacity of a person, Standard Floor Space Index (FSI) as defined by Public Works Department (PWD) and building code shall be used). The marriage halls/lawns/club houses as defined in Group A located in B, C and D and Zilla Parishad, Nagar Panchayat shall follow guidelines separately prepared by MPC Board which will be enforced through concerned planning authorities.

Marriage halls/lawns/club houses as defined in the Group A located in Municipal Corporation or "A" class Municipal Council or MMRDA or PMRDA or CIDCO or NIT Nagpur or Cantonment Boards within



Corporation/"A" class Municipal Council or Cantonment Boards within surroundings (within 5 km radius from the boundary), Corporation or A class Municipal Council B, C and D and Zilla Parishad, Nagar Panchayat shall follow guidelines, separately prepared by MPC Board which will be enforced through concerned planning authorities.

Member Secretary is authorised to take further necessary action.

➤ **Furbishing of office premises at Udyog Bhavan, Chandrapur.**

The Board had decided in its 161st Board meeting held on 21st January, 2014 to furbish the new office premises at 1st floor, Udyog Bhavan, Chandrapur through MIDC on Term Deposit Contribution Basis and approved estimate of Rs. 1,61,74,600/- (Rs. One crore sixty one lakhs seventy four thousand and six hundred only).

As furbishing the premises through MIDC by completing all due procedures was time consuming and it was not possible to complete the work before code of conduct for 2014 Assembly elections, the Board has carried out essential arrangements at the cost of Rs. 14,68,554/- and shifted Regional Office Chandrapur in new premises.

As per directions of authority the consulting architectural firm M/s Sushil Deshmukh & Associates has submitted a revised plan and estimate of Rs. 2,15,35,370/- including 15% supervision and ETP charges to be paid to MIDC. However MIDC has reduced these charges from 15% to 5% on request of Member Secretary of the Board.

Considering the above facts the Board has approved the revised estimate of Rs. 1,98,87,990/- for furbishing the newly purchased premises at 1st floor, Udyog Bhavan, Chandrapur. Chairman/Member Secretary are empowered to take further decision in this regard.

➤ **Installation of Continuous Automatic Ambient Air Quality Monitoring Stations (CAAQMS) under CSR Fund from Central Public Sector Units (CPSUs).**

CPCB's proposal for installation of CAAQMS under CSR fund from CPSUs by BOOT system was placed before the Board. MPC Board has noted the proposal and approved its participation in the CPCB project "Setting up of CAAQMS in million-plus cities under BOOT mode from CSR fund of CPSU's". It was also agreed to provide/extend all local support in association with CPCB for execution of this project. The Board has also agreed to identify sites for installation of CAAQMS in million-plus cities as identified by CPCB by providing electricity, lease line and other miscellaneous logistics for setting up CAAQMS in the State. The Board has also agreed to take over these stations for operation and maintenance after completion of BOOT contract period.

➤ **Preparation of Action Plans to improve the ambient air quality in non-attainment cities in Maharashtra and awarding project to IIT (B), Mumbai and NEERI.**

In the 164th meeting of the Board based on TOR submitted by NEERI the action plan to be prepared for implementation of ambient air quality in 10 non-attainment cities with respect to particulate matter with cost ranging between 44 and 50 lakhs per city was approved. NEERI/IIT (B) has submitted the detailed proposal for 10 non-attainment cities with respect to particulate matter.

Accordingly, work order was issued to IIT (B)/NEERI prescribing detailed TOR with short term and long term action plan. The source apportionment study will be carried out in cities of Maharashtra namely,



Mumbai, Pune and Nagpur at Rs. 75/- lakhs per city and Nashik, Amaravati, Aurangabad, Chandrapur, Kolhapur, Navi Mumbai and Solapur cities at Rs. 50/- lakhs per city.

The cost of project for 10 cities will be Rs. 225/- lakhs for Mumbai, Pune and Nagpur and Rs. 350/- lakhs for Nashik, Amaravati, Aurangabad, Chandrapur, Kolhapur, Navi Mumbai and Solapur with a total cost of Rs. 575/- lakhs + taxes as applicable.

The Board noted the proposal and approved the revised project cost of Rs. 575/- lakhs + taxes as applicable. Member Secretary, MPC Board is authorized to take suitable action in this matter. The project cost will be made from Cess Fund.

➤ **Installation of Real Time Noise monitoring stations in 7 cities.**

CPCB has developed a systematic road map for monitoring of ambient noise in January, 2010. There are 5 continuous ambient noise monitoring stations in Mumbai installed by CPCB. These stations record real time noise levels and the data is transferred online to the central server at CPCB. In order to extend the noise monitoring network in 7 cities namely Nagpur, Nashik, Pune, Solapur, Kolhapur, Andheri and Thane, it is proposed to install two noise monitoring stations in each of these cities.

After going through the proposal the Board principally agreed for installation of real time monitoring stations at above 7 locations. The cost of Rs. 98 Lakhs (approximate) towards installation of these stations is approved. Chairman and Member Secretary are authorized to take suitable decision in the matter. The project cost will be extracted from Cess fund.

➤ **Investment of surplus funds of MPCB.**

Investments of the Board are made in the form of fixed deposits in nationalized banks, private sector banks and development and financial institutions as per the guidelines in Government resolutions dated 13 March, 2006 and 1st July, 2010 and as per decision made in the 155th Board meeting. The Chief Accounts Officer of the Board explained the investments made in different financial institutions as on 31st March, 2016. He also informed about the committee established for taking decisions in this regard.

Hon'ble Chairman was of the opinion that Bank Managers should not be members of such a committee. The Board may include Joint Director as one of the members in the committee and Member Secretary will be fully empowered to make investments in all Banks irrespective of period of investment. Hon'ble Chairman has suggested to not deposit in such banks which are not mentioned in G.R. of Finance Department, Government of Maharashtra dated 13/03/2006 and 27/10/2015 or those which do not fulfill the conditions in the said G.R.

➤ **Priority to applications for grant of Consents with respect to Government Projects, State Importance Project, all Mega Projects declared by the Government, FDI Projects where MOU is signed by State Government, All State/Central Government Projects, Strategic Projects viz. Natural Gas, SRA, infra projects for the public such as MSRDC, CIDCO, and Airport.**

The Board has noted the item note and decided to expedite applications for grant of Consent with respect to Government Projects, State Importance Project, All Mega Projects declared by Government, FDI Projects where MOU has been signed by State Government, All State/Central Government projects, Strategic Projects such as Natural Gas, SRA, infra projects for the public such as



MSRDC, CIDCO, and Airport irrespective of seniority. It was also decided to process the cases of all HCEs, sewage treatment plans of urban local bodies, and all common treatment facilities on priority.

- **Allow for third party certifications instead of Departmental inspections under all Labor and Environment/Pollution laws for medium risk industries.**

The Board has resolved to allow third party inspections of medium risk firms i.e. large and medium scale of “Orange” category industries through IIT/NEERI to the extent of 25% to 50%. Individual industries will have to bear the expenses incurred towards inspection and monitoring by IIT/NEERI. In case any violation is observed during inspections by IIT/NEERI, appropriate action will be initiated against defaulting industries as provided under the Water (P & CP) Act, 1974, Air (P & CP) Act, 1981 and Hazardous Waste Management Rule 1989 with Amendments from time to time.

- **“Ease of doing Business & Make in India initiatives” by reduction in time span of Consent management; uploading visit report on website within 48 hours; accepting online Consent application; implementing Auto-Renewal Scheme for all remaining Red, Orange & Green category industries based on Self Certification; implementing simplified consent application form for Green Category industries; granting renewal of Consent to Operate for a minimum period for five years for Large/Medium scale and a minimum period of three years for Small scale industries excluding sugar industries; and introduction of “Randomized Risk Based Inspection & Sampling” procedure through software based tool.**

Maharashtra Pollution Control Board, towards implementation of “Ease of doing business and make in India initiative” has taken various steps such as reduction in time span of Consent management, uploading visit report on website within 48 hours, accepting online Consent application, implementing Auto-Renewal Scheme for all remaining Red, Orange & Green category industries based on Self Certification, implementing simplified consent application form for Green category industry, granting renewal of Consent to Operate for a minimum period for five years for large/medium scale and a minimum period of Three Years for Small scale industries excluding sugar industries, and introduction of “Randomized Risk Based Inspection & Sampling” procedure through software based tool. A circular has been issued on 15/06/2015 for compliance to be made under “Ease of doing business and Make in India initiative” and has been made effective from 1st July, 2015. A note in this respect was circulated among Hon’ble Members of the Board for perusal. The Board has noted these steps and directed Board office to monitor the implementation and submit quarterly report about the same to Member-Secretary for further decision.

- **Allocation of Cess fund for GEF-UNIDO funded MoEF&CC project entitled “Environmental Sound Management of Medical Waste in India” and reluctance of Public Health Department, Govt. of Maharashtra to release the same.**

The State of Maharashtra has confirmed its participation in the GEF-UNIDO funded MoEF&CC project entitled “Environmentally Sound Management of Medical Waste in India” with an aim to reduce and ultimately eliminate persistent organic pollutants (dioxin and furans) and also to reduce related pollution problems of air, water, soil and sediment. This project is being implemented in five states of India for five years. The total cost towards this project is US \$40 million of which US \$10 million will be financed by Global Environmental Facility (GEF) and remaining US \$30 million will have to be raised through co-financing.



In the meeting held on 14th March, 2013 under the Chairmanship of Chief Secretary, GoM, a co-finance contribution of Rs. 2 Crores in cash every year for a period of five years was committed by Public Health Department, GoM. MPCB Board has been identified as Nodal agency by MoEF&CC for implementation of the project.

As per terms of agreement, the State Project Steering Committee (SPSC), under Chairmanship of Principal Secretary, Dept. of Environment., GoM has been constituted to supervise implementation of the project and MPCB has constituted a State Project Management Unit (SPMU) under the Chairmanship of Member Secretary, MPCB.

Despite repeated persuasions the Public Health Dept. has not released co-finance to SPMU till date. The Board has accorded its approval for allocation of Rs. 2 Crores initially for one year from Cess fund to be released to SPMU with a condition that the amount should be claimed from Public Health Dept., Govt. of Maharashtra in due course and the balance fund be raised by Public Health Dept., Govt. of Maharashtra only to ensure time bound progress of project as agreed in terms of reference of contract between UNIDO and MPCB. For utilization of the amount, necessary procedure should be followed.

➤ **Use of remote sensing and GIS (Geographical Information System) for pollution control and monitoring of water bodies and rivers in Maharashtra.**

Creation of an effective and financially sustainable system for data collection, assessment and dissemination or decision making at various levels using information and communication technology is one of the major challenges for any organization. MPC Board is implementing various environmental legislations in the State of Maharashtra, mainly including Water (Prevention and Control of Pollution) Act, 1974 Air (Prevention and control of pollution) Act, 1981, Water (Cess) Act, 1977 and some of the provisions under Environmental (Protection) Act, 1986 and the rules framed there under such as Bio Medical Waste (M&H) Rules, 1998 Hazardous Waste (M&H) Rules, 2000, Municipal Solid Waste Rules, 2000 etc. Realizing the potential of using remote sensing and GIS technologies for pollution control, MPCB approached MRSAC to work out areas in which the geo-spatial technology can be used. Further mapping of all the water bodies excluding those in forest area is required to be taken up so as monitor their water quality. Similarly multiple agencies are involved and there is a likelihood of missing water bodies for monitoring which are of serious concern as drinking water sources. On the basis of available data/information with the Board, MRSAC will start work related to mapping and program development.

The Board resolved that since the Water Act specifically provides maintaining the wholesomeness of State water bodies and carrying out the State Water Quality Monitoring Program (SWQMP) and the National Water Quality Monitoring Program (NWQMP) with a view to have representative and real time monitoring data with reference to specific locations, it is high time to develop GIS based program module to compile essential information. Similarly multiple agencies are involved in monitoring of surface water and ground water and the details are not available at a glance. The data generated could also be made available through MRSAC software. The Board further decided that since MRSAC is the only body of Govt. of Maharashtra undertaking the development of such software, the work of above development of software is decided to award to the MRSAC and the Board approved to avail the services of MRSAC. The Board approved Rs. 48 Lakhs for this project and authorized Member Secretary to issue appropriate work order to MRSAC including signing of MoU/Agreement as may be necessary on his behalf including making payment.



During the year 2016-17, the 167th meeting of the Board was held on 15th December, 2016. Major decisions taken by the Board during this meeting are listed below.

➤ **Noise Mapping in major cities in 27 corporations of Maharashtra as per Hon'ble High Court, Mumbai directions.**

Noise mapping of major cities in Maharashtra and identification of sources of noise pollution is carried out, which helps all concerned authorities to discharge their duties under Sub-Rule (4) of 3 of Noise Pollution (Regulation & Control) Rules, 2000. Further, to comply with the directions of Hon'ble High Court Mumbai, the Board has requested CSIR – NEERI, Nagpur to submit a proposal for conducting the study and preparation of noise mapping of major cities in Maharashtra covering 27 Corporations. NEERI has developed a noise simulation software to simulate the noise scenario in the cities. To mitigate noise pollution in major cities, the Board has issued directions to all Municipal Commissioners.

The Board has noted the agenda item and approved the proposal entitled “Noise Mapping in Major Cities covering 27 Corporations’ at the cost of Rs. 170.77 Lacs (taxes extra) submitted by NEERI, Nagpur. Chairman/Member Secretary of the Board were authorized to take further decision in the matter to comply with the directions of Hon'ble High Court, Mumbai in stipulated time period. The expenditure will be from Cess fund.

➤ **Preparation of action plans to improve the ambient air quality in 10 non-attainment cities in Maharashtra and awarding Project to IIT (B), Mumbai and NEERI.**

A proposal with respect to the above subject was discussed in the 166th meeting of the Board held on 06/09/2016 for conducting the source apportionment study for 10 non-attainment cities through NEERI and IIT(B) and the same was approved. The cost of the project is Rs. 5.75 Crores. + taxes as applicable. This also includes the cost of equipment and instruments to be purchased by IIT (B) costing about Rs. 1.40 Crores. Therefore the Board requested IIT (B) to return all the instruments after completion of the project. However as per IIT (B) norms it was conveyed that equipment/instruments purchased in any such projects will be retained with IIT (B) as R & D infrastructure. However IIT (B) agreed to waive overhead costs on equipment/instruments as a special case. This was approved by the Board and decided to make the instruments available whenever required. The project cost of Rs. 5.75 Crores. + taxes as applicable as approved in 166th Board meeting will remain unchanged.

The Board noted the above proposal and approved the modality submitted by IIT (B) vide their letter dated: 29/11/2016. Chairman/Member Secretary were authorized to initiate further action on this matter.

➤ **Financial budget of MPC Board for the year 2017-18**

For the Financial year 2017-18 the expected income is Rs. 343.73 Crores of which consent fees will be Rs. 170.86 Crores, interest on deposits will be Rs. 100 Crores, Water Cess receipts will be Rs. 40 Crores, analysis charges will be Rs. 17.81 Crores, and income from other sources will be around Rs. 15.06 Crores. The expected expenditure of Rs. 208.47 Crores to be incurred includes capital expenditure of Rs. 29.30 Crores, revenue expenditure of Rs. 90.38 Crores, and the expenditure on projects and plans for Rs. 88.79 Crores.



The Board noted and approved the budget for financial year 2017-18. From the Cess amount collected during 2017-18, it will be ensured that 50% of the amount is spent on establishment, 40% on various pollution control projects and 3% on I.T. and e-governance.

- **Exemption towards obtaining Environmental Clearance for change in product mix based on 'no increase in pollution load' as per amendment to EIA Notification No. S.O. 3581(E) dated 23rd November 2016.**

It is resolved that the Board may adopt the EIA Notification No. S.O. 3518(E) dated 23rd November 2016 henceforth for exemption towards obtaining Environmental Clearance for change in product mix based on 'no increase in pollution load' by charging consent fees towards Consent to Establish and issuing amendment commensurate with existing consent validity. The Board approved for appointment of Technical Committee members comprising of Officers from MPCB, CPCB and four experts from academic/research institutions as per the notification. The Member Secretary of the Board is authorized for empanelment of environmental auditors/institutions or to adopt the empaneled environmental auditors/institutions by CPCB/MOEF&CC as a stop gap arrangement and to create a small cell within MPCB to handle the work relating to exemption from EC based on 'no increase in pollution load'.



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 Acts and Rules. During the year 2016-17, the following committees were in existence.

4.1. Consent Appraisal Committee (CAC)

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

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

➤ Terms of Reference

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

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

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

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

There were 12 meetings of the Consent Appraisal Committee held during the year 2016-17 wherein 1135 CAC applications were discussed and 654 cases were granted.

4.2. Appellate Committee

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

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

Accordingly, Appellate Authority has been reconstituted vide order No. E-319/2006 dated 08/12/2006 to hear an appeal. 24 Appeals were pending before the Appellate Authority since 1992. Out of 84 appeals and 24 appeals are pending for final hearing. During the year, 24 fresh appeals have been filed. The Appellate Committee constituted is comprised of the following members:



1.	Chairman, Maharashtra Pollution Control Board	Chairman
2.	Chief Executive Officer, Maharashtra Industrial Development Corporation, Andheri (E), Mumbai 400 093	Member
3.	Member-Secretary (Technical) Maharashtra Jeevan Pradhikaran, Nariman Point, Mumbai 400 021	Member

4.3. Consent Committee (CC)

The Consent Committee comprises of the following members:

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

➤ Terms of Reference

The Consent Committee considers 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. 25 Crores and up to Rs. 75 Crores.

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

'GREEN' Category : Projects with capital investment above Rs. 1000 Crores and up to Rs. 2000 Crores

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

There were 10 meetings of the Consent Committee held during the year 2016-17 and a total of 951 applications were discussed and 659 were disposed off. Now, Consent Committee is following the same strategy used by the Consent Appraisal Committee for achieving zero pendency and compliance of consent condition. 292 applications are not approved.

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

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



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

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

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

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

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

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

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

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

High levels of indoor and ambient air pollution, particularly in urban areas are a serious issue in the country. At times, indoor air pollution levels, within homes and work places, could be more than the ambient levels. Though gaseous pollutants are not very harmful, the high emission levels of suspended and respirable particulate matter cause various health hazards. Several studies conducted in the rural and urban poor areas where low quality fuels such as coal, wood etc. are used for cooking and other household activities have indicated the presence of high levels of harmful pollutants in the domestic environment. At the same time, industries and various modes of transportation are major man-made sources of ambient air pollution.

Monitoring results show that air pollution in residential areas is mostly moderate. In terms of respirable suspended particulate matter (RSPM) levels which are also responsible for health damages, Maharashtra's towns are better than northern cities like Delhi, Calcutta and Ahmedabad, but worse than southern cities like Chennai, Bangalore and Hyderabad. To reduce ambient air pollution, particularly in urban areas, improvement in transport infrastructure, especially roads, improved vehicle design, alternate clean fuels and better traffic management are required. Source identification and source apportionment exercises to find out the qualitative and quantitative contribution of various sources are needed. Indoor air pollution could be reduced by facilitating access to clean fuels and electricity in rural areas, reducing the cost of energy supplied to low-income households, promotion of renewable energy systems such as biogas, solar water heaters and other systems.

The quantity of inland water resources in Maharashtra is about 3.39 lakh ha, which accounts for only 4.93% of the total inland water resources in the country. Since the State has more than 9% of the country's population, it indicates that the per capita water availability in the State is lower than the national average. Rivers and lakes are the main sources of surface water in the State. The water flow of two major river basins (Krishna and Godavari) in the State is below the national average. While the average annual surface water potential for an Indian river is 1869 km³/year, it is only 110.54 km³/year for the Godavari basin and 78.12 km³/year for the Krishna basin. With respect to the basin-wise ground water potential, total water resources which can be replenished are 40.65 km³/year for Godavari and 26.41 km³/year for Krishna.

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.

Although a number of physical activities (volcanoes, fire, etc.) may release different pollutants in the environment, anthropogenic activities are the major cause of environmental air pollution. Hazardous chemicals can escape to the environment by accident, but a number of air pollutants are released from industrial facilities and other activities and may cause adverse effects on human health and the environment.

Four major factors affect air quality, viz. urban expansion and industrialization, increase in traffic and subsequent rise in vehicular emissions, a rapidly developing economy, and increasing levels of energy consumption. In the State of Maharashtra, areas under industrial and residential use have undergone development in an unplanned fashion, which has contributed to issues caused by air pollution. Also, in urban areas, vehicular pollution contributes to air pollution significantly. Volatile organic compounds, suspended particulate matter, oxides of sulphur and nitrogen, and carbon monoxide are some pollutants released by automobiles which negatively affect air quality and the surrounding environment. Other anthropogenic sources such as construction of infrastructure, combustion of fossil fuels, coal, wood and dry grass are also responsible for affecting air quality in conjunction with residential and commercial activities.

Known effects of air pollution on humans include diseases of the respiratory and cardiovascular systems. Congestion, wheezing, cough, difficulty in breathing are some symptoms of these chronic health issues caused due to poor air quality and may aggravate with prolonged exposure to polluted air.

Under MPCB's Ambient Air Quality Monitoring (AAQM) program, there are 74 operational stations for air quality monitoring across 12 regions in Maharashtra. These air quality monitoring stations are operated by independent institutes which report to the Central Pollution Control Board (CPCB). There are 4 stations across Maharashtra under the State Air Monitoring Program (SAMP) and 60 under the National Air Monitoring program (NAMP). Ten Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are in operation to monitor the ambient air continuously for parameters which include NO_x, SO₂ and RSPM. MPCB-RO (Regional Office) wise tally of AAQMS operating in the year 2016-17 is presented in **Table 5.1**.



Figure 5.1. Continuous Ambient Air Monitoring Station at Mahape, Navi Mumbai.

Table 5.1. MPCB RO Wise Tally of Active AAQMS (2016-17).

MPCB RO	Program Type			Total
	CAAQMS	NAMP	SAMP	
Amaravati	-	6	-	6
Aurangabad	1	11	-	12
Chandrapur	1	6	-	7
Kalyan	1	5	4	10
Kolhapur	-	6	-	6
Mumbai	2	-	-	2
Nagpur	1	4	-	5
Nashik	1	7	-	8
Navi Mumbai	1	5	-	6
Pune	2	6	-	8
Raigad	-	1	-	1
Thane	-	3	-	3
Grand Total	10	60	4	74

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

Air quality in the State is assessed through routine and specific monitoring. In order to assess the ambient air quality with respect to criteria pollutants as per National Ambient Air Quality standards, data has been collected for the year 2016-17. The data is analyzed for SO₂, NO_x and particulate matter (PM₁₀) or respirable suspended particulate matter (RSPM). The locations under different class areas like industrial, residential and commercial were monitored region-wise and the observations have been made using NAAQM standards as represented in following sections.

5.1.1. Mumbai

There are two Ambient Air Monitoring Stations installed under CAAQMS in this region. 542 samples were analyzed to assess the quality of ambient air which included two different residential locations at Sion and Bandra. The annual average concentration of all the parameters analyzed at all locations is represented in **Figure 5.2**.

From **Figure 5.2** it is evident that annual average concentration of SO₂ is within the prescribed limit of NAAQM standards. However NO_x concentration at Sion and PM₁₀ concentrations recorded at both locations are not within the prescribed limits. Heavy traffic may be the reason for higher NO_x and PM₁₀ concentrations. Details of annual average statistical data recorded throughout the year are represented in **Table 5.2**.

Table 5.2. Statistical Monitoring of Annual Average Air Quality in Mumbai Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
Sion	8	83	152
Bandra	13	40	124

From **Table 5.2.** it is observed that minimum SO₂ concentration of 8 $\mu\text{g}/\text{m}^3$ was found at Sion whereas a maximum of 13 was found at Bandra. Minimum NO_x concentration of 40 $\mu\text{g}/\text{m}^3$ was found at Bandra and maximum of 83 $\mu\text{g}/\text{m}^3$ was found at Sion. A maximum PM₁₀ concentration of 152 $\mu\text{g}/\text{m}^3$ PM₁₀ was found at Sion, whereas minimum concentration of 124 $\mu\text{g}/\text{m}^3$ was found at Bandra.

5.1.2. Navi Mumbai

There is one Ambient Air Monitoring Station installed under Continuous Ambient Air Quality Monitoring (CAAQM) and 5 are installed under National Air Quality Monitoring Program (NAMP) in this region. 594 Samples were analyzed under CAAQMS and 281 under NAMP to assess the quality of ambient air at 6 different locations. The average annual concentration of all the parameters analyzed at all locations is represented in **Figure 5.2.**

From **Figure 5.2** it is observed that the average annual concentration of particulate matter exceeds the limits except at one location i.e. Airoli. SO₂ concentration is well within the prescribed standard at all locations whereas concentration of NO_x is within the limits only at Airoli. Heavy traffic near sampling station might be the reason for higher concentration of pollutants. The detailed annual average statistical data recorded throughout the year is represented in **Table 5.3.**

Table 5.3. Statistical Monitoring Of Annual Average Air Quality in Navi Mumbai Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
Rabale	20	44	108
Nerul - DY Patil	18	41	97
Mahape, MPCB-Nirmal Bhavan	21	46	95
Airoli	26	39	42
Kharghar - CIDCO Nodal Office	18	45	90
Taloja - MIDC Building	21	47	113

From **Table 5.3.**, it is observed that minimum SO₂ of 18 $\mu\text{g}/\text{m}^3$ was found at Dr. D.Y. Patil College Nerul and Kharghar – CIDCO Nodal Office. Minimum NO_x concentration of 39 $\mu\text{g}/\text{m}^3$ was found at Airoli. Maximum SO₂ concentration of 26 $\mu\text{g}/\text{m}^3$ was found at Airoli and maximum NO_x concentration of 47 $\mu\text{g}/\text{m}^3$ was found at Taloja - MIDC Building. The minimum PM₁₀ concentration of 42 $\mu\text{g}/\text{m}^3$ was found at Airoli and the maximum concentration of 113 $\mu\text{g}/\text{m}^3$ was found at Taloja - MIDC Building.

5.1.3. Raigad

In this region ambient air quality is analyzed under the National Air Quality Monitoring Program (NAMP). There is one Ambient Air Monitoring Station installed under NAMP and 307 observations were recorded at one location. The average annual concentration of parameters observed throughout the year 2016-17 at this location is presented in **Table 5.4.**, and from the table it is evident that NO_x and PM₁₀ concentrations exceed the limit of 40 and 60 $\mu\text{g}/\text{m}^3$ respectively. From **Figure 5.2** it can be observed that the average annual concentrations of particulate matter and NO_x exceed the limits at

Panvel Water Supply Plant. The SO₂ concentration is well within the prescribed standards at all stations.

Table 5.4. Statistical Monitoring Of Annual Average Air Quality in Raigad Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
Panvel Water Supply Plant	19	49	112

5.1.4. Thane

There are three Ambient Air Monitoring Stations installed under National Air Quality Monitoring Program (NAMP) in this region. 899 observations were recorded from residential, industrial and rural areas, the results of which are represented in **Figure 5.2**.

Figure 5.2 represents that SO₂ concentrations at all locations are within the prescribed limits whereas the NO_x and PM₁₀ concentrations at all locations are above the standards of 40 $\mu\text{g}/\text{m}^3$ and 60 $\mu\text{g}/\text{m}^3$ respectively. Details of annual average statistical data recorded at this station are represented in **Table 5.5**.

Table 5.5. Statistical Monitoring Of Annual Average Air Quality in Thane Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
Kopri	18	59	117
Naupada	19	61	108
Balkum/Glaxo	15	52	122

From **Table 5.5**, it is evident that minimum SO₂ and NO_x concentrations of 15 $\mu\text{g}/\text{m}^3$ and 52 $\mu\text{g}/\text{m}^3$ and were found at Balkum/Glaxo at Thane. Minimum PM₁₀ concentration of 108 $\mu\text{g}/\text{m}^3$ was found at Naupada. Maximum SO₂ concentration of 19 $\mu\text{g}/\text{m}^3$ and maximum NO_x concentration of 61 $\mu\text{g}/\text{m}^3$ were found at Naupada, and maximum PM₁₀ concentration of 122 $\mu\text{g}/\text{m}^3$ was recorded Balkum/Glaxo at Thane.

5.1.5. Kalyan

There are four stations installed under SAMP, 5 under NAMP and one under CAAQMS in this region. 81 samples were analyzed at 10 different locations in rural and industrial areas. The average annual concentration observed is represented in **Figure 5.2**.

It is observed from **Figure 5.2** that only SO₂ concentrations are within the limit at all locations whereas particulate matter concentrations are beyond the limit at all locations. NO_x concentrations are beyond the prescribed standards at all locations except Dombivali CAAQMS. Details of average annual concentration of sampling are statistically represented in **Table 5.6**.

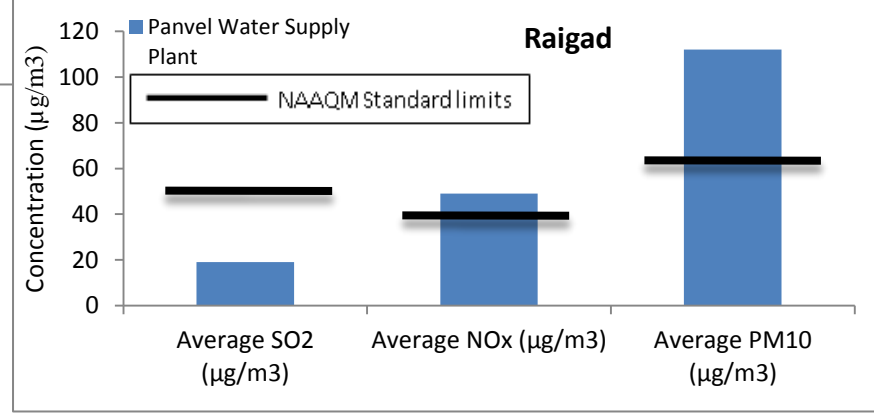
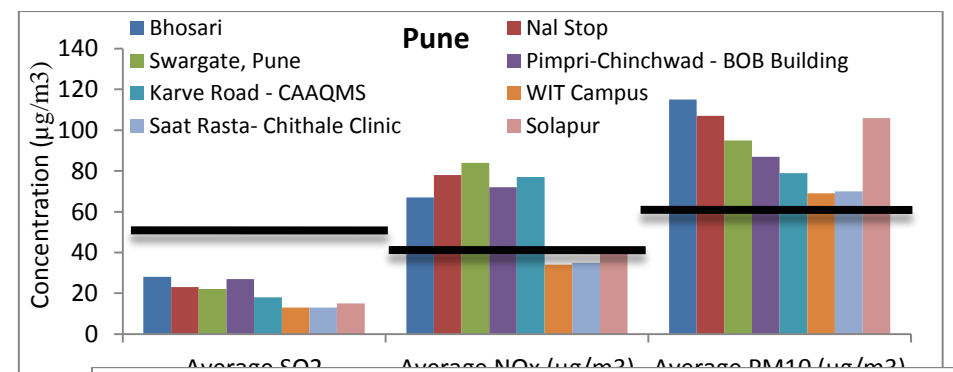
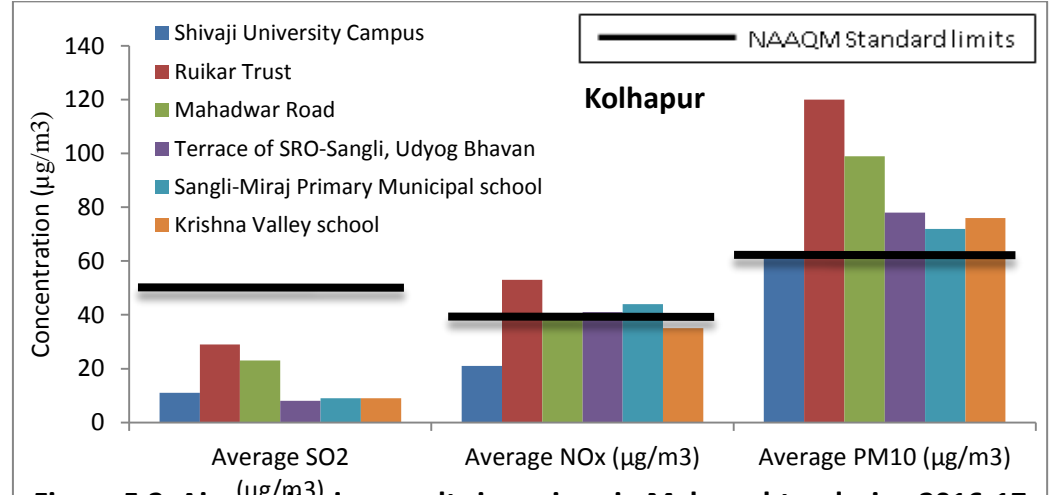
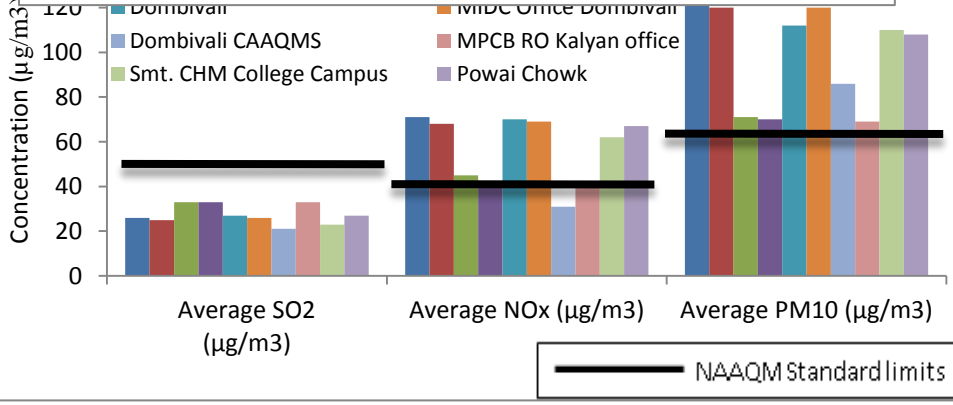
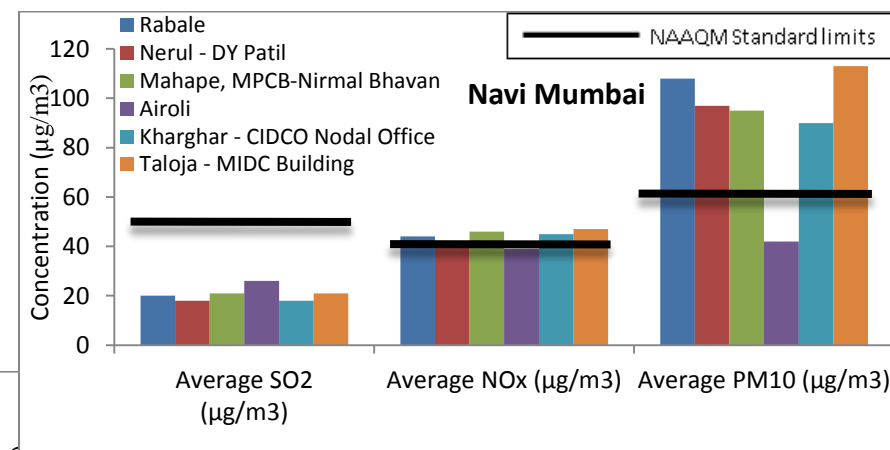
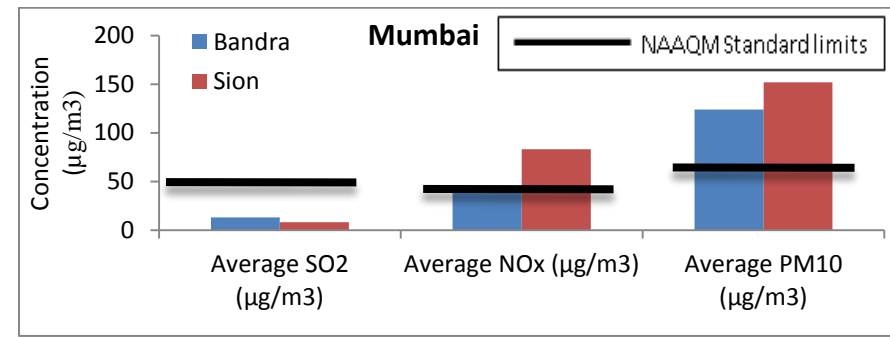
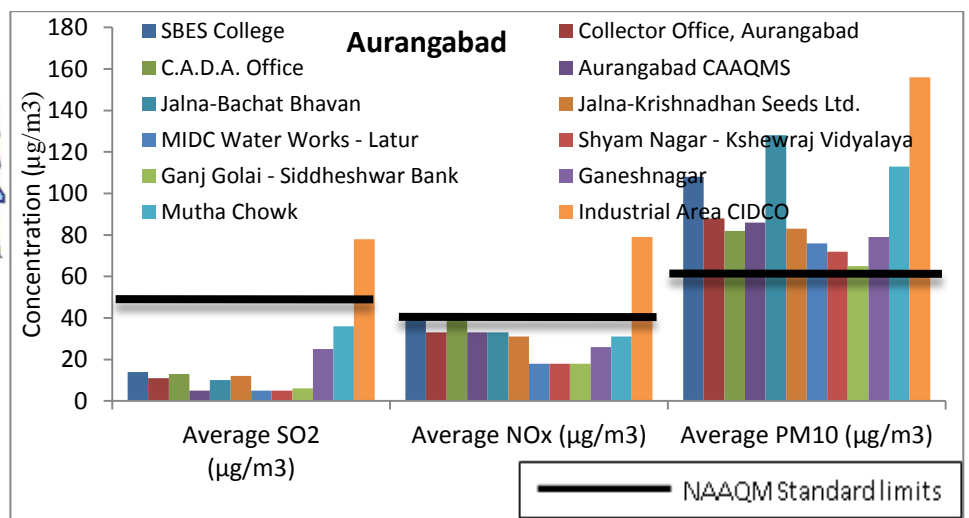
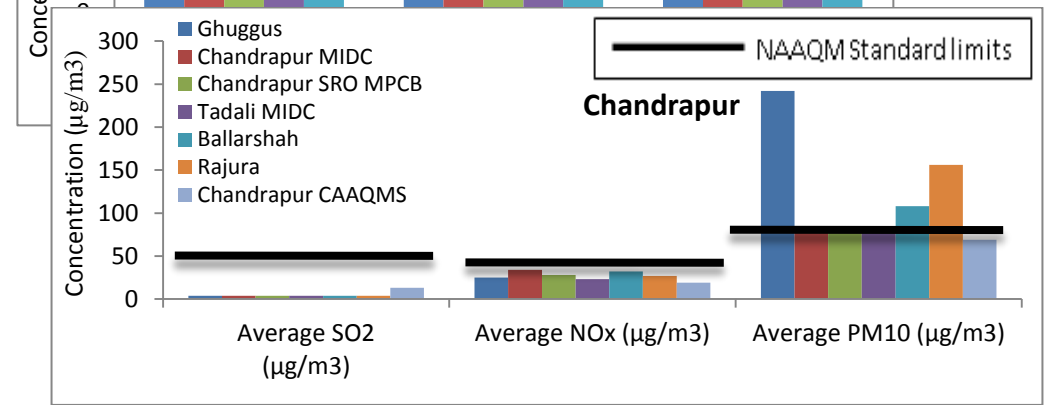
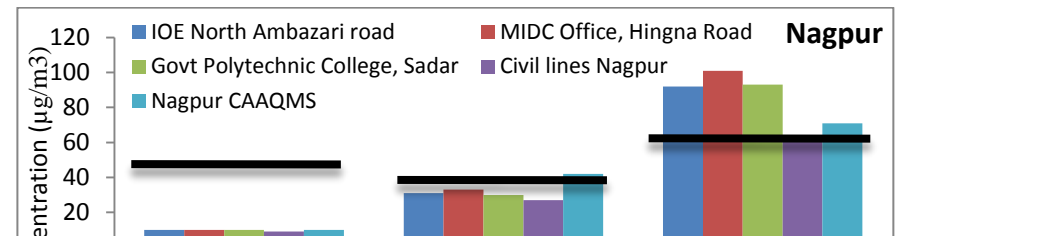
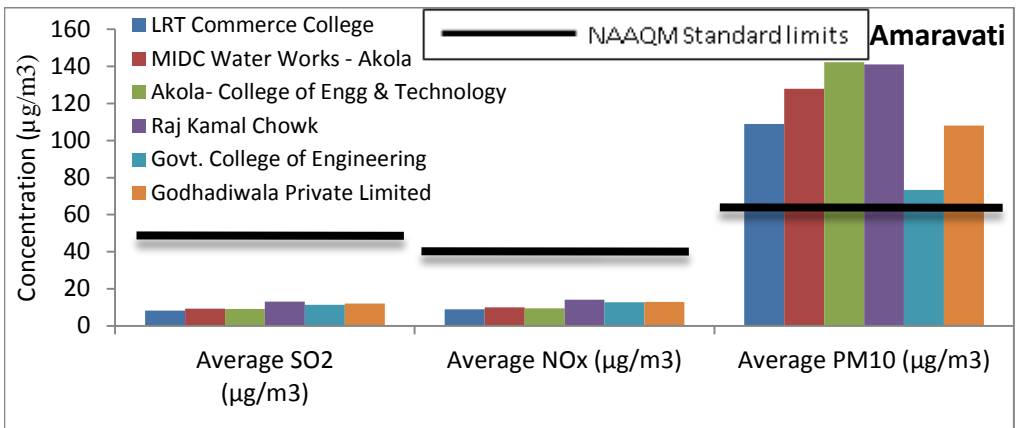
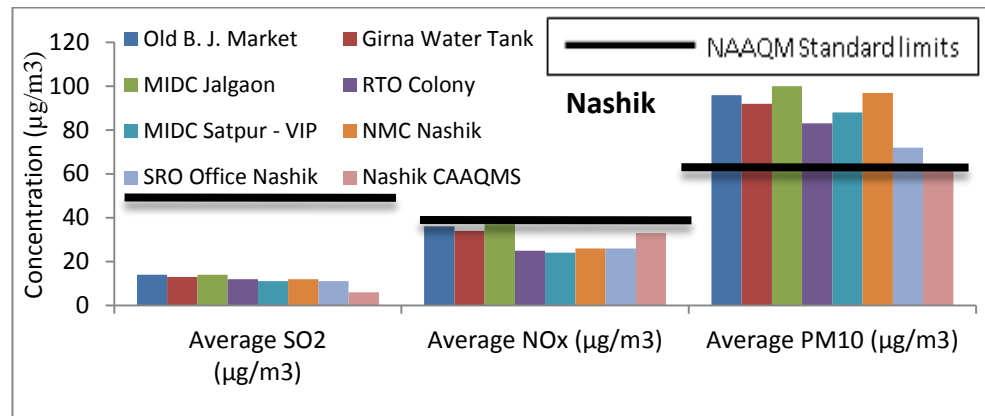


Figure 5.2. Air monitoring results in regions in Maharashtra during 2016-17

Table 5.6. Statistical Monitoring Of Annual Average Air Quality in Kalyan Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
Ambernath	26	71	123
Badlapur - BIWA House	25	68	120
I.G.M. Hospital	33	45	71
Prematai Hall	33	42	70
Dombivali	27	70	112
MIDC Office Dombivali	26	69	120
Dombivali CAAQMS	21	31	86
MPCB RO Kalyan office	33	41	69
Smt. CHM College Campus	23	62	110
Powai Chowk	27	67	108

From **Table 5.6.** it can be observed that minimum SO₂ concentration of 21 $\mu\text{g}/\text{m}^3$ and minimum NO_x concentration of 31 $\mu\text{g}/\text{m}^3$ was recorded at Dombivali CAAQMS. Minimum PM₁₀ concentration of 69 $\mu\text{g}/\text{m}^3$ was found at MPCB RO Kalyan office. Maximum SO₂ concentration of 33 $\mu\text{g}/\text{m}^3$ was recorded at MPCB RO Kalyan office, Prematai Hall and I.G.M. Hospital in Bhiwandi. Maximum NO_x concentration of 71 $\mu\text{g}/\text{m}^3$ and maximum PM₁₀ concentration of 123 $\mu\text{g}/\text{m}^3$ was found at Ambernath.

5.1.6. Pune

In Pune region there are 2 Ambient Air Quality Monitoring Stations are installed under CAAQM and 6 under NAMP. 643 samples have been analyzed to assess the air quality in the entire region for all the areas. The annual average concentration of all parameters is represented in **Figure 5.2.**

It is observed from **Figure 5.2** that in this region the annual average concentration of PM₁₀ is higher than the prescribed limit at all the locations. Concentration of NO_x is beyond the limits at all locations except WIT Campus and Saat Rasta – Chitale Clinic. Levels of SO₂ are well within the limit at all locations. Details of annual average statistical data recorded at these sampling locations are represented in **Table 5.7.**

Table 5.7. Statistical Monitoring Of Annual Average Air Quality in Pune Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
Bhosari	28	67	115
Nal Stop	23	78	107
Swargate, Pune	22	84	95
Pimpri-Chinchwad - BOB Building	27	72	87
Karve Road - CAAQMS	18	77	79
WIT Campus	13	34	69
Saat Rasta- Chitale Clinic	13	35	70
Solapur	15	41	106

From **Table 5.7.**, it is observed that minimum SO₂ concentration of 13 $\mu\text{g}/\text{m}^3$ was found at Chitale Clinic and WIT Campus in Solapur, whereas maximum SO₂ concentration of 28 $\mu\text{g}/\text{m}^3$ was found at Bhosari. Minimum NO_x concentration of 34 $\mu\text{g}/\text{m}^3$ was found at WIT Campus in Solapur, whereas maximum

NO_x concentration of 84 µg/m³ was found at Swargate, Pune. Minimum PM₁₀ concentration of 69 µg/m³ was found at WIT Campus, Solapur whereas maximum PM₁₀ concentration of 115 µg/m³ was found at Bhosari.

5.1.7. Nashik

There are 7 Ambient Air Monitoring Stations installed under NAMP and one under CAAQMS in this region. 90 Samples were analyzed in Nashik at 8 locations to assess the air quality in this area. The results of sampling are represented in **Figure 5.2**.

It is observed from **Figure 5.2** that concentrations of SO₂ and NO_x are within the prescribed limits. PM₁₀ levels are beyond the limit at all locations. Details of annual average statistical data are represented in **Table 5.8**.

Table 5.8. Statistical Monitoring Of Annual Average Air Quality in Nashik Region.

Location	Parameters [µg/m ³]		
	SO ₂	NO _x	PM ₁₀
Old B. J. Market	14	36	96
Girna Water Tank	13	34	92
MIDC Jalgaon	14	37	100
RTO Colony	12	25	83
MIDC Satpur - VIP	11	24	88
NMC Nashik	12	26	97
SRO Office Nashik	11	26	72
Nashik CAAQMS	6	33	64

From **Table 5.8**, it is evident that minimum SO₂ concentration of 6 µg/m³ was found at Nashik CAAQMS whereas maximum SO₂ concentration of 14 µg/m³ was found at MIDC Jalgaon and Old B. J. Building, Jalgaon. Minimum NO_x concentration of 24 µg/m³ was found at MIDC Satpur - VIP, Nashik whereas maximum NO_x concentration of 37 µg/m³ was found at MIDC Jalgaon. Minimum PM₁₀ concentration of 64 µg/m³ was found at Nashik CAAQMS whereas maximum PM₁₀ concentration of 100 µg/m³ was found at MIDC Jalgaon.

5.1.8. Aurangabad

There is one monitoring station under CAAQMS and 11 stations under NAMP in this region. Samples were taken at 12 locations from industrial, commercial and residential areas and were analyzed to assess the air quality in the region. The results are represented in **Figure 5.2**.

Figure 5.2 represents the SO₂, NO_x and PM₁₀ concentrations in the entire region. SO₂ levels are within the NAAQM standard limits except at Industrial area CIDCO, Nanded. On the other hand PM₁₀ exceeds the limit at all locations. NO_x exceeds the standard limits only at SBES College and Industrial Area CIDCO, Nanded. Details of annual average statistical data are represented in **Table 5.9**.

Table 5.9. Statistical Monitoring Details of Air Quality in Aurangabad Region.

Location	Parameters [µg/m ³]		
	SO ₂	NO _x	PM ₁₀
SBES College	14	41	108
Collector Office, Aurangabad	11	33	88

C.A.D.A. Office	13	39	82
Aurangabad CAAQMS	5	33	86
Jalna-Bachat Bhavan	10	33	128
Jalna-Krishnadhan Seeds Ltd.	12	31	83
MIDC Water Works - Latur	5	18	76
Shyam Nagar - Kshewraj Vidyalaya	5	18	72
Ganj Golai - Siddheshwar Bank	6	18	65
Ganeshnagar	25	26	79
Mutha Chowk	36	31	113
Industrial Area CIDCO	78	79	156

From **Table 5.9.** it can be observed that minimum SO₂ concentration of 5 µg/m³ was found at Shyam Nagar- Kshewraj Vidyalaya, Aurangabad CAAQMS and MIDC Water Works at Latur whereas maximum SO₂ concentration of 78 µg/m³ was found Industrial Area CIDCO, Nanded. Minimum NO_x concentration of 18 µg/m³ was found at all three stations at Latur, viz. Ganj Golai- Siddheshwar Bank, Shyam Nagar - Kshewraj Vidyalaya and MIDC Water Works at Latur, whereas maximum concentration of NO_x of 79 µg/m³ was found at Industrial Area CIDCO, Nanded. Minimum PM₁₀ concentration of 65 µg/m³ was found at Ganj Golai - Siddheshwar Bank whereas maximum PM₁₀ concentration of 156 µg/m³ was found at Industrial Area CIDCO, Nanded.

5.1.9. Nagpur

There is one Ambient Air Monitoring Station installed under CAAQMS and 4 installed under NAMP in this region. Result of the analysis of air quality of Nagpur region at 5 locations is represented in **Figure 5.2.** It is evident from **Figure 5.2** that concentrations of SO₂ are well within the limit of the entire region; however the concentrations of particulate matter at all monitoring stations are not within the prescribed limit. In case of NO_x the concentration is within the limits prescribed at all locations except Nagpur CAAQMS. Details of annual average statistical data are represented in **Table 5.10.**

Table 5.10. Statistical Monitoring Of Annual Average Air Quality in Nagpur Region.

Location	Parameters [µg/m ³]		
	SO ₂	NO _x	PM ₁₀
IOE North Ambazari road	10	31	92
MIDC Office, Hingna Road	10	33	101
Govt. Polytechnic College, Sadar	10	30	93
Civil lines Nagpur	9	27	62
Nagpur CAAQMS	10	42	71

From **Table 5.10.**, it is found that minimum concentrations of SO₂, NO_x and PM₁₀ viz. 9 µg/m³, 27 µg/m³ and 62 µg/m³ respectively were found at Civil lines, Nagpur. Maximum SO₂ concentration of 10 µg/m³ was found at all locations except Civil lines, Nagpur and maximum NO_x concentration of 42 µg/m³ was found at Nagpur CAAQMS. Maximum PM₁₀ concentration of 101 µg/m³ was found at MIDC Office, Hingna Road.

5.1.10. Amaravati

In this region 6 ambient air quality monitoring stations have been installed under NAMP. Samples were taken at 6 locations from industrial, commercial, rural and residential areas and were analyzed to assess the air quality of the region. The analyses are represented in **Figure 5.2**.

Figure 5.2 shows that concentrations of SO₂ and NO_x were within the prescribed limits of NAAQM at all locations, whereas concentrations of PM₁₀ at all locations were not within the prescribed limits. Details of annual average statistical data are represented in **Table 5.11**.

Table 5.11. Statistical Monitoring Of Annual Average Air Quality in Amaravati Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
LRT Commerce College	8	9	109
MIDC Water Works - Akola	9	10	128
Akola- College of Engg. & Technology	9	9	142
Raj Kamal Chowk	13	14	141
Govt. College of Engineering	11	13	73
Godhadiwala Private Limited	12	13	108

From **Table 5.11** it can be observed that the minimum concentration of SO₂ viz. 8 $\mu\text{g}/\text{m}^3$ was found at LRT Commerce College and minimum NO_x concentration of 9 $\mu\text{g}/\text{m}^3$ was found at Akola - College of Engineering & Technology and LRT Commerce College at Akola. The maximum SO₂ and NO_x concentrations of 13 $\mu\text{g}/\text{m}^3$ and 14 $\mu\text{g}/\text{m}^3$ were found at Raj Kamal Chowk, Amaravati. Minimum PM₁₀ concentration of 73 $\mu\text{g}/\text{m}^3$ was found at the Govt. College. Of Engineering, Amaravati, whereas the maximum PM₁₀ level of 142 $\mu\text{g}/\text{m}^3$ was found at Akola - College of Engineering & Technology.

5.1.11. Kolhapur

In the region of Kolhapur, there are six Ambient Air Monitoring Stations installed under NAMP. Samples were taken at 6 different locations from industrial, commercial, rural, and residential areas and were analyzed to assess the air quality in the region.

From **Figure 5.2** it is evident that concentration of SO₂ is well within the limits at all the locations, however NO_x is within the prescribed standards only at Shivaji University Campus - Kolhapur, Mahadwar Road and Krishna Valley School. PM₁₀ concentrations have exceeded beyond the prescribed limits at all locations. Details of annual average statistical data are represented in **Table 5.12**.

Table 5.12. Statistical Monitoring Of Annual Average Air Quality in Kolhapur Region.

Location	Parameters [$\mu\text{g}/\text{m}^3$]		
	SO ₂	NO _x	PM ₁₀
Shivaji University Campus	11	21	61
Ruikar Trust	29	53	120
Mahadwar Road	23	39	99
Terrace of SRO-Sangli, Udyog Bhavan	8	41	78
Sangli-Miraj Primary Municipal school	9	44	72
Krishna Valley School	9	35	76

From **Table 5.12**, minimum SO₂ level of 8 µg/m³ was found at Terrace of SRO-Sangli, Udyog Bhavan whereas maximum SO₂ and NO_x concentrations of 29 µg/m³ and 53 µg/m³ respectively were found at Ruikar Trust. Minimum NO_x level of 21 µg/m³ was found at Shivaji University Campus, Kolhapur. Minimum PM₁₀ concentration of 61 µg/m³ was found at Shivaji University Campus, whereas maximum PM₁₀ concentration of 120 µg/m³ was found Ruikar Trust.

5.1.12. Chandrapur

There are 6 Ambient Air Monitoring Stations installed under NAMP and one under CAAQMS. Samples were taken at 7 locations from industrial and residential areas, and were analyzed to assess the air quality in the region. The results are represented in **Figure 5.2.** from which it is evident that concentrations of SO₂ and NO_x are within the prescribed limits. However the concentration of PM₁₀ exceeds the limits at all the locations. Detailed annual average statistical data is represented in **Table 5.13.**

Table 5.13. Statistical Monitoring Of Annual Average Air Quality in Chandrapur Region.

Location	Parameters [µg/m ³]		
	SO ₂	NO _x	PM ₁₀
Ghuggus	4	25	242
Chandrapur MIDC	4	34	77
Chandrapur SRO MPCB	4	28	84
Tadali MIDC	4	23	79
Ballarshah	4	32	108
Rajura	4	27	156
Chandrapur CAAQMS	13	19	69

From **Table 5.13** it is observed that minimum SO₂ concentration of 4 µg/m³ was found at all stations at Chandrapur except Chandrapur – CAAQMS where the maximum SO₂ concentration of 13 µg/m³ was found. Minimum NO_x of 19 µg/m³ was also found at Chandrapur – CAAQMS, whereas maximum NO_x level of 34 µg/m³ was found at Chandrapur MIDC. Minimum PM₁₀ concentration of 69 µg/m³ was found at Chandrapur CAAQMS; whereas maximum PM₁₀ level of 242 µg/m³ was found at Ghuggus.

5.1.13. Conclusion

An overview of the AQI for observations recorded by the AAQMS in Maharashtra has been calculated using three parameters viz. SO₂, NO_x and RSPM (PM₁₀) as per the calculation and AQI categories released by CPCB and IIT Kanpur in October 2014. After determining the sub-indices for a region the highest sub-index from that AAQMS has been considered as the AQI for the area represented by that AAQMS. During 2016-17, 10,051 observations were recorded across 74 active AAQMS in Maharashtra representing 25 cities. As shown in **Figure 5.3**, it is interesting to note that around 60% (6074) daily observations were in 'Good' and 'Satisfactory' category as against the share of 55% in the last year, thus recording an improvement in terms of non-polluted days in Maharashtra. The share of 'Moderate' (35%) and 'Poor' (4%) air quality days also recorded a decrease as compared to last year share of 44% and 5% respectively. In terms of polluted categories less than 2% of the observations days were categorized as 'Very Poor' and 'Severe' air quality days.

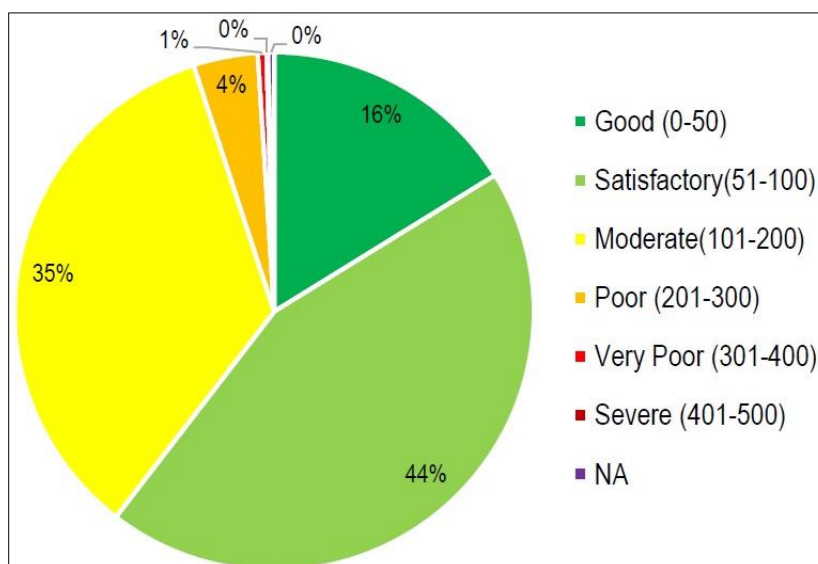


Figure 5.3. Share of AQI categories for air quality of monitored observations across all AAQMS in Maharashtra (2016-17)

5.2. 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 despite the fact that 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 also 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 fire crackers 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 in order 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

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 5.14. Noise Standards by CPCB.

Area Code	Category of Area / Zone	Limits in dB(A) Leq	
		Day time	Night time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence zone	50	40

MPCB monitors noise periodically and also 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.

5.2.1. Mumbai

A total of 40 observations were made during the year 2016-17, out of which 20 were during day time and the rest during night time. **Figure 5.4** summarizes the average day time and night time noise levels at 10 locations of 2 days.

The noise levels on Antop Hill were high during day time and night time on the first day of noise monitoring with 76 dB(A) & 75 dB(A) respectively and also during the second day during night time with 64 dB(A). On the second day during day time, the noise level was high at Santacruz with 81 dB(A).

5.2.2. Thane

Twenty observations were made during this year, out of which 10 were made during day time and 10 during night time. **Figure 5.4** summarizes the average day time and night time noise levels at 5 locations over 2 days.

The highest noise level during day time on the first day of monitoring was observed at Wagle Estate with 75 dB(A) and Gokhale Road was found to have high noise level of 80 dB(A) during night time. On the second day the highest noise levels during day time and night time were observed at Gaondevi Mandir, Naupada with 80 dB(A) and 64 dB(A) respectively.

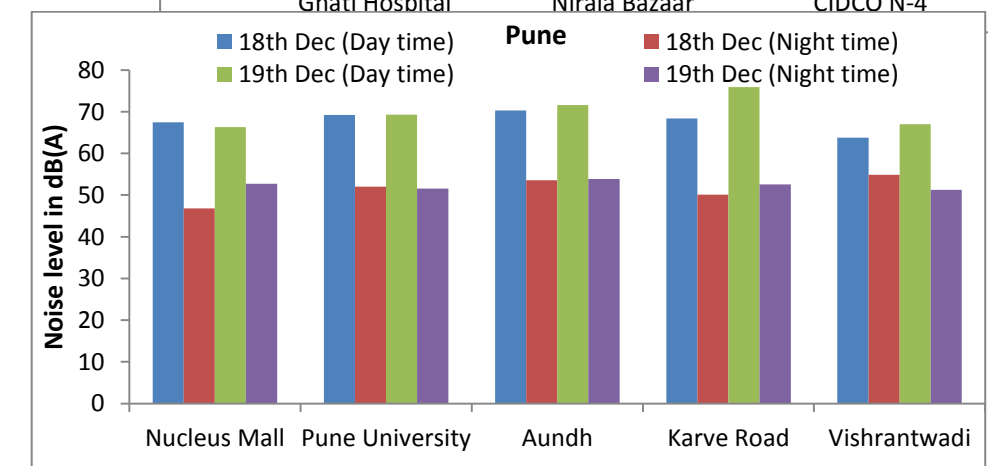
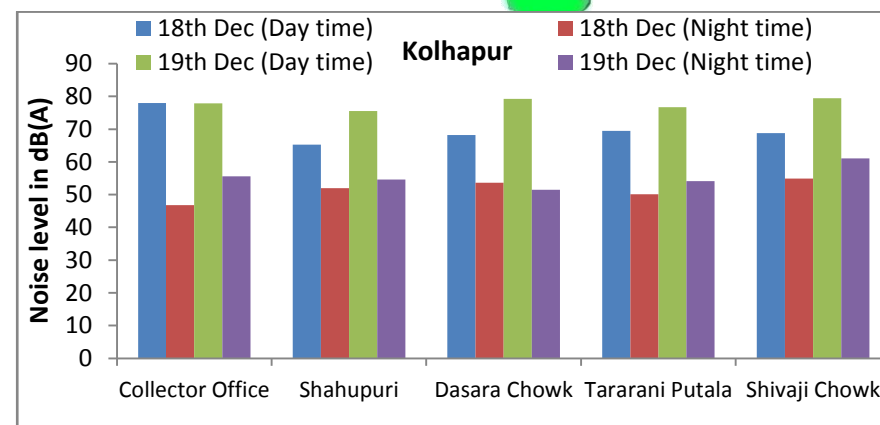
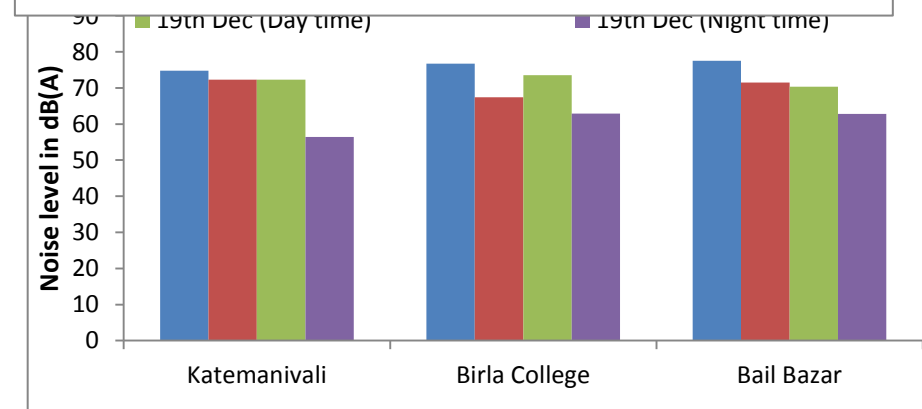
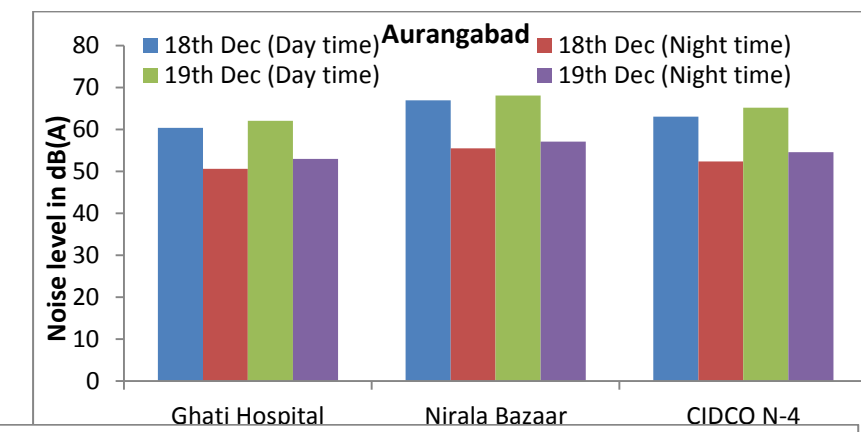
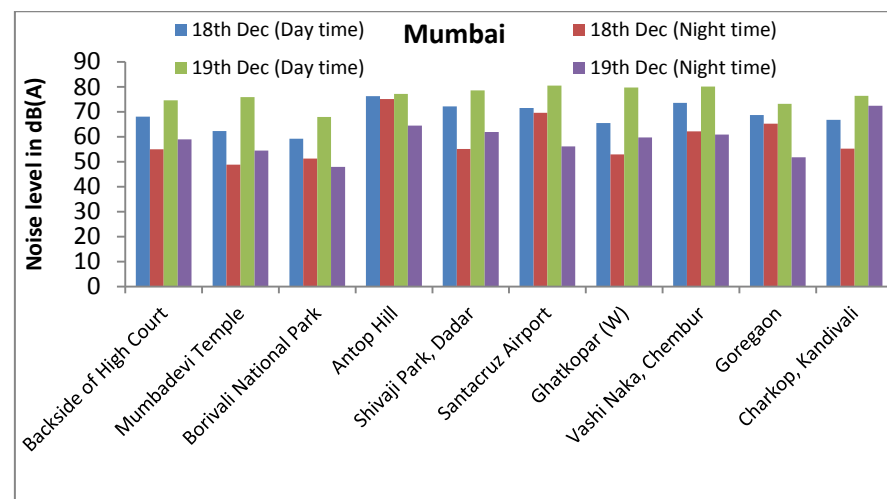
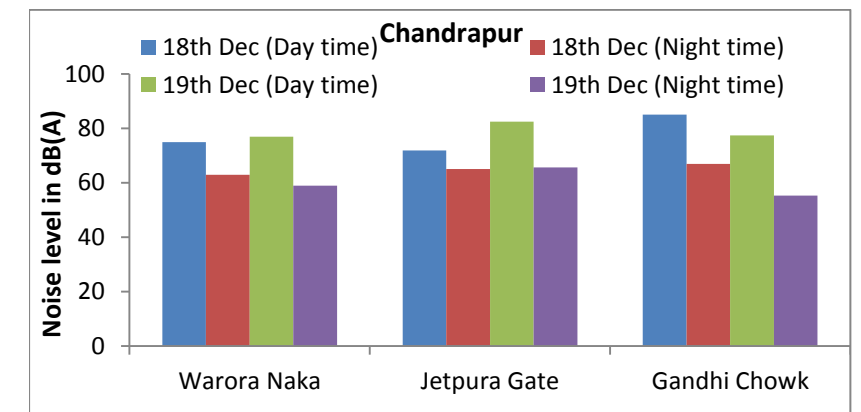
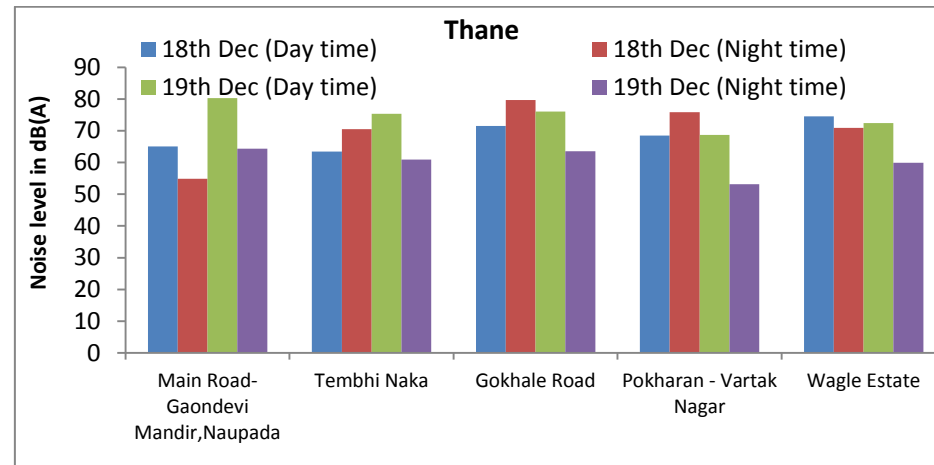
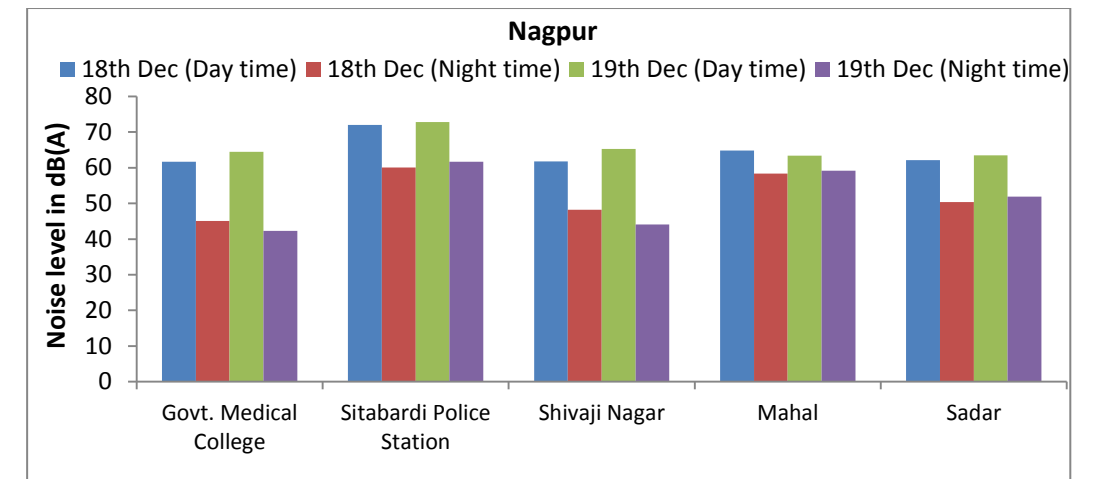
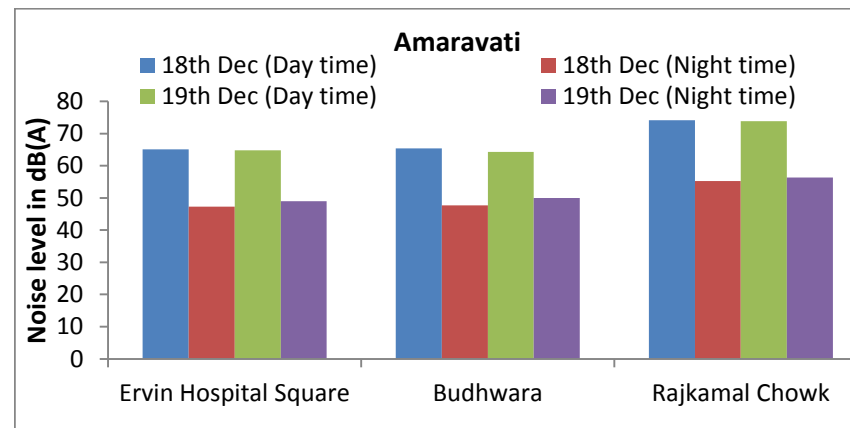
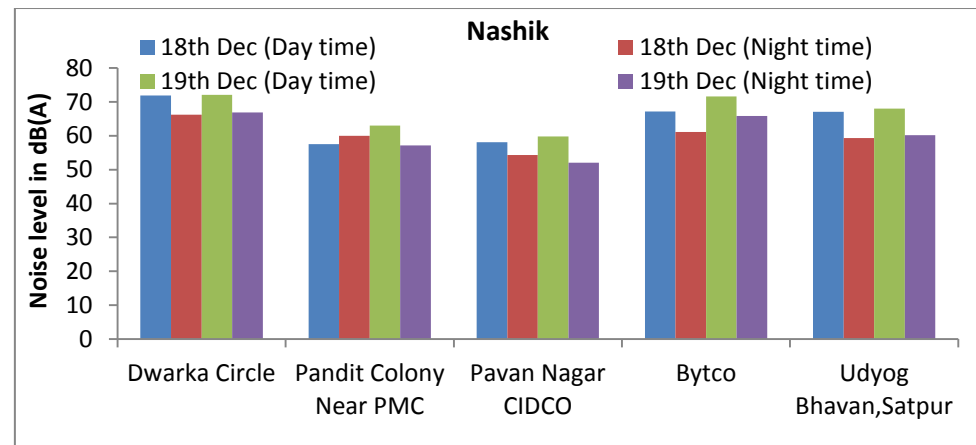


Figure 5.4. Noise levels in regions in Maharashtra during December 2016

5.2.3. Kalyan

12 observations, 6 during day time and 6 during night time were recorded during this year. **Figure 5.4** summarizes the average day time and night time noise levels at 3 locations over 2 days.

At Kalyan, Bail bazaar had the highest noise level during day time with 78 dB(A) and Katemanivali had the highest noise level during night time with 72 dB(A). On the second day of noise monitoring, the highest noise levels during day time and night time were observed at Birla College with 74 dB(A) and 63 dB(A) respectively.

5.2.4. Pune

Out of the 20 observations recorded, 10 were made during day time and 10 during night time. **Figure 5.4** summarizes the average day time and night time noise levels at 5 locations over 2 days.

The highest noise levels during day time on the first day of monitoring were observed at Aundh with 70 dB(A) and the highest level during night time was observed at Vishrantwadi with 55 dB(A). On the second day of noise monitoring, the highest level of noise during day time was observed at Karve Road with 76 dB(A) and the highest noise level during night time was observed at Aundh with 54 dB(A).

5.2.5. Nashik

Out of the 20 observations recorded, 10 were made during day time and 10 during night time. **Figure 5.4** summarizes the average day time and night time noise levels at 5 locations over 2 days.

In Nashik the highest noise levels on both days for day time and night time were recorded at Dwarka Circle with 72 dB(A) and 66 dB(A) on the first day during day time and night time respectively, and 72 dB(A) and 67 dB(A) during the second day at day time and night time respectively.

5.2.6. Aurangabad

Out of the 12 observations made this year, 6 were during day time and 6 during night time. **Figure 5.4** represents the average day time and night time noise levels at 3 locations for 2 days.

In Aurangabad the highest noise levels on both days during day time and night time were observed at Nirala Bazaar with 67 dB(A) and 56 dB(A) on the first day during day time and night time respectively, and 68 dB(A) and 57 dB(A) on the second day during day time and night time respectively.

5.2.7. Nagpur

10 observations during day time and 10 during night time were made during this year. The **Figure 5.4** summarizes the average day time and night time noise levels at 5 locations for 2 days.

In Nagpur the highest noise levels on both days were observed at Sitabardi Police Station with 72 dB(A) and 60 dB(A) on the first day during day time and night time respectively, and 73 dB(A) and 62 dB(A) during day and night times of the second day of noise monitoring.

5.2.8. Amaravati

Six observations during the day time and six during the night time were made during the year 2016-17. **Figure 5.4** shows the average day and night time noise levels at 3 locations over 2 days.

At Amaravati the highest noise levels on both days for day time and night time were observed at Raj Kamal Chowk with 74 dB(A) and 55 dB(A) for the first day during day and night time and 74 dB(A) and 56 dB(A) on the second day during day and night time respectively.

5.2.9. Kolhapur

Out of the 20 observations, 10 were made during day time and 10 were made during night time during this year. **Figure 5.4** summarizes the average day time and night time noise levels at 5 locations over 2 days.

In Kolhapur, the noise monitoring station at Collector Office recorded 78 dB(A) as the highest noise level on the first day during day time. The highest noise levels on the first day night time and on the second day during both day and night times were observed at Shivaji Chowk with 55 dB(A), 79 dB(A) and 61 dB(A) respectively.

5.2.10. Chandrapur

A total of 12 observations i.e. 6 during day time and 6 during night time were taken during this year. **Figure 5.4** summarizes the average day time and night time noise levels at 3 locations of 2 days.

The highest noise levels during the first day of monitoring were recorded at Gandhi Chowk with 85 dB(A) during day time and 67 dB(A) during night time. On the second day of monitoring, noise levels were highest at Jetpura Gate with 83 dB(A) during day time and 66 dB(A) during night time.

5.2.11. Conclusion

Noise pollution not only causes environmental damage but it also has a negative impact on human health as it can cause conditions such as aggression, hypertension, high stress levels, hearing loss and sleep disturbances. The noise levels measured during the noise monitoring project by Maharashtra Pollution Control Board exceeded the limits provided in Noise Pollution (R & C) Rules, 2000 amendment dated 21st April, 2009. Road vehicles including trucks, buses, tractors, SUVs and even motorcycles and most cars were a major reason for the increase in noise range.

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

5.3. Water Quality in Maharashtra.

Water quality of any specific area or specific source can be assessed using physical, chemical and biological parameters. The values of these parameters are harmful for human health if their levels are more than the defined limits. Therefore, the suitability of water sources for human consumption has been described in terms of Water Quality Index (WQI) which is one of the most effective ways to describe the quality of water. WQI utilizes water quality data and helps modify policies which are formulated by various environmental monitoring agencies. It has been realized that the use of individual water quality variable in order to describe the water quality for common public is not easily understandable. However, WQI has the capacity to reduce the bulk of information into a single value to express data in a simplified and logical form.

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 the GEMS and MINARS program under 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.

Water quality is monitored per month across all the 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 Krishna, Godavari, Tapi and Coastal basin.

5.3.1 WQI for surface water.

Given the parameters monitored in India under the NWMP and to maintain uniformity while comparing the WQI across the nation, the NSF WQI has been modified and relative weights have been assigned by CPCB. The modified weights as per CPCB are given in **Table 5.15**. and the equations used to determine the sub index values are given **Table 5.16**. Upon determining the WQI, water quality is described for easy understanding and interpretation. The description used in the report for classifying and the describing water quality is presented in **Table 5.17**.

Table 5.15. Modified Weights for Computation of WQI Based on DO, FC, pH and BOD.

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

Table 5.16. Sub Index Equation Used to Calculate NSF WQI for DO, FC, pH and BOD.

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

Table 5.17. Water Quality Classification and Best Designated Use.

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

5.3.2 WQI for groundwater

MPCB monitors groundwater quality for parameters like pH, total hardness, calcium, magnesium, chloride, total dissolved solids, fluoride, manganese, nitrates, sulphates and so on once in six months. Based on the stringency of parameters and its relative importance in the overall quality of water for drinking purposes each parameter has been assigned a specific weight. The relative weights of the same have been determined and presented in **Table 5.18.** for parameters monitored and recorded by MPCB for water samples monitored in the year 2016-17. These weights indicate the relative harmfulness when present in water. The maximum weight assigned is 5 and minimum is 1.

Table 5.18. Relative Weights of Each Parameter.

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

5.3.3. Water Quality Monitoring Network in Maharashtra

The total geographical area of the State is divided into 5 basins, namely Godavari, Tapi, Narmada, Krishna and west flowing rivers of the Konkan region.

In Maharashtra, 55% of the dependable yield is received from four basins (Krishna, Godavari, Tapi and Narmada) whereas remaining 45% of State's water resources is received from west flowing rivers. As per the Ministry of Drinking Water and Sanitation, the State had 557 stationary drinking water quality testing laboratories as on January 31, 2014; about one fourth of the total of such stationary testing laboratories available in the entire country.

Water quality testing under the GEMS and MINARS program under NWMP in Maharashtra is monitored by MPCB (State nodal agency). Monitoring is carried out at 294 stations as presented in **Table 5.19.**

Table 5.19. Basin and Water body tally of WQMS in Maharashtra.

Type	Water	Program								Total
		NWMP				SWMP				
		Coastal	Godavari	Krishna	Tapi	Coastal	Godavari	Krishna	Tapi	
Surface Water	Rivers	34	48	53	20	6	11	4		176
	Creek	19				1				20
	Dam	1				1	2			4
	Nallah	8	1	1					2	12
	Sea	15				1				16
Ground Water	Dug well	6	12	5	1	7	3	1	0	35
	Bore well	5	8	10	1	3	2	0	0	29
	Tube well									1
	Hand pump									1
	Grand Total	88	70	69	23	19	18	5	2	294

5.3.4. Analysis of Surface Water Quality with Statistical details

Based on the absolute value of the index determined, water quality is classified as presented below in **Table 5.20.**

Table 5.20. Groundwater Classification Based on Water Quality Index.

WQI Value	Water Quality	Color 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	

Surface water is available in the form of lakes, ponds, canals and these constitute the most important source of surface water. The surface water resources potential of India is about 1869 billion cubic meters (BCM). Due to various topographical constraints and uneven distribution over space and time, only 690 BCM of surface water and 431 BCM of groundwater can be used. It has been estimated that due to an increase in population between 2001 and 2011 in India, the per capita availability of water resources has reduced from 1,816 m³ to 1,544 m³. The stress on water resources is increasing rapidly due to pressures from urbanization and industrialization. The pollution of water resources caused by discharge of sewage and industrial effluents in water bodies has further deteriorated the quality of water. In order to have a continuous vigilance check on water quality, MPCB has installed WQMS (Water Quality Monitoring Stations) across the State. The total WQMS for year 2016-17 are represented in the **Table 5.21.** Water quality is monitored per month across all stations. The spatial presence of the stations is presented basin wise in the respective sections.

Table 5.21. List of Monitoring Stations across Different Types of Water Bodies under MPCB.

Water Bodies	Rivers	Creeks	Dams	Nallahs	Sea	Borewell	Dug well	Hand pump	Tube well	Total
No. of WQ monitoring stations (2016-17)	176	20	4	12	16	29	35	1	1	294

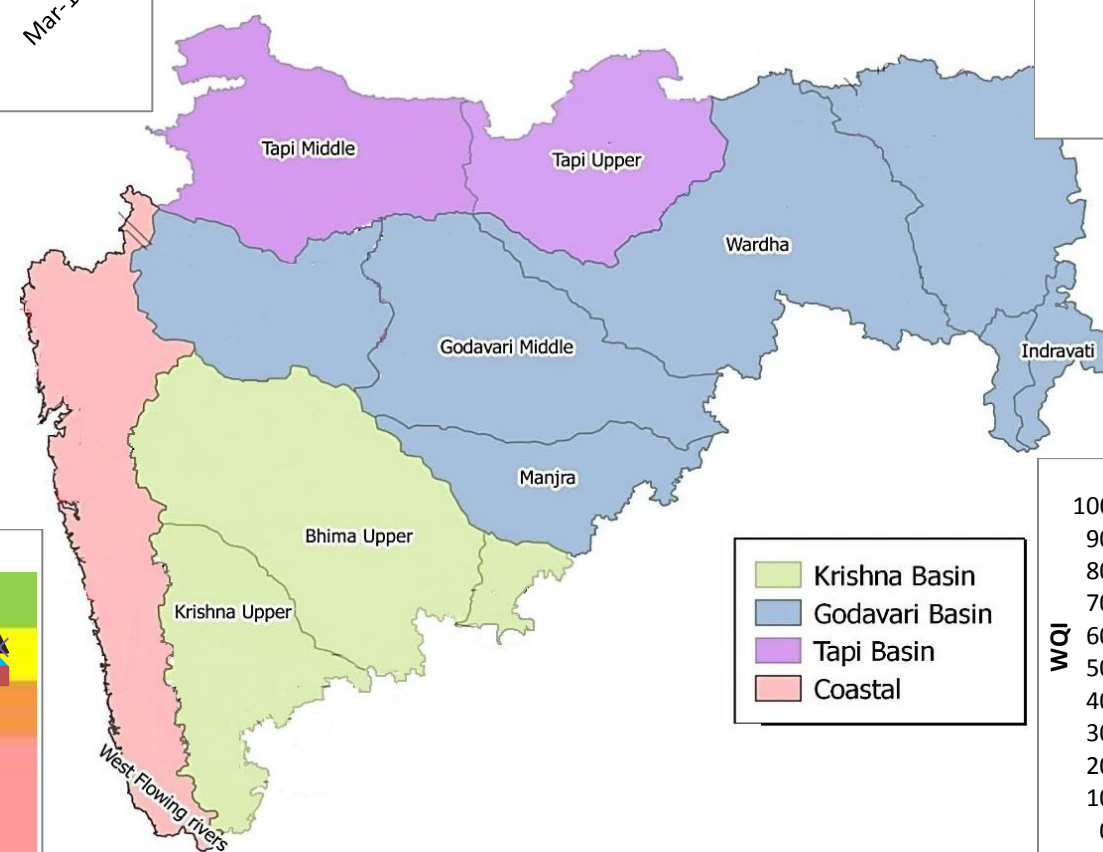
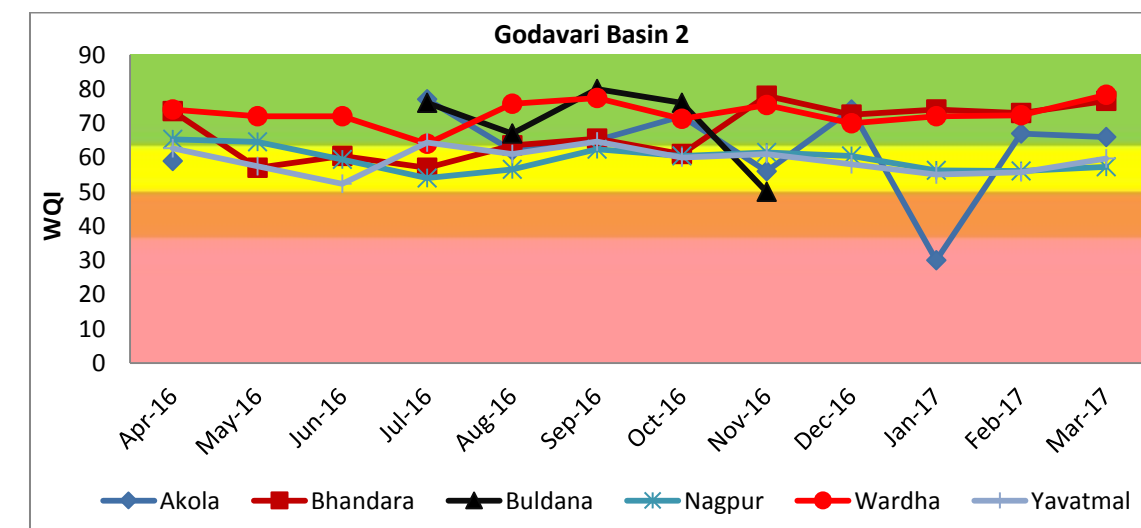
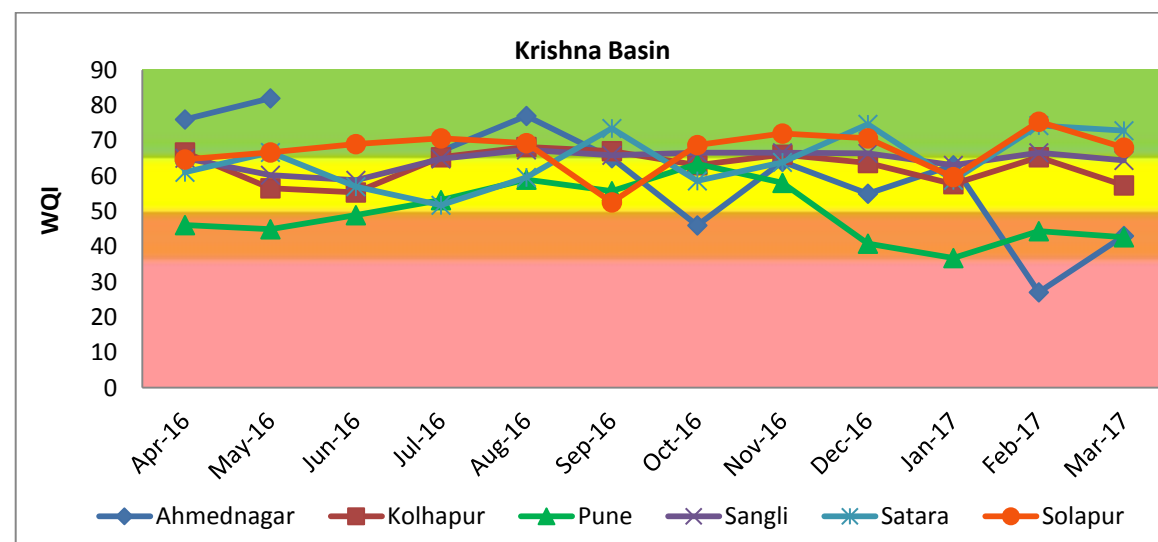
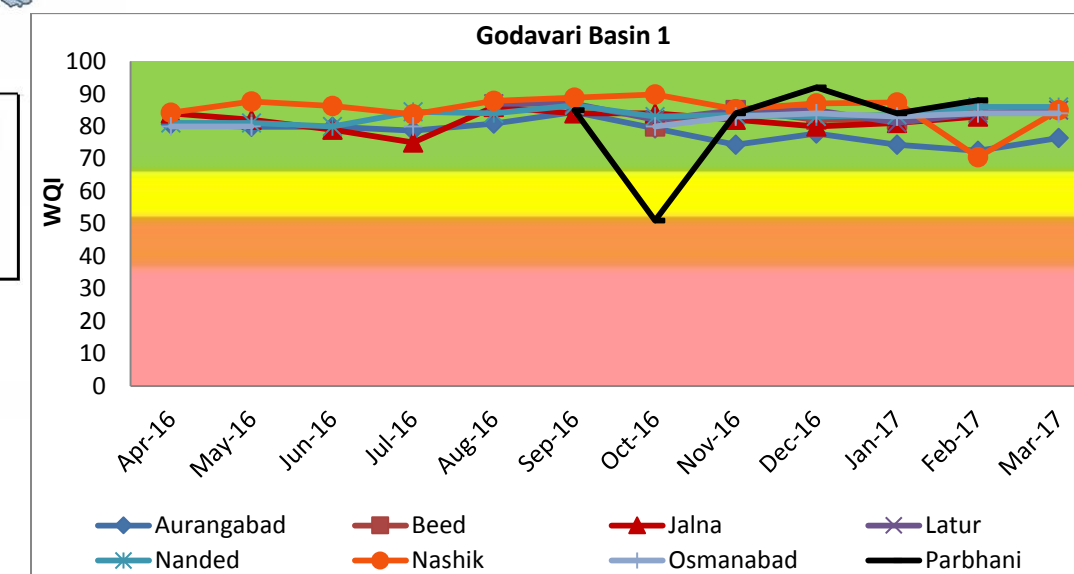
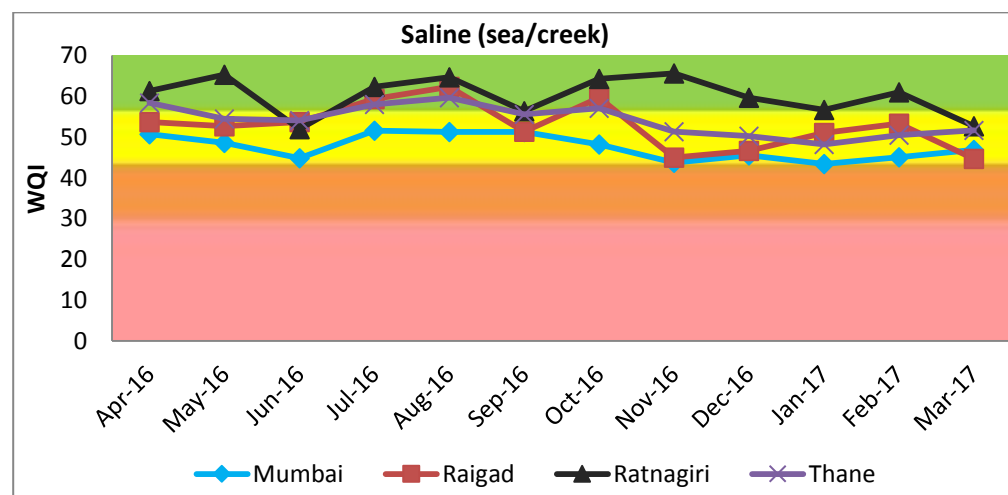
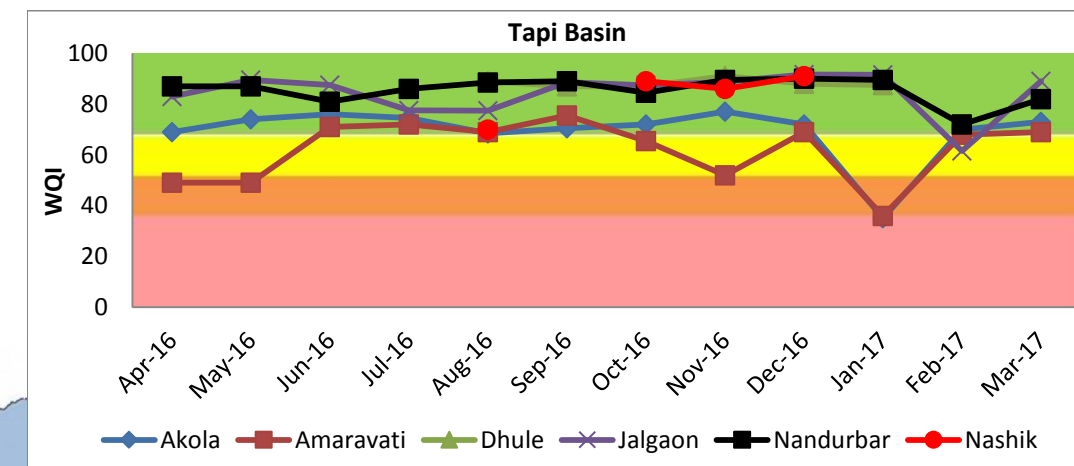
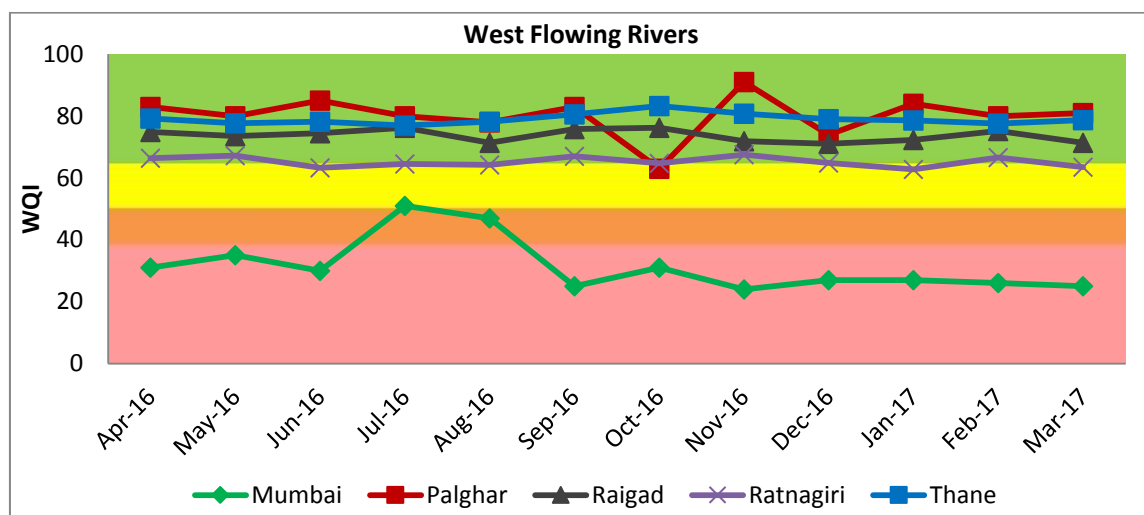


Figure 5.5. Monthly trends of WQI across districts in sub-basins of Maharashtra.

5.3.4.1. Tapi Basin

In Maharashtra, the Tapi Basin can be divided into two sub-basins, Tapi Upper and Tapi Middle. There are 20 surface water monitoring stations (5 on Tapi upper and 15 on Tapi middle) in the Tapi basin in Maharashtra. **Figure 5.5** shows the monthly trend in WQI along the Tapi basin flowing through six districts during the year 2016-17.

The intra-basin performance of Tapi Basin across six districts in the State of Maharashtra is depicted in **Figure 5.5**. It is observed that among six districts, namely Akola, Amaravati, Dhule, Jalgaon, Nandurbar and Nashik, the annual average WQI of Akola during 2016-17 was consistently in the good to excellent category except in January 2017 where it was bad to very bad and the water quality was highly polluted.

In Amaravati district, the WQI was mostly good to excellent except in April and May 2016 where it was in the Bad category and in January 2017 when it was bad to very bad. In the districts of Dhule, Nandurbar and Nashik, the WQI was found to be good to excellent and the water quality was therefore deemed as non-polluted. In Jalgaon, the WQI was consistently good to excellent except during February 2017 where it was medium to good.

In the Tapi upper sub-basin, 25% observations were recorded as dry, and in the Tapi Middle sub-basin, 61% observations were recorded as dry. The dry observations were recorded at stations located in Dhule and Nashik districts. In Dhule district, WQMSs recorded dry observations from April to July 2016 and February to March 2017. In Nashik, dry observations were recorded between April and July 2016, and January to March 2017.

5.3.4.2. Godavari Basin 1

The Godavari basin passes through six states (the third largest basin in India) and drains about 10% of the total geographical area of the country. Approximately 50 % of the catchment area is within the State of Maharashtra. In Maharashtra, the Godavari Basin is divided into the sub-basins Godavari Upper, Godavari Middle, Manjra, Wardha, Weinganga, Indravati and Pranhita. In this report for the ease of analysis the sub-basins have been categorized into two, the Godavari 1 basin covering upper, middle and Manjra sub-basin, and Godavari 2 basin covering Wardha, Weinganga, Pranhita and others. In Godavari Basin 1 there are a total of 33 surface water monitoring stations (20 on upper, 11 on middle and 2 on Manjra). **Figure 5.5** shows the monthly trend in WQI along Godavari Basin 1 across 8 districts during the year 2016-17.

From **Figure 5.5** it is evident that the WQI along Godavari basin 1 has been classified as consistently good to excellent in the year 2016-17. It is only in the district of Parbhani during October 2017 that the WQI was classified as medium to good, although the water quality in this basin has been non-polluted throughout the year of 2016-17. In the Godavari upper sub-basin, only 5% observations were recorded as dry while only two stations did not collect data in September and October 2016. Only the districts of Aurangabad and Nashik in this sub-basin recorded dry observations. In the Godavari middle sub-basin, about 20% observations were recorded as dry in the districts of Aurangabad, Beed and Parbhani. In the Manjra sub-basin, only the WQMS in Latur district recorded dry observations in the month of July, while data was not collected during April, May and June 2016. In Osmanabad data was not collected during the months of June, August and September 2016.



5.3.4.3. Godavari Basin 2

Godavari 2 basin covers the sub-basins of Wardha, Weinganga and Pranhita. In Godavari basin 2 there are 29 surface water monitoring stations (12 on Wardha, 15 on Weinganga and 1 on Pranhita). This basin spans 7 districts in Maharashtra. **Figure 5.5** shows the monthly trend in WQI along Godavari Basin 2 across these districts during the year 2016-17.

The WQI in Wardha district is observed to be good to excellent consistently throughout the year of 2016-17. The other districts in this basin exhibit a fluctuating trend in WQI. In Akola, water quality is non-polluted with medium to good and good to excellent WQI in most months except January 2017 when the WQI was bad to very bad with heavily polluted water. In Bhandara, Nagpur and Yavatmal, the WQI ranged between medium to good and good to excellent with unpolluted water quality. In Chandrapur, the WQI was classified as medium to good during all months. In Buldana, the WQI was good to excellent between July and October 2016 and bad in November of the same year.

In Wardha sub-basin, only 6% of observations were recorded as dry. Data was not collected in the month of December 2016 by both the water quality monitoring stations in Wardha district. Data was also not collected at the WQMS at Yavatmal. In the sub-basins of Weinganga and Pranhita, there were no dry observations recorded. No data was collected during December 2016 at two stations in Nagpur and one station in Wardha. Chandrapur also has no data collected by its WQMS in May 2016.

5.3.4.4. Krishna Basin

The Krishna river originates as the Upper Krishna basin in the Western Ghats of Maharashtra and Karnataka, drains the Deccan Plateau, and discharges into the Bay of Bengal. The Krishna basin spreads across the states of Maharashtra (69,425 sq. km), Karnataka (113,271 sq. km) and Andhra Pradesh (76,252 sq. km) covering a total area of 2,58,948 sq. km which is about 8% of total geographical area of country. The principal tributaries joining Krishna are the Ghataprabha, the Malaprabha, the Bhima, the Tungabhadra and the Musi. The Krishna basin is divided into Krishna upper (21 stations) and Bhima Upper (37 stations) for analysis in this report. The districts of Ahmednagar, Kolhapur, Pune, Sangli, Satara and Solapur accommodate the Krishna basin. **Figure 5.5** shows the monthly trend in WQI along Krishna basin across these districts during the year 2016-17.

The WQI in Krishna basin varies greatly across districts. In Ahmednagar, the WQI was classified as good to excellent during April, May, July through September, November and December 2016. In October 2016 and March 2017 the WQI was bad whereas it was classified as bad to very bad during February 2017. In Kolhapur, the WQI was classified as good to excellent with non-polluted water during all months of monitoring except May and June 2016 and January and March 2017. In Pune, water quality was polluted and highly polluted from April to June 2016 and December 2016 to March 2017. It was unpolluted from July to November 2016. In Sangli, Satara and Solapur the water quality was non-polluted throughout the year with WQI ranging from medium to good and good to excellent. In the Bhima Upper sub-basin, only 8% observations were recorded as dry. Only one WQMS in Pune did not collect data during December 2016.



5.3.4.5. Coastal Basin

5.3.4.5.1. West Flowing Rivers

Maharashtra has many westwards flowing rivers originating from the Western Ghats like Damanganga, Surya, Vaitarna, Ulhas, Savitri, Kundalika, Patalganga, Vashishthi, Shastri, Karli, Terekhol and so on. These are an important source of drinking water, agricultural applications and industrial purposes and are known to contribute about 44.54% of the yield at 75% dependability to Maharashtra. Rivers like Vaitarna, Patalganga, Ulhas, and Balganga, with tributaries such as Tansa, Bhasta and Barvi are used as sources of drinking water. While rivers like Ulhas, Patalganga, Bhogeshwari and Amba and few other tributaries like Vashishthi and Kundalika lie very close to industrial areas, they are prone to water pollution due to release of untreated or inadequately treated industrial effluents. A total of 41 WQMSs are installed by MPCB along the west flowing rivers. The sub-basin of West Flowing Rivers is included in the Coastal basin and occupies 5 districts in Maharashtra. **Figure 5.5** shows the monthly trend in WQI along the sub-basin of West Flowing Rivers across these districts during the year 2016-17.

The WQI has been classified as good to excellent during all months of monitoring in the districts of Palghar, Raigad, Ratnagiri and Thane, except at Ratnagiri during January 2017 when the WQI was medium to good. However the quality of water samples monitored was unpolluted in these districts. In Mumbai the water quality ranged consistently between polluted to highly polluted throughout the year with WQI classified as bad to very bad for all months. The water quality of samples monitored was unpolluted only in the month of July 2016.

Only 3 instances of dry observations were recorded in Ratnagiri and Thane. Data was not collected by one WQMS at Ratnagiri in the months of April and June 2016, and also by two WQMS at Thane during December 2016 to March 2017.

5.3.4.5.2. Saline (sea and creek)

Maharashtra is bestowed with a coastline of about 720 km. The districts of Thane, Mumbai, Raigad, Ratnagiri and Sindhudurg are all located along the coastal front of Maharashtra. These districts have beaches, mangroves, migratory birds, corals and a lot of unique marine biodiversity. Rapid industrialization has taken place along the coastline which has added to water pollution. This has a direct impact on marine ecosystem and humans, hence it is important to monitor the quality of sea water.

Four districts accommodate the sub-basin of sea/creek. MPCB has 36 stations on the sea/creek sub-basin along the sensitive and pollution prone areas of the coastline of the State. Regular monitoring for basic parameters like DO, FC, pH and BOD is conducted at these monitoring stations. **Figure 5.5** shows the monthly trend in WQI along the sub-basin of sea/creek across these districts during the year 2016-17.

At Mumbai, the WQI was bad in May and June 2016 as well as from October 2016 to March 2017. The WQI was medium to good from July to September 2016. In Raigad district, the WQI was medium to good from April to October 2016 and also during January and February 2017. During November and December 2016 and in March 2017, the WQI was bad. The quality of water samples monitored was unpolluted throughout the year in the districts of Ratnagiri and Thane, except during January 2017 in Thane when it was polluted and the WQI was classified as bad.



5.3.5. Ground water analysis

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 5.22**.

Legend for WQI for Ground Water in Various Regions.

Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	Not collected	Closed
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Table 5.22. WQI for Ground Water in Various Regions.

Water Quality Index for ground water at Kalyan, Navi Mumbai, Raigad and Thane.														
Apr-16					37	3662	46		135		31	42	39	65
Oct-16	174		115	82	50	27	50		49		64	93	201	97
Station code	205	206	207	208	214	215	217	218	1989	1984	1985	1986	1987	1988
Region	Kalyan				Navi Mumbai		Raigad			Thane				

Water Quality Index for ground water at Amaravati, Aurangabad and Nashik.															
Apr-16	164	69			137			244	74						
Oct-16	79	12			310			242	96						
Station code	2001	2002	2003	1993	2200	2201	2824	2825	221	1990	1991	2204	2816	2817	2818
Region	Amaravati			Aurangabad					Nashik						

Water Quality Index for ground water at Chandrapur and Nagpur.																
Apr-16		71	56	77	128	132		103	136		83					
Oct-16		113	136	146	151	134		112	103	40	86	106		41	71	
Station code	2828	209	210	211	212	213	1994	1995	1996	1997	1998	1999	2000	2203	2826	2827
Region	Chandrapur	Nagpur														



Water Quality Index for ground water at Kolhapur and Pune.																					
Apr-16	27	33	158	152	135	128	132	25	56	135	140	38	24	497	28	126	310	51	96	414	205
Oct-16	62	19	182	112	157	145	191	23	198	101	117	20	35	36	19	125	133	132	222	133	142
Station code	219	220	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2833	2834	2835	1992	2819	2820	2821	2822	28
Region	Kolhapur															Pune					

5.3.5.1. Conclusion for WQI for surface and groundwater.

In the year 2016-17, polluted rivers were found in districts of Pune, Mumbai, Nagpur and Thane. The Pawana, Mutha, Mithi and Nag rivers were polluted throughout the year. Most stations recorded the dry category which could be attributed to low rainfall during the year. 33 observations (10 ground water and 23 surface water), were recorded as not collected accounting to about 1.3% of the total observations (2882). Considering the level of industrialization near the coastline of the State, locations of the existing WQMS require reconfirmation.

The annual average WQI along the basins in Maharashtra shows increasing trend as compared to the previous year except in the Krishna Basin. The WQI of Krishna Upper sub-basin was observed to be about 65%, less than 20% as compared to last year, under Good to Excellent category. Also most of the observations at Bhima Upper were noted under 'Bad' and 'Bad to Very Bad' category. As compared to other sub-basins across Maharashtra, Godavari Upper, Middle and Manjra sub basins recorded the most number of observations (greater than 60%) in 'Good to Excellent' category. The seawater samples at Mumbai and Thane noted WQI in the category of 'Medium to Bad' and were polluted throughout the year.

Out of 66 WQMS of groundwater, 5 WQMS (215, 2819, 2822, 2834, and 2200) recorded WQI in the category 'Water Unsuitable for Drinking' due to high levels of TDS, hardness, calcium and chlorides. The bore well in Turbhe, Navi Mumbai (Station code 215) recorded the highest hardness (5960 (CaCO₃) mg/liter) and calcium level (1320 (CaCO₃) mg/liter) and TDS level (43,650 mg/liter).

5.4. 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" and "Green" with the purpose of facilitating decisions related to the location of these industries. Subsequently, the application of this concept was extended in other parts of the country not only for the purpose of location of industries, but also for the purpose of Consent management and formulation of norms related to the surveillance/inspection of industries. The process of categorization thus far was primarily based on the size of the industries and consumption of resources. Pollution due to discharge of emissions and effluents and its likely impact on health was not considered as the primary criterion.



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

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

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

Maharashtra Pollution Control Board has divided the State of Maharashtra into 12 regions viz. Mumbai, Navi Mumbai, Raigad, Thane, Kalyan, Pune, Nashik, Aurangabad, Nagpur, Amaravati, Kolhapur and Chandrapur. The total number of industries in Maharashtra is 75,801. These industries are categorized as red, green and orange and are further divided into small, large and medium based on their pollution index. The total number of red industries in Maharashtra is 20972, orange is 23947 and green is 40963. The total number of large industries is 6098, medium, 2560, and small, 77224. The categorization as well as size of industries within Maharashtra is given in **Table 5.23**.

Table 5.23. Categorization of industries in Maharashtra.

	Large	Medium	Small
Red	3629	767	16576
Orange	2318	1307	20322
Green	151	486	40326

To monitor compliance of Consent conditions, performance of ETP, ECS and other measures, the Board officials inspect industries regularly. There are 636 industries identified under "17 categories of highly polluting industries" of which 76 are closed, 480 have complied with the pollution control norms and necessary action has been initiated against 62 non-compliant industries. **Table 5.24** shows region wise details of these highly polluting industries.



Table 5.24. Categories of Highly Polluting Industries as On 31/3/2017.

Sr. No,	Region	No. of Units	No. of Units Closed	No. of Units Complying with Standards	No. of Units not Complying with Standards
1	Mumbai	5	0	5	0
2	Navi Mumbai	12	0	12	0
3	Thane	50	9	41	21
4	Raigad	21	0	21	0
5	Kalyan	50	4	45	1
6	Pune	159	6	144	9
7	Nashik	78	6	38	0
8	Nagpur	24	4	11	9
9	Amaravati	12	1	3	-
10	Aurangabad	107	35	68	4
11	Kolhapur	94	9	76	11
12	Chandrapur	24	2	16	7
	Total	636	76	480	62

The total amount of effluent generated by all industries in Maharashtra is 47,34,006 MLD and the same quantity is getting treated by industries. Common Effluent Treatment Plants not only help industries to control pollution with ease but also act as a step towards a cleaner environment and service to the society at large. The concept of CETP has many advantages. Waste water from few industries often contains a significant concentration of pollutants and to reduce it to the desired concentration becomes techno-economically difficult. The total number of CETPs in Maharashtra is 25. The Board has initiated action against 62 non-compliant units as per the Board's prevalent policy by way of issuing Show Cause Notice (SCN), Proposed Direction (PD), Interim Direction (ID) and closure.

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.

5.4.1. Analysis of performance of CETP with Statistical details

Region-wise details of CETP performance analyzed are discussed in detail in following sections. CPCB standards are considered for evaluation of performance i.e. 100 and 250 mg/l for BOD and COD respectively. The total industrial effluent generated in the State of Maharashtra during the year 2016-17 was 47,34,006 MLD and the total quantity treated in CETPs was 47,33,942 MLD. The tables in the following paragraphs show the minimum and maximum values recorded by individual CETPs for BOD and COD during the year 2016-17 along with the annual mean as well as standard deviation (SD).

5.4.1.1. Mumbai

Currently there is no CETP provided in this region. The total effluent generated by industries in Mumbai is 47,05,920 MLD. Categorization of industries in Mumbai is given in **Figure 5.6**.

5.4.1.2. Navi Mumbai

Two CETPs are provided to treat the effluent generated from industries and total amount of effluent being treated is to the tune of 26 MLD. The collective treatment capacity of these CETPs is 27 MLD. Scale-wise categorization of each type of industry is demonstrated in **Figure 5.6**. The maximum standard deviation (SD.) for BOD and COD for inlet and outlet values was found at Taloja CETP Cooperative Society. The annual performance of the CETPs for the year 2016-17 is represented in **Table 5.25**.

Table 5.25. Statistical Analysis Data for CETP Performance in Navi Mumbai Region.

Parameters (mg/l)			Location	
			Thane-Belapur Association	Taloja CETP Cooperative Society
Inlet	BOD (mg/l)	Min.	70	145
		Max.	2800	5000
		Mean	454	1232
		SD.	401	990
	COD (mg/l)	Min.	188	416
		Max.	7600	9280
		Mean	1388	2993
		SD.	1065	2116
Outlet	BOD (mg/l)	Min.	7	60
		Max.	2400	2800
		Mean	107	310
		SD.	353	628
	COD (mg/l)	Min.	24	200
		Max.	5760	6200
		Mean	351	812
		SD.	841	1368

It is clear from the **Table 5.25** that Thane Belapur Association performed well, where more than 76% reduction in B.O.D and 75% reduction in C.O.D. at the outlet were noticed. 75% reduction in B.O.D. and 73% reduction in C.O.D. were observed at the Taloja CETP Cooperative Society station. Also all the parameters of treated water are within the discharge standard prescribed under EPA, Schedule VI. Also it is observed that BOD & COD concentrations of treated water at Taloja do not qualify the discharge standard of 100 and 250mg/l.

5.4.1.3. Raigad

Scale-wise categorization of each industry each is demonstrated in **Figure 5.6**. The maximum SD. was found at RIA CETP (I) Ltd. and the minimum SD. was found at MMA CETP Cooperative Society Ltd. There are 3 CETPs provided in this region and the total amount of effluent being treated in these CETPs is 63.68 MLD. The collective treatment capacity of these CETPs is 10 MLD. The annual performance of these CETPs for the year 2016-17 is represented in **Table 5.26**.



Table 5.26. Statistical Analysis Data for CETP Performance in Raigad Region.

Parameters (mg/l)			Location		
			MMA-CETP Cooperative Society Ltd.	PRIA CETP (I) Ltd.	RIA CETP Co-op. Society Ltd.
Inlet	BOD (mg/l)	Min.	110	120	260
		Max.	520	3000	2800
		Mean	248	409	905
		SD.	106	572	505
	COD (mg/l)	Min.	280	240	864
		Max.	1760	5920	7240
		Mean	698	1098	2852
		SD.	353	1228	1292
Outlet	BOD (mg/l)	Min.	16	45	55
		Max.	103	650	1100
		Mean	59	359	240
		SD.	20	144	299
	COD (mg/l)	Min.	72	124	212
		Max.	296	1328	2912
		Mean	172	988	738
		SD.	46	284	791

It is clear from the **Table 5.26** that MMA CETP and RIA CETP performances are good, where more than 73% reduction in BOD and 74% reduction in COD at the outlet were achieved. Also all the parameters of treated water for MMA CETP are within the discharge standard prescribed under EPA, Schedule VI. However, the parameters for treated water at the PRIA and RIA CETPs are not within prescribed discharge standards under EPA, Schedule VI.

5.4.1.4. Thane

One CETP is provided to treat the effluent generated from these industries. Total quantity of effluent generated was 1017 MLD and the same quantity was being treated. The total number of industries in Thane under each of the categories is demonstrated in **Figure 5.6** whereas the annual performance of the CETP for the year 2016-17 is represented in **Table 5.27**. The treatment capacity of CETP at Tarapur is exhausted due to excessive quantum of waste water and pollution load. Now, installation of an additional CETP of 50 MLD as expansion of existing CETP has been proposed.

Table 5.27. Statistical Analysis Data for CETP Performance in Thane Region.

Parameters (mg/l)			Location
			Tarapur Environment Protection Society CETP
Inlet	BOD (mg/l)	Min.	420
		Max.	4800
		Mean	1098
		SD.	751
	COD (mg/l)	Min.	1224
		Max.	18240
		Mean	3492
		SD.	2618



Outlet	BOD (mg/l)	Min.	80
		Max.	1600
		Mean	302
		SD.	364
	COD (mg/l)	Min.	204
		Max.	3424
		Mean	913
		SD.	891

The result for Tarapur Environment Protection Society CETP shows 72% reduction in B.O.D. and 74% reduction in COD in **Table 5.27**. However concentrations of BOD and COD parameters in treated water are not within the prescribed limit of 100 and 250 mg/l respectively.

5.4.1.5. Kalyan

The total number of industries in Kalyan under each of the categories is demonstrated in **Figure 5.6**. The maximum SD. was found at Additional Ambarnath CETP and the minimum SD. was found at ACMA–CETP Cooperative Society Ltd. Six CETPs are provided to treat the effluent generated from these industries. The total amount of effluent being generated and treated is 83.49 MLD. The collective treatment capacity of CETPs in Kalyan region is 34.05 MLD. Performance of these CETPs during the year 2016-17 is presented in **Table 5.28**.

Table 5.28. Statistical Analysis Data for CETP Performance in Kalyan Region.

Parameters (mg/l)			Location					
			ACMA – CETP Cooperative Society Ltd	Chikhholi-Morivali Effluent Treatment	Dombivali CETP (Chemical) (Phase-II)	Additional Ambarnath CETP	Dombivali Better Environment System Association	Badlapur CETP Association
Inlet	BOD (mg/l)	Min.	65	42	115	575	150	155
		Max.	1250	1050	875	1550	2500	1250
		Mean	299	431	1096	921	705	480
		SD.	256	207	162	304	421	250
	COD (mg/l)	Min.	216	168	320	1768	400	508
		Max.	3160	2864	2432	3552	5320	3640
		Mean	832	1295	2859	2647	1761	1414
		SD.	630	587	493	714	928	623
Outlet	BOD (mg/l)	Min.	13	14	22	380	16	15
		Max.	145	210	160	725	190	230
		Mean	56	69	302	481	85	88
		SD.	24	31	41	117	35	49
	COD (mg/l)	Min.	44	64	60	768	56	56
		Max.	468	682	532	1600	656	684
		Mean	187	232	783	1174	245	269
		SD.	68	83	110	269	103	126



As per **Table 5.28** it is found that at all CETPs except Dombivali CETP (Chemical) (Phase-II) and Additional Ambarnath CETP, the BOD is within the prescribed limit of 100 mg/l. The efficiency of BOD and COD removal is more than 80% and 77% respectively in ACMA – CETP Cooperative Society Ltd, Chikholi-Morivali Effluent Treatment, Dombivali Better Environment System Association, and Badlapur CETP Association.

5.4.1.6. Pune

Five CETPs have been provided in this region. The total amount of effluent generated in the region is 384.42 MLD and the same amount is treated. The collective treatment capacity of these CETPs is 12.5 MLD. The treatment of all generated effluent despite inadequate treatment capacity can be explained by presence of private CETPs in industries. The total number of industries in Pune under each of the categories is demonstrated in **Figure 5.6**. The maximum SD. was found at Ranjangaon CETP and the minimum SD. was found at Greenfield CET Plant P. Ltd. Performance of CETPs at all these locations has been regularly monitored by comparing the inlet and outlet parameters as presented in **Table 5.29**.

Table 5.29. Statistical Analysis Data for CETP Performance in Pune Region.

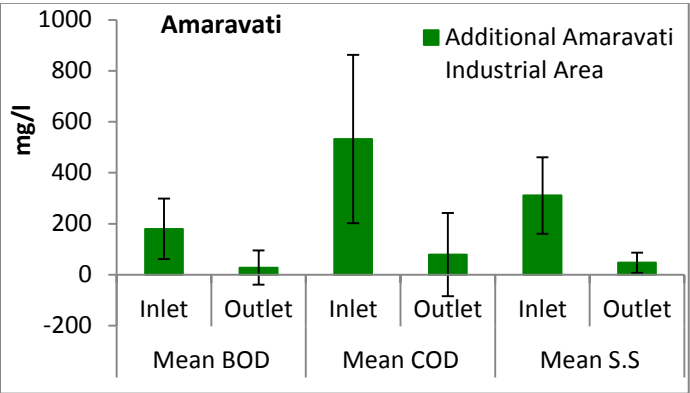
Parameters (mg/l)			Location				
			Greenfield CET Plant P. Ltd	Ranjangaon CETP	Kurkumbh Environment Protection Co-op. Society	Hydro Air Tectonics (PCD)	Akkalkot CETP
Inlet	BOD (mg/l)	Min.	58	13	38	22	88
		Max.	450	3500	1250	260	865
		Mean	140	325	1223	92	351
		SD.	66	715	286	61	150
	COD (mg/l)	Min.	156	44	132	60	264
		Max.	1336	8640	7880	792	2592
		Mean	421	892	3482	247	1001
		SD.	183	2000	1140	174	438
Outlet	BOD (mg/l)	Min.	11	15	17	9	16
		Max.	80	825	120	650	320
		Mean	48	80	91	53	121
		SD.	18	155	23	148	86
	COD (mg/l)	Min.	40	40	56	24	56
		Max.	256	2192	372	2240	952
		Mean	133	216	253	146	329
		SD.	53	422	68	449	246

It is clear from **Table 5.29**. that the CETP located at Kurkumbh MIDC is performing very well with almost 93% efficiency; however the COD is not within the prescribed limit. The BOD and COD values after treatment at Akkalkot CETP are also not within the prescribed limits of 100 mg/l and 250 mg/l. The Ranjangaon CETP is performing well, with 75% efficiency in reducing BOD and COD, while Greenfield CET Plant P. Ltd is working at more than 65% efficiency. BOD and COD values of

Thane		
Large	Medium	Small
204	33	976
251	24	451
1	13	1273

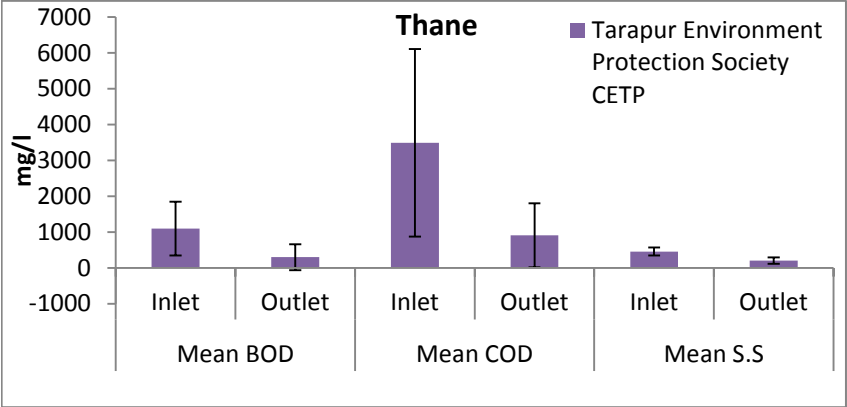
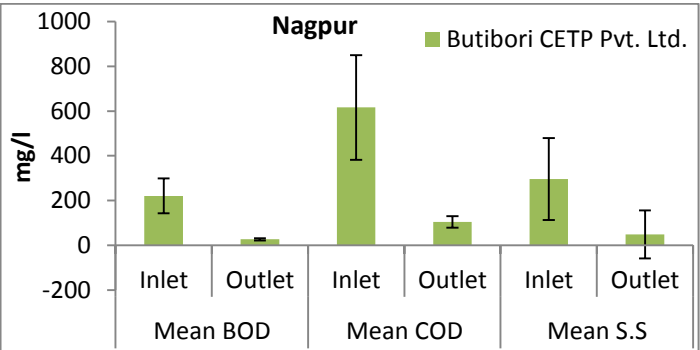
Nashik		
Large	Medium	Small
287	220	2593
59	83	2040
18	43	10369

Amaravati		
Large	Medium	Small
36	8	425
10	6	1663
1	1	2453



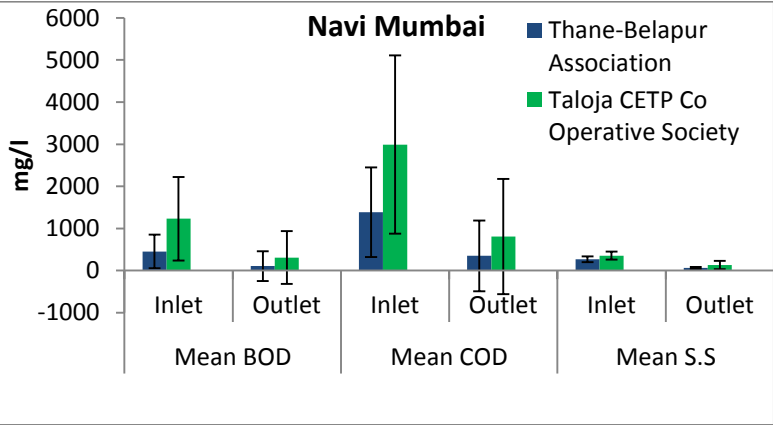
Chandrapur		
Large	Medium	Small
101	15	411
10	6	655
1	0	298

Nagpur		
Large	Medium	Small
413	18	1898
62	21	2218
3	3	1666



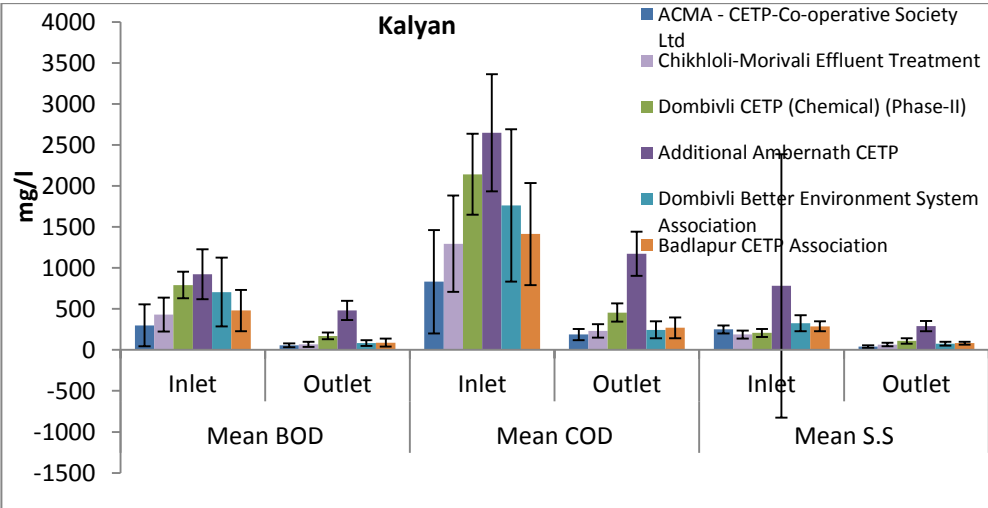
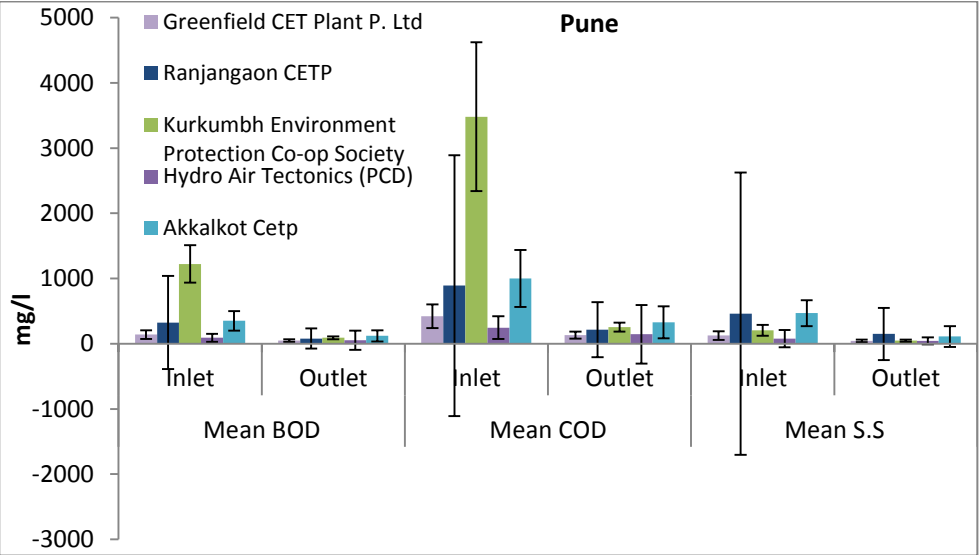
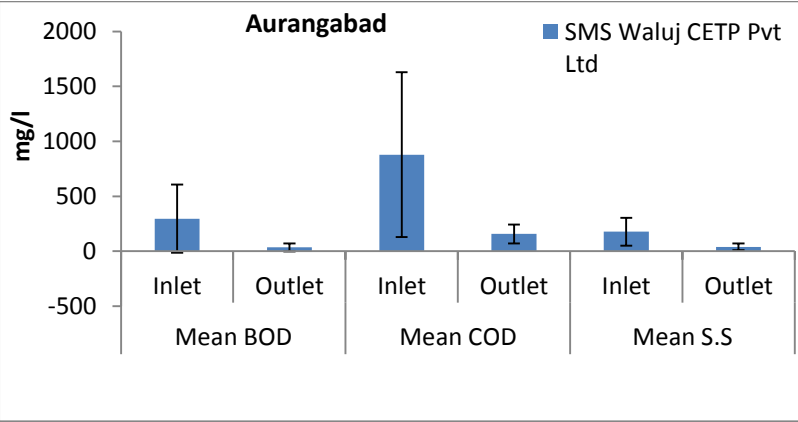
Mumbai		
Large	Medium	Small
206	28	299
332	66	458
4	5	2213

Navi Mumbai		
Large	Medium	Small
55	8	343
36	11	417
4	7	260

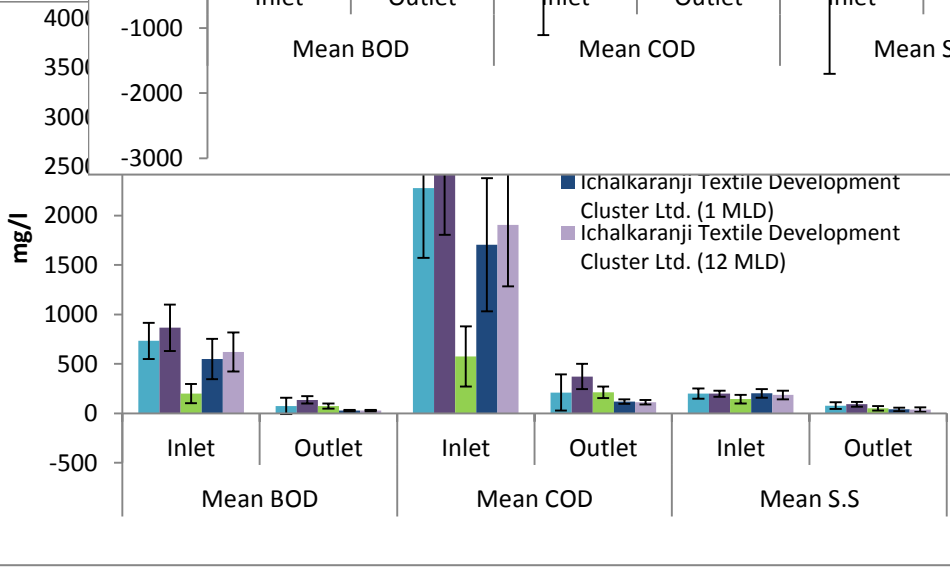
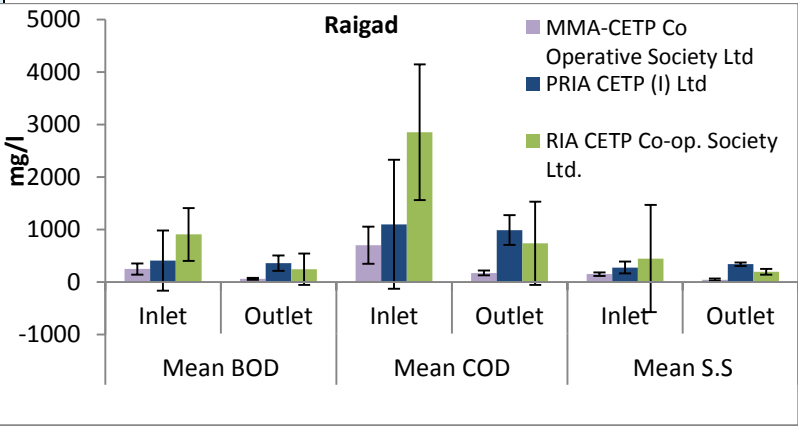


Pune		
Large	Medium	Small
832	232	2159
786	440	3022
68	220	5249

Aurangabad		
Large	Medium	Small
235	201	1446
26	55	2085
7	47	5308



Small		
1159	3840	9477





Kurkumbh Environment Protection Co-op. Society, Ranjangaon CETP, Hydro Air Tectonics (PCD) and Greenfield CET Plant P. Ltd are within the prescribed limits.

5.4.1.7. Nashik

There presently exists no CETP in this region. However, CETPs are proposed for MIDC Ahmedabad and MIDC Satpur, Nashik. Total number of industries in Nashik under each of the categories is demonstrated in **Figure 5.6**. The total industrial effluent generated in Nashik region during 2016-17 was 170.53 MLD and the same quantity was being treated at respective industries.

5.4.1.8. Aurangabad

There is only one CETP provided of 10 MLD capacity viz. M/s. Waluj CETP Pvt. Ltd. located at MIDC Area, Waluj. This CETP is in operation. Earlier the CETP was receiving very less effluent from industries. However, due to continuous follow-up by the Board Officers the CETP is now receiving effluent to the tune of about 4.5 MLD. M/s. Waluj CETP Pvt. Ltd., Aurangabad has received Vasundhara Award during this year based on its performance. 63 MLD is the collective amount of effluent generated by industries in Aurangabad and the same quantity is being treated. The treatment of all generated effluent despite inadequate treatment capacity can be explained by presence of private CETPs in industries. Total number of industries in Aurangabad under each of the categories is presented in **Figure 5.6** and performance of the CETP is presented in **Table 5.30**.

Table 5.30. Statistical Analysis Data for CETP Performance in Aurangabad Region.

Parameters (mg/l)			Location
			SMS Waluj CETP Pvt. Ltd.
Inlet	BOD (mg/l)	Min.	0
		Max.	1750
		Mean	296
		SD.	287
	COD (mg/l)	Min.	0
		Max.	4320
		Mean	879
		SD.	706
Outlet	BOD (mg/l)	Min.	0
		Max.	145
		Mean	35
		SD.	38
	COD (mg/l)	Min.	0
		Max.	376
		Mean	158
		SD.	89

As per **Table 5.30**., it is observed that the CETP is performing at its maximum efficiency and obtaining desired results as well. The efficiency of this CETP for removal is 88% for BOD and 81% for COD. The BOD and COD concentrations after treatment are within the prescribed limits of 100 mg/l and 250 mg/l.

5.4.1.9. Nagpur

Total number of industries in Nagpur under each of the categories is presented in **Figure 5.6**. The total quantity of industrial effluent generated was 25864 MLD and the same amount is being treated. One CETP is provided in this region to treat the effluent generated from industries. The treatment capacity of this CETP is 5 MLD. The annual performance of the CETP for the year 2016-17 is represented in **Table 5.31**.

Table 5.31. Statistical Analysis Data for CETP Performance in Nagpur Region.

Parameters (mg/l)			Location
			Butibori CETP Pvt. Ltd.
Inlet	BOD (mg/l)	Min.	79
		Max.	422
		Mean	221
		SD.	77
	COD (mg/l)	Min.	196
		Max.	1280
		Mean	616
		SD.	233
Outlet	BOD (mg/l)	Min.	5
		Max.	40
		Mean	27
		SD.	5
	COD (mg/l)	Min.	20
		Max.	140
		Mean	104
		SD.	26

It is observed from **Table 5.3** that the CETP is performing at almost 83% efficiency and achieving the desired disposal standard of 100 mg/l and 250 mg/l for BOD and COD respectively.

5.4.1.10. Amaravati

Total amount of effluent generated and treated in this region is about 21 MLD. There is one CETP in Amaravati region. The treatment capacity of this CETP is 5 MLD. The annual performance of the CETP for the year 2016-17 is represented in **Table 5.32**. The total number of industries in Amaravati under each of the categories is demonstrated in **Figure 5.6**

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

Parameters (mg/l)			Location
			Additional Amaravati Industrial Area
Inlet	BOD (mg/l)	Min.	5
		Max.	384
		Mean	180
		SD.	119
	COD (mg/l)	Min.	16
		Max.	1064
		Mean	532

		SD.	330
Outlet	BOD (mg/l)	Min.	4
		Max.	222
		Mean	28
		SD.	67
	COD (mg/l)	Min.	16
		Max.	556
		Mean	79
		SD.	163

It is evident from **Table 5.32.** that the Additional Amaravati Industrial Area CETP is performing very well with more than 84% efficiency and the parameters for the treated effluent are within the prescribed discharge standards of 100 mg/l and 250 mg/l for BOD and COD respectively under EPA, Schedule VI.

5.4.1.11. Kolhapur

The total amount of effluent generated is 174 MLD. The collective treatment capacity of these CETPs is 31.5 MLD. The CETP in Sangli region is not yet commissioned. The total number of industries in Kolhapur under each of the categories is demonstrated in **Figure 5.6** and performance of CETPs is presented in **Table 5.33.** The maximum SD. was found at Lote Parshuram Environment Protection Co-op. Society and the minimum SD. was found at Ichalkaranji Textile Development Cluster Ltd. (1 MLD).

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

Parameters (mg/l)			Location				
			L.K. Akiwate Industrial Co-op. Estate Ltd	Lote Parshuram Environment Protection Co-op. Society	Kagal-Hatkanangale CETP	Ichalkaranji Textile Development Cluster Ltd. (1 MLD)	Ichalkaranji Textile Development Cluster Ltd. (12 MLD)
Inlet	BOD (mg/l)	Min.	190	250	10	90	110
		Max.	900	1400	680	960	1000
		Mean	733	866	200	549	621
		SD.	184	232	97	203	198
	COD (mg/l)	Min.	552	1616	184	264	272
		Max.	3552	4640	2176	3264	3552
		Mean	2278	2697	575	1706	1906
		SD.	706	896	304	672	621
Outlet	BOD (mg/l)	Min.	28	75	26	20	18
		Max.	625	360	130	60	60
		Mean	75	136	75	27	27
		SD.	83	38	26	7	8
	COD (mg/l)	Min.	120	256	104	96	72
		Max.	1440	1136	408	204	184
		Mean	211	373	214	119	113
		SD.	182	130	58	21	23

It is observed from the **Table 5.33** that CETPs at Ichalkaranji Textile Development Cluster Ltd. are treating industrial effluent with more than 93% efficiency, whereas the CETPs at L.K. Akiwate Industrial Co-op. Estate Ltd. and Lote Parshuram Environment Protection Co-op. Society are performing at more than 84% efficiency. The least efficient is the Kagal-Hatkanangale CETP with about 62% efficiency. All CETPs except Lote Parshuram meet the desired discharge standards for water quality.

5.4.1.12. Chandrapur

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

5.5. Domestic Wastewater Treatment

5.5.1. Analysis of Performance of STP with Statistical Details

Region-wise details of STPs are presented in the following section and STP performance is analyzed based on MPCB standards of 30mg/l for Biochemical Oxygen Demand (BOD) and 30mg/l for Chemical Oxygen Demand (COD). There are 130 STPs in operation in the State of Maharashtra. The total amount of domestic effluent generated during the year 2016-17 was 42231.43 MLD. Standard deviation for STP performance has not been included in this report on account of unavailability of flow values corresponding to the outlet values for each STP.

5.5.1.1. Mumbai

There are 8 STPs in Mumbai and a total of 2671 MLD domestic effluent was generated in the year 2016-17. The collective treatment capacity of these STPs is 2595 MLD. The mean of annual performance and analysis of all STPs provided in Mumbai region are represented in **Table 5.34**.

Table 5.34. Mean of Annual Performances of STPs in Mumbai region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Worli STP	-	139.16	-	313.33	-	0	-	56.8
Colaba STP	-	123.4	-	282.4	-	0	-	41
Versova	70	7	160	44	BDL	BDL	38	22
Bandra	110	70	-	-	BDL	BDL	240	18
MCGM's STP, Ghatkopar I	90	44.25	284	113	BDL	BDL	62	66.5
MCGM's STP, Ghatkopar II	-	8	-	80	BDL	BDL	-	10
Malad STP	120	60	165	95	BDL	BDL	40	15
Charkop STP	78	80	208	188	BDL	BDL	110	76

From **Table 5.34** it is observed that BOD outlet values for all STPs except those at Versova and Ghatkopar II are beyond the standards provided by MPCB. Outlet values for COD at all STPs are beyond the standards.

5.5.1.2. Navi Mumbai

There are 5 STPs established in this region under the Navi Mumbai Municipal Corporation. The collective treatment capacity of these STPs is 278 MLD. The total quantity of domestic effluent generated in Navi Mumbai during the year 2016-17 was 278 MLD. The mean of annual performance and analysis of all STPs in Navi Mumbai are shown in **Table 5.35**.

Table 5.35. Mean of Annual Performances of STPs in Navi Mumbai region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
STP- Sector 12, CBD	-	5	-	20	-	BDL	-	12
STP- Sector 50, Nerul	-	7	-	32	-	BDL	-	12
STP- Sector 2, Nerul	-	45	-	100	-	BDL	-	28
STP- Sector 18, Vashi	-	8	-	56	-	BDL	-	10
STP- Sector 20, Sanpada	-	6	-	36	-	BDL	-	22

BOD outlet values for all STPs except Nerul are within MPCB prescribed standards. Outlet values for COD are within prescribed standards only at Sector-12, CBD.

5.5.1.3. Kalyan

There are 12 STPs in Kalyan region. Out of these, 6 have been provided by the Kalyan-Dombivali Municipal Corporation. Only two STPs out of these 6 are operational. The mean of annual performance and analysis are given in **Table 5.36**. The collective treatment capacity of these STPs is 257 MLD. One STP with 40 MLD treatment facility is not yet commissioned and the treatment facility of one STP is inadequate. Data about the remaining two is not available. The total quantity of domestic effluent generated in Kalyan during the year 2016-17 was 429 MLD.

Table 5.36. Mean of Annual Performances of STPs in Kalyan region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Adharwadi STP	21	16	50	48	BDL	BDL	50	130
Barve STP	30	12.1	90	46	BDL	BDL	30	13

Outlet values for BOD at both STPs in Kalyan region are within MPCB prescribed standards. Outlet values for COD at both STPs do not fall within prescribed standards.

5.5.1.4. Thane

Overall sewage generation from all local bodies under the jurisdiction of Thane Municipal Corporation is 570 MLD out of which only 98 MLD is being treated at three operational STPs having a combined treatment capacity of 152 MLD. Performance of all STPs of Thane Municipal Corporation is presented in **Table 5.37**.



Table 5.37. Mean of Annual Performances of STPs in Thane region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Srushti Complex, Mira, Thane	-	9	-	-	-	BDL	-	7
Mumbra	115	9	652.5	36	BDL	BDL	123.4	18.2
Kopri	62	11	160.2	32.22	BDL	BDL	47.3	14.5

From **Table 5.37**, it is observed that all BOD outlet values are within the MPCB prescribed standards whereas COD outlet values for STPs at Mumbra and Kopri are beyond the standards.

5.5.1.5. Pune

There are 36 STPs in Pune out of which 35 are operational. The collective treatment capacity of these STPs is 935.89 MLD. Several local bodies in this region have provided these STPs. The mean of annual performance and analysis are demonstrated in **Table 5.38**. The total amount of domestic effluent generated in Pune during 2016-17 was 1344.08 MLD.

Table 5.38. Mean of Annual Performances of STPs in Pune region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
PMC STP at Bopodi	-	15.7	-	40.9	-	BDL	-	-
Saswad Municipal Council STP	-	165	-	-	-	1.6	-	-
PMC STP at Tanajiwadi	-	20	-	-	-	BDL	-	-
PMC STP at New Naidu	-	20	-	32.3	-	BDL	-	-
PMC STP at Old Naidu	-	12	-	56.4	-	0.1	-	-
PMC STP at Mundhwa	-	22	-	29.5	-	BDL	-	-
PMC STP at Bhiroba	-	35	-	47.3	-	BDL	-	-
PMC STP at Vittalwadi	-	24	-	35	-	BDL	-	-
PMC STP at Erandwana	-	18	-	34.3	-	BDL	-	-
PMC STP at Baner	-	22	-	35.3	-	BDL	-	-
PMC Kharadi STP	-	24	-	34.5	-	BDL	-	-
Aquatech Solution Pvt. Ltd. CSTP, MIDC Hinjewadi, Pune	-	-	-	-	-	-	-	-
Kirkee Cantonment Board (8 MLD)	-	-	-	-	-	-	-	-
Kirkee Cantonment Board (1.2 MLD)	-	-	-	-	-	-	-	-
Lonawala Municipal Council,	-	-	-	-	-	-	-	-
Shirur Municipal Council, Shirur	-	-	-	-	-	-	-	-
Sangavigaon	-	5.80	-	16	-	BDL	-	11.00
Kasarwadi Phase-I	-	7.5	-	23.3	-	BDL	-	14.3
Kasarwadi Phase-II	-	12.00	-	34.7	-	BDL	-	16.20
Kasarwadi Phase-III	-	14.70	-	44.0	-	BDL	-	14.90
Chinchwad Phase-I	-	17.30	-	48.0	-	BDL	-	12.30
Chinchwad Phase-II	-	12.70	-	38.0	-	BDL	-	32.00
Chikhali Phase-I	-	12.40	-	41.6	-	BDL	-	15.20
Chikhali Phase-II	-	8.90	-	29.6	-	BDL	-	11.60
Pimple Nilakh	-	10.20	-	30.7	-	BDL	-	32.30
Akurdi	-	11.6	-	37.0	-	BDL	-	10.3
Ravet	-	10.50	-	32.0	-	BDL	-	13.20



Dapodi STP	-	10.1	-	30.1	-	BDL	-	17
Charholi	-	19.5	-	56.8	-	BDL	-	29
STP No.1- at compartment no. 79 (City Survey no.257/1) behind Karmachari Vasahat, At- Mahabaleshwar, Tal- Mahabaleshwar, Dist-Satara	-	24.4	-	112	-	1.8	-	20
STP No.2- at Survey No.626, near Dhobi Ghat, At- Mahabaleshwar, Tal- Mahabaleshwar, Dist-Satara	-	22.25	-	132	-	2	-	12
STP No.1- at Siddharthnagar, Panchgani, Tal- Mahabaleshwar, Dist-Satara	-	34.6	-	136	-	1.2	-	36
STP No.2- at Shivajinagar, Panchgani, Tal- Mahabaleshwar, Dist-Satara.	-	84.75	-	254	-	1.3	-	222.5
Baradabari, Near Oxidation Pond, Karad		12.45		-	-	BDL		8.75
Pandharpur Municipal Council, Pandharpur	425	90.1	1288	275	3.1	BDL	1201	21.25

BOD outlet values for all STPs except Saswad Municipal Council STP, PMC STP at Bhiroba, Siddharthnagar and Shivajinagar at Mahabaleshwar, and Pandharpur Municipal Council are within prescribed standards. Outlet values for COD at only Mudhwa, Sangavigaon and Kasarwadi Phase-I are within the prescribed standards.

5.5.1.6. Nashik

There are 9 operational STPs in this region. The collective treatment capacity of STPs in Nashik region is 238.3 MLD. The total quantity of domestic effluent received by these STPs was 409.14 MLD in the year 2016-17. 659.47 MLD was the total amount of domestic effluent generated in this region during this year. The quantity of domestic effluent treated by these STPs was 302.74 MLD. One STP with treatment capacity of 17.5 MLD has been newly commissioned by Nandurbar Municipal Council at Nandurbar and is not yet operational. Mean of annual performance status of STPs in Nashik region is presented in **Table 5.39**.

Table 5.39. Mean of Annual Performances of STPs in Nashik region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Shirpur Municipal Council, Tq Shirpur, Dist Dhule	38	12	104	32	BDL	BDL	140	122
Trimbakeshwar	101	98	0	0	0	0	0	0
Panchak 7.5 MLD	118.56	46.65	0	0	0	0	0	0
Panchak 21 MLD	202.78	58.85	0	0	0	0	0	0
Chehedi 20 MLD	134.55	26.93	0	0	0	0	0	0
Chehedi 22 MLD	97.2	35.2	0	0	0	0	0	0
Tapowan-78 MLD	101.22	48.52	0	0	0	0	0	0
Tapowan-52 MLD	93.78	41.08	0	0	0	0	0	0
Shirdi Nagar Panchyat	25	15	91	49	0	0	0	0



It is observed from the **Table 5.39** that BOD outlet values at all STPS except those at Shirpur, Shirdi and Chehedi (20 MLD) are not within the prescribed MPCB standards of 30 mg/l. Outlet values for COD are not within the prescribed standards at Shirpur and Shirdi.

5.5.1.7. Aurangabad

There are four STPs in Aurangabad, two provided by the Aurangabad Municipal Corporation and two by Nanded Waghala Municipal Corporation. Under the Nanded Waghala Municipal Corporation, two STPs of 87 and 30 MLD treatment capacities are already operational while a third STP at Sangvi with 15 MLD capacity is under construction and has not been commissioned. The collective treatment capacity of these STPs is 129 MLD. **Table 5.40** represents the mean of annual performance and analysis of these operational STPs. 351.23 MLD was the total quantity of domestic effluent generated in Aurangabad during the year 2016-17.

Table 5.40. Mean of Annual Performances of STPs in Aurangabad region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
CIDCO STP Aurangabad	-	98	-	253	-	0.6	-	97
Dr. Salim Ali Lake, HUDCO, Aurangabad	-	36	-	94	-	1.3	-	61
Nanded Waghala City Mun. Corp. STP (87 MLD)	-	63.4	-	158.2	-	2.1	-	28.2
Nanded Waghala City Mun. Corp. STP (30 MLD)	-	51.9	-	140.8	-	3.8	-	30.6

Outlet values for BOD and COD at all STPs in Aurangabad region are not within MPCB prescribed standards.

5.5.1.8. Nagpur

There are two operational STPs under Nagpur Municipal Corporation (NMC) with a collective treatment capacity of 240 MLD. The quantity of domestic effluent generated in this region was 411 MLD during 2016-17 of which 230 MLD was being treated. **Table 5.41** represents the mean of annual performance and analysis of these operational STPs.

Table 5.41. Mean of Annual Performances of STPs in Nagpur region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
NMC, Nagpur	-	16.485	-	61.665	-	BDL	-	17.15

Outlet values of BOD are within the prescribed standards while outlet values for COD are beyond the standards.

5.5.1.9. Amaravati

There are two operational STPs in Amaravati region. One is provided by the Municipal Council of Shegaon (Buldana district) while the other is provided by the Municipal Corporation of Amaravati. The mean of annual performance and analysis are demonstrated in **Table 5.41**. The collective treatment



capacity of these STPs is 37.5 MLD. 222.18 MLD was the total quantity of domestic effluent generated in Amaravati during the year 2016-17.

Table 5.42. Mean of Annual Performances of STPs in Amaravati region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Amaravati Municipal Corporation	13	6.8	46	28	-	-	16	18
Municipal Council, Shegaon Tq. Shegaon Dist. Buldana	-	26.33	-	65.33	-	0.13	-	34

Both STPs in Amaravati region have BOD outlet values within prescribed standards. Outlet values for COD at Shegaon are not within standard limits.

5.5.1.10. Kolhapur

There are two STPs in Kolhapur region. One has been provided by Kolhapur Municipal Corporation while the other has been provided by the Ichalkaranji Municipal Corporation. The collective treatment capacity of these STPs is 75 MLD. The total quantity of domestic effluent generated in Kolhapur region during the year 2016-17 was 269.47 MLD. **Table 5.41** represents the mean of annual performance and analysis of these operational STPs.

Table 5.43. Mean of Annual Performances of STPs in Kolhapur region.

Location	Parameters (mg/l)							
	BOD (Mean)		COD (Mean)		O & G (Mean)		S.S. (Mean)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Kolhapur Municipal Corporation	-	12.32	-	64	-	BDL	-	22.7
Ichalkaranji Municipal Council	626.85	27.25	1963.42	95	2.72	BDL	162.85	30.87

BOD outlet values for Kolhapur region are within MPCB prescribed standards. COD outlet values for both STPs are not within prescribed standards.

5.5.1.11. Chandrapur

There are no operational STPs in this region. However, civil work of two STPs at Pathanpura and Rahamat Nagar area is completed and are yet to be commissioned. The total quantity of domestic effluent generated in Chandrapur region was almost 60 MLD during the year 2016-17.

5.7. Solid Waste Management in Maharashtra

Solid waste is classified into four different types depending on their source. The first category of solid waste is Municipal Solid Waste (MSW). It consists of household waste, construction and demolition debris (CnD), sanitation residue, and waste from streets, generated mainly from residential and commercial complexes. As per MoEF&CC it includes commercial and residential waste generated in municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes. The second category of solid waste is Hazardous Solid Waste (HSW) which is also termed as industrial waste. It may contain toxic substances which are corrosive, highly inflammable, or which react when exposed to certain elements e.g. gases. The third category



of solid waste is biomedical waste (BMW) or hospital waste. It is usually infectious waste that may include waste like sharps, soiled waste, disposables, anatomical waste, cultures, discarded medicines, chemical wastes usually in the form of disposable syringes, swabs, bandages, body fluids, human excreta, etc. These can be a serious threat to human health if not managed in a scientific and discriminate manner. The fourth category of waste is electronic waste or e-waste and includes discarded electrical or electronic devices. Used electronics which are destined for reuse, resale, salvage, recycling or disposal are also considered e-waste.

Major waste treatment and disposal methods for MSW include thermal treatment, dumps and landfills, and biological waste treatment. There are various processes used to treat BMW viz. chemical processes, thermal processes, mechanical processes, irradiation processes and biological processes. Treatment technologies for HSW have been categorized as physical, chemical, biological, thermal, or stabilization/fixation. The two methods for proper treatment of e-waste are recycling and refurbishing.

In the State of Maharashtra there are 262 local bodies, comprising of 27 Municipal Corporations, 16- 'A' Class Municipal Council, 54- 'B' Class Municipal Council, 150- 'C' Class Municipal Council, 9 Nagar Panchayat, 6-Cantonment Boards generating about 23,449.66 MT of municipal solid waste every day out of which 6774.5 MT/day is being treated. Total hazardous waste generation of Maharashtra was 26,06,728 MT/year out of which 3,42,127 MT/year was treated in 4 Common Hazardous Waste Treatment Facilities during 2016-17. The amount of hazardous waste generated mentioned is the permitted generation potential based on Consent data. Data on recyclable waste is not currently available. Total Biomedical Waste generated in Maharashtra State was 71,512 kg/day and the same amount was treated.

5.7.1. Analysis of Waste Management with Statistical details

The detailed report on the quantity of different categories of solid waste generated and treated in all the regions in Maharashtra during the year 2016-17 is given below.

5.7.1.1. Mumbai region

- Quantity of Municipal Solid Waste generated – 9,083 MT/day
- Quantity of Municipal Solid Waste treated – 3,199 MT/day
- Quantity of hazardous solid waste generated – 172440.92 MT/A of which 14008.1 MT/A was treated.
- Quantity of biomedical solid waste generated – 16,906 kg/day.

5.7.1.2. Navi Mumbai region

- Quantity of Municipal Solid Waste generated – 737 MT/day
- Quantity of Municipal Solid Waste treated – 675 MT/day
- Quantity of Hazardous Solid Waste generated - 251154.11 MT/A of which 57925.76 MT/A is being treated.
- Quantity of Biomedical Solid Waste generated - 1336 kg/day.

5.7.1.3. Thane region

- Quantity of Municipal Solid Waste generated – 1,834 MT/day
- Quantity of Municipal Solid Waste treated – 60 MT/day



- Quantity of Hazardous Solid Waste generated – 573276.37 MT/A of which 41836.3 MT/A is being treated.
- Quantity of Biomedical Solid Waste generated –2696.7 kg/day.

5.7.1.4. Kalyan region

- Quantity of Municipal Solid Waste generated – 1836 MT/day
- Quantity of Municipal Solid Waste treated – 28.5 MT/day
- Quantity of Hazardous Solid Waste generated - 641997.03 MT/A of which 37590.9 MT/A is being treated.
- Quantity of Biomedical Solid Waste generated – 1614.28 kg/day.

5.7.1.5. Raigad region

- Quantity of Municipal Solid Waste generated – 140 MT/day
- Quantity of Municipal Solid Waste treated – 72 MT/day
- Quantity of Hazardous Solid Waste generated – 235742.09 MT/A of which 64151.24 MT/A was treated.
- Quantity of Biomedical Solid Waste generated – 921.5 kg/day.

5.7.1.6. Kolhapur region

- Quantity of Municipal Solid Waste generated – 735 MT/day
- Quantity of Municipal Solid Waste treated – 101 MT/day
- Quantity of Hazardous Solid Waste generated – 76530.87 MT/A of which 19813.7 MT/A was treated.
- Quantity of Biomedical Solid Waste generated – 2812.851 kg/day.

5.7.1.7. Pune region

- Quantity of Municipal Solid Waste generated – 3,414 MT/day
- Quantity of Municipal Solid Waste treated – 2339 MT/day
- Quantity of Hazardous Solid Waste generated – 249106.49 MT/A of which 44151.45 MT/A was treated.
- Quantity of Biomedical Solid Waste generated – 10,361 kg/day.

5.7.1.8. Nashik region

- Quantity of Municipal Solid Waste generated – 1,745 MT/day
- Quantity of Municipal Solid Waste treated – 12 MT/day
- Quantity of Hazardous Solid Waste generated – 156107.51 MT/A of which 15371.4 MT/A was treated.
- Quantity of Biomedical Solid Waste generated –20,018 kg/day.

5.7.1.9. Amaravati region

- Quantity of Municipal Solid Waste generated – 669 MT/day
- Quantity of Municipal Solid Waste treated – NIL
- Quantity of Hazardous Solid Waste generated – 9172.74 MT/A out of which 637.97 MT/A was treated.

- Quantity of Biomedical Solid Waste generated – 2844.36 kg/day.

5.7.1.10. Aurangabad region

- Quantity of Municipal Solid Waste generated – 1,551 MT/day
- Quantity of Municipal Solid Waste treated – 84 MT/day
- Quantity of Hazardous Solid Waste generated – 121082.16 MT/A of which 22181.4 MT/A was treated.
- Quantity of Biomedical Solid Waste generated – 5552.15 kg/day.

5.7.1.11. Nagpur region

- Quantity of Municipal Solid Waste generated – 1,352 MT/day
- Quantity of Municipal Solid Waste treated – 246 MT/day
- Quantity of Hazardous Solid Waste generated – 101079.43 MT/A of which 24356.62 MT/A was being treated.
- Quantity of Biomedical Solid Waste generated – 5548 kg/day.

5.7.1.12. Chandrapur region

- Quantity of Municipal Solid Waste generated – 336 MT/day
- Quantity of Municipal Solid Waste treated – 38 MT/day
- Quantity of Hazardous Solid Waste generated – 19038.74 MT/A of which 101.7 MT/A was treated.
- Quantity of Biomedical Solid Waste generated – 900 kg/day.

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

There are four Common Hazardous Waste Treatment, Storage & Disposal Facilities (CHWTSDF) installed and operating successfully in the State of Maharashtra. Two facilities namely Mumbai Waste Management (MWM), Taloja and Trans Thane Waste Management Association (TTCWMA), Mahape, are located under Navi Mumbai region; one facility namely Maharashtra Enviro Power Ltd (MEPL), Ranjangaon is located in Pune region and Vidharbha Enviro Protection Ltd. (VEPL), Butibori Industrial Area is located in Nagpur region. Presently 6160 industries are members of these 4 facilities and are disposing their hazardous waste. Hazardous waste generation and treatment of the State is presented in **Figure 5.6** and a summary of hazardous waste received and individual capacities of CHWTSDFs are presented in **Table 5.44**.

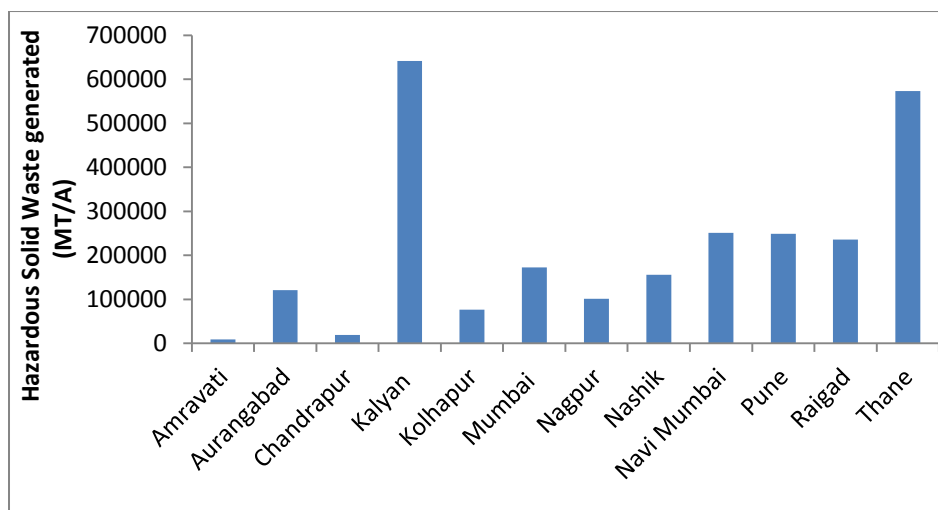


Figure 5.6. Region-wise hazardous waste generation

Table 5.44. Summary of Hazardous Waste Received at disposal sites in 2016-17

Site	DLF* (MT/M)	LAT* (MT/M)	INC* (MT/M)	Total (MT/M)
MWML, Taloja, Raigad	71446	118139	25094	214679
TTCWMA, Mahape, Navi Mumbai	2300.734	8749.867		11050.601
MEPL, Ranjangaon, Pune	38805.96	33565.29	28079.39	100450.64
VEPL, Butibori, Nagpur	9785	12958	2545	25288
Total	122337.694	173412.157	55718.39	351468.241

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

Various methods such as DLF, LAT, INC and onsite hydroclave are used for the treatment of hazardous waste. 122337.694 MT/month HW was treated with DLF method, 173412.157 MT/month by LAT method and 55718.39 MT/month by INC method. **Table 5.45** represents the number of units in each region that has been granted authorization to generate HSW.

Table 5.45. No. of units in each region that is given authorization to generate HSW

Region	Mumbai	Navi Mumbai	Raigad	Thane	Kalyan	Pune	Nashik	Aurangabad	Nagpur	Amravati	Kolhapur	Chandrapur	Total
Total no. of units	397	715	375	777	894	1238	502	338	356	78	363	127	6160

➤ **Details of Bio-medical Waste Treatment Facilities:**

- (1) Total no. of HCFs: 52704
 - (i) Bedded: 20225
 - (ii) Non-bedded: 32479
- (2) Total no. of beds: 251948
- (3) Status of authorization
 - (a) Total no. of HCFs applied for authorization: 19622
 - (b) Total no. of HCFs granted authorization: 19197
 - (c) Total no. of applications under consideration: 279
 - (d) Total no. of applications rejected: 2



- (e) Total no. of HCFs in operation without applying for authorization: 50
- (4) Quantity of Bio-medical waste generation (in kg/day)
- (a) Bio-medical waste generation by bedded hospitals (kg/day): 57772.70
- (b) Bio-medical waste generation by non-bedded hospitals (kg/day): 13667.70
- (c) Any other: 70.805 kg/day
- Total (kg/day): 71511.5
- (5) Total Bio-medical Waste Treatment & disposed (kg/day): 71511.5

There were 310 bedded HCFs having captive treatment facilities with a total installed captive treatment facility of 6201.82 kg/day. There were 3696 non-bedded HCFs having captive treatment facilities in the form of deep burial pits. The total bio-medical waste treated and disposed by captive treatment facilities was 5610.431 kg/day during the year 2016-17. Information on HCFs having captive treatment facilities is shown in **Table 5.46**.

There were 34 CBWTFs in operation with a total installed treatment capacity of 331672.2 kg/day. The total quantity of BMW collected from member HCFs was 65901.03 kg/day and all of it was treated by CBWTFs in the year 2016-17.

Table 5.46. Information on HCFs having captive treatment facilities (for the year 2016)

Total bio-medical waste generated (kg/day)	Total installed treatment capacity in kg/day				Total bio-medical waste treated (kg/day)	
	Incinerator	Autoclave	Deep Burial	Any other		
5610.431	1760	1167.3	3535.5	24	Incineration	810.56
					Autoclave	450.3
					Deep Burial	4325.571
					Any other	24
					Total	5610.431

5.8. Electronic Waste

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

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

- For effective implementation of the E-Waste (Management and Handling) Rules, 2011 a circular was issued on 20/07/2012 which is available on the MPCB website.
- MOEF&CC, Government of India, has notified new E-Waste (Management) Rules, 2016 on 23rd March, 2016; which will come into force from the 1st day of October, 2016.
- A registration committee has been constituted for grant or renewal of registration under the E-Waste (Management and Handling) Rules, 2011 for dismantling/recycling of E-waste using environmentally sound technologies.



- During the year 2016-17, the Board has granted authorization and registration under the E-waste (Management and Handling) Rules, 2011, to 51 E-waste dismantlers and 7 E-waste recyclers having environmental sound management of E-Waste.

Details of authorizations issued under the E-waste (M & H) Rules, 2011 to dismantlers/recyclers/ collection/producers are as shown in **Table 5.47**.

Table 5.47. Status of E-Waste Generation and Recycling in Maharashtra State

Types of Authorization/Registration Granted by Board	Authorization/Registration Granted By the Board (No.s)	Capacity of E-Waste generation/collection/dismantling/recycling (MT/A)
Recyclers	7	16640
Dismantlers	51	55520

5.9. Performance of Board Laboratories

Maharashtra Pollution Control Board has established/recognized a Central Laboratory at Navi Mumbai and 7 Regional Laboratories at Pune, Nashik, Aurangabad, Nagpur, Chiplun, Thane and Chandrapur respectively under Sub-Section 2 of Section 17 of the Water (P & CP) Act, 1974 and the Air (P & CP) Act, 1981. These laboratories are well equipped and approved by Ministry of Environment & Forest (MoEF), Government of India (GoI), Delhi under E(P) Act, 1986 and are also ISO 9001:2008 and OHSAS 18001:2007 certified.

The Board's laboratories function as defined under Water and Air Act; and Environment (Protection) Act, 1986 and rules made there under to analyze samples collected by field officers from respective regions for analysis of water, air & hazardous waste, municipal solid waste, biomedical waste samples and submit reports to respective Sub-Regional Offices for further regulatory action. Regional Lab, Chandrapur analyzes only air samples.

MPCB laboratories are well equipped with modern sophisticated instruments and equipment like UV Spectrophotometer, Gas Chromatograph (GC), Mass Spectroscopy, Atomic Absorption Spectrophotometer (AAS), Ion Chromatography (IC), Inductive Couple Plasma (ICP), Adsorbable Organic Halide Analyzers (AOx), CHNS Analyzers and others. Analysis of performance of Board laboratories for the year 2016-17 is as shown in **Table 5.48** and is represented graphically in **Figures 5.7, 5.8 and 5.9**.



Table 5.48. Yearly performances of Board's laboratories (April-2016 to March-2017).

Sr. No.	Laboratory	Total No. of Samples Received			Total No. of Samples Analyzed			Total no. of Parameters Analyzed		
		Water	Air	H.W.	Water	Air	H.W.	Water	Air	H.W.
1	CL*, Navi Mumbai	9090	524	173	9448	525	206	103662	5270	1413
2	RL*, Nagpur	2548	395	26	2672	395	26	36839	926	213
3	RL, Aurangabad	1785	184	38	1757	183	34	21043	538	135
4	RL, Pune	4309	306	19	5683	313	42	62221	906	291
5	RL, Nashik	3020	37	37	3110	32	40	38900	187	341
6	RL, Chiplun	4564	352	94	4965	367	103	54026	934	983
7	RL, Thane	3363	201	-	3264	201	-	18031	778	-
8	RL, Chandrapur	-	168	-	0	168	-	-	465	-
TOTAL		28679	2167	387	30899	2184	451	334722	10004	3376

*CL – Central laboratory, RL- Regional Laboratory

Regional Laboratory, Nagpur has received 13 coal samples for the year 2016-2017 and all coal sample parameters (26) have been analyzed. Regional Laboratory, Chandrapur has received one coal sample for the year 2016-2017 and two coal sample parameters have been analyzed. The remaining Board laboratories are yet to start coal analysis.

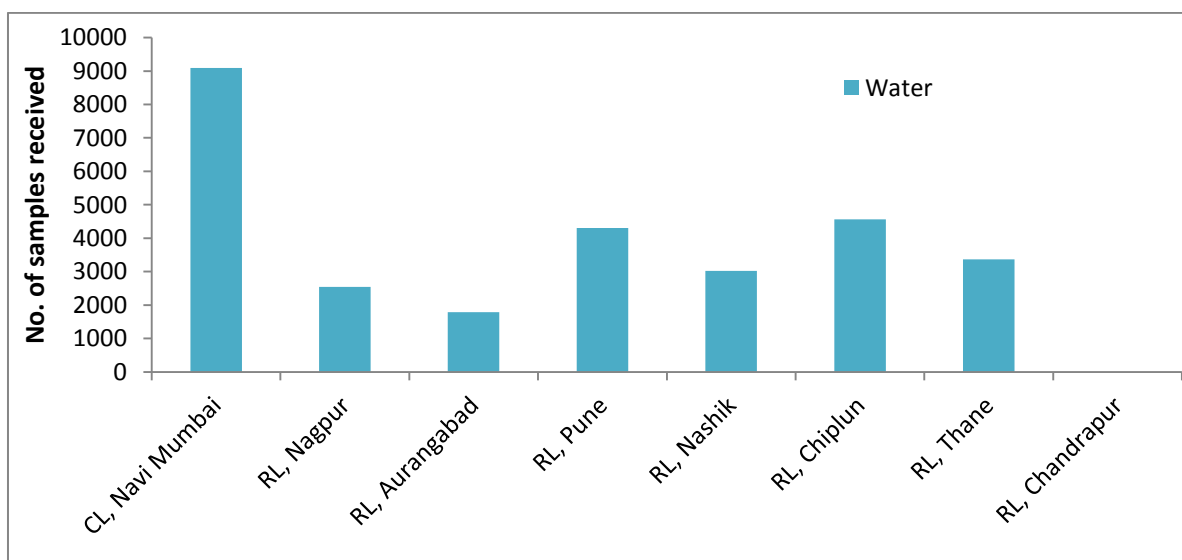


Figure 5.7. Total water samples received in each region (2016-17).

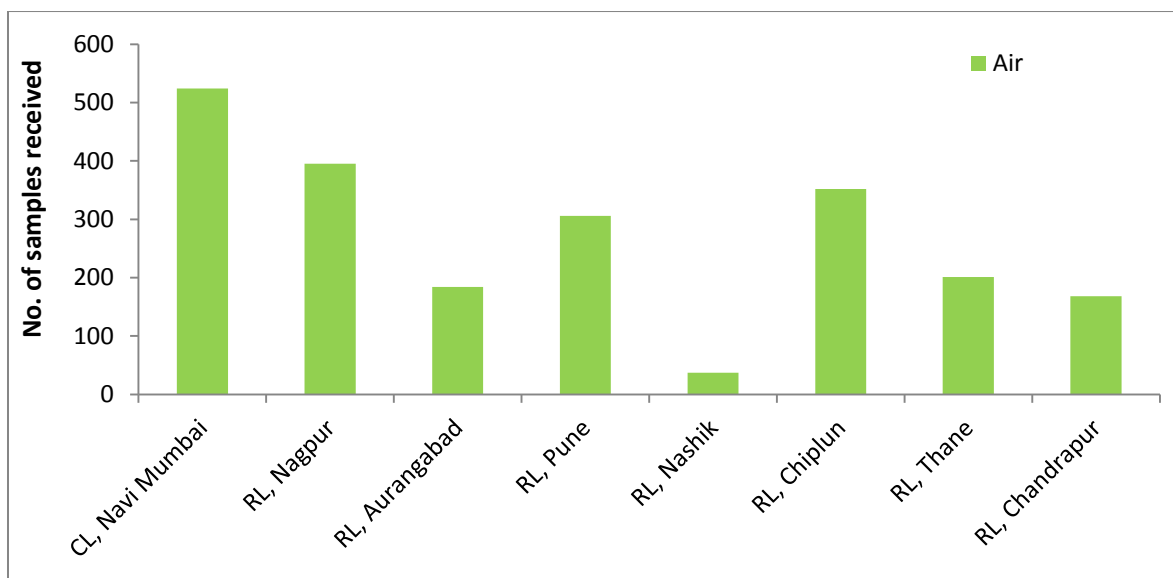


Figure 5.8. Total air samples received in each region (2016-17).

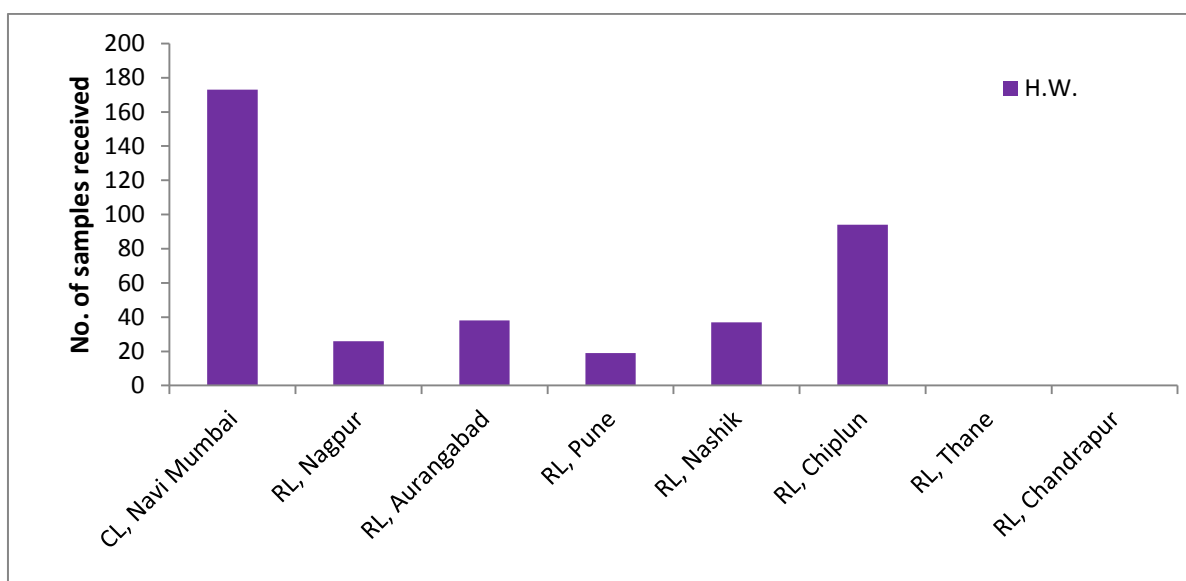


Figure 5.9. Total hazardous waste samples received in each region (2016-17).

➤ Achievements of MPC Board Laboratories.

A. ISO 9001:2008 and OHSAS 18001:2007 Certified:

Maharashtra Pollution Control Board's Central laboratory and seven regional laboratories located at Pune, Nashik, Aurangabad, Nagpur, Chandrapur, Thane and Chiplun have been awarded **ISO 9001:2008 and OHSAS 18001:2007** in March 2014 by **BSCIC**, a certification body accredited by National Accreditation Board for Certification (NABC) for their QMS and OHSAS certification services and also accredited by foreign direct accreditation by Joint Accreditation System for Australia and New Zealand (JASANZ) and continued in March 2015 after first surveillance audit and in March 2016 after second surveillance audit.



B. 100% Performance in Inter Laboratory Proficiency testing in analysis:

Central Pollution Control Board, Delhi conducts exercises through "Inter Laboratory Proficiency Testing" program across the country for EPA approved laboratories including State Pollution Control Board's laboratories for chemical, biological and microbiological analysis. During the year 2016-17, all regional laboratories except Regional Laboratory, Chandrapur participated in this program.

C. Strong support in Judicial matters:

As per direction of High Court Bombay (No. PIL 17/2011 dated 01/03/2011) and order vide No. MPCB/PSO/B-27 dated 02/03/2011, MPCB laboratories complete weekly analysis of CETP Joint Vigilance Sample analysis across the State and submit analysis reports well within time for hoisting the performance of CETPs on MPCB website.

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

During Ganesh festival MPCB laboratories analyze samples collected from lakes, rivers, creeks and sea pre- and post- immersion of the idol.

E. Training to Scientific Staff:

Maharashtra Pollution Control Board imparted training to scientific officers and employees of the Board in the year 2016 through "Advanced Analytical Instrumentation Techniques and Its Application in Environmental Analysis" at the National Institute of Oceanography, Goa and Indian Institute of Toxicology Research, Lucknow.

F. Coal Analysis for Ash Content:

All MPCB Laboratories have developed facilities of coal analysis for parameter "Ash Content".

G. Important initiatives of MPC Board Laboratories:

- ISO 9001:2008 standard changed to ISO 9001:2015. MPCB Laboratories have initiated the process for this transition from ISO 9001:2008 to ISO 9001:2015.
- To initiate process of ISO/IEC 17025 NABL accreditation of MPCB laboratories, MPCB has imparted "ISO/IEC 17025 Awareness and Measurement Uncertainty" training to 30 scientific employees.



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 in **Table 6.1.**

Table 6.1. Region-wise environmental problems and control measures taken by the Board.

Region	Issue	Control measures adopted
Kalyan	<ul style="list-style-type: none"> - Development of industries causing air pollution. - Improper treatment of effluent in industrial area. - Illegal and unscientific dumping of MSW. - Improper disposal facility for sewage & solid waste. - ETPs not provided for some industries. - River water pollution as a result of these issues. - Unorganized & illegal construction of power looms, godowns. - Vehicular pollution. 	<ul style="list-style-type: none"> - Air pollution control (APC) systems (swinging hood, duct line, air blower, cyclone, bag house, wet type scrubber, and 30 m chimneys) provided. - Khemani Nalla diversion project proposal submitted to GoM for final approval. - High efficiency aspirator mechanism provided at Badlapur CETP. - Reverse osmosis with MEE provided at ETP at Gorhe.
Aurangabad	<ul style="list-style-type: none"> - Air pollution due to vehicles and constructions. 	<ul style="list-style-type: none"> - APC systems, RO, MEEP systems provided. - Industries have joined CHWTSDF for safe disposal of HW.
Kolhapur	<ul style="list-style-type: none"> - River water pollution due to discharge of untreated sewage. - Unscientific disposal of MSW. 	<ul style="list-style-type: none"> - RO Kolhapur has regularly corresponded with concerned authorities for water sample analysis and adoption of precautionary measures. - Follow up taken for MSW and sewage treatment issues.
Nashik	<ul style="list-style-type: none"> - Air pollution due to stone crushers. - Pollution of Godavari river water pollution due to Kumbhmela pilgrimage. 	<ul style="list-style-type: none"> - MPCB has issued directions U/s 31 A of Air Act and 33 A of Water Act. - The Board has directed Nashik Municipal Corporation (NMC) to avoid discharge of untreated sewage into river. - MPCB has issued consent to NMC with condition to operate and maintain STPs to achieve BOD levels between 30 mg/l and 10 mg/l. - The Board monitored river water quality & STP regularly during the year.
Pune	<ul style="list-style-type: none"> - River water pollution due to uncontrolled sand dredging, unscientific disposal of MSW and sewage, agricultural runoff and large number of pilgrims. - Treatment facilities for MSW not operational or facing technology failure. - Ground water contamination due to seepage from distilleries and leachates. - Bio-remediation not possible. 	<ul style="list-style-type: none"> - Rigorous follow up with PMC for MSW facility project completion at Fursungi. - Rigorous follow up with local bodies and MIDC authorities for sewage treatment and CETP set up respectively. - River water sampling during Ashadhi and Kartiki pilgrimages at Alandi and Pandharpur. - Composite sampling of CETPs at Talegaon, Ranjangaon, Kurkumbh, Chincholi and



Thane	<ul style="list-style-type: none">- Lack of segregation of MSW and unscientific disposal.- Creek and nalla water pollution due to discharge of partly/untreated sewage and effluent. Waste water not recycled and reused.- Development of illegal industries.	<ul style="list-style-type: none">-27 industries have started recycling and reusing 50% was treated effluent.- Zero discharge system provided at 3 textile industries.- Closure directions were issued to 15 industries operating without consent.- Resolution of Standing Committee submitted regarding financial provision of 25% amount of annual budget for provision of STP and MSW treatment facilities at Thane, Mira Bhayander and Vasai-Virar.- Criminal case filed against Thane Municipal Corporation, Vasai Virar City Municipal Corporation and MBMC before appropriate Court of Law, under section 15 of EP Act, 1986 for violation of MSW Rules.
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7. ENVIRONMENTAL STUDIES & SURVEYS

7.1. Noise monitoring during Ganesh Festival 2016

Maharashtra Pollution Control Board has been carrying out studies of ambient noise levels in the State of Maharashtra during the period of Ganesh Festival for more than 9 years as a continuous process. Ambient noise monitoring was carried out at 132 locations from 26 Municipal Corporation of Maharashtra for 5 days period during Ganesh Festival i.e. on 5th, 6th, 9th, 10th and 15th September 2016 from 6 PM to 12 AM for each location which comprised of residential, commercial and silence zones. Noise monitoring was carried out using calibrated Sound Level Meters (Type II) kept at fast response mode keeping in view the rapidly changing nature of noise levels, and using 'A' filter. The details of the number of noise monitoring locations at certain regions in Maharashtra are provided in **Table 7.1**. In the present study, hourly and day wise Leq has been calculated to compare the results obtained from various locations.

Table 7.1. Noise monitoring locations in Maharashtra during Ganesh Festival 2016.

Region	Mumbai	Navi Mumbai	Thane	Kalyan	Pune	Nashik	Aurangabad	Nagpur	Amaravati	Kolhapur	Chandrapur
No. of locations	25	5	9	3	20	5	5	5	3	3	3

Comparative hourly noise levels on 5th, 6th, 9th, 10th and 15th September 2016 during Ganesh Festival at different locations in Maharashtra are presented in **Figure 7.1**. The equivalent steady sound level of a noise energy-averaged over time was calculated and represented as Leq based on which the impact of noise created during the festival was measured.

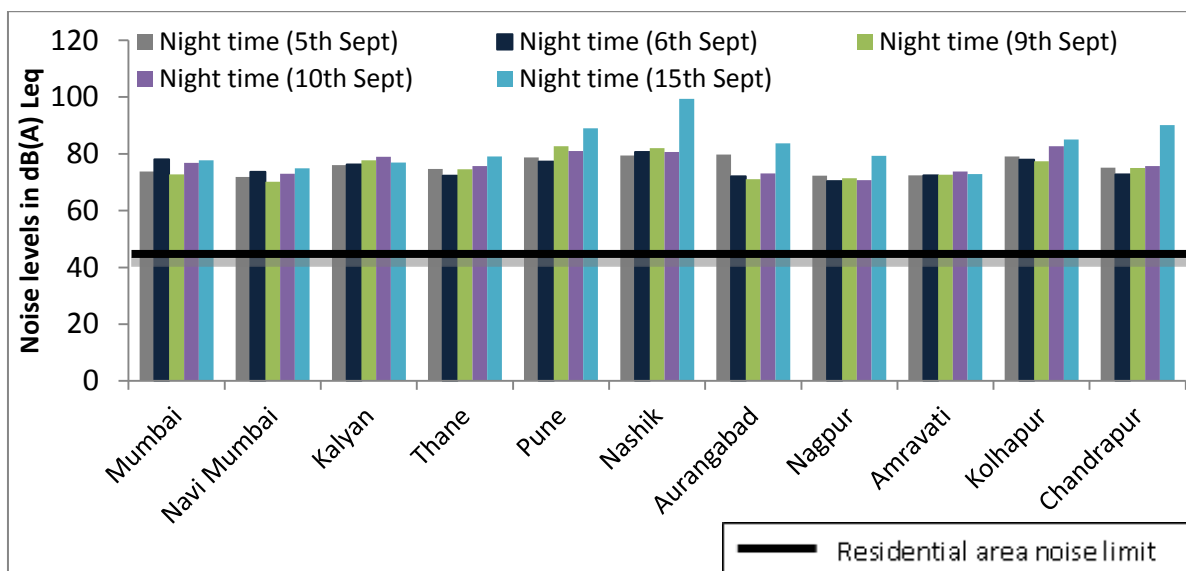


Figure 7.1. Noise levels during Ganesh festival 2016 at different locations in Maharashtra.

The highest noise level during Ganesh festival 2016 was recorded at Nashik during night time monitoring on 15th September. Lowest noise levels during Ganesh festival 2016 were recorded at Navi Mumbai during night time on 9th September and at Nagpur during night time on 6th September.

7.2. Conclusion

This year 132 locations from 26 Municipal Corporations of Maharashtra recorded noise levels for 5 days during Ganesh Festival i.e. on 5th, 6th, 9th, 10th and 15th September 2016 for 6 hours from 6 PM to 12 AM for each location in residential, commercial and silence zones. There was a significant decrease in the noise levels in almost all areas like Mumbai, Pune, Thane, Kalyan and Nagpur. The main noise level increase was more due to the increase in traffic and lesser due to the festival. People have become more aware about the ill effects of noise pollution and such awareness has given good returns. It should also be noted that the police were very active in controlling the noise level this year.

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

7.3. Noise Monitoring during Diwali festival 2016

In order to assess the ambient noise levels in the environment during Diwali festival period, MPCB has taken an initiative to carry out noise monitoring at 158 locations all over Maharashtra over 3 days during Diwali Festival i.e. on 30th (Lakshmi-Pujan), 31st (Balipratipada) October, 2016 and 1st November (Bhaubeej), 2016 for 24 hours in different cities in Maharashtra. The main aim of the project is to determine the trends and variations of noise levels in various areas of the city for different land uses and to create awareness about noise pollution through availability of scientific noise level data.

Noise measurements were done using calibrated Sound Level Meters (Type II) kept on fast response mode keeping in view the rapidly changing nature of noise levels, and using 'A' filter. The main purpose of noise monitoring was to determine the impact of noise generated during Diwali by various activities like bursting firecrackers and sound and music systems on humans and to assess the consequent environmental disturbances. The present study covered 26 Municipal Corporations with 158 locations all over the Maharashtra. These locations consisted of mixed categories of areas including residential, commercial and silence zones. The details of number of noise monitoring locations at certain regions in Maharashtra are provided in **Table 7.2**.

Table 7.2. Noise Monitoring Locations in Maharashtra during Diwali Festival 2016.

Region	Mum bai	Navi Mum bai	Tha ne	Kaly an	Pun e	Nash ik	Auranga bad	Nagp ur	Amarav ati	Kolhap ur	Chandra pur
No. of locatio ns	45	10	5	3	15	5	5	10	3	8	3

Hourly noise levels on 30th, 31st October and 1st November, 2016 during Diwali Festival at different locations in Maharashtra are presented in **Figure 7.2**.

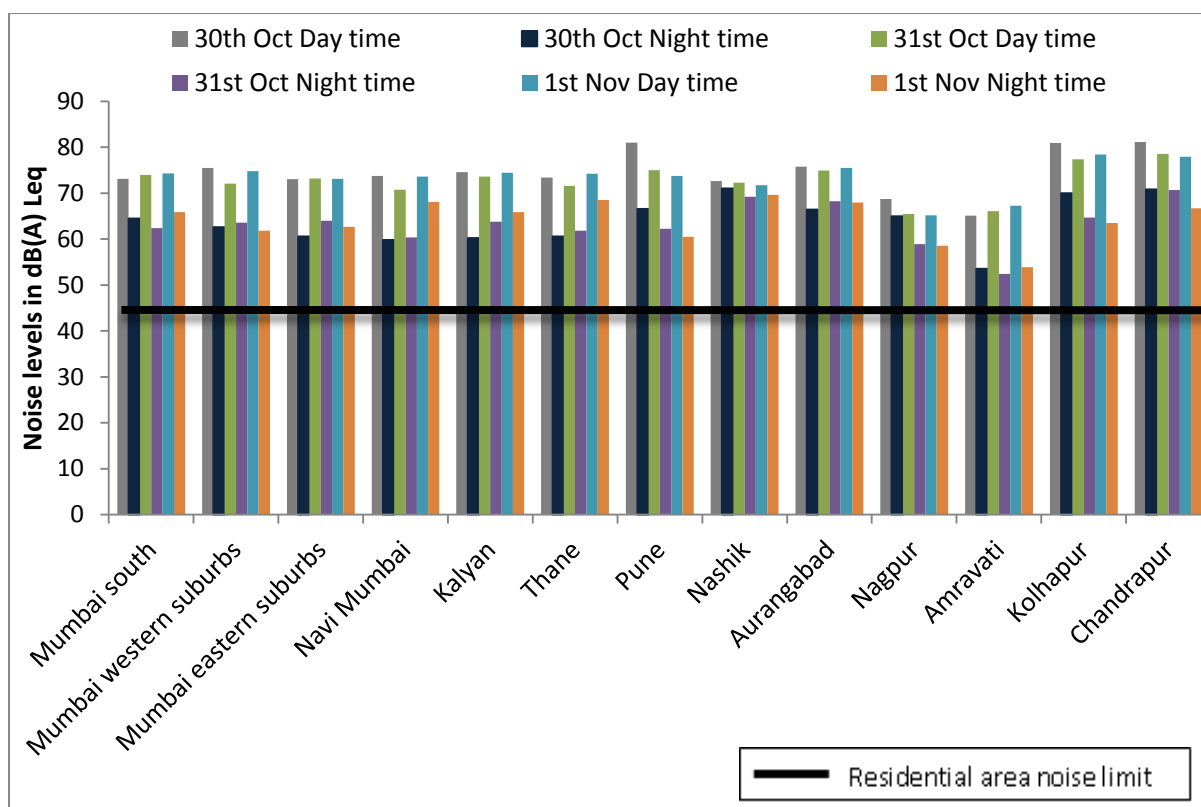


Figure 7.2. Noise levels during Diwali festival 2016 at different locations in Maharashtra.

The highest level of noise during Diwali festival 2016 was observed at Chandrapur during day time on 30th October. The lowest level of noise was observed at Amaravati during night time on 31st October.

7.4. Conclusion

The noise level in many regions was lesser this year as compared to last year and the noise of firecrackers was also limited. Yet noise levels were beyond the permissible limits and were more than what a human ear or an animal can resist. Also, during night time, after 10 pm loud noise was created by bursting firecrackers which create difficulties to babies, old people and even stray dogs and other animals.

It cannot be ignored that the impact of noise is correlated with distance. Noise level measurements were carried out at specified locations. The levels recorded may be different from any other and people staying nearby any place where firecrackers are burst may receive more noise levels. Therefore, this study cannot conclude that noise pollution and its effects have truly decreased. Over each year, there is a difference in the levels of noise created and people have also taken precautions in making their festival eco-friendly. More awareness about ill effects of the use of firecrackers should be made which may ultimately lessen the levels of noise pollution.



8. ENVIRONMENTAL TRAINING

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

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

During the year 2016-17, the Board had deputed 115 officers to attend training in technical, scientific and administrative courses organizing 40 training programs during the year.

The categories of training programs conducted during 2016-17 at national and international levels, total number of participants and total fees are summarized in **Table 9.1**. The various training courses/workshops/seminars/lectures attended by the Staff and the Officers of the Board conducted during this year are summarized in **Annexure 5**.

Table 8.1.Training Abstract for the period from 01.04.2016 to 31.03.2017

National level					
Sr. No.	Total Participants			Total Participants	Fees (Rs.)
	Technical	Administrative	Scientific		
1.	95	5	13	113	6,82,550
International level					
Sr. No.	Total Participants			Total	Fees (Rs.)
	Technical	Administrative	Scientific		
1.	2	0	0	2	0



9. ENVIRONMENTAL AWARENESS & PUBLIC PARTICIPATION

For sustainable development it is necessary to promote and create environmental awareness among communities, businesses and governments. Therefore the Board organizes various environmental awareness programs across the State of Maharashtra. During the year 2016-17 the following programs on environmental awareness were conducted by the Board.

Month	Subject	Details
April 2016	Financial grant for public awareness through Nagpur FM radio channels for Climate Change Science Express organized at Nagpur on behalf of MOEF&CC, Nagpur.	On behalf of the MOEF&CC, Nagpur, the Climate Change Science Express created environmental awareness for school students. For informing the public about the Science Express, Nagpur FM channels had organized a public awareness program.
April 2016	Advertisement for Vasundhara Puraskar 2015-16 competition published in leading newspapers.	Advertisement for Vasundhara Puraskar 2015-16 competition published in leading newspapers.
April 2016	Public awareness created for 22 nd April, 2016 World Earth Day through leading newspapers.	Public awareness created for World Earth Day (22 nd April, 2016) through leading newspapers.
April 2016	Public awareness messages publicized through leading newspapers such as Dainik Samna, Sakaal, Divya Marathi on 22 nd April, 2016 World Earth Day.	Special column for public awareness messages publicized through leading newspapers such as Dainik Samna, Sakaal, Divya Marathi on 22 nd April, 2016 World Earth Day.
April 2016	Information panels set up at selected bus stops in Nagpur city for informing the public about the Climate Change Science Express on behalf of MOEF&CC.	Setting up information panels at selected bus stops in Nagpur city for informing the public about the Climate Change Science Express on behalf of MOEF&CC.
April 2016	Public awareness messages publicized in leading newspapers such as Loksatta, Indian Express, Lokmat on 22 nd April, 2016 World Earth Day.	Special public awareness column publicized in leading newspapers such as Loksatta, Indian Express, Lokmat on 22 nd April, 2016 World Earth Day.
April 2016	Public awareness messages publicized on 22 nd April, 2016 World Earth Day in Maharashtra Times of India.	Special public awareness column publicized in Maharashtra Times of India on 22 nd April, 2016 World Earth Day.
April 2016	Public awareness messages publicized on 22 nd April, 2016 World Earth Day in leading newspapers such as DNA, Hindustan Times, Midday.	Special public awareness column publicized in leading newspapers such as DNA, Hindustan Times, Midday on 22 nd April, 2016 World Earth Day.
June 2016	Public awareness messages publicized on 5 th June, 2016 World Environment Day in leading newspapers such as Dainik Sakaal, Divya Marathi, Samna.	Special public awareness column publicized in leading newspapers such as Dainik Sakaal, Divya Marathi, Samna on 5 th June, 2016 World Environment Day.
June 2016	Public awareness messages publicized on 5 th June, 2016 World Environment Day in leading newspapers such as Loksatta, Indian Express, Lokmat.	Special public awareness column publicized in leading newspapers such as Loksatta, Indian Express, Lokmat on 5 th June, 2016 World Environment Day.
June 2016	Public awareness messages publicized on 5 th June, 2016 World Environment Day in leading newspapers such as DNA, Hindustan Times, Midday.	Special public awareness column publicized in leading newspapers such as DNA, Hindustan Times, Midday on 5 th June, 2016 World Environment Day.
June 2016	Public awareness messages publicized on 5 th June, 2016 World Environment Day in leading newspapers.	Public awareness messages publicized on 22 nd April, 2016 World Earth Day in leading newspapers.

June 2016	Financial grants for regional and sub-regional offices on occasion of 5 th June, 2016 World Environment Day.	Payment of financial grants for regional and sub-regional offices on occasion of 5 th June, 2016 World Environment Day.
June 2016	Financial grant for environmental awareness campaign called 'Paryavaranchi Vaari Pandharichya Daari'.	Environmental awareness campaign called 'Paryavaranchi Vaari Pandharichya Daari' was organized for the on-foot pilgrimage from Alandi to Pandharpur on occasion of Ashadhi Ekadashi. As environmental issues are equally detrimental to urban and rural areas, fundamental messages such as plastic waste removal, proper use of water, electricity and natural resources, use of limited electrical power for agriculture, use of organic fertilizers, proper waste management of wet waste and dry waste were spread among the 10 lakh devotees who had gathered for the Pandharpur pilgrimage. These messages were made public through folk art, popularly known as Kirtan, Bharud, and Povada. In this 15 day long pilgrimage, Sangeet Natak Academy award winner, Smt. Chandabai Tiwari, famous Shahir Shree Devanand Mali and Hari Bhakta Parayan Shri. Dnyaneshwar Maharaj Wabale created public awareness through Bharud, Povada and Kirtan respectively. This year's Pandharpur pilgrimage was inaugurated at Pune by Cabinet Minister Mr. Girish Bapat, Mayor of Pune, Mr. Prasanna Jagtap, In-charge Member Secretary of MPCB, Mr. Pundalik Mirashe and folk art researcher, Dr. Prakash Khandge. The conclusion of this pilgrimage was organized on the eve of Aashadhi Ekadashi in the presence of Chief Minister, Mr. Devendra Fadnavis, Mrs. Amruta Fadnavis, Cabinet Minister (Solapur), Mr. Vijay Deshmukh, Minister of Water and Sanitation, Mr. Babanrao Lonikar, Senior Cabinet Minister, Mr. Mahadev Jankar, Chairman and Additional Chief Secretary, MPCB, Mr. Satish Gavai and other dignitaries.



Inauguration of environmental awareness campaign 'Paryavaranchi Vaari Pandharichya Daari' at Pandharpur.

June 2016	Financial grant for public awareness campaign Green Idea 2016 organized	Green Idea, an environmental and public awareness conference was organized at Thane as a
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	by Mumbai Tarun Bharat and Samarth Bharat Vyaspeeth on 5 th June, 2016.	joint venture between Mumbai Tarun Bharat and Samarth Bharat Vyaspeeth on occasion of World Environment Day. Financial grant for this conference was provided by MPCB.
June 2016	Financial assistance for Bhamla Foundation's public awareness campaign on 5 th June, 2016.	On occasion of World Environment Day (5 th June, 2016) 'We Love India' had organized a public awareness campaign related to the environment where canvas painting of environment related messages, discussions on public awareness and a variety of other activities were organized at Bandra. Famous movie personalities, sportspersons and environmental cabinet ministers were present.
June 2016	Financial grant to Bhimashankar Pratishthan on 5th of June 2016 World Environment Day.	Awareness building program of 'Use Bicycles, Refuse Fuel' organized by the Bhimashankar Pratishthan was organized in the city of Mumbai. People were urged to use bicycles. This initiative was launched at Y. B. Chavan auditorium in the presence of Minister for Environment, Mr. Ramdas Kadam and Dr. P. Anbalagan, Member Secretary (MPCB).



Hon'ble Shri. Devendra Fadnavis, Chief Minister, GoM, inaugurating World Environment Day Program at Y. B. Chavan Auditorium, Churchgate, Mumbai on 5th June, 2016 in the presence of Hon'ble Shri. Pravin Pote-Patil, Minister of State for Environment, GoM, Hon'ble Shri. Swadheen Kshatriya, Chief Secretary, GoM and Dr. P. Anbalagan, Member Secretary, MPCB.



Hon'ble Shri. Devendra Fadnavis Chief Minister, GoM, inaugurating Marathi website in presence of EIC department team, Hon'ble Shri. Ramdasji Kadam, Minister for Environment, GoM, Hon'ble Shri. Pravin Pote-Patil, Minister of State for Environment, GoM, Hon'ble Shri. Swadheen Kshatriya, Chief Secretary, GoM and Dr. P. Anbalagan, Member Secretary, MPCB.

June 2016	Public awareness messages publicized on 5 th June, 2016 in newspapers such as Maharashtra Times and Times of India.	On occasion of World Environment Day (5 th June, 2016) environmental awareness messages were publicized in all editions of newspapers in the State.
June 2016	Financial assistance for publishing of section for environmental and public awareness in magazines such as India Today, Enviro Friend and Amrutvel on 5 th June, 2016 World Environment Day.	On 5 th June, 2016 World Environment Day, a section for environmental and public awareness was published in magazines such as India Today, Enviro Friend and Amrutvel.



June 2016	Financial assistance for awareness campaign organized by Viewmanity Foundation on 5 th June, 2016 World Environment Day.	On occasion of World Environment Day (5 th June, 2016) Viewmanity Foundation had organized rallies and various competitions at Mumbai and Kherda near Nashik.
July 2016	Financial assistance (rent for P.L. Deshpande Art Academy) for environment friendly Ganesh idol exhibition organized by MPCB and Mangalmurti Dot Com.	A Ganesh idol exhibition was organized as a joint venture by MPBC and Mangalmurti Dot Com at the Government of Maharashtra's P. L. Deshpande Art Academy. The exhibition was inaugurated by Member Secretary, MPCB. Other MPCB officials along with Public Relations Officer attended this event. A workshop for making eco-friendly Ganesh idols was also conducted at this event. This exhibition received an energetic response from Ganesh devotees.
July 2016	Public awareness message in The Caravan magazine.	The article 'Ease of Doing Business' by MPCB was published in the English magazine, The Caravan.
August 2016	Public awareness messages about eco-friendly Ganesh festival displayed on bus stop shelters in Pune city.	Public awareness messages for an eco-friendly Ganesh festival were displayed on 50 LIT bus stop shelters in Pune city for a period of 15 days.
August 2016	Public awareness messages about eco-friendly Ganesh festival displayed on bus stop shelters in Nagpur city.	Public awareness message of 'Celebrate a pollution-free Diwali' by Hon'ble Chief Minister and Hon'ble Minister for Environment were displayed on 50 LIT bus stops in Nagpur city for a period of 15 days.
August 2016	Public awareness messages about eco-friendly Ganesh festival displayed on Times OOH BEST bus stop shelters.	Public awareness message of 'Celebrate a pollution-free Diwali' by Hon'ble Chief Minister and Hon'ble Minister for Environment were displayed on 70 LIT and non-LIT bus stops in Mumbai city for a period of 15 days.
August 2016	Financial assistance for eco-friendly household competitions during Ganesh festival 2016 organized by MPCB and Loksatta.	Eco-friendly household Ganesh festival decoration competition was organized jointly by MPCB and Loksatta at 6 divisions of Loksatta newspaper at Mumbai, Pune, Nashik, Nagpur, Ahmednagar and Aurangabad. More than 2000 people competed in this event. This event was carried out in the presence of Hon'ble Minister for Environment, Additional Chief Secretary of Ministry of Environment, Member Secretary of MPCB, Dr. P. Anbalagan. News regarding this event was made public in the newspaper Loksatta.



Prize distribution at the hands of Hon'ble Shri. Ramdasji Kadam, Minister for Environment, GoM on the eve of eco-friendly household Ganesh festival decoration competition in the presence of Hon'ble Shri. Pravin Pottepatil, Minister of State for Environment, GoM and Dr. P. Anbalagan, Member Secretary, MPCB

August 2016	Financial assistance for eco-friendly Ganesh festival by UFO Digital Movies.	Public awareness messages by celebrities from Marathi and Hindi film industry were publicized at 205 digital theatres by UFO Digital Movies for two weeks to promote an eco-friendly Ganesh festival.
August 2016	Financial assistance for eco-friendly Ganesh festival by ABP Maza.	Public awareness campaign was organized by MPCB and ABP Maza in housing societies in major cities in the State for celebrating an eco-friendly Ganesh festival. The celebration of eco-friendly Ganesh festival in housing societies in cities such as Mumbai, Pune, Nashik and Nagpur was made public by ABP Maza in their newspaper through a designated column. A 30 minute talk show was organized on ABP Maza television channel. Special programs were organized through the newsletter on ABP Maza from this channel to housing societies celebrating environment-friendly Ganesh festival. Also, popular celebrities from the Marathi film industry, Bhagyashree Bugade and Sachin Tilak advertised the competition through promos for the purpose of celebrating Ganesh festival in the entire state. MPCB's certificate and prasad were presented to the winners from this competition at their respective homes.
August 2016	Eco-friendly Dahi Handi 2016	Eco Friendly Dahi Handi Festival 2016 was organized in association with IDEAL Book Company and MPCB. In this program, anti-noise pollution awareness rally was organized by famous Marathi film industry celebrities on the Open Deck Bus Service of Best Transport Service. Notable film and TV celebrities were present at this rally. On the eve of Dahi Handi, this rally was organized in the presence of street-play celebrities in Dadar, Lalbagh area. Eco-friendly Dahi Handi was smashed in the presence of young celebrities from Zee TV and ETV. At the time, in front of Chhabildas High School in Dadar, the noise-free eco-friendly Dahi Handi was broken along with celebrities from the film and theatre industry. Public Relations Officer, MPCB was present during this event.



Eco-friendly Dahi Handi rally on Open Deck Bus Service of Best Transport Service organized in the presence of notable film celebrities.

August 2016	Financial assistance for Big Green Ganesha activity by 92.7 Big FM.	The Big Green Ganesha activity was organized by MPCB and 92.7 Big FM for Mumbai city. In this program, the Big Green Ganesha van encouraged residents of various locations to donate newspaper scrap for this activity. 92.7 Big FM crafted eco-friendly Ganesh idols from the collected scrap newspapers. Scrap newspaper was donated to school students at the Sahyadri Guesthouse in the presence of Hon'ble Chief Minister Mr. Devendra Fadnavis, Hon'ble Minister for Environment Mr. Ramdasbhai Kadam, Hon'ble Minister of State Mr. Pravin Pote Patil, Principal Secretary, Department of Environment, Mrs. Malini Shankar, Member Secretary, MPCB, Dr. P. Anbalagan, film actors, Mr. Jackie Shroff and Mr. Annu Kapoor and Director of 92.7 Big FM, Mr. Tarun Katiyal. An exhibition of eco-friendly Ganesh idols and makhar was also organized. A special studio was set up at Lalbaghcha Raja in Mumbai for 10 days. At this time, public awareness messages from Hon'ble Chief Minister, Hon'ble Minister for Environment, Hon'ble State Minister for Environment and famous film celebrities were publicized.
August 2016	Financial assistance for public awareness activity, Green Ganesha organized by Times of India.	Green Ganesha competition was organized jointly by Environment Department of MPCB, Government of Maharashtra and Times of India group for public Ganesh festival organizations and housing societies in Mumbai city. During this campaign, public awareness activities were conducted in various malls and movie theatres and eco-friendly Ganesh festival workshops were conducted for school students. Various activities were conducted by college students for the eco-friendly Ganesh ambassador. During Ganesh idol immersion, cleanliness campaigns were conducted at Girgaon Chowpati, Juhu beach and Versova beach at Mumbai. This campaign was launched by popular



		actors at Lala Lajpat Rai College. A special film for public awareness had been created by Times group for this campaign. A dedicated column for this campaign was published for 15 days in the newspaper, Times of India.
August 2016	Financial assistance for Eco Ganesha public awareness campaign organized jointly by Dainik Samna and MPCB.	Eco-friendly public Ganesh festival was organized with assistance from the newspaper, Dainik Samna. The prize distribution event was conducted in the presence of Hon'ble Minister for Environment, Mr. Ramdasbhai Kadam, Principal Secretary, Environment Department, Mrs. Malini Shankar and Member Secretary, MPCB, Dr. P. Anbalagan.
August 2016	Financial assistance to public awareness campaign, Sakaal Eco-Ganesha organized by Dainik Sakaal, Mumbai and MPCB.	To celebrate an environment friendly Ganesh festival a first page jacket was published in the first edition of Dainik Sakaal at Mumbai on behalf of MPCB and Dainik Sakaal.
August 2016	Financial assistance for DNA Eco Ganesha public awareness campaign organized by DNA and MPCB.	To celebrate an environment friendly Ganesh festival, eco-friendly Ganesh idols based on the five natural elements were installed in selected malls in Mumbai city on behalf of MPCB and DNA. MPCB played the role of co-convenor in this campaign organized by DNA. Prominent personalities from the Hindi film industry participated in this campaign. Prize distribution was conducted in the presence of Public Relations Officer, MPCB.
August 2016	Financial assistance for household Ganesh festival competition organized by MPCB and Zee 24 Taas.	Household Ganesh festival competition was organized at State level by MPCB and Zee 24 Taas. More than 700 contenders competed in this competition. The prize distribution event was conducted in the presence of Hon'ble Minister for Environment, Mr. Ramdasbhai Kadam, Principal Secretary, Environment Department, Mrs. Malini Shankar and Member Secretary, MPCB, Dr. P. Anbalagan. A special section for this campaign was published.
August 2016	Financial assistance to public awareness campaign for environment friendly Ganesh festival organized by TV9.	Public awareness message for celebrating an environment friendly Ganesh festival was broadcast on the television channel, TV9.
August 2016	Financial assistance for street play on celebrating an eco-friendly Ganesh festival.	Extensive public awareness regarding celebrating an eco-friendly Ganesh festival was created through the medium of street plays in Mumbai city.
October 2016	Public awareness messages for an eco-friendly Diwali displayed on bus stop shelters in Pune.	A public awareness message saying "Celebrate a pollution-free Diwali" from Hon'ble Chief Minister, Hon'ble Minister for Environment and Hon'ble State Minister for Environment was displayed at 50 LIT bus stops for 15 days in Pune city.
October 2016	Public awareness messages for an eco-friendly Diwali displayed on bus stop shelters in Nagpur.	A public awareness message saying "Celebrate a pollution-free Diwali" from Hon'ble Chief Minister, Hon'ble Minister for Environment and Hon'ble State Minister for Environment was displayed at 50 LIT bus stops for 15 days in Nagpur city.
October 2016	Financial assistance for displaying public awareness messages for an eco-friendly Diwali on Times OOH bus stops.	For celebrating an eco-friendly Diwali, public awareness messages were displayed in innovative ways on 70 BEST bus stops in Mumbai city for a period of 15 days.



October 2016	Jingles for public awareness for Diwali 2016 were broadcast on various FM radio stations.	A public awareness message saying "Celebrate a pollution-free Diwali" from Hon'ble Chief Minister, Hon'ble Minister for Environment and Hon'ble State Minister for Environment was broadcast on FM radio stations.
October 2016	Public awareness messages for Diwali 2016 broadcast by UFO Digital Cinema in Hindi and Marathi in movie theatres in the State.	To celebrate an environment-friendly Diwali, celebrities from Hindi and Marathi film industry broadcast public awareness message through UFO Digital Movies at 205 movie theatres over the State for a period of two weeks.
October 2016	Special section published in the annual issue of Navbharat Mumbai.	Special section on 'Make in Maharashtra' published in newspaper, Navbharat Mumbai.
October 2016	Financial assistance for environmental conference 2016 organized by Nature and Social Environment Pollution Control Board for broadcasting Hindi and Marathi films on public awareness on TV channels during Diwali 2016.	A public awareness message saying "Celebrate a pollution-free Diwali" from Hon'ble Chief Minister, Hon'ble Minister for Environment and Hon'ble State Minister for Environment was broadcast on leading TV channels in the State. Social Environment Pollution Control Board, Parner, Dist. Ahmednagar had organized an environmental conference where various environment related topics were reviewed. Various essays related to the environment were also published. This conference also included various topics such as air pollution, river pollution, changing environment, climate change, tree planting and rearing, and environmental awareness among school students. Hon'ble social worker, Shri. Anna Hazare inaugurated this conference.
November 2016	Public awareness message published in Ashlesha Diwali Issue.	Public awareness message on eco-friendly Diwali was published in Ashlesha Diwali magazine.
November 2016	Public awareness message published in Diwali magazines 2017.	Payment of cheque for publishing environmental awareness message in various magazines during Diwali 2017.
December 2016	Financial assistance for public awareness at Parle Mahotsav.	Parle Mahotsav was organized at Vile Parle in Mumbai city. During this event, environment related public awareness was done via banners. The main focus of public awareness was on stoppage of plastic bag use, solid waste management, e-waste, classification of biodegradable and non-biodegradable waste and saving water.
December and January 2016	Interschool one-act plays related to the environment organized by Eco-Folks at Mumbai, Pune, Nagpur, Aurangabad, Kolhapur and Nashik.	Interschool one-act plays and Green Theatre Festival were organized by Eco-Folks and MPCB at Mumbai, Pune, Nagpur, Aurangabad, Kolhapur and Nashik. The competition was conducted in two rounds, viz. first and final. The first round was conducted at Latur and Nanded for the Aurangabad division. More than 300 schools participated in this competition.
January 2017	Financial assistance for Granthali Shabda Ruchi Environment Special issue.	Granthali published an environment special issue Shabda Ruchi. MPCB bought 150 copies of this issue and distributed them for free at colleges in Mumbai city and suburbs for public awareness.
January 2017	Financial assistance for MTNL bill New Year Resolution Competition.	Green Society Innovative Resolution competition was organized by MPCB at the State level for an environment related new year resolution. This competition was advertised on MTNL bills in Mumbai



		city. A total of 16,00,000 citizens were informed about this competition through these bills.
January 2017	Environment Club of India public awareness campaign.	Various public awareness campaigns were organized by the Environment Club of India under its Save Rivers campaign. Financial assistance for this campaign was provided by MPCB.
January 2017	Financial assistance for environment related public awareness by Konkani Marathi Sahitya Parishad Mahila Sammelan.	A State level conference for women was organized by Konkani Marathi Sahitya Parishad. On occasion of this conference, various environment related events such as Paryavaran Dindi, environmental slogan and essay competitions were organized.
20 th March, 2017	Public awareness messages broadcasted on various TV channels on occasion of Holi festival.	Public awareness messages from prominent celebrities from Hindi and Marathi film industry were broadcast on leading TV channels in the State for Holi festival 2017.
20 th March, 2017	Public awareness messages broadcast on FM channels for Holi festival 2016.	Public awareness jingles for promoting an eco-friendly Holi were broadcast on leading FM channels in the State on occasion of Holi festival 2016.
20 th March, 2017	Messages promoting an eco-friendly Holi festival displayed on bus stop shelters in Nagpur city.	Public awareness messages promoting an eco-friendly Holi festival were displayed on 50 bus stop shelters in Nagpur city.



10. IMPLEMENTATION OF ACTS & RULES UNDER ENVIRONMENT PROTECTION ACT, 1986

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

1. Water (Prevention & Control of Pollution) Act, 1974
2. Air (Prevention & Control of Pollution) Act, 1981
3. Maharashtra Water (Prevention & Control of Pollution) Rules, 1983
4. Maharashtra Air (Prevention & Control of Pollution) Rules, 1983
5. Maharashtra Biodegradable & Non-biodegradable Waste (Control) Act, 2006 and Maharashtra Plastic Carry Bags (Production & Usage) Rules, 2006
6. Environment (Protection) Act, 1986 and Rules & Amended Rules made thereunder, which are as follows:
 - i) The Environment (Protection) Rules, 1986 and Environment (Protection) Amendment Rules, 2016
 - ii) The Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016
 - iii) The Bio-Medical Waste (Management) Rules, 2016
 - iv) The Solid Waste (Management) Rules, 2016
 - v) The Construction & 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 Plastic Manufacture, Sale and Usage Rules, 1999
 - x) The Noise Pollution (Regulation & Control) Rules, 1999
 - xi) The Batteries (Management & Handling) Rules, 2001
 - xii) The Wetlands (Conservation & Management) Rules, 2010
 - xiii) Notifications:
 - a. Environment Impact Assessment Notification, 2006
 - b. Coastal Regulation Zone Notification, 2011



11. PROSECUTIONS LAUNCHED AND CONVICTIONS SECURED

12.1 Status of Legal Enforcement up to March, 2017.

I) Status of cases filed before Trial Courts.

A)	Name of the Act	No. of cases filed	No. of cases disposed off	No. of cases pending
1.	Water (Prevention & Control of Pollution) Act, 1974	464	400	64
2.	Air (Prevention & Control of Pollution) Act, 1981	149	149	NIL
3.	Environment (Protection) Act, 1986 & Rules made thereunder	304	40	264

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

Sr. No.	No. of Writ Petitions/PILs filed	No. of Writ Petitions/PILs disposed off	No. of Writ Petitions pending
1.	971	449	522

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

Sr. No.	No. of Special Leave Petitions filed	No. of Special Leave Petitions disposed off	No. of Special Leave Petitions pending
1.	77	38	39

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

Sr. No.	No. of Appeals/Applications filed	No. of Appeals/Applications disposed off	No. of Appeals/Applications pending
1.	325	145	180

12.2. Maharashtra Right to Information Act, 2005.

Maharashtra Right to Information Act, 2005 provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commission and for matters connected therewith or incidental thereto.

There were 42 applications pending from April, 2016 to March, 2017. The Applicants preferred 42 applications under Section 6(1) of the Maharashtra Right to Information Act, 2005 during the year



2016-17. Out of these applications, 29 were disposed off and 13 applications were pending up to March, 2017.

Being aggrieved by the order passed by the Public Information Officer, three appeals were preferred by the Appellant under Section 19(1) of the Maharashtra Right to Information Act, 2005 before the Appellate Authority from April, 2016 to March, 2017. Three appeals were disposed off and no Appeals were pending up to March, 2017.



12. FINANCE AND ACCOUNTS

Annual accounts of Maharashtra Pollution Control Board for the financial year 2016-17 are prepared as per Section 40 of the Water (P & CP) Act, 1974 and as per the guidelines given in the Water (P & CP) Rule 1983, in the form of receipt and payments, income and expenditure and balance sheet along with schedule of fixed assets.

The Comptroller & Auditor General of India (CAG) has allotted the statutory audit work of Board to M/s. Om Prakash S. Chaplot & Co., Chartered Accountant. The audit of final accounts was done by M/s. Om Prakash S. Chaplot & Co., Chartered Accountant for the financial year 2016-17.

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

The gist of annual receipt and payments, income and expenditure and balance sheet for the year 2016-17 is given in this chapter.

- A) Total income of Board for the year 2016-17 is Rs. 388.81 Crores.
- | | |
|---------------------------|--------------------|
| 1. Consent Fees | Rs. 256.46 Crores. |
| 2. Analysis Charges | Rs. 5.00 Crores. |
| 3. Interest on Investment | Rs. 100.47 Crores. |
| 4. Reimbursement of Cess | Rs. 17.75 Crores. |
| 5. Other Income | Rs. 9.13 Crores. |
- B) Total expenditure of Board for the year 2016-17 is Rs. 95.05 Crores.
- | | |
|--|-------------------|
| 1. Salary Expenditure | Rs. 32.30 Crores. |
| 2. Expenditure from Cess | Rs. 3.90 Crores. |
| 3. Expenses on Projects from Cess Fund | Rs. 26.90 Crores. |
| 4. Office Administration Expenditure | Rs. 26.24 Crores. |
| 5. Capital Expenditure | Rs. 5.71 Crores. |
- C) Excess of income over expenditure for the year Rs. 295.10 Crores.
- D) Investment in fixed deposits as on 31.03.17 Rs. 1592.56 Crores.

Details of accounts for the year 2016-17 are attached as **Annexure 6**.



13. IMPORTANT MATTERS DEALT WITH BY THE BOARD

The Member Secretary, MPCB, discharges duties and functions delegated by the Board which includes various duties and responsibilities under various environmental enactments. The responsibilities included are ensuring that consent applications are processed in time at all levels. The Consents to Establish, Operate and Renew and also various authorizations under Environmental Laws at SROs, ROs, HOD, CC and CAC levels are processed in time.

Implementation of various enforcement provisions of environmental laws takes place through technical and scientific staff. Principally, it involves implementation of inspection and sampling protocol through Board officials at all levels from SRO to HOD and from JSO to PSO.

Through the wings of water pollution control and air pollution control, monitoring of overall water quality and air quality in the State is carried out through the technical staff and also causes action plans to be prepared through implementing authorities like ULBs, CETPs, MIDC, industrial associations and various planning authorities.

Implementation and execution of Environmental Acts and Rules and dissemination of information to the general public is carried out through public awareness programs such as World Environment Day, Earth Day and Ozone Day.

Overall monitoring of various waste disposal facilities including industrial hazardous waste and municipal solid waste is done. In brief, Member Secretary, MPCB performs duties to keep the environment in Maharashtra clean so as to attract more global investment and to create a healthy atmosphere for the public.

Responsibilities of the Board during the year 2016-17 and important matters dealt with are enlisted as follows.

- Dedicated web portal 'eMPCB' launched which facilitates online acceptance of Consent applications, online processing including full-fledged e-payment gateway and delivery of consents through a dedicated web portal. Dispatch of physical consent forms is discontinued.
- Risk based Randomized Inspections are as per Risk based Randomized Method which is completely transparent and eliminates ambiguity. The inspection report is being uploaded within 48 hours.
- Tender for 10 CAAQM stations in Mumbai is being finalized and an agency will be appointed in March 2017. Installation will be completed within 90 days from the issue date of work order. Data on air quality mapping will then become available.
- State Environment Care Centre has been established for online stack and effluent monitoring of critically polluting industries and ambient air quality of major cities. 239 of these industries are linked to the Centre. Common software is being finalized to serve as an interface and to facilitate automatic directives to units via SMS or e-mail in case of violations.
- Publication of e-Bulletin of Water Quality Index is being carried out from October 2016.



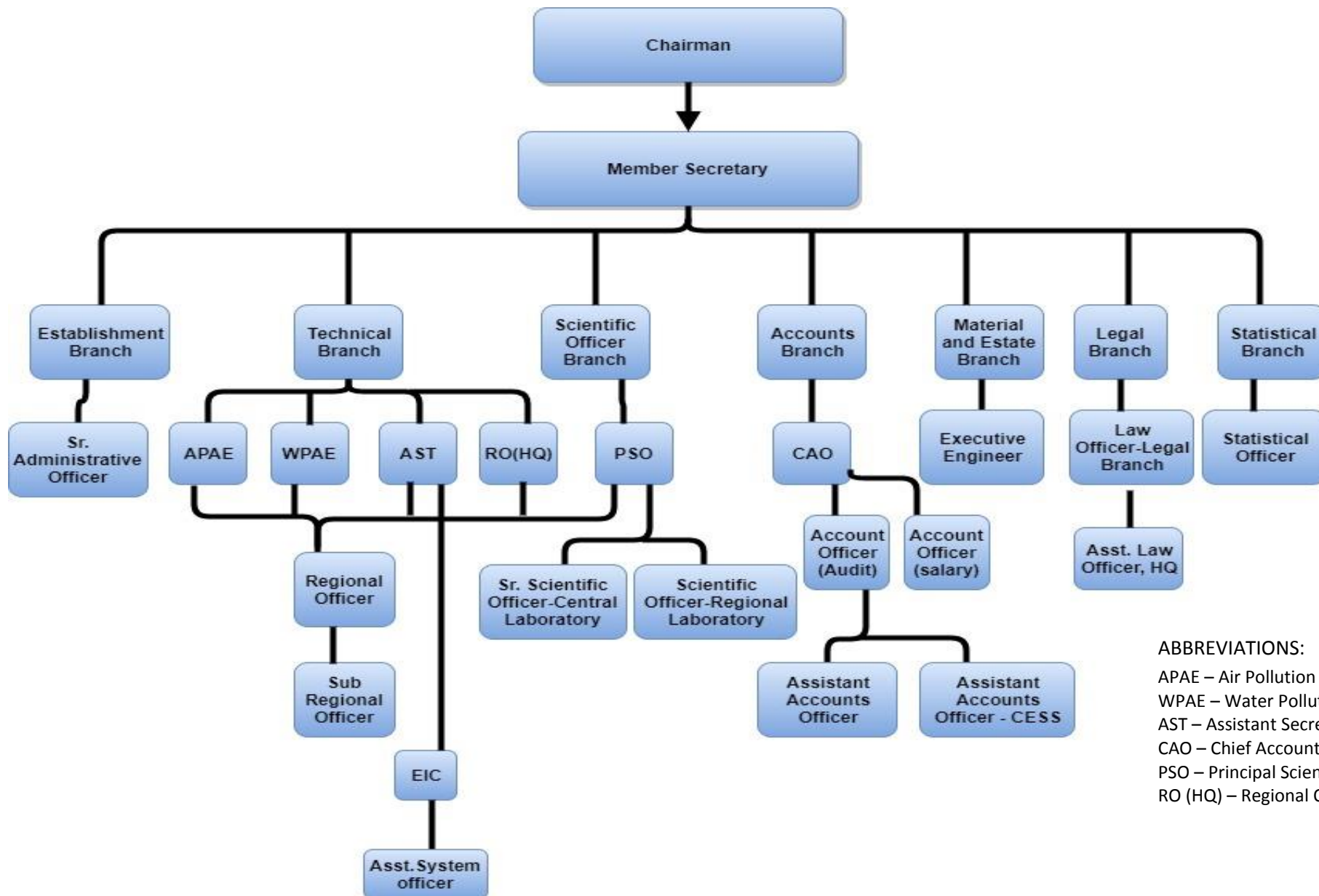
- Survey of point and non-point sources of pollution for the Panchganga Action Plan has been completed along with preparation of Action Plan and implementation has started.
- Action plans for critically polluted areas in Chandrapur, Dombivali, Navi Mumbai, Tarapur and Aurangabad have been updated and implemented. The CEPI score has reduced significantly. Due to continuous and effective implementation of the CEPI Action Plan, the Government of India has lifted the moratorium for setting up industries in Chandrapur in May 2016.
- Online monitoring station has been commissioned for 17 categories of 279 critically polluting industries.
- Comprehensive studies for 10 polluted stretches of rivers have been completed. The Action Plan is being prepared in association with NEERI for all 10 polluted stretches.
- Five CAAQM stations were installed during the financial year 2015-16 and four were installed in 9 cities during 2016-17.
- A comprehensive air quality improvement plan is being prepared for ten cities including Mumbai, Pune and Nagpur in association with IIT-Mumbai and NEERI. Drafts of short-term plans have been made ready for Mumbai, Pune, Nagpur and Chandrapur. Action Plan for all ten cities will be completed by October 2017.



ANNEXURES



ANNEXURE 1A – ORGANIZATIONAL STRUCTURE

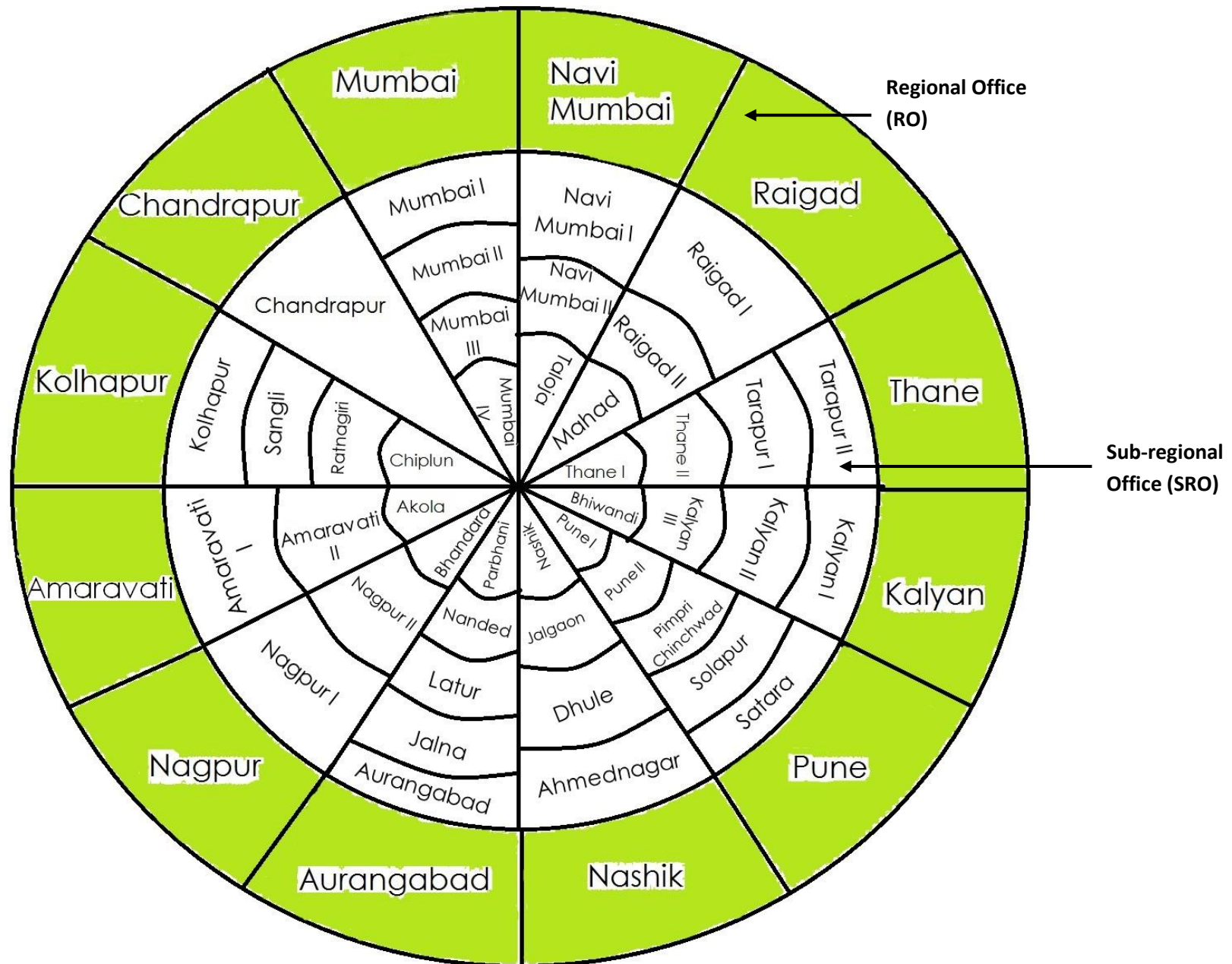


ABBREVIATIONS:

APAE – Air Pollution Abatement Engineer,
WPAE – Water Pollution Abatement Engineer,
AST – Assistant Secretary (Technical),
CAO – Chief Accounts Officer,
PSO – Principal Scientific Officer,
RO (HQ) – Regional Officer (Head Quarter),



ANNEXURE 1B – FIELD OFFICE DIAGRAM





ANNEXURE 2 – STAFF STRENGTH AS ON 31/10/2017

Sr. No.	Posts	Sanction	Filled In	Vacant
1	Chairman	1	1	0
2	Member Secretary	1	1	0
3	Water Pollution Abatement Engineer	1	1	0
4	Air Pollution Abatement Engineer	1	1	0
5	Principal Scientific Officer	1	1	0
6	Chief Accounts Officer	1	1	0
7	Assistant Secretary (Technical)	1	1	0
8	Senior Law Officer	2	0	2
9	Senior Administrative Officer	1	0	1
10	Executive Engineer	1	1	0
11	Material Officer	1	0	1
12	Regional Officer	14	10	4
13	Law Officer	2	2	0
14	Senior Scientific Officer	3	2	1
15	Sub Regional Officer	54	37	17
16	Statistical Officer	1	0	1
17	Assistant Secretary (EB)	1	0	1
18	Private Secretary	2	0	2
19	Administrative Officer	1	1	0
20	Scientific Officer	9	5	4
21	Account officer	2	1	1
22	Junior Scientific Officer	26	23	3
23	Assistant Accounts/Admin Officer	11	4	7
24	Assistant Law Officer	3	0	3
25	Deputy Engineer	1	0	1
26	Senior Steno	5	4	1
27	Junior Steno	27	15	12
28	Field Officer	204	168	36
29	Head Accountant/O.S.	20	14	6
30	Legal Assistant	4	0	4
31	Junior Scientific Assistant	40	28	12
32	First Clerk	17	13	4
33	Statistical Assistant	1	0	1
34	Draftsman	1	0	1
35	Field Inspector	42	9	33
36	Senior Clerk	50	44	6
37	Assistant Draftsman	2	0	2
38	Electrician	2	1	1
39	Tracer	6	2	4
40	Laboratory Assistant	7	4	3
41	Junior Clerk	64	49	15
42	Driver	74	60	14
43	Instrument Fitter	1	1	0
44	Daftari	14	2	12
45	Naik	2	0	2



46	Roneo Operator	1	0	1
47	Peons	88	51	37
48	Chowkidar	20	11	9
49	Sweeper	3	3	0
	Total	841	577	271
Posts filled in subject to the official approval of the government				
50	Assistant. System Officer	1	1	0
51	Assistant Law Officer	2	2	0
52	MPCB Total Staff	844	580	271



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	Regional Office Mumbai	Shri Chhatrapati Shivaji Market building, 4th floor, M.G. Road, Mumbai – 400001.	Mumbai Municipal Corporation Area	Tel - 24033998
				Email – romumbai@yahoo.co.in
I)	SRO Mumbai - I	Shri Chhatrapati Shivaji Market building, 4 th Floor, M.G. Road, Mumbai - 400 001.	Mumbai Island, Ward No. A.B.C D.F F(South) F(North) G(South) and G(North)	Tel – 24526759 Fax -
II)	SRO Mumbai - II	Shri Chhatrapati Shivaji Market building, 4 th Floor, M.G. Road, Mumbai - 400 001.	Part Of Mumbai Suburb, Ward No. M(East) M(West), H(East) H(West) and L.	Tel – 24526759 Fax -
III)	SRO Mumbai - III	Shri Chhatrapati Shivaji Market building, 4 th Floor, M.G. Road, Mumbai - 400 001.	Part Of Mumbai Suburb, Ward No. K(East) K(West), S, N, and P (South).	Tel – 24526759 Fax -
IV)	SRO Mumbai - IV	Shri Chhatrapati Shivaji Market building, 4 th Floor, M.G. Road, Mumbai - 400 001.	Suburb of Mumbai, Ward No. P(North), R(North), R(South) and T.	Tel – 24526759 Fax -
2	Regional Office Thane	Maharashtra Pollution Control Board, Plot No P-30, 5th floor Office Complex Building, Near Mulund Checknaka, Thane	Part of Thane district as mentioned against the Sub-Regional Offices.	Tel – 25802272 Fax – 25805398 Email- rothane@rediffmail.com
I)	SRO Thane - I	Maharashtra Pollution Control Board, Plot No P-30, 5 th floor Office Complex Building, Near Mulund Checknaka, Thane	Thane Municipal Corporation Area	Tel – 25829582 Fax - 25805398
II)	SRO Thane - II	Maharashtra Pollution Control Board, Plot No P-30, 5 th floor Office Complex Building, Near Mulund Checknaka, Thane	Thane taluka excluding Thane Municipal Corporation Area) Vasai taluka	Tel – 25829582 Fax - 25805398
III)	SRO Tarapur - I	MIDC Office Building, Boisar Station, Post Taps, Tarapur, Dist.Thane	Tarapur MIDC and related area.	Tel - 952525 -273314 Fax - 952525 - 273314
IV)	SRO Tarapur - II	MIDC Office Building Boisar Station, Post Taps, Tarapur, Dist. Thane	Dahanu, Talasari, Mokhada, Javhar and Vikramgad Taluka and Palghar taluka (Except SRO - Tarapur I jurisdiction).	Tel - 952525 – 273314 Fax - 952525 - 273314
3	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 – 27572739 Fax – 27572620 ronm12345@yahoo.com



I)	SRO Navi Mumbai - I	Raigad Bhavan, 7 th floor Sector - 11, C.B.D Belapur, Navi Mumbai	Southward direction of Road in front of CETP (Hills to Pune Highway). The following areas Mahape, Koparkhairne, Sarvali, Ghansoli, Rabale, Dive, Airoli, Dighe (NMMC) AAQM stations, TTC (WMA) activities + Diva Creek	Tel - 27572740
II)	SRO Navi Mumbai - II	Raigad Bhavan, 7 th floor, Sector - 11, C.B.D Belapur, Navi Mumbai	North limit Navi Mumbai Municipal Corporation (NMMC) starting with village-Dighe. The areas of Vashi, Borivli, Ravane, Turbhe, Sanpada, Belapur + CETP activities + Vashi Creek.	Tel – 27572740 Fax - 27571586
III)	SRO Taloja	Raigad Bhavan, 7 th floor, Sector - 11, C.B.D Belapur, Navi Mumbai	MIDC Taloja and Uran Taluka.	Tel - 27572740/ 27562865 Fax – 27571586 mpcbtaloja@yahoo.co.in
4	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 – 27572620 Fax – 27562132
I)	SRO Raigad - I	Raigad Bhavan, 6 th floor, Sector – 11, C.B.D Belapur, Navi Mumbai	Khalapur taluka and Panvel taluka (Except MIDC)	Tel - 27576034
II)	SRO Raigad - II	Raigad Bhavan, 6 th floor, Sector – 11, C.B.D Belapur, Navi Mumbai	Pen, Karjat, Sudhagad taluka.	Tel – 27572620 Fax - 27562132
III)	SRO Mahad	Samaik Suvidha Kendra Bldg., MIDC - Mahad, District Raigad - 402 309	Mahad, Mhasla, Mangaon, Shriwardhan and Poladpur taluka.	Tel - 952145 – 232372 Fax - 952145 -232372
5	Regional Office Kalyan	Maharashtra Pollution Control Board, Bail Bazar, Valipir Road Shah Chamber, 2nd floor, Kalyan, Dist. Thane	Kalyan, Bhiwandi, Ulhasnagar, Badlapur, Wada, Murbad and Shahapur talukas of Thane district.	Tel - 95251 – 2201685 Fax - 95251 – 2201699 E-mail - rokalyanmpcb@rediffmail.com
I)	SRO Kalyan - I	Bail Bazar, Valipir Road Shah Chamber, 2 nd floor, Kalyan, Dist. Thane	Kalyan, Bhiwandi taluka.	Tel - 95251 – 2204408 Fax - 95251 - 2313989
II)	SRO Kalyan - II	Bail Bazar, Valipir Road Shah Chamber, 2 nd floor, Kalyan, Dist. Thane	Ulhasnagar, Badlapur taluka.	Tel - 95251 – 2208684 Fax - 95251 - 2313989
III)	SRO Kalyan - III	Bail Bazar, Valipir Road Shah Chamber, 2 nd floor, Kalyan, Dist. Thane	Wada, Murbad, Shahapur Taluka	Tel - 95251 – 2208684 Tel - 95251 – 2204408 Fax - 95251 - 2313989
6	Regional Office Pune	Jog Center, 3rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Pune, Satara and Solapur district.	Tel - 9520 – 25811627 Tel - 9520 – 25811694 Fax - 9520 – 25811701 E-mail - rompcb pune@vsnl.net



I)	SRO Pune - I	Jog Center, 3 rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Pune corporation area, Daund, Indapur, Baramati, Purandar, Bhore and Velhe taluka of Pune district.	Tel - 9520 -25811029 Fax - 9520 - 25811701
II)	SRO Pune - II	Jog Center, 3 rd 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 - 9520 – 25816451 Fax - 9520 - 25811701
III)	SRO Pimpri - Chinchwad	Jog Center, 3 rd floor, Mumbai Pune Road, Wakadewadi, Pune - 411 003.	Pimpri Chinchwad Municipal Corporation area including MIDC Pimpri, Bhosari and Akurdi.	Tel - 9520 – 25816451 Fax - 9520 - 5811701
IV)	SRO Satara	Manjunath Major Commercial Bldg., 531, Sadar Bazar, Opp. Science College, Dist. Satara - 415 002.	Satara district.	Tel - 952162 – 220888 Fax - 952162 – 220888 satara.sro@rediffmail.com
V)	SRO Solapur	4/B, Bali Block, Civil Lines, Opp. Government Milk Scheme, Sat Rasta, Dist. Solapur - 413003	Solapur district.	Tel - 95217 – 2319850 Fax - 95217 – 2319850 Email- solapurmpcb@sancharnet.in
7	Regional Office Nashik	Maharashtra Pollution Control Board, Udyog Bhavan, 1st floor, Trimbak Road, Near ITI, Satpur, Nashik - 422 007	Nashik, Ahmednagar, Jalgaon, Dhule, Nandurbar district.	Tel - 95253 – 2365150 Fax - 95253 – 2365150 E-mail – mirashe@rediffmail.com
I)	SRO Nashik	Udyog Bhavan, 1st floor, Trimbak Road, Near ITI, Satpur, Nashik - 422 007	Nashik district.	Fax - 95253 - 2365161
II)	SRO Jalgaon - I	Late Shri Bhikamchand Jain Municipal Market Building, Hall No. A, 3rd floor, Jalgaon - 425 001	Jalgaon district.	Tel - 95257 – 2221288 Fax - 95257 - 2221288
III)	SRO Jalgaon - II	Late Shri Bhikamchand Jain Municipal Market Building, Hall No. A, 3rd floor, Jalgaon - 425 001	Dhule, Nandurbar district	Tel - 95257 – 2221288 Fax - 95257 - 2221288
IV)	SRO Ahmednagar	Bharat Timber, 1st floor, Tilak Road, Opp. Sanket Hotel, Ahmednagar, 414 001	Ahmednagar district.	Tel - 95241 – 2470852 Fax - 95241 - 2470852
8	Regional Office Aurangabad	Maharashtra Pollution Control Board, 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 Fax - 0240 – 2473462 E-mail - admohekar @rediffmail.com
I)	SRO Aurangabad - I	A - 4/1, MIDC Area, Chikalthana, Near Seth Nandlal Dhoot Hospital, Jalna Road, Aurangabad - 431 210	Aurangabad district	Tel - 0240 – 2473461 Fax - 0240 - 2473462



II)	SRO Aurangabad - II	A - 4/1, MIDC Area, Chikalthana, Near Seth Nandlal Dhoot Hospital, Jalna Road, Aurangabad - 431 210	Jalna and Beed except Parli Taluka	Tel - 0240 – 2473463 Fax - 0240 - 2473462
III)	SRO Latur	Dev Towers, Tahasil Office, Latur, Aurangabad	Latur, Osmanabad district	Tel - 952382 – 252672 Fax - 952382 - 252672
IV)	SRO Parbhani	Nandkhed Road, Parbhani	Parbhani district (part), Hingoli and Parli	02452 226687
V)	SRO Nanded	H. No. 1/1/1353, Jejewar Complex, Paydewadi Road, Nanded - 431 602	Nanded District	Tel - 02462 – 242492 Fax - 02462 -242492
9	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 – 2530308 Fax - 0712 – 2560851 E-mail - mpcbnro_ngp@sancharnet.in
I)	SRO Nagpur - I	Udyog Bhavan, 6th 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 -2560139 / 52 Fax - 0712 - 2560139
II)	SRO Nagpur - II	Udyog Bhavan, 6th 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 – 2560139 Fax - 0712 -2560139
III)	SRO Bhandara	Udyog Bhavan, 6th floor, Near Sales Tax Office, Civil Line, Nagpur - 440 001	Bhandara and Gondia District.	Tel - 0712 – 2524139 Fax - 0712 - 2560851
IV)	SRO Chandrapur	Brij Niwas, Near Janta School, Back of Jal Shuddhikaran Tank, Civil Lines, Chandrapur - 442 401	Chandrapur, Gadchiroli District.	Tel - 07172 – 251965 Fax - 07172 - 251965
10	Regional Office Amaravati	Maharashtra Pollution Control Board, 18/25, Ashirwad Building, Daffrin Hospital Road, Shrikrishna Peth, Amaravati - 444 601	Amaravati, Akola, Buldhana, Vashim and Yavatmal District.	Tel - 0721 – 2662965 Fax - 0721 – 2662672 E-mail-mpcbroamt@sancharnet.in
I)	SRO Amaravati - I	18/25, Ashirwad Building, Daffrin Hospital Road, Shrikrishna Peth, Amaravati - 444 601	Amaravati District.	Tel - 0721 – 2662964 Tel - 0721 - 2662672
II)	SRO Amaravati - II	18/25, Ashirwad Building, Daffrin Hospital Road, Shrikrishna Peth, Amaravati - 444 601	Yavatmal district, Vashim District.	Tel - 0721 – 2666977 Fax - 0721 - 2666977
III)	SRO Akola	Behind Deshmukh Market, Opp. Akola Hospital Pvt. Ltd., Kedia Polt Akola, Akola - 444 005	Akola and Buldhana District.	Tel - 0721 – 2452344 Fax - 0721 - 2452344



11	Regional Office Kolhapur	Maharashtra Pollution Control Board, Udyog Bhavan Building, Near Collectorate Office, Kolhapur - 416 002	Sangli, Kolhapur and Sindhudurg district	Tel - 0231 -2652952 Fax - 0231 – 2652952 E-mail- rokolhapur @sancharnet.in
I)	SRO Kolhapur	Udyog Bhavan Building, Near Collectorate Office, Kolhapur - 416 002	Kolhapur district.	Tel - 0231 – 2652952 Fax - 0231 -2652952
II)	SRO Sangli	300/2, Udyog Bhavan, Near Government Rest House, Vishrambaug, Sangli - 416 416	Sangli district.	Tel - 0233 – 2672032 Fax - 0233 - 2672032
III)	SRO Ratnagiri	Revenue Department Employees Co-op. Credit Society Ltd., Office Building, Collectors Office Compound, Zandgaon, Ratnagiri - 415 639	Sindhudurga district and Rajapur, Lanja, Ratnagiri, Deorukh and Sangmeshwar taluka	Tel - 02352 – 220813 Fax - 02352 - 220813
IV)	SRO Chiplun	Parkar Complex, 1 st floor, Behind Nagpur Parishad Office, Chiplun Taluka, Chiplun Dist. Ratnagiri	Chiplun, Guhagar, Khed, Dapoli and Mandangad taluka of Ratnagiri district.	Tel - 02355 -261570 Fax - 02355 - 261570
12	Chandrapur	Mahaveer Tower, 2nd floor, Mul Road, Chandrapur, 442 401	Chandrapur, Yavatmal, Gadchiroli district.	Tel -07172-251965 Fax - 07172-251965
I)	SRO Chandrapur - I	Mahaveer Tower, 2 nd floor, Mul Road, Chandrapur, 442 401	Chandrapur, Yavatmal district.	Tel - 07172-272410 Fax - 07172-251965



ANNEXURE 4 – REGIONWISE INDUSTRY STATISTICS

RO Office	Green				Orange				Red				Grand Total
	LSI	MSI	SSI	Green Total	LSI	MSI	SSI	Orange Total	LSI	MSI	SSI	Red Total	
Amaravati		4	4315	4319	8	10	1933	1951	55	13	321	389	6659
Aurangabad	11	14	5391	5416	34	70	2004	2108	204	73	881	1158	8682
Chandrapur		2	430	432	15		410	425	156		268	424	1281
Kalyan		22	1472	1494	79	58	932	1069	141	109	1784	2034	4597
Kolhapur	1	22	9106	9129	32	4	3656	3736	250	75	1688	2013	14878
Mumbai		27	1846	1873	421	300	663	1384	231	59	547	837	4094
Nagpur	3	3	1666	1672	62	21	2218	2301	413	18	1898	2329	6302
Nashik	44	35	6118	6197	109	55	2315	2479	432	85	3249	3766	12442
Navi Mumbai	6	59	1542	1607	136	178	954	1268	183	33	1133	1349	4224
Pune	85	265	6720	7070	1083	509	4431	6023	1185	238	3403	4826	17919
Raigad		20	447	467	88	34	355	477	175	31	428	634	1578
Thane	1	13	1273	1287	251	24	451	726	204	33	976	1213	3226
Grand Total	151	486	40326	40963	2318	1307	20322	23947	3629	767	16576	20972	85882



ANNEXURE 5 – DETAILS OF TRAINING PROGRAMS ATTENDED BY MPCB OFFICIALS DURING YEAR 2016-17

Sr. No.	Training/ Workshop date	Location	Subject	Name of Participant
1.	10-11 May, 2016	MIDC Training Centre at Mahape, Navi Mumbai	"Raising awareness & concept of Industrial Water Recycling"	Dr. Y. B. Sontakke, JD(WPC), Shri. D. B. Patil, Regional Officer, Aurangabad, Shri. Raju Vasave, SRO, Navi Mumbai-II Shri. J. S. Salunkhe, SRO, Pune-I
2.	12-13 May, 2016	MoEF&CC, GOI, Delhi	International Workshop on "Extended Producer Responsibility in India: Opportunities, Challenges and Lessons from International Experience"	Shri. P. K. Mirashe, A.S. (T), MPCB, Mumbai.
3.	23-27 May, 2016	Engineering Staff College of India, Hyderabad	"ISO 14001:2015 EMS Lead Auditor Training"	Shri. Sagar M. Warhekar, F.O., SRO Tarapur-I Shri. Ajit R. Suryavanshi, F.O., CC/CAC Cell, HQ Shri. Santosh L. Chavan, F.O., AS(T) Sec. HQ
4.	8th June, 2016	Greentech Knowledge Solution Pvt. Ltd., New Delhi, at Tuniper Hall, India Habitat Centre, Lodhi Road, New Delhi.	"Roadmap for Cleaner Clay Fired Brick Production in India"	Shri. Raj Kamat, FO, JD(APC) Sec. HQ
5.	11th June, 2016	Environmental Club of India, Pune. Venue: Patrakar Bhavan Hall, Navi Peth, Ganjwe Chowk, Pune.	"World Environment Day Celebration & Felicitation of Paryavaran Gaurav & Paryavaran Bhushan Award"	Shri. P.K. Mirashe, A.S.(T), MPCB, Mumbai. Shri. Sanjay Bhuskute, Rel
6.	11-15 July, 2016	Jaipur Productivity Centre, Jaipur. At Alka Hotel, Udaipur	"Development Programme for Office Secretaries, Personal Assistants & Office: e-Age"	Mrs. Pratibha P. Patil, Sr. Steno, Chairman Sec. Mrs. Lidwin Pais, Sr. Steno, M.S. Sec.



				Mrs. Snehal D. Nerurkar, Jr. Steno, R.O.(HQ) Sec. Shri. E.V. Dhanwate, Jr. Steno, A.S.(T) Sec.
7.	18-29 July, 2016	Centre for Science and Environment, New Delhi at their campus.	Training Programme for Environmental Regulators 2016-17 - "How to prepare Air Quality Management Plan"	Shri. S. L. Waghmare, SRO, Tarapur-I Shri. Kiran Hasabnis, SRO, Nagpur-II Shri. Arjun Jadhav, F.O., SRO, Aurangabad. Shri. Prabhakar Warde, F.O. SRO, Pimpri-Chinchwad
8.	5th August, 2016	Indian Coast Guard, H.Q., New Delhi	21 st National Oil Spill Disaster Contingency Plan & Preparedness Meeting	Dr. A. N. Harshvardhan, R.O. Raigad.
9.	5th and 6th August, 2016	Institution of Engineers, Pune Centre, Pune. At YASHADA, Pune.	32 nd National Convention of Environmental Engineers - "Challenges in Environment Management Of Growing Urbanization"	Smt. Snehal M. Kose, F.O., R.O. Pune Shri. Sandeep B. Shinde, F.O. SRO, Pune-I Smt. Sanjana Jadhav, F.O. SRO, Pune-I Shri. Bhagwan M. Maknikar, F.O., SRO, Pune-II Smt. Rekha M. Togare, F.O., SRO, Pune-II Shri. Prabhakar M. Wavde, F.O. Pimpri-Chinchwad
10.	8-12 August, 2016	Centre for Science and Environment, New Delhi at their campus	"Training Programme for Environmental Regulators-2016-17 - "Continuous Monitoring System"	Shri. Tanaji Yadav, SRO, Navi Mumbai-II (Taloja) Shri. Pratap Jagtap, F.O., SRO, Tarapur-I Shri. Vinod Shukla, F.O., SRO, Nagpur-II



11.	10 th August, 2016	MOEF&CC, -UNDP-GEF Project, at The Taj Mahal Hotel, Number One Mansingh Road, New Delhi-110 011.	"Launch Workshop of MoEF&CC UNDEP-GEF Project "Improve Mercury Management in India	Dr. A. R. Supate, PSO
12.	11-12 August, 2016	Oil Spill India 2016, at Hotel J.W. Marriott, Sahar, Mumbai	4 th Edition Oil Spill, International Conference & Exhibition.	Dr. A. N. Harshvardhan, R.O. Raigad. Shri. Nitin R. Shinde, SRO, Mumbai-III
13.	22-24 August, 2016	National Institute for Micro, Small and Medium Enterprises (ni-msme), Hyderabad at ni-msme campus, Yousufguda, Hyderabad.	"Current Requirement in Environmental Impact Assessment (EIA) Processes and procedures (as per MoEF Guidelines)"	Mrs. Madhurima Joshi, F.O., R.O., Kolhapur Mrs. Varsha A. Kadam, F.O., SRO, Kolhapur
14.	1 st September 2016 to 31 st October 2016 (2 Months Course)	Raj Computers Academy, Mira Road, Tal. & Dist.: Thane	Computer training programme on "Advanced MS Excel, MS Access, Power Point, Internet"	Mrs. Saroj S. Shetty, Jr. Steno, CC/CAC Cell
15.	19 - 24 September, 2016	MMRDA Office Building, BKC, C-14 & 15, E block, Bandra (E), Mumbai Sponsored by The Mumbai First EU Project	Workshop on Metropolitan Lab on Maharashtra's sustainable Urbanization.	Shri. Sandeep Motegaonkar, F.O., SRO, Mumbai-III Shri. Nilesh Patil, F.O., R.O. Mumbai.
16.	19 - 30 September, 2016	Centre for Science and Environment, 38, Tughlakabad Institutional Area, New Delhi	Environmental Regulators-2016-2107 "Compliance Monitoring & Enforcement"	Shri. Sujit Dholam, SRO, Kalyan-III Shri. Pramod Mane, SRO, Ahmednagar Shri. Milind Thakur, F.O., SRO, Mumbai-I. Shri. R.G. Kshirsagar, F.O., SRO, Nashik.
17.	20-22 nd September, 2016	ESCI Campus, Hyderabad.	"Continuing Professional Development Programme on "Bio-medical Waste Management, Handling and Safe Disposal Options-Best Practices & its effective	Dr. A.R. Supate, PSO



			implementation (with new Rules-2016)	
18.	22-24 September, 2016	Indian Clean Seas Conference & Exhibition by ICONEX, at Holiday Inn Resort, Goa	"Conference & Exhibition on Clean Seas"	Dr. Y.B. Sontakke, JD(WPC) (As a Speaker) Dr. A. N. Harshvardhan, R.O. Raigad Shri. A. F. Deshmane, R.O. Thane Shri. S. L. Waghmare, SRO, Tarapur-I Shri. Nitin Shinde, SRO, Mumbai-III Shri. V. G. Bhatane, F.O., SRO, Chiplun Shri. D. V. Vasava, F.O., SRO, Mahad
19.	3 rd to 7 th October, 2016	At Anna Institute of Management (AIM) 163/1, Greenways Road, Anna Salai Raja Annamalai Puram, Chennai, Sponsored by CPCB & National Productivity Council.	"Municipal Waste Management".	Shri. Yogesh Deshmukh, F.O., SRO, Taloja Shri. Gajanan Pawar, F.O. SRO, Mumbai-II
20.	15 th to 28 th October, 2016	At Sweden by CSE, New Delhi	Best Practices in Environmental Governance	Shri. N. R. Shinde, SRO, Mumbai-III Shri. M. N. Jadhav, SRO, Kalyan
21.	17 th to 21 st October, 2016	International Institute of Waste Management (IIWM) at Bengaluru	"Effective Management of Hazardous Waste including E-Waste-Co-processing, Co-Incineration-Hazardous Waste Rules".	Shri. N. N. Gurav, R.O. (HQ) Shri. Kiran Malbhage, F.O., R.O. (HQ)
22.	20th October, 2016	At PAMS Division, CPCB, Delhi.	"Environmental Air Quality Data Entry System (EAQ-DES) Interaction Meet Cum Training at CPCB, Delhi.	Shri. Yogesh Patil, F.O., JD(APC) Shri. Ashok Jadhav, F.O. JD(APC)



23.	25th October, 2016	At PAMS Division, CPCB, Delhi.	Training on "Environmental Water Quality Data Entry System at CPCB, Delhi.	Shri. V. V. Killedar, SRO, Thane-II Shri. S. S. Dholam, SRO, Kalyan-III Shri. R. S. Andhale, SRO, Mumbai-II Shri. A. J. Kude, SRO, Nashik Shri. P. P. Mundhe, SRO Pune
24.	18-20 th November, 2016	Central Institute of Mining & Fuel Research, Digwahi, Dhanbad. CPCB Sponsored.	Sampling & Analysis of Coal As per NGT order	Shri. V. R. Thakur, SSO, C-Lab Mrs. Hema Deshpande, SRO, Chandrapur Shri. Sushilkumar Shinde, R. O., Nagpur-I
25.	24 th November, 2016	CSE, Tughlakabad Institutional Area, New Delhi.	Training Programme for Environmental Regulators 2017: "How to Prepare Water Quality Management Plan".	Shri. P. M. Joshi, R. D., Chandrapur
26.	05-16 December, 2016	CSE, Tughlakabad Institutional Area, New Delhi.	Training Programme for Environmental Regulators 2017: "How to Prepare Water Quality Management Plan".	Shri. Shankar Kendule, F.O., SRO, Kolhapur Shri. Mahesh Chavan, F.O., JD (WPC), Sec. MPCB, Mahape, Mumbai. Ms. Ragini S. Butale, S.O., R. Lab, Thane
27.	9 th December, 2016	CPCB, New Delhi At CPCB	Workshop on "CPCB e-samiksha and Ganga E- Track GDI Web Portals".	Shri. Dinesh Sonawane, A.S.O., EIC
28.	19-21 December, 2016	National Institute of Hydrology, Roorkee Sponsored by CPCB	Training Programme on "Advanced Instrumentation Technique - Hands on Training".	Shri. Gajanan Khandkikar, F.O. Shri. Ravindra Jadhav, F.O., SNO, Nashik
29.	19-23 December, 2016	Engineering Staff College of India, Gachibowli, Hyderabad, at ESCI Hyderabad	Training Programme on "ISO 9001:2015 QMS Lead Auditor Training".	Shri. Kartikeya Langote, Scientist –II



				Shri. V. R. Thakur, SSO-II, C. Lab, MPCB, Mahape, Mumbai.
30.	4-6 January, 2017	SIES - Indian Institute of Environment Management, Nerul, Navi Mumbai.	International conference on "Environment Management and Sustainability".	Shri. A. D. Mohekar, R.O., Mumbai Dr. A. N. Harshvardhan, R.O., Raigad Shri. Raju Vasave, R. D., Raigad, SRO- NM-I Shri. Jayant S. Hazare, SRO- Raigad
31.	05-07 January, 2017	CSIR-CIMFR Dhanbad, Jharkhand (CPCB Sponsored)	"Environment Management for Power Plants, Use and Disposal of Fly Ash - New Avenues, Opportunities, Constraints and Challenges."	Shri. Gajanan Khandkikar, F.O. Shri. Ravindra Jadhav, F.O., SNO. Nashik
32.	9-13 January-2017	CSE, Tughlakabad Institutional Area, New Delhi.	Environmental Regulators-2016-2017- "Preparing Consent & Inspection Checklist".	Shri. B. M. Kukade, SRO, Satara, Shri. J. S. Hazare, SRO, Raigad Shri. Hemant Kulkarni, F.O. (ASOT), Sec., HQ Shri. Ajay Khamkar, F.O., SRO, Satara
33.	17-20 January, 2017	ESCI Campus, Hyderabad.	Certification Training Programme on Laboratory Management System Awareness & Internal Auditing.	Shri. V.R. Thakur, SSO, I/c., C. Lab Shri. B.S. Gadhari, S.O. R. Lab, Chiplun Ms. Ragini Butale, S.O. R. Lab, Thane Shri. P. D. Khadkikar, JSO, R. Lab, Nashik Shri. D. V. Nehe, JSO, R. Lab, Pune



34.	17-21 January, 2017	Hotel The Lalit, Near Hotel Leela, Andheri (E), Mumbai, Organized by I.C.T. Matunga, Mumbai & Catalysis Society of India.	Asia Pacific Congress on "Catalysis (APCAT-I)".	Shri. S. S. Dholam, SRO, Kalyan-III Shri. T. G. Yadav, SRO, Navi Mumbai-II
35.	19-21 January, 2017	V.N.I.T., South Ambazari Road, Nagpur	"49th Annual Convention of IWWA".	Mrs. Hema Deshpande, SRO, Nagpur-I Shri. Ramakant Sort, S.O. R-Lab, Nagpur Shri. K. P. Pusadkar, F.O., SRO, Bhandara Shri. Sarang Deshpande, JSA, R.Lab, Chandrapur Shri. Vinod D. Shukla, F.O. SRO, Nagpur-II
36.	2 nd February, 2017	MCGM Auditorium Engg. Hub: Building 2 nd Floor Dr. E. Moses Road, Mumbai, by The E.V. Technical Cooperation for environment in India	"Solid Waste Processing Techniques".	Dr. Y. B. Sontakke, JD(WPC)
37.	06-10 February, 2017	Center for Science & Environment 41, Tughlakabad Institutional area, New Delhi- 110062	Continuous Emission Monitoring System (CEMS).	Shri. Anand Katole, SRO, Bhandara Shri. Satish Padwal, SRO, Taloja Shri. Ajit Patil, F.O., SRO, Tarapur-I Shri. Rajendra Jadhav F.O., SRO, Kalyan-I
38.	10-11 Feb, 2017	SIES (Nerul) College of Arts, Science & Commerce Sector - D, Nerul, Navi Mumbai.	International conference on "Recent Trends in Environment, Technology & Economy - SWAYAS - 2017".	Dr. A. N. Harshvardhan, R. O., Raigad.
39.	13-24 th February, 2017	Center for science & Environment 41, Tughlakabad Institutional area, New Delhi-110062.	Waste management policies, issues, challenges and way forward.	Shri. H. D. Gondhe, SRO, Raigad-II Shri. R. A. Rajput, SRO, Tarapur-II Shri. Kiran Aalbhoge, F.O., RO(M) Shri. Harish Plahgon, F.O., SRO
40.	14 th - 16 th February, 2017	ESCI Campus, Gachibowli, Hyderabad	Training Programme on "Performance Monitoring of STPs/CETPs - Practical Aspects".	Shri. Ravindra G. Kshirsagar, F.O., SRO, Nashik Shri. Santosh D. Mahare, F.O, SRO, Nashik, Shri. Sandeep B. Shinde, F.O., SRO, Pune-I



ANNEXURE 6 - FINANCE AND ACCOUNTS FOR THE YEAR 2016-17

1

MAHARASHTRA POLLUTION CONTROL BOARD Receipt & Payment Account for the Year 2016-17

Previous Year 2015-16		Receipt	Schedule No.	Current Year 2016-17		Previous Year 2015-16		Payment	Schedule No.	Current Year 2016-17	
Major Head	Sub Head			Amount	Amount	Major Head	Sub Head			Amount	Amount
178731519.23		<u>OPENING BALANCE</u>			262798178.95			<u>I CAPITAL EXPENDITURE</u>	J		57090455.00
	178476457.81	i) Cash at Bank		260442826.13		51868499.00		<u>Fixed Assets Purchased</u>			
	255061.42	ii) Cash in Hand		240110.82				<u>II REVENUE EXPENDITURE</u>			323047148.00
	0.00	iii) Cash Balance Imprest Account		2115242.00		304220241.35		<u>1) SALARY & ALLOWANCES</u>			
0.00		<u>1) GRANT RECEIVED</u>			0.00	290389613.35		i) Core Activity Segment		307544376.00	
	0.00	a) From State Government		0.00		13830628.00		ii) Cess Activity Segment		12589729.00	
	0.00	b) From Government of India		0.00				iii) Cess Activity Temp Estb		2913043.00	
2859707.00		<u>2) FINANCIAL ASSISTANCE</u>			21558107.00	18721347.00		<u>2) CPF BOARD CONTRIBUTION</u>			19725121.00
	0.00	a) From State Government		0.00		17975501.00		i) Core Activity Segment		18914480.00	
	2859707.00	b) From Government of India		21558107.00		745846.00		ii) Cess Activity Segment		810641.00	
199040754.00		<u>3) REIMBURSEMENT OF CESS</u>			177542276.00	5118175.00		<u>3) GRATUITY FROM CESS FUND</u>			9810942.00
2759108968.65		<u>4) REVENUE RECEIPT</u>			2623460014.05	144653147.13		<u>4) OFFICE EXPENDITURE</u>	A		185446357.82
	2620240742.45	a) Consent Fees		2564643320.97		17786405.00		<u>5) RUNNING EXPENDITURE OF LAB.</u>	B		13752378.00
	27603905.00	b) Bio Medical Authorisation Fees		8799203.75		14018589.75		<u>6) EXPENDITURE FOR VEHICLES</u>	C		15026052.00
	111264321.00	c) Analysis Charges		50017489.33		14537703.00		<u>7) MAINTAINANCE & REPAIRS</u>			18646769.00
84631621.15		<u>5) OTHER RECEIPT</u>	H		60375662.27	3412526.00		i) Land & Building		8417286.00	
900779753.58		<u>6) INTEREST ON INVESTMENT</u>			1004660804.94	2880959.00		ii) Furniture & Fixture		3262213.00	
322000.00		<u>7) PROFIT ON SALE OF ASSETS</u>			517600.00	8244218.00		iii) S.I. & O.A.		6967270.00	
16352777.00		<u>8) MISCELLANEOUS ADVANCES</u>			56731450.00			<u>8) EXPENDITURE FROM CESS FUND</u>	D		39035112.00
9530471031.74		<u>9) INVESTMENT (MATURED)</u>			12153085294.52	136745300.00		<u>9) PROJECTS EXP. From Cess Fund</u>	E		269005826.00
2367960.00		<u>10) SUNDRY PAYABLES</u>			6907877.00	12655185294.52		<u>10) INVESTMENT (New)</u>			15266196991.09
59029.00		<u>11) CREDITORS</u>			5169.00	12655094.00		<u>11) MISCELLANEOUS ADVANCES</u>			8109258.87
		<u>12) Fund from UNIDO</u>			6019420.00	96000.00		<u>12) SECURITY DEPOSIT WITH OTHERS</u>			57000.00
		<u>13) Fund for Health Impact Asse. Study</u>			19434800.00	854822.65		<u>13) SUNDRY PAYABLES</u>			2587570.00
						768386.00		<u>14) CREDITOR</u>			71577.00
						941124.00		<u>15) Paid to MoEF from Capital Receipt</u>			0.00
						262798178.95		<u>16) Fund for Health Impact Asse. Study</u>			7368000.00
								<u>CLOSING BALANCES</u>			158120095.95
								i) Cash at Bank	F	158020427.50	
								ii) Cash in Hand	G	99668.45	
								iii) Revenue Demand Draft in Hand		0.00	
13674725121.35				16393096653.73		13674725121.35					16393096653.73

Chief Accounts Officer
Maharashtra Pollution Control Board

Member Secretary
Maharashtra Pollution Control Board

Chairman
Maharashtra Pollution Control Board



For M/s Om Prakash S. Chaptot & Co.
Chartered Accountants

Yash Punjawat
M. No. - 415552
Partner



2

MAHARASHTRA POLLUTION CONTROL BOARD
Income & Expenditure Account for the Year 2015-17

Previous Year 2015-16		Expenditure	Schedule No.	Current Year 2016-17		Previous Year 2015-16		Income	Schedule No.	Current Year 2016-17	
Major Head	Sub Head			Amount	Amount	Major Head	Sub Head			Amount	Amount
304220241.35		<u>1) SALARY & ALLOWANCES</u>			323047148.00			<u>1) GRANT RECEIVED</u>			
	290389613.35	a) Core Activity Segment		307544376.00				a) From State Government			0.00
	13830628.00	b) Cess Activity Segment		12589729.00				b) From Government of India			0.00
		c) Cess Activity Temp Estb		2913043.00							
18721347.00		<u>2) CPF BOARD CONTRIBUTION</u>			19725121.00	2859707.00		<u>2) FINANCIAL ASSISTANCE</u>			21558107.00
	17975501.00	i) Core Activity Segment		18914480.00				a) From State Government		0.00	
	745846.00	ii) Cess Activity Segment		810641.00			2859707.00	b) From Government of India		21558107.00	
144653147.13		<u>3) OFFICE EXPENDITURE</u>	A		185446357.82	199040754.00		<u>3) REIMBURSEMENT OF CESS</u>			177542276.00
17786405.00		<u>4) RUNNING EXPENDITURE OF LAB.</u>	B		13752378.00			<u>4) REVENUE RECEIPT</u>			2623460014.05
14018589.75		<u>5) EXPENDITURE FOR VEHICLES</u>	C		15026052.00	2759108968.65		a) Consent Fees		2564643320.97	
14537703.00		<u>6) MAINTAINANCE & REPAIRS</u>			18646769.00		2620240742.45	b) Bio Medical Authorisation Fees		8799203.75	
	3412526.00	i) Land & Building		8417286.00			27603905.00	c) Analysis Charges		50017489.33	
	2880959.00	ii) Furniture & Fixture		3262213.00			111264321.20				
	8244218.00	iii) S.I. & O.A.		6967270.00				<u>5) OTHER RECEIPT</u>	H		60375662.27
33756814.00		<u>7) EXPENDITURE FROM CESS FUND</u>	D		39035112.00	84631621.15		<u>6) INTEREST ON INVESTMENT</u>			1004660804.94
136745300.00		<u>8) PROJECTS EXP. From Cess Fund</u>	E		269005826.00	900779753.58		<u>7) PROFIT ON SALE OF ASSETS</u>			517600.00
32359966.63		<u>9) DEPRECIATION</u>	I		53428650.18	322000.00					
3229943290.52		Excess of Income Over Expenditure			2951001050.26						
3946742804.38					3888114464.26	3946742804.38					3888114464.26

Chief Accounts Officer
Maharashtra Pollution Control Board

Member Secretary
Maharashtra Pollution Control Board

Chairman
Maharashtra Pollution Control Board

For M/s Om Prakash S. Chaplot & Co.
Chartered Accountants

Ash Punjawat
M. No. - 415552
Partner





MAHARASHTRA POLLUTION CONTROL BOARD
Balance Sheet at the Year End 31st March, 2017

Previous Year 2015-16		Liability	Schedule No.	Current Year 2016-17		Previous Year 2015-16		Assets	Schedule No.	Current Year 2016-17	
Major Head	Sub Head			Amount	Amount	Major Head	Sub Head			Amount	Amount
1319557762.48		A) CAPITAL FUND			1387964082.48			1) WORKS (Form K-IV)			
		1) Grant received from Govt. for capital expenditure (Including capital value of assets transferred from Ex Directorate to MSWPIC & WHO Delhi)				452343995.85		2) FIXED ASSETS	J		
	1262962387.48	Amount utilised up to previous year (Opening Balance)		1319557762.48		56787816.98		a) Land & Building			442679625.08
	51868499.00	Add:- Transfer from Excess of Income over Expenditure for Capital Expenses		68406320.00		38729244.77		b) Laboratory Equipments			66165141.94
	4726876.00	Add:- Transfer from Capital Receipt for procurement of Lab. Equipment.		0.00		85581492.59		c) Vehicle			35607549.51
0.00	0.00					62819650.86		d) Furniture & Fixture			99365090.14
		B) CAPITAL RECEIPT from MoEF			0.00	12812485294.52		e) Scientific Instruments			67422464.20
1454486.00	2490467.00	C) Fund from UNIDO		1454486.00	6162003.50	332738721.01		3) INVESTMENT	K		15925596991.09
	1035981.00	Add:- Amount Received		6019420.00		68747572.06		4) CURRENT ASSETS			179495446.88
		Less :- Expenditure		1311902.50				a) MISCELLANEOUS ADVANCES	L	20125380.93	
15213914.00		D) CURRENT LIABILITIES			16625301.00			b) SECURITY DEPOSIT WITH OTHER	M	1249970.00	
	13969593.00	1) Sundry Payables / Deposits	N	15447388.00							
	1244321.00	2) Creditors	O	1177913.00							
		E) RESERVE & PROVISIONS			2116263806.82			C) CLOSING BALANCES			
1862927997.87	1830667870.00	1) Pension Fund	P	2083814621.73		260442826.13		i) Cash at Bank	F	158020427.50	
	32260127.09	2) Gratuity Fund	Q	32449185.09		240110.82		ii) Cash in Hand	G	99668.45	
		F) Fund from Health Impact Assessment Study		19434800.00	12066800.00	2115242.00		iii) Revenue Demand Draft in Hand		0.00	
		Less :- Expenditure		7368000.00							
10642332056.23		G) INCOME & EXPENDITURE APPROPRIATION ACCOUNT	R		13277250315.04						
13841486216.58					16816332308.84	13841486216.58					16816332308.84

Significant Accounting Policies and Notes on Accounts


Chief Accounts Officer
Maharashtra Pollution Control Board


Member Secretary
Maharashtra Pollution Control Board


Chairman
Maharashtra Pollution Control Board



For M/s Om Prakash S. Chaptot & Co. Chartered Accountants


Yash Punjwat
M. No. - 415552
Partner

MAHARASHTRA POLLUTION CONTROL BOARD

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

Kalpataru Point, Sion [E], Mumbai- 400022

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