Prepared by:

ENVIRONMENT DEPARTMENT, GOVERNMENT OF MAHARASHTRA

ENVIRONMENT ACTION PLAN FOR MAHARASHTRA

For year 2018-19

MAHARASHTRA POLLUTION CONTROL BOARD

December 19

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1.0 Preamble

India needs to sustain accelerated economic growth in order to enhance the quality of life of people and compete in the global market in sustainable manner. However, for sustainable development, it is imperative to minimize the ecological degradation and environmental pollution resulting from various activities. Impacts of these activities can be seen in the form of rapid industrialization, the resultant migration, unplanned urbanization, which are continuously depleting the natural resources and deteriorating the environmental quality. Maharashtra is one of the most industrialized and urbanized states of India. All major towns of Maharashtra are experiencing an unprecedented population growth and thereby exerting tremendous pressure on the urban infrastructure and civic amenities. Almost 50% of the state's population is living in urban areas though the levels of urbanization are uneven across regions and districts within the state. To achieve a sustainable and targeted growth rate, Maharashtra should optimize its entrepreneurial, financial and administrative resources.

Maharashtra Pollution Control Board (MPCB) was established on 7th September, 1970 under the provisions of Maharashtra Water (Prevention and control of Pollution) Act, 1969. The Water (P & CP) Act, 1974 was adopted in Maharashtra on 1st June, 1981 and accordingly Maharashtra Pollution Control Board was formed under the provisions of Section 4 of Water (P & CP) Act, 1974. The MPCB implements various environmental legislations in the State of Maharashtra, including the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and some of the provisions under Environmental (Protection) Act, 1986 and Rules framed there under, from time to time, such as, Bio-Medical Waste Management Rules, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, Solid Waste Management Rules etc. MPCB implements these environmental legislations via its 12 Regional Offices (ROs) in the State and functions under the administrative control of Environment Department, Government of Maharashtra.

As directed by Hon'ble National Green Tribunal vide order dated 26/09/2019 in O.A. No. 360 of 2018 filed by Shree Nath Sharma Vs Union of India and Others; the Department of Environment in respective States / UTs should collect district plans to prepare State Environment Plan, which shall be monitored by respective Chief Secretaries of State/UT by 15/12/2019. In compliance to above directions, MPCB has prepared District Environment Plans (DEP) that covers all aspects of the said order. The DEPs are prepared for 36 districts which includes 384 Urban Local Bodies. Further, in line with same MPCB has prepared Environment Plan for Maharashtra State.

2.0 Solid Waste Management in Maharashtra

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

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

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

2.1 Municipal Solid Waste Management with Statistical details

The state has positively adopted the SWM Rules 2016 in totality and is working towards scientific management of solid waste in ULBs of the state. The state has a robust solid waste

management policy in accordance with the Solid Waste Management Rules 2016 and lays stress on 100% segregation, collection transportation & processing of wet waste through composting, bio-methanization etc, Dry waste recycling, reuse and recovery through establishing Material Recovery facilities, Landfilling of inert, Processing of legacy waste through biomining.

ULBs are practicing segregation of waste at source and adequate provisions are made in Solid Waste Management DPRs for achieving 100% segregation of waste at source. ULBs in state are segregating waste into three categories wet, dry and domestic hazardous waste.

- **Processing of Waste:**

Vehicles deployed for collection and transportation of waste have two compartments for dry and wet waste. Segregated waste is further segregated at processing facility and then scientifically processed. Maharashtra is the only state to have registered its own brand **"Harit Maha City Compost"** for promotion of marketing and sale of city compost which is as per the FCO standards and SWM Rules 2016.

Dry waste collected form the city is further segregated into paper, plastic, glass, metal etc. through secondary segregation process at transfer stations or the designated material recovery facility (MRF) in the city or at solid waste treatment facility. After secondary segregation of dry waste into paper, plastic, glass, metal etc.is being recycled through local sellers in the city, to recyclers in the region or to the waste processing plants in nearby metro cities through prescribed processes.

For treatment of dry waste technical options such as preparation of Refused Derived Fuel (RDF), use of plastic in roads, preparation of oil or granules from plastic etc. are also used in some municipal corporations.

ULBs have integrated rag pickers into formal system and involve them for recycling and recovery of waste. Rag pickers are provided with identity cards, basic facilities and personal protective equipment.

- **Bio-mining of legacy waste**

Many ULBs in state have accumulated legacy waste at processing facility due to absence of treatment facilities in past. Biomining of legacy waste has now been started in 203 cities where legacy waste was accumulated.

Maharashtra Pollution Control Board has prepared Region wise abstract showing a summary statement of all local bodies indicating class, populations, Quantum of Solid Waste generations, treatment, adopted technologies for solid waste treatment, source segregation percentage and transportation percentage as per form IV submitted by ULBs.

The solid waste generated by Corporations is 19882.08 MT/Day with share of 83.38 % while generation by "A" class council is 958.60 MT/Day with share of 4.02 %, "B" class council generates 1353.08 MT/Day with share of 5.67 %, "C" class council generates 1079.53 MT/Day with share of 4.53%, Nagar Panchayats generates 434.261 MT/Day with share of 1.82 % and Cantonment Boards contribution is 137 MT/day with a share of 0.57 %. **Table 1.0** below shows the inventory of Municipal Solid waste generation in the state.

Table 1 Total Municipal Solid waste generation in the state

No.	Name	Statistic
1	Municipal Corporations	27 Cities
2	Municipal Councils	234 Cities
3	Nagarpanchayat	123 Cities
4	Total Number of ULBs	384
	Total SW Generated By ULBs	**23,707.55 TPD**
5	Total Cantonment Boards	07
6	Total SW Generated By Cantonment Boards	137
	Gross Solid Waste Generation (ULBs+ Cantonment Boards)	**23844.55 TPD**

Total 12571.03 MT/Day Solid Waste is treated /processed by ULBs by adopting waste treatment technologies achieving overall 52.94% average treatment. The remaining solid waste finds its way for unscientific disposal/dumping. Overall average waste segregation is 74.41 % and overall solid waste transportation is 96.45 %.

Further the detailed study on the quantity of different categories of MSW generated and treated in all the Regions in Maharashtra during last four years is carried out and represented in following section.

2.1.1 Trend Analysis of Municipal Solid Waste Generation and Treatment over 4 years

Analysis of the trends of Municipal Solid Waste generation and treatment in all Regions over the years 2015-16, 2016-17, 2017-18 and 2018-19 has been carried out to study and compare the trends of generation and treatment of MSW over duration of 4 years. **Figures 1.0** and **2.0**

graphically represent the trends of average MSW generation and treatment over the span of 4 years in all Regions.

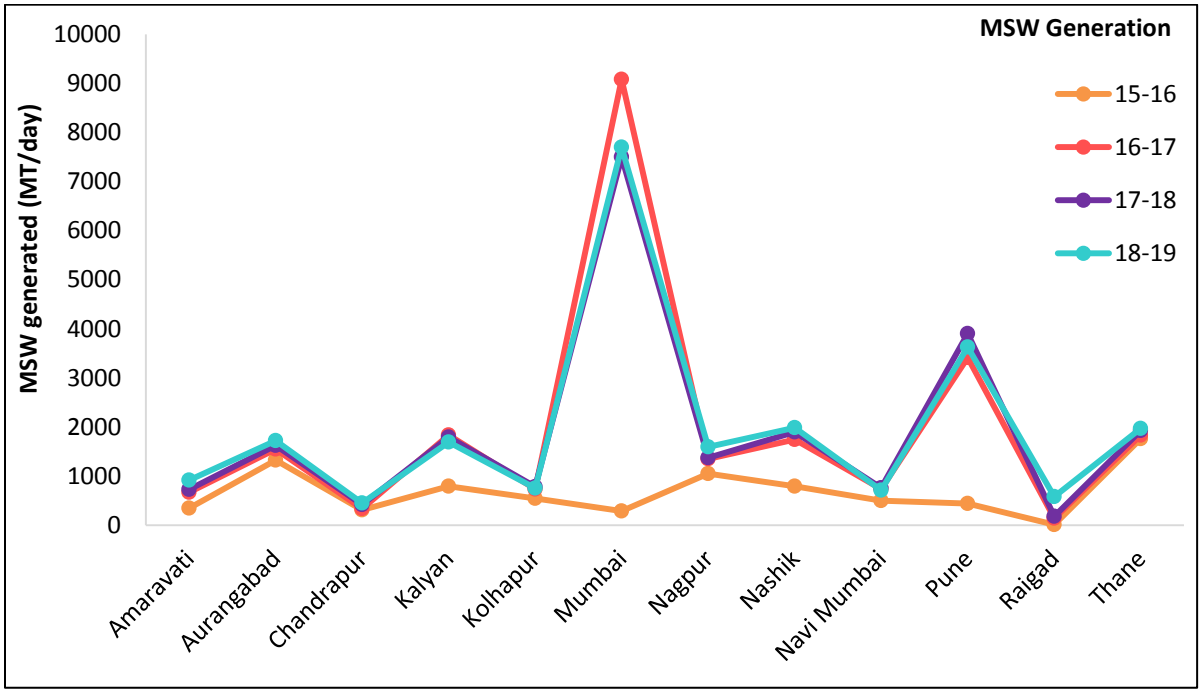


Figure 1 Trend Analysis of MSW generation over 4 years

From **Figure 1.0** it can be seen that the generation of MSW shows an increasing trend over the 4 years in all Regions in the State. In regions such as Kalyan, Nashik and Pune, the generation of MSW during the years 2016-17, 2017-18 and 2018-19 has increased more than twice the amount that was generated in these Regions during the year 2015-16. The most striking increase in generation of MSW since the year 2015-16 is observed in the Regions of Mumbai and Raigad. In the remaining Regions of Aurangabad, Chandrapur, Kolhapur, Nagpur, Navi Mumbai and Thane, the generation of MSW over these 4 years has increased without drastically high differences.

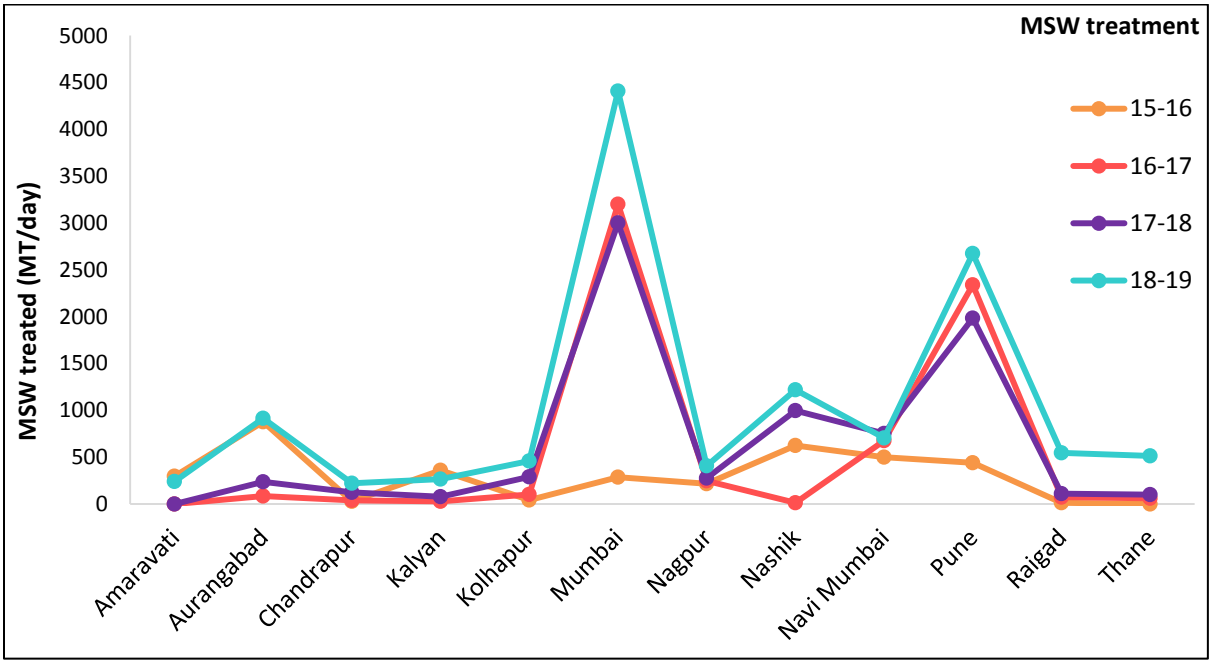


Figure 2 Trend Analysis of MSW treatment over 4 years.

From **Figure 2.0** it can be observed that the amount of MSW treated in the State of Maharashtra has not definitively increased in succession over the 4 years. In the Regions of Aurangabad, Chandrapur, Kalyan and Nashik, the MSW treated during the year 2016-17 was lesser than the quantity treated during the preceeding year and the quantity treated during the 2017-18 and 2018-19 was greater than the quantity treated during the previous two years. In Amaravati Region, data on quantity of MSW treated during the years 2016-17 and 2017-18 is unavailable, while the quantity treated during 2018-19 was lesser than that treated during 2015-16.

In the Regions of Kolhapur, Nagpur, Navi Mumbai, Raigad and Thane, the quantity of MSW treated shows an increasing trend in succeeding years. The most significant increase in quantities of MSW treated can be observed at Mumbai and Pune and the same is evident in the above figure. In Mumbai and Pune, the quantity of MSW treated in the year 2017-18 was lesser than that treated during 2016-17 and 2018-19, but greater than the quantity treated during the year 2015-16.

2.2 Construction and Demolition Waste Management

Annual report in form III was submitted by 158 ULBs for the financial year 2018-2019 out of 384 ULBs. Total 1658864.258 MT/A C&D Waste is generated by these ULBs & total 27401.945 MT/A Waste processed / recycled by ULBs. The C&D waste disposed by landfilling without

processing (last option) or filling low lying area waste quantity is 1428011.13 MT/A. These ULBs having 206 storage facilities to store C&D waste securely. Further total 49 Municipal magistrates appointed for taking penal action for non-compliance with these rules by these ULBs as represented in **Table 2.0**.

Table 2 Construction & Demolition Waste Abstract of ULBs

ULBs	Total Qty of C & D waste Generated during whole year in MT	Total Qty of C & D waste processed/recycled in MT	Total Qty of C & D waste Disposed by landfilling without processing (last option) or filling low lying area	Number of Storage Facilities for C&D Waste Storage	Municipal magistrates appointed for taking penal action for non-compliance with these rules.
Municipal Corporation	1641937.97	26802	1416143.4	119	11
"A" Class Municipal council	4627.75	511	4791	6	0
"B" Class Municipal council	5895.4	76.23	4623.99	26	11
"C" Class Municipal council	3596.703	10.12	1857.35	38	17
Nagar panchayats	2806.435	2.595	595.39	17	10
Total	**1658864.258**	**27401.945**	**1428011.13**	**206**	**49**

Table 3.0 showing operational plant for processing of Construction and Demolition waste & Figure 3.0 graphically represents C&D waste generation of Municipal Corporations in state.

Table 3 Status of operational plant for processing of Construction and Demolition waste

Sr.No.	Name of Corporation	Plant capacity (TPD)	Present Status
1	Thane Municipal Corporation	600	In operation.

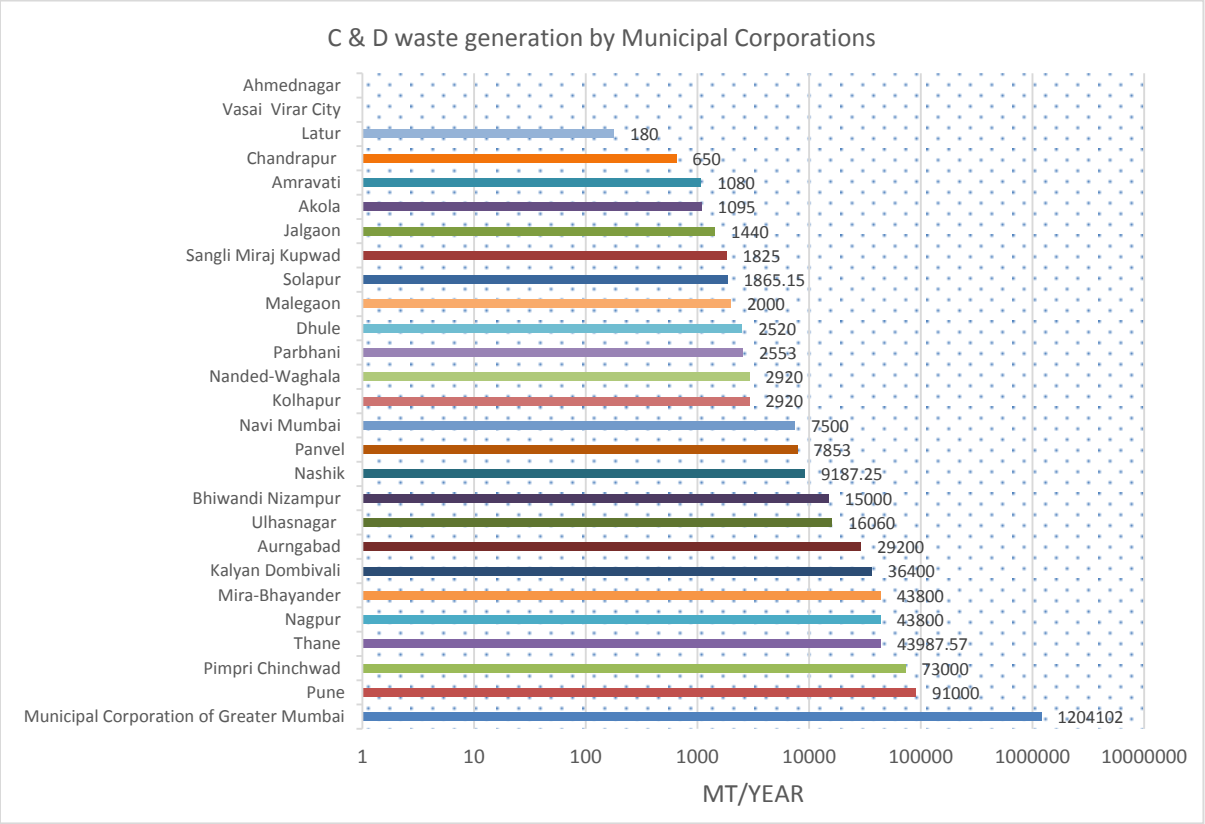


Figure 3 Graphical Representation of C&D waste generation of Municipal Corporations in state.

Following action has been taken for the compliance of the 2018 Notification.

- An empowered Committee is constituted to monitor the implementation of these regulations and will regularly review the implementation of the said Policy. This committee will also help in resolving any difficulty faced by implementing authorities during implementation and if required also carry out any amendment in these regulations with an aim to reduce the volume of non-biodegradable garbage generation in the State.
- An expert Committee is constituted under these regulations which will suggest the recommendations including amendment required, if any in the regulations to the Empowered Committee for effective implementation of the regulations and solutions to reduce the non-biodegradable garbage.
- MPC Board has issued closure directions to 384 number of defaulting plastic industries in the State of Maharashtra as of 2019.
- The local bodies and Maharashtra Pollution Control Board are jointly carrying out the survey. Total fine of Rs. 4.21 Crore has been collected from the shops who have not complied with the Plastic ban Notification, 2018 in the jointly carried out drive by MPCB and

local bodies. Around 1200 tonnes of banned plastic items have been seized from the shops and plastic industries as of 2019.

2.3 Plastic Waste Management in the State of Maharashtra

Urban local bodies in the Maharashtra state are generating around 4.1 lakh tonnes of plastic waste in year 2018-19. Plastic Waste (Management & Handling) Rules, 2011, came into the force as per the notification published by Ministry of Environment & Forest, New Delhi on 4.2.2011 has been superseded by the Plastic Waste Management Rules, 2016 notified on 18.3.2016.

Government of Maharashtra under the provisions of Maharashtra Non-biodegradable Garbage (Control) Act, 2006 has published new notification named Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018 for regulating manufacture, usage, sale, storage, transport of the products made from plastic and thermocol on 23.3.2018 and amendments dated 11.4.2018, 30.06.2018 There are two committees constituted under the provisions of this notification namely i) the Expert Committee under chairmanship of Principal Secretary, Environment Department for technical guidance in the matters of Maharashtra Plastic and Thermocol Notification, to the Government and ii) Empowered Committee under chairmanship of Hon'ble Minister (Environment) to decide necessary amendments and review implementation of the said notification. So far several meetings of Expert Committee and Empowered Committee have been conducted and thereafter necessary amendments in the Notification have been issued.

Following are the details of the Notification:

- As per said notification the manufacture, usage, transport, distribution, wholesale & retail sale and storage, import of the plastic bags with handle without handle, and the disposable products manufactured from plastic and thermocol (polystyrene) such as single use disposable dish, cups, plates, glasses, fork, bowl, container, disposable dish/bowl used for packaging food in hotels , spoon, straw, non-woven polypropylene bags, cups/pouches to store liquid, packaging with plastic to wrap or store the products, packaging of food items and food grain material etc. is banned. Also use, purchase plastic and thermocol used for decoration purpose is banned.
- Use, purchase, sale, storage and manufacture of PET or PETE bottles made up of high quality food grade virgin Bisphenol-A free material and printed on it with predefined buy back price shall be allowed subject to certain conditions. This notification is applicable for the whole of Maharashtra.

• Under Section 9 of Maharashtra Non-biodegradable Garbage (Control) Act, 2006, the provision for penalty for offences is as below:

First Offence	Rs. 5000/-
Second Offence	Rs. 10000/-
Third Offence	Rs. 25000/- and three months imprisonment

- Regular surveys have been carried out in jointly by local body authorities and MPCB officials within Corporation limits and separately by MPCB officials for industries, to implement the said notification. The status of fine collected post Maharashtra Notification upto March, 2019 is as below:

No. of Shops Visited	Action initiated against no. of shops	Total fine collected (Rs.)	Total Qty of banned items seized (MT)
1,56,086	6265	4,06,85,588/-	Plastic-934.598 + Non-woven bags-8.572

No. of Industrial units Visited	No. of Industrial units issued Proposed Directions	No. of Industrial Units issued Closure directions	Total fine collected (Rs.)	Total Qty of banned items seized (MT)
1074	328	272	4,15,000	238.67

- As per the Plastic Waste Management Rules, 2016 and amendment thereto

  "Every local body shall prepare and submit an annual report in Form –V to the concerned Secretary-in-charge of the Urban Development Department under intimation to the concerned State Pollution Control Board or Pollution Control Committee;

  Each State Pollution Control Board or Pollution Control Committee shall prepare and submit an annual report in Form VI to the CPCB on the implementation of these rules". Accordingly, local bodies and Maharashtra Pollution Control Board have submitted their Annual Reports.

  The region-wise information on plastic waste generation, collected and disposal upto March, 2019 obtained from ULB's Annual Report is represented in Table 4.0 below:

Table 4 Status of Plastic Waste generation and management in State

Regions	ULBs	Quantity of plastic waste generated (TPA)	Quantity of plastic waste collected (TPA)	Quantity of plastic waste channelized for recycling (TPA)	Quantity of plastic waste channelized for use (TPA)
Amravati	42	9742.281	2359.461	1566.25	1472.6
Aurangabad	81	11135.9	9407.96	1975	1472.3
Chandrapur	44	75821.76	53960.07	52622.29	3356.08
Kalyan	7	58133	50825	29785	1231
Kolhapur	37	6991.65	6983.4	3778	1205
Mumbai	1	98550	9855	9855	0
Nagpur	44	12421.202	11957.461	5860.181	4376.001
Nashik	59	55693.52	51374.15	33301.49	19211.54
Navi Mumbai	2	9608	9596	9308	9308
Pune	45	41595.22	37722.63	13781.77	1794.22
Raigad	15	6684.92	6672.38	4527.07	4019.38
Thane	9	23251	23205	5682.5	4463
Grand Total	**386**	**409628.453**	**273918.512**	**172042.551**	**51909.121**

- As per the provisions of Plastic Waste Management Rules, 2016 and Maharashtra Plastic and Thermocol Items Notification, 2018 and amendment thereto, Producers/ Brand-owners are obligated to prepare and implement EPR plan on their own or by engaging agency / Producer Responsibility Organisations (PROs). Hence, a number of Producers and Brand-owners have appointed PROs to prepare their EPR plan and implement the same. The scenario of collection and disposal of Plastic Waste by PROs is as given in Table 5.0 & Table 6.0 below:

Table 5 Collection of Plastic Waste by PROs during (Oct 2018 to March 2019)

PRO Name	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19	Total
GEM Enviro				80.52	75.62	109.72	265.86
IPCA		569.90	767.50	820.80	200.40	705.20	3063.80
NEPRA				907.95	821.06	1027.73	2756.74
Saahas		9.02	8.02	7.65	135.69	59.13	219.51
Shakti Plastic	310.76	843.39	1550.65	486.75	415.86	464.40	4071.80
Sampurn(e)arth	308.07	308.07	308.07	308.07	308.07	308.07	1848.42
Grand Total	**618.83**	**1730.38**	**2634.24**	**2611.74**	**1956.70**	**2674.25**	**12226.13**

Table 6 Processing of Plastic Waste by PRO's during (Oct 2018 to March 2019)

PRO Name	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19	Total

IPCA		559.88	559.88	559.88	559.88	559.88	2799.40
Saahas		9.02	8.02	136.24	7.1	59.13	219.51
Sampur(e)arth	261.56	261.56	261.56	400.70	550.87	663.78	2400.02
Shakti	794.552	794.552	794.552	557.127	550.127	557.127	4048.04
NEPRA				904.42	824.41	1027.71	2756.54
Grand Total	**1056.11**	**1625.01**	**1624.01**	**2558.37**	**2492.39**	**2867.63**	**12223.51**

- Under Plastic Waste Management Rules, 2016 and amendment thereto 12 nos. of Plastic waste Recyclers have been registered with Maharashtra Pollution Control Board. The list of registered Plastic Waste Recyclers has been published and updated in MPCB's website regularly.

2.4 Bio-medical Waste

2.4.1 Implementation of Biomedical Waste Management Rules, 2016

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

2.4.2 Status of Bio-medical Waste Treatment Facilities:

(1) Total no. of Health Care Facilities/Occupiers: 60,410

(2) Total No. of beds: 2,76,985

(3) Status of authorization

(i) Total no. of occupiers applied for authorization: 15,939

(ii) Total no. of occupiers granted authorization: 17,037

(iii) Total no. of applications under consideration: 867

(iv) Total no. of applications rejected: 258

(v) Total no. of occupiers in operation without applying for authorization: 62,418

(4) Bio-medical waste generation

(i) Bio-medical waste generated by bedded hospitals: 50,440 kg/day

(ii) Bio-medical waste generated by non-bedded hospitals: 11,793 kg/day

(iii) Any other: 185 kg/day

(5) Bio-medical waste treatment and disposal

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

(i) Number of Health Care Facilities having captive treatment and disposal facilities: 218

(ii) Total bio-medical waste treated and disposed by captive treatment facilities: 2,257 kg/day

(b) BMW treatment and disposal by Common BMW Treatment Facilities

(i) Number of Common Bio-Medical Waste Treatment Facilities in Operation: 31

(ii) Number of Common Bio-Medical Waste Treatment Facilities under construction: 1

(iii) Total bio-medical waste treated by Common BMW Treatment Facilities: 59,877 kg/day

(iv) Total treated bio-medical waste disposed through authorized recyclers: 14,851 kg/day

2.5 Hazardous Waste Generation during the year 2018-19.

Details on total generation Hazardous Waste during the year 2018-19 in the State of Maharashtra is shown below in **Table 7.0.**

Table 7 Region-wise generation of hazardous waste during 2018-19.

S. No.	Name of the District	*Quantity of Hazardous Waste generated as per Annual Return within the State/UT (Metric Tonne)				Total Quantity
		Landfillable	Incinerable	Recyclable	Utilizable	
		6	7	8	9	
1	Ahmednagar	2813.57	0.71	15852.58	4068.06	22734.92
2	Akola	113	104	0.00	35.00	252
3	Amravati	1282	82	1.66	0.06	1365.72
4	Aurangabad	20380.96	416.24	51591.49	785.14	73173.83
5	Beed	0	0.37	0.00	0.00	0.37

6	Bhandara	676	88	0.90	172.16	937.06
7	Buldhana	23.0	40.0	0.00	0.00	63
8	Chandrapur	1805	219	284.56	1.70	2310.26
9	Dhule	359.70	2.53	0.00	0.00	362.23
10	Gadchiroli	0.00	0.00	0.00	0.00	0
11	Gondia	0	2	4.00	0.00	6
12	Hingoli	0	17.16	0.00	0.40	17.56
13	Jalgaon	302.63	9.07	56.53	18.38	386.61
14	Jalna	36.54	0.20	27.59	0.00	64.33
15	Kolhapur	16149.57	2820.00	71771.83	2362.67	93104.07
16	Latur	623.36	61.44	0.00	1127.77	1812.57
17	Mumbai	4525.64	1565	1451.77	2321.81	9864.22
18	Mumbai Suburban	-	-	-	-	0
19	Nagpur	21934	2453	5065.59	3036.47	32489.06
20	Nanded	110.84	219.98	4.10	0.76	335.68
21	Nandurbar	3.69	1.34	0.00	0.00	5.03
22	Nashik	8016.61	4.79	332.43	1389.70	9743.53
23	Osmanabad	31.31	116.25	1.29	164.02	312.87
24	Palghar	37241.26	6573	127.81	211860.76	255802.8
25	Parbhani	0	32.47	0.00	0.00	32.47
26	Pune	32952.97	10096.83	99907.67	25596.45	168553.9
27	Raigad	70881.69	9041	5535.42	89645.06	175103.2
28	Ratnagiri	30804	655	598.61	600.00	32657.61
29	Sangli	50.18	1490.33	400.41	414.15	2355.07
30	Satara	1607.57	787.61	10075.80	381.80	12852.78
31	Sindhudurg	0.0	0.00	0.00	0.00	0
32	Solapur	1140.86	5336.02	1042.97	235.02	7754.87
33	Thane	166957.28	11064	5890.92	12626.21	196538.4
34	Wardha	1491.0	4.0	47.29	179.70	1721.99
35	Washim	1.0	3.0	0.00	0.00	4.0
36	Yavatmal	15.0	2.0	137.17	7.20	161.37
Total		**422330.23**	**53308.34**	**270210.39**	**357030.45**	**1102879.38**

** SLF – Secured Landfill, RCL – Reclaimed Landfill, INC- Incineration, UTL – Utilisation*

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

There are 4 Common Hazardous Waste Treatment, Storage & Disposal Facilities (CHWTSDF) installed and operating successfully in the State of Maharashtra. 2 facilities namely Mumbai Waste Management (MWM), Taloja and Trans Thane Waste Management Association (TTCWMA), Mahape, are located under Navi Mumbai Region; 1 facility namely Maharashtra Enviro Power Ltd (MEPL), Ranjangaon is located in Pune Region and Vidharbha Enviro Protection Ltd. (VEPL), Butibori Industrial Area is located in Nagpur Region. Presently 6459 industries are members of these 4 facilities and are disposing their hazardous waste. Individual capacities of CHWTSDFs have been shown in **Table 8.0** Summary of hazardous waste received and individual capacities of CHWTSDFs are presented in **Table 9.0.**

Table 8 Summary of Individual Capacities of CHWTSDFs.

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

Table 9 Summary of Hazardous Waste Received at disposal sites during 2018-19.

Site	DLF* (MT/A)	LAT* (MT/A)	INC* (MT/A)	Total (MT/A)
Total participant industries – 6,459				
MWML, Taloja, Navi Mumbai	29712.0	144711.0	31007.00	**205430.00**
TTCWMA, Mahape, Navi Mumbai	9321.87	7436.41	---	**16758.28**
MEPL, Ranjangaon, Pune	43481.13	41094.95	25712.35	**110288.43**
VEPL, Butibori, Nagpur	15174.60	9913.43	2983.91	**28071.94**
Total	**97689.6**	**203155.8**	**59703.26**	**360548.7**

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

There are 6,459 industries that generate hazardous waste. Various methods such as DLF, LAT, INC and onsite hydroclave are used for the treatment of hazardous waste. 97,689.6 MT/A HW was treated with DLF method, 203155.8 MT/A by LAT method and 59703.26 MT/A by INC method. One-time disposable waste received at TTCWMA for DLF is 120331 MT in the year

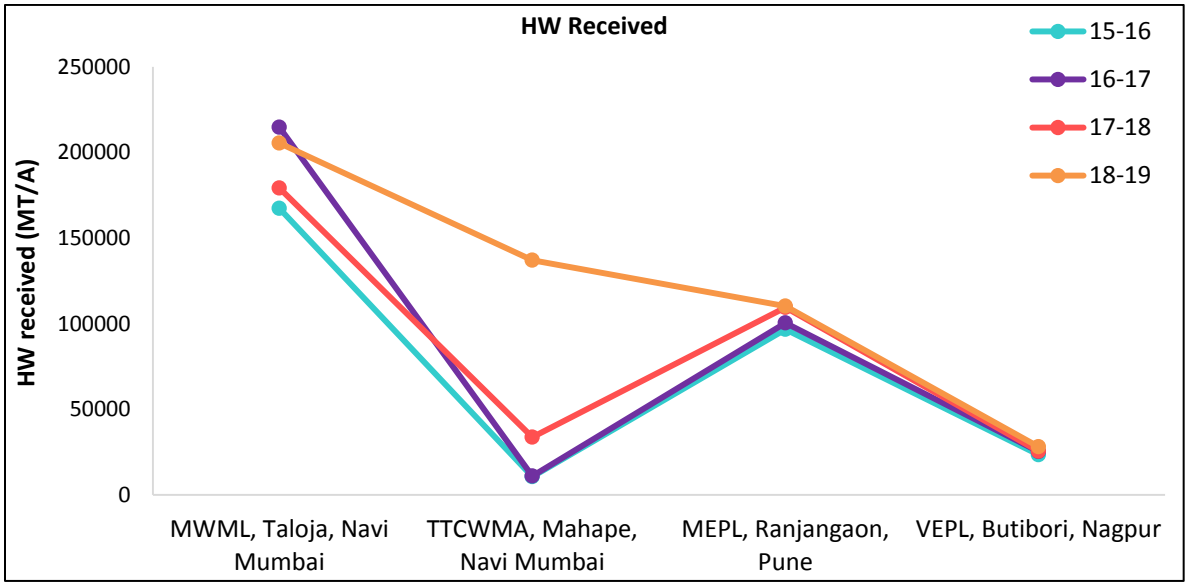
2018-19. **Table 10.0** shows the number of units in each Region that has been granted authorization to generate HSW.

Table 10 No. of units in each Region that is given authorization to generate HSW.

Region	Total No. of Units
Amaravati	82
Aurangabad	366
Chandrapur	128
Kalyan	911
Kolhapur	373
Mumbai	412
Nagpur	370
Nashik	534
Navi Mumbai	724
Pune	1349
Raigad	403
Thane	807
Total	**6459**

2.5.2 Trend analysis of Hazardous Waste received at disposal sites over 4 years

Analysis of the trends of Hazardous Waste received at all disposal sites in the State over the years 2015-16, 2016-17, 2017-18 and 2018-19 has been carried out. **Figure 4.0** graphically represents the trend of average Hazardous Waste received over the span of 4 years at disposal sites.



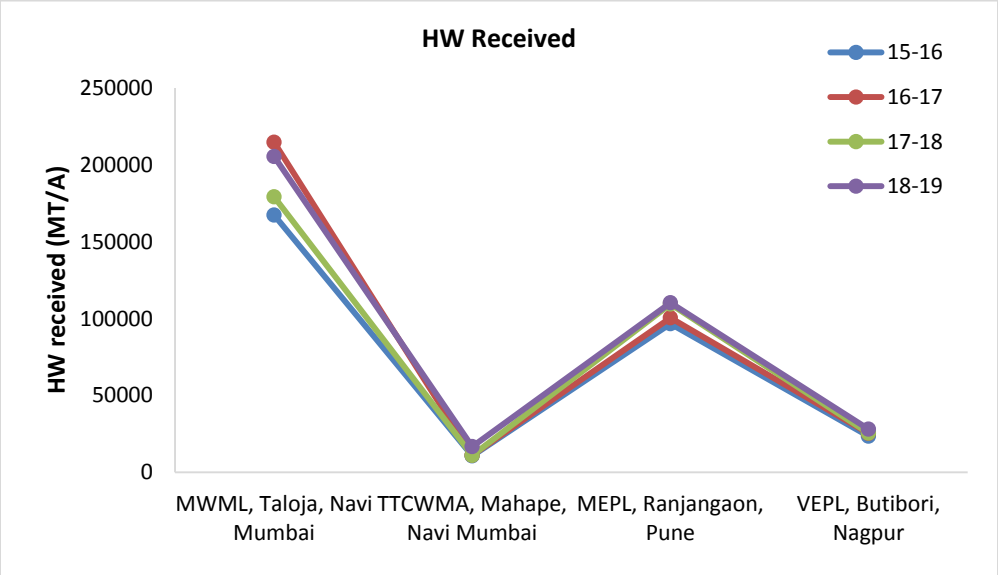


Figure 4 Trend Analysis of Hazardous Waste received at disposal sites over 4 years.

It can be observed from **Figure 4.0** that the quantity of Hazardous Waste received at MWML, Taloja was the least during the year 2015-16 followed by the years 2017-18, 2018-19 and the year 2016-17, during which the most quantity of HW was received. At TTCWMA, the quantity of HW received at this site during the years 2015-16, 2016-17 & 2017-18 was almost similar, with a slight increase during the year 2018-19. One-time disposable waste received at TTCWMA for DLF is 120331 MT in the year 2018-19 at TTCWMA for DLF. The quantity of Hazardous Waste received at MEPL, Ranjangaon (Pune) and VEPL, Butibori (Nagpur) has been relatively constant over these 4 years with a slight increase in the received quantity during succeeding years.

2.6 Electronic Waste

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

- **Implementation of E-waste (Management and Handling) Rules, 2011**
  - E-Waste (Management) Rules, 2016 notified on 23rd March 2016 and came in to force from 1st Oct. 2016.
  - Applicability of these newly modified rules expanded to manufacturer, dealer, refurbisher and Producer Responsibility Organization (PRO)
  - Producers are responsible for setting up collection centre on own or in association.
  - Obtaining authorization for producers from multiple SPCs is removed. Single EPR authorization for producers from CPCB is introduced.
  - Target based approach for collection under EPR is introduced.
  - E-Waste Collection Target (Weight)

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

- Simplification of permissions by giving only authorizations instead of authorization and registrations
- Responsibility is fixed on manufacturers to collect E-Waste and channelize it for recycling at authorized site
- Responsibility is fixed on dealers and refurbishers
- Responsibility is of the State Industry Department to earmark or allocate industrial space for E-Waste dismantling and recycling facilities
- Department of Labour is responsible for recognition and registration of workers in dismantling and recycling. Annual monitoring and ensuring safety and health of workers is also the responsibility of the Department
- State Government to prepare integrated plan for effective implementation of these rules and to submit annual report to MoEF & CC

- Concept of manifest system for transportation of E-Waste is introduced
- Concept of liability provisions is introduced
- Maharashtra Pollution Control Board has constituted a Technical Committee for scrutiny of Applications received for grant / renewal of Authorization for dismantling / recycling / refurbishing of E-Waste under the Chairmanship of Mr R. K. Garg

Details of authorizations issued under the E-waste (M & H) Rules, 2011 to dismantlers/recyclers/ collection/producers are as shown in **Table 11.0**

Table 11 Present Status of E-Waste Generation and Recycling in Maharashtra State

Types of Authorizations/ Registrations granted by the Board	Authorizations/Registrations granted by the Board (number)	Capacity of E-Waste generation/collection/dismantling/recycling (MT/A)	Quantity of E-waste received for dismantling and recycling (MT)	Quantity of E-waste handled by dismantler and recycler (MT)
Dismantlers	70	63879	9475.00062	9139.036
Recyclers	08			
Total	78			

3.0 Water Quality in Maharashtra

Maharashtra has been blessed with 56 Rivers with a total length of almost 10000KMS throughout the State. Out of the five major rivers in India, three flow through the state of Maharashtra. The Godavari , Krishna and Tapti. Maharashtra has also enormous numbers of lakes. Out of all the cities which are famous for the lakes, Thane stands out the most. The city has been named the 'city of lakes' having a reservoir of 30 lakes.

In the matter of OA No. 673 of 2018-"More river stretches are critically polluted now: CPCB", the Hon'ble NGT has passed order dated 20.09.2018 for constitution of River Rejuvenation Committee (RRC) and Special Environment Surveillance Task Force (SESTF). The report comprises 351 polluted river stretches in India out of which 53 polluted river stretches are in Maharashtra. In the state, 9 polluted stretches in priority I & 6 polluted stretches in priority II. It has been mandated to prepare Action Plan for River Stretches and make them pollution free and in compliance of the same MPCB has already prepared & submitted the action plans for all polluted stretches.

The quality of water is affected by various factors like rate of monsoon, dilution during monsoon, high evaporation rate during the summers, sporadic pollution loads from various anthropogenic

activities, flow rate of water and so on. Hence, there could be varied fluctuations in the quality of water at the same monitoring location leading to seasonal variations.

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

3.1 Analysis of Surface Water Quality with Statistical details

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

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

3.1.1 West Flowing Rivers

The monthly trend of WQI along the basin of west flowing rivers across four districts in Maharashtra during the year 2018-19 is shown in **Figure 5.5.** In the districts of Raigad, Ratnagiri and Thane, the WQI was recorded as 'good to excellent' during all months of the year 2018-19 and the water quality was recorded as not polluted throughout the year. In Mumbai, the WQI was recorded as 'very poor' during the months of April, May, June, August, September, October, November, December 2018 and January and February 2019 and the water was heavily polluted during these months. In the month of July 2018, the WQI was observed to be 'good' and the water was unpolluted.

3.1.2 Saline (Sea and Creek)

Figure 5.5. shows the monthly trend in WQI along the Saline (sea & creek) basin across 5 districts during the year 2018-19. In Kalyan, the WQI was recorded as 'good to excellent' during the months of June, July, August, September, October, November 2018 and February 2019. In the months of May and December 2018 and Janaury and March 2019, the WQI was recorded as 'good'. The water was unpolluted throughout the year.

In Mumbai, the WQI was recorded as 'good' during the months of April, July, August, September, October, November, December 2018 and February 2019 and the water was unpolluted during these months. The WQI was recorded as 'poor' during the months of May, June 2018 and January 2019 and the water was polluted during these months.
In Raigad district the WQI was recorded as 'good to excellent' during the months of May, June, July, August, September, October, November and December 2018 and February and March 2019. The WQI was recorded as 'good' during the months of April 2018 and January 2019. The water was unpolluted throughout the year.

In Ratnagiri district, the WQI was recorded as 'good to excellent' during all months of the year 2018-19 and the water was unpolluted throughout the year. In Thane district, the WQI was recorded as 'good to excellent' during the months of July, August and September 2018. During the months of April, May, June, October, November, December 2018 and January, February and March 2019, the WQI was recorded as 'good' and the water quality was not polluted throughout the year.

3.2 Analysis of Groundwater Quality with Statistical details

In Maharashtra, CGWB (Central Ground Water Board), GSDA (Groundwater Survey and Development Agency) and MPCB monitor the ground water quality across various districts of the State. MPCB has 66 ground water monitoring stations which monitor water quality twice a year for parameters like pH, Nitrate, TDS, Hardness, Fluoride, microbial content, and sulphates. The water quality for groundwater across various Regions in the State is represented in **Table 12.0**

Legend for WQI for Ground Water in Various Regions.

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

Table 12 WQI for Ground Water in Various Regions.

Apr-18	79	80						114	104	105
Oct-18		71						145	122	140
Station Code	2001	2002	1993	2200	2201	2824	2825	1994	2828	2003
Region	**Amaravati**		**Aurangabad**					**Chandrapur**		

Apr-18	262	207	64	484	231	54	282	91	180	46	323	351	40
Oct-18	186	96	44	75	120	28	70	110	171	28	36	50	46
Station Code	2004	2005	2006	2007	2008	2202	2829	2830	2831	2832	2833	2834	2835
Region	**Kolhapur**												

Apr-18	25	208	104	106	109		181	29	138	194
Oct-18	81	207					162	56	209	194
Station Code	1992	2819	2821	2822	2823	1984	1985	1986	1987	1988
Region	**Pune**					**Thane**				

Apr-18	122	122		109	124			117	
Oct-18	106		101	129	97		113	106	
Station Code	1995	1996	1997	1998	1999	2000	2203	2826	2827
Region	**Nagpur**								

Apr-18		68					200
Oct-18							40
Station Code	1990	1991	2204	2816	2817	2818	1989
Region	**Nashik**						**Navi Mumbai**

3.3 Conclusion for WQI for Surface Water and Groundwater

In terms of overall basins, Godavari Basin 1 recorded the maximum observations in the 'non-polluted' category (98%) during the year 2018-19. This was followed by Godavari Basin 2 (94%), West Flowing Rivers (93%), Saline (Sea and Creek) sub-basin (75%) and Krishna (70%). In the Saline (Sea and Creek) sub-basin, only 21% of the observations were made in the 'polluted' category, as compared to 54% of observations in the 'polluted' category which were made during the year 2017-18. This indicates an improvement in the extent of pollution in this sub-basin.

The Mithi river was polluted throughout the year except in the month of July 2018, when the water quality was in the 'non-polluted' category which indicates the effect of dilution in pollutants due to rainfall during monsoon. As per CPCB, major polluted rivers such as Chandrabhaga, Koyna, which were recorded under Priority IV as on September 2018 were shifted to Priority V as on January 2019. The rivers, Krishna and Tapi were similarly shifted from Priority III to Priority IV. Kundalika river which was recorded under Priority I was shifted to Priority III whereas Pawana river which was shifted from Priority II to Priority III. These shifts indicate an improvement in water quality.

During 2018-19, 3 groundwater WQMS recorded WQI in the category 'Water Unsuitable for Drinking'. This number has neither reduced nor increased from that observed during the year 2017-18. These WQMS (2007, 2833 and 2834) recorded WQI under this category due to high levels of TDS, hardness, calcium and chlorides.

3.4 Domestic Waste water management in Maharashtra state

The total population of the Maharashtra is 11.24Cr as per senses 2011. Total wastewater generation in the state is around 7696 MLD. The state has established 7726.53Kms of sewer line to carry generated wastewater to nearby STP in urban areas only. In Maharashtra, only 32 cities have at least a partial conventional underground sewerage system. Hence, the reliance on on-site sanitation systems is very high in state of Maharashtra However, most cities in the state depend on on-site technologies such as single pit, and twin-pit or septic tank based toilets. As per Census 2011, In Maharashtra, around 70% of households have individual toilets of which 53 % are connected to sewer network, 40 % to septic tanks and around 7% to pits and other systems. Currently there are 134 operational STPs in the State of Maharashtra.

The total quantity of domestic effluent received by STPs during the year 2018-19 was 7696 MLD while the total quantity of domestic effluent treated by STPs during this year was 5073MLD. Details of STPs according to Regions in the State of Maharashtra are studies and the performance of STPs is analyzed based on standards of 10 mg/l for Biochemical Oxygen Demand (BOD) and 20 mg/l for Total Suspended Solids (TSS) as prescribed by CPCB in the Environment (Protection) Rules, 1986 in Schedule – VI. Action plans to treat 100% of wastewater generated in the state are in process in accordance with Guidelines for Septage Management in Maharashtra, Swachh Maharashtra Mission (Urban) Urban Development Department, and Government of Maharashtra.

The objective of this guideline is to facilitate all ULBs in Maharashtra to prepare an integrated faecal sludge management plan and implement a full septage management service in their cities. This would cover aspects across the service chain of on-site sanitation including safe collection, conveyance, treatment and disposal/reuse of the treated faecal sludge for all type of residential and non-residential properties (except industrial properties). These guidelines seek to provide urban local bodies with knowledge and procedures of preparing a septage management plan. These guidelines also discuss other aspects related to regulation, monitoring and awareness generation that are needed in sustainable implementation of septage management in their cities. The septage management plan would help ULBs improve overall sanitation in their towns.

3.5 Effluent Management in Maharashtra State

Maharashtra Pollution Control Board has 12 Regions & total number of industries under these regions in Maharashtra is 92,081. These industries are categorized as red, orange, green and white, and are further divided into small, large and medium based on their pollution index. The total number of red industries in Maharashtra is 13,936, orange is 27,719 and green is 42,884. The total number of large industries is 6,248, medium, 2,119 and small, 76,172. The total number of white industries in the State is 7,542. The categorization as well as size of industries within Maharashtra is given in **Table 13.0.**

Table 13 Categorization of industries in Maharashtra.

	Large	Medium	Small
Red	2747	488	10,701
Orange	2801	968	23,950
Green	700	663	41,521
White	7542		

To monitor compliance of Consent conditions, performance of ETP, ECS and other measures, the Board officials inspect industries regularly. Further there are 506 industries identified under “Highly Polluting Industries”. **Table 14.0** shows region-wise details of these highly polluting industries.

Table 14 Highly Polluting Industries as on 31/3/2019

Industry Category	No. of units
Sugar	225
Pulp & Paper	2
Distillery	100

Fertiliser	10
Oil Refinery	2
Pharmaceutical	85
Petro-Chemical	4
Pesticide	12
Cement	8
Thermal Power Plant	32
Tannery	1
Aluminium	0
Zinc	0
Chlor Alkali	0
Copper	0
Iron and Steel	9
Dye & Dye	16
Total	**506**

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

Region-wise information regarding the number of industries under each category as well as the amount of effluent generated and amount treated along with the performance of CETPs operating in these regions is illustrated below. Standards of 100 mg/l for BOD and 250 mg/l for COD as determined by the CPCB have been considered for evaluation of performance of CETPs. The total industrial effluent generated in the State of Maharashtra during the year 2018-19 was 403.69 MLD of which 402.29 MLD was treated by CETPs in the regions in consideration.

4.0 Air Pollution

Maharashtra Pollution Control Board has established Ambient Air Quality Network in Maharashtra covering major cities to comply with the mandate of Air (Prevention & Control) Act 1981 and to disseminate information regarding status of air quality prevailing in the State of Maharashtra. Also, monitoring is necessary for evaluation of the effectiveness of control programs and to identify areas in need of prioritization and long term air quality management.

Air quality monitoring is carried out to understand natural scavenging or cleansing processes in the environment through pollution dilution, dispersion, wind movement, dry deposition, precipitation and chemical transformation of pollutants generated.

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

As per CPCB monitoring protocol, locations are selected to represent different land use categories such as residential, industrial, and commercial, to capture air quality levels under different activity profiles. MPCB, with a presence across the state through its 12 Regional Offices (RO), regularly monitors pollutant levels through a medium of an established network of Ambient Air Quality Monitoring Stations (AAQMS) installed in various regions across Maharashtra. These AAQMS are installed under the National Air Monitoring Program (NAMP) and State Air Monitoring Program (SAMP). In the year 2018- 19, there are 72 active AAQMS in Maharashtra under NAMP (61), SAMP (1) and Continuous AAQMS (CAAQMS) (10). These air quality monitoring stations are operated through educational institutes, local bodies which are having infrastructure to monitor air quality stations as per Central Pollution Control Board (CPCB) monitoring protocol. As these agencies have long agreement with MPCB for operation of monitoring stations their performance is reviewed by the Board. The data generated by these stations are verified at HQ level before forwarding it to CPCB. These stations are connected to the AQI server at CPCB, New Delhi.

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 2018-19. The data is analyzed for SO2, NOX 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.

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

In the year 2018-19, air quality monitoring was done across 72 active AAQMS installed in various regions of Maharashtra. As shown in Figure No.17, around 68.8% observations came under the 'Good' and 'Satisfactory' categories, as compared to 65% in the previous year (2017-18). Thus, an increase in the percentage of non-polluted days by almost 4% was recorded. There was a very slight change in the 'Moderate' category, with 29.4% observations recorded this year compared to 30% in 2017-18. A decreasing trend was observed in the 'Poor' category by more than 2%, from 3% to 1.38% in 2018-19. A similar trend was observed in the 'Very Poor' category, while a very minute part came under 'No Data'. Table 5.24 represents colour codes for various ranges of AQI.

4.1 Trend Analysis of AQI share over 4 years

Analysis of the trend of share of mean Air Quality Index between the years 2015 and 2019 was carried out in order to compare and study the contributions of each AQI category during these years. **Figure 5.4.** shows the trends of share of categories of AQI during the years 2015-15, 2016-17, 2017-18 and 2018-19.

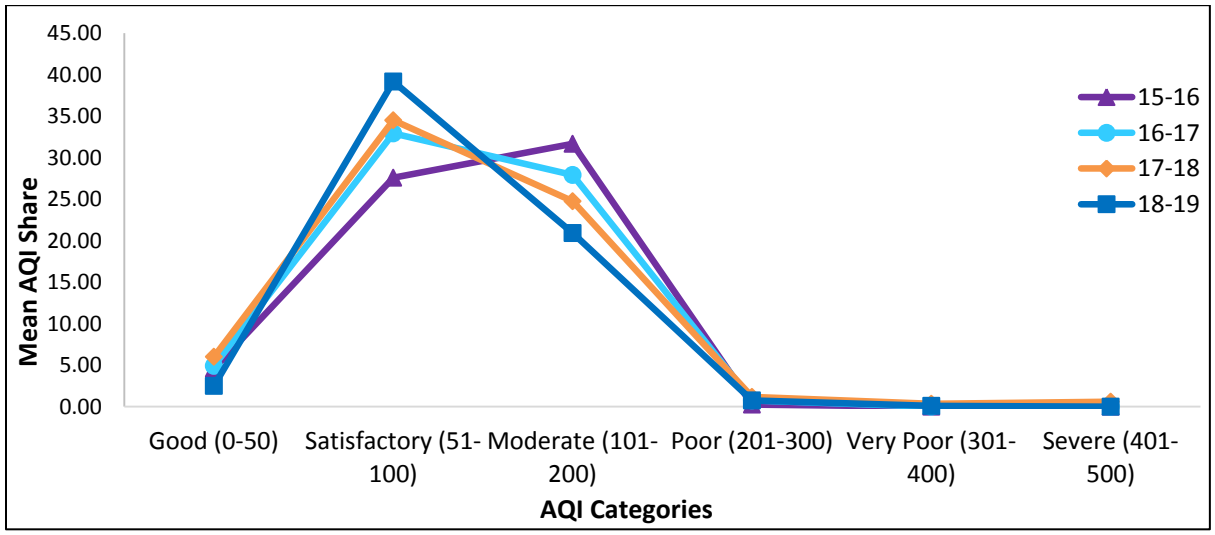


Figure 5 Trends in year-wise share of AQI categories.

From **Figure 5.0** it can be observed that during the year 2015-16, the highest share was of the 'Moderate category of AQI, followed by the share of the 'Satisfactory' category. During rest of the years, the share of the 'Satisfactory' category of AQI was the greatest, followed by the 'Moderate' category. During all 4 years, the share of the 'Good' category was found to be the third most. The share of the AQI categories of 'Poor', 'Very Poor' and 'Severe' was negligible during all years.

4.2 Mining

The State of Maharashtra encompasses on area of 307713 sq.km. Out of which likely mineral bearing area is about 58465 sq.km. i.e. 19% of the total area of the State. Division wise distribution of mineral bearing area is Nagpur (60%), Amravati (10%) Konkan (20%), Aurangabad (5%), Pune (3%) & Nasik (2%). The important minerals occurring in the State are Coal, Iron ore, Manganese, Limestone, Bauxite, Dolomite, Silica sand, Kyanite & Sillimanite. The other minerals occurring are Barytes, Ilmenite, Clay, Feldspar, Copper, Chromite, Graphite, Fluorite, Tungsten etc.

- **Geology Of The State**

The entire area of the State forms a part of the "Peninsular Shield", which is composed of rocks commencing from the most ancient rocks of diverse origin, which have undergone considerable metamorphism. Over these ancient rocks of Precambrian era lie a few basins of Proterozoic era and of permocarboniferous periods which are covered by extensive sheets of horizontally bedded lava flows comprising the Deccan trap. More than 80% area of the State is covered by these Deccan trap, which have concealed geologically older formations. The most important economic minerals such as coal, iron ore, manganese ore, limestone, etc. are found in the geologically older formations.

Structurally, the entire area of the state forms a part of the "Peninsular Shield" of India which represents a fairly stable block of earth crust that has remained unaffected by, mountain building movements, since the advent of the Palaeozoic era. Some of the subsequent movements in the crust have been of the nature of normal and block faulting which have laid down certain portions bounded by tensional cracks of faults giving rise to basins in which sedimentary beds of the Gondwana age have been deposited. Particularly in the Vidarbha region giving rise to the the important limestone as Penganga beds and coalfields of the Pench-Kanhan valley, the Umred – Bander field the Wardha valley and Vidarbha valley. It is generally accepted that the

Western coast has been formed as a result of the faulting. Along this coast from Ratnagiri to Mumbai, and further north in Thane district there exists a series of hot springs arranged almost in linear fashion which suggests that they are situated on a line of fracture. Further evidence regarding the formation of west coast by faulting is offered by the Western Ghats comprising Deccan trap lava flows, which are several hundred metres thick near the coast and which gradually thins out east wards. Near Panvel, near the west coast the Deccan traps show westerly slopes indicating designated as Panvel flexure.[1]

- **Industrial State profile of Maharashtra, MSME Development Institute, 16-17**

Amravati, Bhandara, Chandrapur, Gadchiroli, Nagpur and Yavatmal districts in Vidarbha region, Kolhapur & Satara districts in Western Maharashtra and Raigad, Ratnagiri, Sindhudurg & Thane districts in Konkan region have deposits of minerals like coal, limestone, manganese ore, bauxite, iron ore, dolomite, laterite, kyanite, fluorite (graded), chromite, silica sand, quartz, etc. The total potential mineral area in the State is about 58 thousand sq km, which is about 19 per cent of the State's total geographical area. As on 31st March, 2015, in all 290 mines of major minerals with about 0.6 lakh employment were operational in the State. The State accounts for 6.2 per cent share in the country as regards employment in mining sector.The total value of minerals extracted during 2014-15 was Rs.7,381 crore, of which value of coal extracted was Rs.6,083 crore (82.4 per cent). Status of Mineral production in Maharshtra is attached as Annexure I. [2]

4.3 Noise Pollution Management In Maharashtra

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

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

The sound level limits specified by CPCB represent the general limitation on noise produced by noise sources. Some noises however, are annoying no matter where or in what kind of

[1] Directorate of Geology & Mining, Govt. of Maharashtra, Nagpur.
[2] Economic Survey of Maharashtra, 2017-18, Directorate of Economics & Statistics, Planning Dept, GoM, Mumbai

environment they exist. High level impulsive noises represent a special category and consequently are restricted by an absolute limitation.

The Central Pollution Control Board (CPCB) constituted a National Committee of Experts on Noise Pollution Control. The Committee recommended noise standards for ambient air and for automobiles, domestic appliances and construction equipment, which were later notified under The Environment (Protection) Act, 1986 as given in **Table 15.0.**

Table 15 Standards of Noise Levels under EPA (1986) Noise Pollution (Regulation & Control) Rules, 2000.

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

Noise monitoring at various locations at metropolitan cities in the State of Maharashtra was not carried out during the year 2018-19. Therefore measurements of noise levels are not available for the reporting year.

However MPC Board is monitoring real time noise levels at Mumbai & its suburban areas at 10 locations viz. Bandra, Wadala, Mahape, Vashi, Thane, Govandi, Fort area, Mumbai ASHP, Bisleri Andheri, L&T Powai etc.

4.3.2 Noise Monitoring during Ganesh Festival 2018.

Ambient noise monitoring was carried out during the period of Ganesh Festival at 132 locations which are covered under 27 Municipal Corporations all over the State of Maharashtra. Monitoring was carried out for 5 days considering the noise that was generated during the festival. Noise monitoring was carried out for 6 hours between 6 PM to 12 AM on 13th, 14th, 17th, 19th and 23rd September, 2018. Noise monitoring was carried out using calibrated Sound Level Meters (Type II) kept at fast response mode keeping in view the quickly changing nature of noise levels, and using ‘A’ filter. Figure 6.0 represents the results of noise monitoring carried out.

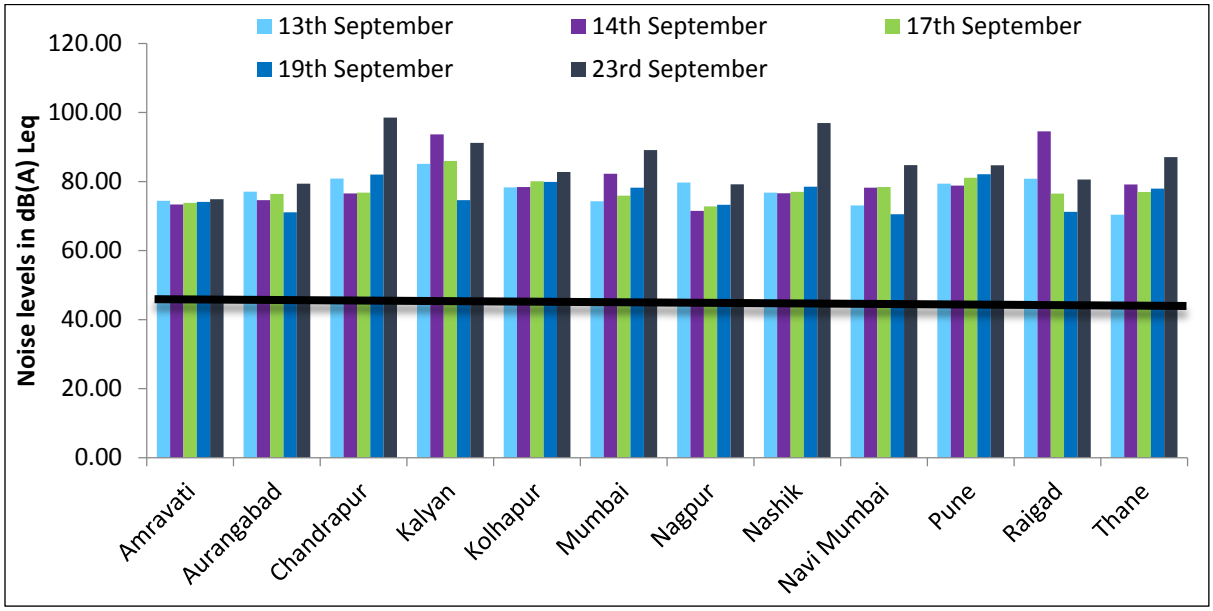


Figure 6 Noise levels during Ganesh Festival 2018 at different locations in Maharashtra.

From Figure 6.0, it can be observed that the highest mean noise level recorded on 13th September 2018 was at Kalyan at 85.14 dB(A). On14th September 2018, which was the second day of noise monitoring, the highest mean noise level recorded was 94.53 dB(A) at Raigad. On 17th September 2018, the highest mean noise level recorded was 85.98 dB(A) at Kalyan. On 19th September 2018, 82.11 dB(A) was the highest noise level which was recorded at Pune. On the last day of noise monitoring during Ganesh festival, that is on 23rd September 2018, the highest noise level was 98.50 dB(A) and was recorded at Chandrapur.

The lowest mean noise level recorded on 13th September which was the first day of noise monitoring during Ganesh festival, was 70.41 dB(A) at Thane. On 14th and 17th September, the lowest mean noise levels were 71.52 dB(A) and 72.82 dB(A) respectively, and were recorded at Nagpur. On 19th September 70.54 dB(A) was the lowest mean noise level recorded at Navi Mumbai. On 23rd September 2018, 74.88 dB(A) was the lowest mean noise level recorded at Amaravati.

The most common source of noise at all locations was dhol, banjo and Puneri dhol. The crowds that had gathered for Ganesh idol immersion in turn increased the traffic and also contributed to the increase in noise level. The noise pollution awareness has increased within the public through different media like newspaper and television. Many people celebrate an eco-friendly Ganesh Festival to control environmental pollution.

4.3.3 Noise Monitoring during Diwali 2018.

In order to assess the ambient noise levels in the environment during Diwali festival, the MPCB has taken an initiative to carry out noise monitoring at 158 locations all over Maharashtra for a period of 3 days: before Diwali on 1st November 2018 and during Diwali Festival i.e. on 7th (Lakshmi-Pujan) and 9th (Bhaubeej) November, 2018 for 24 hours at various locations in different cities in Maharashtra. The main aim of the project was to determine the trends and variations of noise levels at various areas in the cities over different land uses and to create awareness about noise pollution through availability of scientific noise level data.

Noise monitoring was carried out using calibrated Sound Level Meters (Type I) kept at fast response mode keeping in view the quickly changing nature of noise levels, and using 'A' filter.

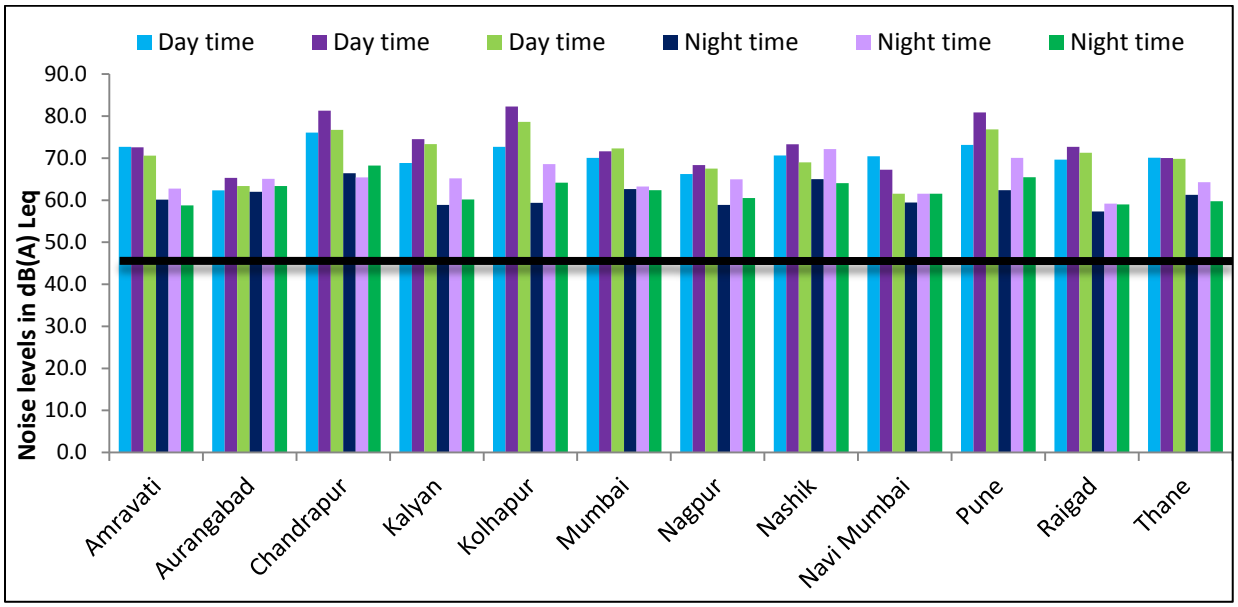


Figure 7 Noise levels during Diwali 2018 at different locations in Maharashtra.

From Figure 7.0 it is observed that the mean highest mean noise levels of 76.1 dB(A) and 81.3 dB(A) were recorded during day time on 1st and 7th November respectively at Chandrapur. During day time on 9th November, the highest mean noise level of 78.6 dB(A) was recorded at Kolhapur. The highest mean noise levels of 66.4 dB(A) and 68.2 dB(A) were recorded during night time on 1st and 9th November at Chandrapur, while during night time on 7th November, the highest mean noise level of 72.2 dB(A) was recorded at Navi Mumbai.

The lowest mean noise levels of 62.4 dB(A) and 65.3 dB(A) were recorded during day time on 1st and 7th November respectively, at Aurangabad. The lowest mean noise level of 61.5 dB(A)

was recorded during day time on 9th November at Navi Mumbai. The lowest mean noise levels of 57.3 dB(A) and 59.2 dB(A) were recorded during night time on 1st and 7th November respectively at Raigad. During night time on 9th November, the lowest mean noise level of 58.8 dB(A) was recorded at Amaravati.

Municipal Corporations like Mumbai, Thane, Nashik, Aurangabad, and Nagpur showed lesser noise levels in some of the locations selected. The MPCB has taken a good initiative for measuring the noise level every year during the period of the festival and this data is published and is readily available to the public on the Board's website. People have become more aware about the pollution that they create, which has helped in the reduction in use of firecrackers and to some extent the reduction of usage of dhols and loud speakers during Ganesh festival

5.0 Environmental Awareness and sensitization

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 2018-19 the MPC Board carried out more than 50 environmental awareness programs. The details of the same are given in Annexure II.

Further during the year 2018-19, the Board had deputed 557 officers to attend training in technical, scientific and administrative courses organizing 60 training programs / courses / workshops / seminars / lectures attended by the Staff and the Officers of the Board.

6.0 Detailed Action Plan

A detailed management cum Action Plan for all the above mentioned aspects is developed to ensure that all issues are address and actions are being implemented in an environmentally sustainable manner to minimize any adverse environmental impacts and assure sustainable development. Various macro & micro level environment management measures adopted /proposed by State are discussed in brief in Detailed Action Plan attached as **Annexure III**.

Annexure I – Mineral Production in Maharashtra

ANNEXURE 8.3

MINERALS PRODUCTION IN MAHARASHTRA

(Quantity: '000 tonne)
(Value: ₹ Lakh)

Sr. No.	Minerals	Quantity / Value	1961	1971	1980-81	1990-91	2000-01	2010-11	2016-17*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Salt	Quantity	384	472	540	229	148	180	154
2	Coal	Quantity	856	2,085	5,770	16,848	28,754	36,932	40,559
		Value	186	745	6,681	47,244	2,10,192	5,08,249	7,49,451
3	Chromite	Quantity	1	3	2	--	0.6	--	0.001
		Value	1	5	5	--	8	--	0.042
4	Iron Ore	Quantity	362	613	1,456	645	22	1,018	1,198
		Value	51	69	657	384	31	7,154	7,177
5	Limestone	Quantity	55	363	715	5,135	6,066	10,431	11,998
		Value	2	33	163	1,968	5,266	15,647	44,993
6	Manganese ore	Quantity	179	218	232	276	363	589	417
		Value	206	148	553	1,615	6,280	54,109	46,988
7	Kaolin (Natural)	Quantity	2	3	5	3	0.2	--	--
		Value	0.13	0.16	1	1	0.29	--	--
8	Bauxite	Quantity	27	302	365	543	1,027	2,492	1,893
		Value	2	21	137	443	1,705	4,585	22,984
9	Dolomite	Quantity	6	5	27	28	65	79	--
		Value	0.38	1	8	27	145	71	--
10	Silica sand	Quantity	5	27	89	197	168	327	--
		Value	0.34	3	3	87	228	982	--
11	Fluorite (Graded)	Quantity	--	--	--	3	3	284	1
		Value	--	--	--	--	24	12,457	--
12	Laterite	Quantity	--	--	--	85	83	49	--
		Value	--	--	--	76	107	58	--
13	Kyanite	Quantity	--	5	22	15	0.2	3	3
		Value	--	11	53	85	1	24	93
14	Others[$$]	Quantity	--	4	544	912	306	4,034	610
		Value	--	0.36	27	196	49	5,258	649

Source - (1) Directorate of Geology and Mining, Nagpur.
(2) Assistant Salt Commissioner, GoI, Mumbai

* Provisional

$ Figures are for calendar year.

$$ Others include minerals like Sand Stowing and Silimanite.

ANNEXURE II- Details of Environment Awareness programs conducted by MPCB

Month	Subject	Details
May 2018	Maharashtra Mango Festival: Financial assistance for environmental awareness during Mango Festival 2018 organized at Kalyan and Dombivali.	Ajinkya Pratishthan had organized the Mango Festival at Kalyan and Dombivali. During the Mango Festival, public awareness regarding plastic ban was carried out. For this, information about banned products was made public through illustrations.
May 2018	Financial assistance for environmental awareness on the occasion of the golden jubilee anniversary of Lokshaheer Patthe Bapurao at Karad.	On the occasion of the golden jubilee anniversary of Lokshaheer Patthe Bapurao, an All India Folk Art Conference was organized at Karad. Awareness regarding plastic ban was carried out comprehensively in this conference.
May 2018	Financial assistance for the 'Paryavaranachi Pustakbaag 2018' program.	The 'Paryavaranachi Pustakbaag' program was organized at Mahad District, Raigad by the organization called Rangasugandh. This year the program was organized between 8th April and 1st May, 2018. 500-600 students participated in this program daily. In the 'Paryavaranachi Pustakbaag' program, participant students were informed about the environment on different levels through various media such as residential camps, lectures providing interesting information about the environment, handwriting workshops, slide shows, theater, nature trails, forest and bird watching, calligraphy workshops, drawing, storytelling, elocution, essay writing, mural making, quizzes and various games. To carry out extensive public awareness regarding plastic ban, activities such as distribution of cloth bags, street plays, preparation of bags from old sarees were organized. This program is organized free of cost jointly by Rangasugandha and MPCB for school students. The 'Paryavaranachi Pustakbaag' program has been organized with assistance from MPCB for increasing environmental awareness in school students during summer vacations and this program had received great response from school students.
June 2018	On occasion of World Environment Day, 5th June 2018, financial assistance granted for environmental short film competition organized by the Environment Vigilance Forum.	An environmental short film competition and festival were organized jointly by the MPCB and the Environment Vigilance Forum. The environmental short film competition was organized for amateur and professional groups. About 60 short film entries were received in this competition. For this competition, Mr. Santosh Pathare, Mr. Mangesh Satpute, Mr. Dnyanesh Zoting, Mr. Sagar Talshilkar, Mr. Santosh Shintre and Dr. Nagesh Tekale served as judges. The winners of the competition were awarded during the

		World Environment Day program on 5th June, 2018.
June 2018	Funding for World Environment Day with assistance from Environment Vigilance Forum.	The main event was organized at Yashwantrao Chavan Auditorium at Mumbai on 5th June 2018, World Environment Day. Hon'ble State Environment Minister, Mr. Ramdas Kadam, State Minister for Environment, Mr. Pravin Pote Patil, Additional Principal Secretary of Environment Department, Mr. Satish Gavai and Hon'ble Member Secretary of the MPCB, Dr. P. Anbalagan attended this event. During this event, the prize distribution ceremony for the Vasundhara Award competition organized for industries, Municipal Corporations and CETPs was conducted. This competition was organized for professional and amateur groups. During this event the prize distribution ceremony of Photothon 2018 was also conducted. The introductory speech of this event was given by Hon'ble Member Secretary of MPCB, Dr. P. Anbalagan. Also the Short Film festival arranged by the Environment Vigilance Forum was co-organized by the MPCB and the Environment Department of the Government of Maharashtra on 5th, 6th and 7th June, 2018. Environmentalists attended this program in large numbers. Seminars with film directors, producers, environment experts and researchers were also organized during this program.
June 2018	Public awareness messages on MTNL bills on occasion of World Environment Day.	Public awareness messages were printed on MTNL bills on occasion of World Environment Day. For creating extensive public awareness regarding the Prevent Plastic Pollution theme of this year's World Environment Day, and implementation of plastic ban by the State Government, these public awareness messages were made public.
June 2018	Financial assistance for displaying public awareness messages about plastic ban at bus stops in Nagpur city on occasion of World Environment Day.	Public awareness messages about plastic ban were displayed at bus stops in Nagpur City on occasion of World Environment Day.
June 2018	Financial assistance for displaying public awareness messages about plastic ban at bus stops in Pune city on occasion of World Environment Day.	Public awareness messages about plastic ban were displayed at bus stops in Pune City on occasion of World Environment Day.
June 2018	Financial assistance for public awareness program organized by Bhamla Foundation on occasion of World Environment Day, 5th June, 2018.	On occasion of 5th June, 2018, World Environment Day, the Bhamla Foundation had organized environmental awareness programs, canvas painting of environmental messages, brainstorming on public awareness and other various acitivities at Bandra. Veteran film artists and sportspersons attended this

		program.
June 2018	Financial assistance for displaying public awareness messages related to plastic ban on Times OOH bus stop shelters on occasion of World Environment Day.	On occasion of World Environment Day, public awareness messages related to plastic ban were displayed on Times OOH bus stop shelters in Mumbai city.
June 2018	Publishing public awareness messages on 5th June, World Environment Day 2018 in newspapers such as DNA, Hindustan Times and Midday.	A one page public awareness column was published in newspapers such as DNA, Hindustan Times and Midday Mumbai on 5th June, World Environment Day 2018
June 2018	Publishing public awareness messages on 5th June, World Environment Day 2018 in newspapers such as Times of India and Maharashtra Times.	On 5th June, 2018 – World Environment Day, Times of India published a special one page section in the Mumbai edition. Maharashtra Times published a special public awareness message on the front and inside page in the Mumbai, Pune, Nagpur and Nashik editions. An envelope with public awareness messages about plastic ban was enclosed and distributed for the first time in the South Mumbai section of the Mumbai edition of Maharashtra Times.
June 2018	Organizing a plastic ban exhibition on occasion of 5th June, 2018 World Enviornment Day.	In keeping with the theme “Prevent Plastic Pollution” for World Environment Day, an exhibition related to alternatives for plastic bags was organized on 3rd, 4th and 5th June, 2018 at Mantralaya. An exhibition of paper and cloth bags, plates prepared from sugarcane waste and eco-friendly products made by Mahila Bachat Groups from the State was organized. The exhibition was inaugurated by the Hon’ble Environment Minister, Mr. Ramdasbhai Kadam. Hon’ble State Minister for Environment, Mr. Pravin Pote-Patil, Additional Chief of the Environment Department, Mr. Satish Gavai and other dignitaries were in attendance.
June 2018	Publishing public awareness messages in newspapers such as Loksatta, Indian Express and Lokmat on 5th June, 2018, World Environment Day.	Public awareness messages were published on occasion of 5th June, 2018, World Environment Day in the Mumbai, Pune, Nagpur, Ahmednagar, Aurangabad and Delhi editions of Loksatta, in the Mumbai, Pune, Nagpur and Delhi editions of Indian Express and on the front and inside pages of the Mumbai, Nagpur and Aurangabad editons of Lokmat.
June 2018	Publishing public awareness messages in magazines such as India Today, Corportate India, Tarun Bharat, Business Outlook, Jeevandhara, Vivek, Evo and Enviro Friend on 5th June, 2018, World	Public awareness messages were published in magazines such as India Today, Corportate India, Tarun Bharat, Business Outlook, Jeevandhara, Vivek, Evo and Enviro Friend on 5th June, 2018, World Environment Day.

	Environment Day.	
June 2018	Publishing public awareness messages in newspapers such as Dainik Saamana, Dainik Sakaal and Dainik Divya Marathi on 5th June, 2018, World Environment Day.	On 5th June, 2018, World Environment Day, public awareness messages were published in the Mumbai, Pune and Aurangabad editions of Dainik Saamana, on the front page jacket and inside page of the Mumbai edition of Dainik Sakaal and as a special single page in the Pune and Nashik ediitons of Dainik Sakaal and in the Aurangabad, Nashik, Jalgaon, Solapur, Ahmednagar, Akola and Amaravati editions of Dainik Divya Marathi.
July 2018	Financial funding for the environmental awareness campaign, 'Paryavaranachi Waari, Pandharichya Daari'	An environmental public awareness campaign namely 'Paryavaranachi Vaari Pandharichya Daari' was organized on the occasion of Aashadhi Ekadashi and the foot pilgrimage to Pandharpur. As environmental issues are equally detrimental to urban and rural areas, fundamental messages such as plastic waste removal, proper use of water, electricity and natural resources, use of limited electrical power for agriculture, use of organic fertilizers, proper waste management of wet waste and dry waste were given. 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, Bharudkar Lakshman Rajguru and Hari Bhakta Parayan Mr Dnyaneshwar Maharaj Wabale created public awareness through Bharud, Povada and Kirtan respectively. This year's Pandharpur pilgrimage was inaugurated at Pune in the august presence of Hon'ble Member Secretary, Dr. P. Anbalagan, Regional Officer, Pune, and Dr. Prakash Khandge, a well-known researcher of folk arts. The conclusion of this pilgrimage was organized at Pandharpur on the eve of Aashadhi Ekadashi in the presence of Hon'ble Minister of Water Resources, Mr. Girish Mahajan, Hon'ble Minister of Transport, Mr. Divakar Ravate, Hon'ble Cabinet Minister (Solapur), Mr. Vijay Deshmukh, Hon'ble Co-operation, Marketing and Textiles Minister, Mr. Subhash Deshmukh, Hon'ble Minister of Water and Sanitation, Mr. Babanrao Lonikar, Hon'ble Senior Cabinet Minister, Mr. Mahadev Jankar, Hon'ble Cabinet Minister, Mr. Diliprao Kamble, and Hon'ble Member Secretary of MPCB, Dr. P. Anbalagan. Folk artists created awareness regarding climate change, the changing environment, plastic pollution, water scarcity and management, and tree plantation through the medium of folk art.
July 2018	Display of hoardings regarding ban on plastic and Thermocol at Airport Road,	On occasion of the monsoon session of the State Legislative Asembly, hoardings regarding ban on plastic and Thermocol were displayed at Airport

	Nagpur for creating extensive public awareness.	Road, Nagpur for creating extensive public awareness.
August 2018	Eco-friendly Dahi Handi Celebration.	Eco Friendly Dahi Handi Festival 2018 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. Public awareness regarding the serious health effects of noise pollution was created through street plays. Eco-friendly Dahi Handi was smashed in the presence of young celebrities from Zee TV and ETV. At the time, in front of Chhabildas High School in Dadar, the noise-free eco-friendly Dahi Handi was smashed along with celebrities from the film and theatre industry. Public Relations Officer, MPCB was present during this event.
September 2018	Funding for public awareness program for an eco-friendly Ganesh Festival on TV9 channel.	An eco-friendly Ganesh competition was organized for school students as a joint venture between TV9 and MPCB. A eco-friendly Ganesh workshop was arranged for this event. A special 30 minute program was organized for this competition. The award distribution of this competition was held at the TV9 channel studio.
September 2018	Funding for the Big Green Ganesha Program organized by 92.7 Big FM	The Big Green Ganesha activity was co-organized by 92.7 Big FM and MPCB in the city of Mumbai. During Ganesh festival a special studio was set up at Lalbaghcha Raja in Mumbai city for 10 days. At this time, Hon'ble Chief Minister of Maharashtra, Hon'ble Minister for Environment, Hon'ble State Minister for Environment and film celebrities spread messages for public awareness.
September 2018	Approval of financial grant for Household Eco-Friendly Ganesh Festival Competition 2018 organized by Loksatta and MPCB.	Eco-friendly household Ganesh festival decoration competition was organized jointly by MPCB and Loksatta at 6 divisions of Loksatta newspaper at Mumbai, Pune, Nashik, Nagpur, Ahmednagar and Aurangabad. More than 3000 people competed in this event. Prize distribution of this competition took place at Yashwantrao Chavan Pratishthan at the hands of Hon'ble Minister for Environment, Mr. Ramdas Kadam, Hon'ble Principal Secretary (Department of Environment), Mr. Anil Diggikar, and Hon'ble Member Secretary of MPCB, Mr. E. Ravendiran. A special column regarding this event was published in all editions of Loksatta newspaper.
September 2018	Financial grant for the Times Green Ganesha program	Eco-Green Ganesha competition was organized jointly by Environment Department of MPCB,

	organized by Times of India.	Government of Maharashtra and Times of India group for public Ganesh festival organizations and housing societies in Mumbai and Pune. During this campaign, public awareness activities were conducted in various malls, movie theatres and colleges. Eco-friendly Ganesh festival workshops were conducted for school students. Various activities and cleanliness campaigns were conducted by college students for the eco-friendly Ganesh ambassador during Ganesh idol immersion at Girgaon Chowpati. The campaign was launched by film actor Varun Dhavan and actress Anushka Sharma at Oberoi Mall, Goregaon. The award distribution ceremony was conducted at Sahyadri State Guest House in the presence of Hon'ble Minister for Environment, Mr. Ramdas Kadam and Hon'ble Member Secretary of MPCB, Mr. E. Ravendiran. A special section on this program was published in all ediitons of Maharashtra Times.
September 2018	Funding for Household Ganesh Festival Competition organized by Zee 24 Taas and MPCB.	The Eco-friendly Ganesh Festival Competition 2018 was organized jointly by the MPCB and Zee 24 Taas. The competition received a stellar response. Participation in this competition was advertised through special promos. News capsules with celebrities celebrating an eco-friendly Ganesh festival were broadcast on occasion of the competition.
September 2018	Funding for Public Ganesh Festival competition organized by IBN Lokmat and MPCB.	A public Ganesh Festival competition was organized by IBN Lokmat and MPCB. Participation in this competition was advertised through special promos. In this program, 5 special episodes were broadcast by this channel.
September 2018	Funding for Eco-friendly Ganesha Public Awareness Campaign organized by DNA and MPCB.	To celebrate an eco-friendly Ganesh festival, a household eco-friendly competition was organized in housing societies by DNA and MPCB. MPCB played the role of co-convener in this campaign organized by DNA. Prominent celebrities from the Hindi film industry participated in this campaign.
September 2018	Funding for Eco-Ganesha Public awareness campaign organized by Dainik Saamana and MPCB.	Eco-friendly public Ganesh festival was organized at Mumbai, Pune and Aurangabad with assistance from the newspaper, Dainik Saamana. The prize distribution event was conducted in the presence of Hon'ble Minister for Environment, Mr. Ramdasbhai Kadam and Hon'ble Member Secretary, MPCB, Mr. E. Ravendiran. A special section about this program was published in all editions of Dainik Saamana at Mumbai, Pune and Aurangabad.
September 2018	Financial grant for displaying public awareness messages regarding eco-friendly Ganesh festival on bus stop	Public awareness messages regarding eco-friendly Ganesh festival were displayed on bus stop shelters in Pune city.

	shelters in Pune city.	
September 2018	Financial grant for displaying public awareness messages regarding eco-friendly Ganesh festival on bus stop shelters in Nagpur city.	Public awareness messages regarding eco-friendly Ganesh festival were displayed on bus stop shelters in Nagpur city.
September 2018	Financial grant for eco-friendly Ganesh festival public awareness campaign by Jai Maharashtra TV channel.	An eco-friendly Ganesh festival competition was organized for housing societies by Jai Maharashtra TV channel and MPCB.
September 2018	Financial assistance for displaying public awareness messages related to an eco-friendly Ganesh festival on Times OOH bus stop shelters.	Public awareness messages related to an eco-friendly Ganesh festival were displayed on Times OOH bus stop shelters in Mumbai city.
September 2018	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, Dr. Amol Kolhe and Prajakta Gaikwad 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. At this time, the celebrities visited the MPCB Headquarters. ABP Maza broadcast a special news section on this campaign.
October 2018	Funding for the tandem cycling program for plastic ban organized by The Blind Welfare Association from Shirdi to Mumbai.	Funds have been granted for the tandem cycling program for plastic ban organized by The Blind Welfare Association from Shirdi to Mumbai.
October 2018	Financial grant for Environment Convention 2018 organized by Nature and Social Environment Pollution Prevention Board.	An environmental convention was organized by Nature and Social Environment Pollution Prevention Board at Ralegan Siddhi, District Ahmednagar. Financial assistance was granted for the same.
November 2018	Funding for public awareness messages for an	Public awareness messages for an eco-friendly Diwali were displayed on bus stop shelters in Nagpur

	eco-friendly Diwali displayed on bus stop shelters in Nagpur city.	city.
November 2018	Public awareness messages regarding a pollution-free Diwali 2018 from Hon'ble Chief Minister, Hon'ble Minister of Environment and Hon'ble Cabinet Minister broadcast by various TV channels.	Diwali festival 2018: Public awareness messages regarding a pollution-free Diwali 2018 from Hon'ble Chief Minister, Hon'ble Minister of Environment and Hon'ble Cabinet Minister were broadcast by ABP Majha, Zee 24 Taas, IBN Lokmat, TV9, Jai Maharashtra, Saam TV and Mumbai Doordarshan.
November 2018	Broadcasting of a 16 minute episode on the Pollution-free Diwali Resolution 2018 program.	A 16 minute episode on the Pollution-free Diwali Resolution 2018 program was broadcast on TV channels such as ABP Majha, Zee 24 Taas, IBN Lokmat, Jai Maharashtra, Saam TV and Mumbai Doordarshan.
November 2018	Broadcasting of a Pollution-free Diwali Resolution Campaign Pledge 2018 from various TV new channels.	Pollution-free Diwali Resolution Campaign Pledge 2018 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Mr Devendra Fadnavis. Live telecast of this event was broadcast on leading news channels in the State.
November 2018	Publishing news on a Pollution-free Diwali Resolution Campaign 2018 in Maharashtra Times.	Pollution-free Diwali Resolution Campaign Pledge 2018 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Mr Devendra Fadnavis. News about this event was published in all editions of the newspaper, Maharashtra Times.
November 2018	Publishing news on a Pollution-free Diwali Resolution Campaign 2018 in Lokmat.	Pollution-free Diwali Resolution Campaign Pledge 2018 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Mr Devendra Fadnavis. News about this event was published in the Mumbai, Aurangabad and Nagpur editions of Dainik Lokmat.
November 2019	Public awareness messages on the occasion of an eco-friendly Diwali displayed on MTNL bills.	Public awareness messages were displayed on MTNL bills messages on the occasion of an eco-friendly Diwali.
November	Publishing public awareness	Public awareness messages regarding the

2019	messages during Diwali celebration in India Unbound Magazine.	functioning of the MPCB were published in the India Unbound magazine during Diwali celebration.
November 2018	Publishing public awareness messages regarding the Pollution-free Diwali Resolution Campaign 2018 in leading newspapers.	Pollution-free Diwali Resolution Campaign Pledge 2017 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Mr Devendra Fadnavis. News about this event was published in leading newspapers in the State.
November 2018	Organizing Pollution-free Diwali Resolution Campaign 2018.	Pollution-free Diwali Resolution Campaign Pledge 2017 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Mr Devendra Fadnavis. Hon'ble Environment Minister, Mr. Ramdas Kadam, Hon'ble Minister of Public Works, Mr. Chandrakant Dada Patil, Hon'ble State Minister of Water Supply, Mr. Babanrao Lonikar, Hon'ble Minister of Water Resources, Mr. Girish Mahajan, Hon'ble State Minister of Environment, Mr. Pravin Pote Patil, Hon'ble Cabinet Minister, Mr. Ram Shinde, Hon'ble State Minister of Water Resources, Mr. Vijay Shivtare, Hon'ble State Minister of Animal Hunbandry, Mr. Mahadeorao Jankar, Hon'ble Principal Secretary, Mr. Pravin Pardeshi, Hon'ble Principal Secretary (Department of Environment), Mr. Anil Diggikar, and Hon'ble Member Secretary of MPCB, Mr. E. Ravendiran were present for this program. Students from various colleges in Mumbai were also present for this program. News about this program was broadcast by leading TV news channels and was published by leading newspapers in the State.
November 2018	Publishing special public awareness messages regarding the Pollution-free Diwali Resolution Campaign 2018 in the newspapers, Dainik Saamana, Dainik Sakaal and Dainik Divya Marathi.	Pollution-free Diwali Resolution Campaign Pledge 2017 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Mr Devendra Fadnavis. News about this program was published by the newspapers, Dainik Saamana, Dainik Sakaal and Dainik Divya Marathi as a special section.
November 2018	Financial grant for environmental awareness at the Konkan Festival organized by the Mee Kanjurkar Pratishthan.	A festival showcasing the culture of Konkan was organized by the organization, Mee Kanjurkar Pratishthan. The MPCB participated in this festival for creating extensive public awareness regarding the environment and pollution in the Konkan region.

November 2018	Funding for broadcasting public awareness messages to promote a pollution-free Diwali on leading radio channels in the State.	The public awareness message saying 'Celeberate a pollution-free Diwali' by Hon'ble Chief Minister, Hon'ble Environment Minister and Hon'ble State Minister for Environment was broadcast by FM radio channels.
November 2018	Financial grant for displaying public awareness messages for promoting celebration of a pollution-free Diwali 2018 on bus stop shelters in Mumbai city.	Public awareness messages for promoting celebration of a pollution-free Diwali 2018 were displayed on bus stop shelters in Mumbai city.
November 2018	Funding for publishing a section on the Pollution-free Diwali Resolution Campaign in the newspaper Dainik Loksatta.	Pollution-free Diwali Resolution Campaign Pledge 2017 was organized at Mantralaya to promote celebration of a pollution-free Diwali. A pollution-free Diwali was pledged by students from schools and colleges from the entire State in the presence of Hon'ble Chief Minister of Maharashtra, Mr Devendra Fadnavis. News about this event was published by the newspaper Dainik Loksatta.
December 2018	Funding for the Environmental Conference organized by Mumbai Marathi Patrakar Sangh and MPCB.	A one-day Environmental Conference was jointly organized by Mumbai Marathi Patrakar Sangh and MPCB.
December 2018	Interschool environmental drama competition was organized by Eco-Folks.	An Interschool environmental drama competition was organized by Eco-Folks and MPCB at the Environmental Green Theater Festival in the cities of Mumbai, Pune, Nagpur, Aurangabad, Kolhapur and Nashik. This competition was held in two rounds, preliminary and final. The preliminary round was also conducted at Latur and Nanded in the Aurangabad division. More than 300 schools participated in this competition.
December 2018	International Mountain Day Marathon	11th December is celebrated as the International Mountain Day. Urgent steps to protect and conserve forest resources and wildlife of the mountain ranges is required. Green Aiders and MPCB co-organized the Mountain Marathon at hill stations to create environmental awareness among the public. 200 contenters participated in the marathon.

Annexure III - Action plan for Maharashtra State

Sector	Gap / details	Action Plan
Air		
▪ Non-attainment cities	▪ The CPCB has identified 18 polluted cities in which the prescribed NAAQS are violated. ▪ Based on Critical pollutants such as PM10 & PM2.5	▪ City level action plans for these cities is already prepared and submitted to CPCB ▪ Summary of the same is attached as Annexure III-1. ▪ The overall objective of these plans is comprehensive mitigation actions for prevention, control and abatement of air pollution besides augmenting the air quality monitoring network across the country and strengthening the awareness and capacity building activities.
▪ CEPI areas	▪ 9 nos of industrial areas in Maharashtra are classified within the 1st 100 CEPI categories industrial areas. ▪ 2 Nos classified as CPA, 4 as SPA, 3 as OPA	▪ Detailed action plan for each of these areas based on their categorization as per the said NGT order is already prepared and submitted to respective authorities for approval and implementation thereafter. ▪ Carrying capacity studies for each of these areas are already being discussed with respect to ToR, criteria for selecting of agencies, SOPS & other related matters.
▪ Strengthening of monitoring network	▪ Total 36 districts with almost 384 nos of ULBs whereas monitoring of air quality mostly for the criteria pollutants under NAMP (61) & SAMP (1) is carried out by MPCB at 72 (AAQMS) locations along with 10 CAAQMS ▪ Other than these, there are LSI, Red categories industries that have been asked to install CAAQMS which indeed supports the existing expanse of network. ▪ Rural ambient air monitoring is still in the nascent stages due to complexity of infrastructure set up issues as well as defining appropriate parameters and scale ▪ On an urban scale similar complexities in	▪ Urban rural matrix for monitoring network is prepared Annexure III-2. ▪ Central data base system with data interpretation and AI based advisory to be created ▪ AQI to be placed on App based interactive mode for effective analytics and stakeholders engagement / safety ▪ NCAP (strengthening of monitoring network) ▪ Holistic / rational based network design for monitoring network is being discussed ▪ Health association studies / exposure – epidemiological data to be gathered forming network of hospitals and air quality stations

	terms of numbers & zone of influence for monitors poses a challenge	
▪ Indoor Air in urban / Rural	▪ Lack of inventory other than only research data	▪ Detailed inventorization and health associations to be studied ▪ SOP for IAQ to be established ▪ Standards to be revised
	▪ Limited CAAQMS to establish / corroborate inferences	▪ Each ULB to have atleast one urban and one rural CAAQMS or three manual stations at least to include criteria pollutants with minimum one location to include parameters of 2009 CPCB notification and meteorological data including cloud cover
Water		
▪ River / coastline	▪ Inventory of resources is extremely limited especially in terms of lakes & ponds ▪ Secondary data is available in scattered form & not in line with multilayered analytics ▪ Inventory of all Nallas / drains , their characteristics, correlation with sewage carrying capacity vs actual sewage carrying by them is a challenge ▪ GSDA has prepared GW maps though contamination is not yet accommodated in the same ▪ Specific data for solid waste dumping in rivers, protection of rivers, open defecation is limited ▪ Pollution identification is precisely carried out on a regular basis including flood plain protection through multiple agencies	▪ Online monitoring systems for polluted stretches are already being prepared and put up for approval. On a demonstration basis ▪ Similarly resource inventorisation and auditing of water sampling locations under the SWMP & NAMP is proposed. Ad detailed network revalidation is also proposed. In order to evaluate existing & augment proposed plans of monitoring Under the WAMP there are 250 locations for surface and ground water (200 for surface water and 50 for groundwater) under Central Pollution Control Board's project of NWMP ▪ Protection methods are proposed to be developed for creative stoppage of dumping of solid waste in the surface water bodies ▪ Integrated state water plan for Maharashtra prepared by water resources department, GoM includes entire detailed analysis of River system in the state however efforts shall be made to re-categories the same at district levels ▪ Criticality indices based on multi parameter analysis along with source receptor modeling are proposed.

	▪ RWH is limited to mostly residential and commercial buildings that are newly built / proposed ▪ Functioning of CETPs in some of the industrial areas has been questionable in terms of hydraulic and organic load handling efficiency	▪ Hon'ble NGT is already monitoring CETP performance through MPCB via multiple aids including facilitation by MPCB for handing over non performing CETPS to respective MIDCs for O&M
	▪ Maharashtra has 9 polluted stretches in priority I and 6 polluted river stretches in priority II. CPCB has considered BOD as a major driving parameter to decide the river polluted stretches.	▪ Action plans are prepared for each category of priority I to VI for all polluted stretches. Summary is attached as Annexure III-3. ▪ The Board issued directions to 15 Municipal Corporations, 29 Municipal Councils and one Cantonment Board to provide adequate sewage treatment plant and to achieve the consented standards prescribed by MoEF&CC, GoI. The Board has also directed the above mentioned local bodies to implement short term and long term measures for treatment of sewage and restrict the discharge of untreated/partially treated sewage to the rivers. ▪ In situ treatment for River stretches to be developed ▪ Strengthen the sewage collection network to cover 100% Population ▪ Policy for reuse / recycle of treated wastewater
	▪ Only about 55 to 60% of the total sewage generated in Maharashtra is being treated whereas the remaining either is disposed in different nallas / land / finds its way directly into the river which indeed is reflected by the high no of polluting river stretches as mentioned above.	▪ Model tenders for various technologies & capacities of STPs are uploaded to assist various ULBs are prepared to speed up the process of tendering.
	▪ Performance of CETP is questionable	▪ Digital compliance methodology to be developed ▪ Disposal system to be under constant surveillance

	▪ Almost 66 number of industries Non-compliance in terms of meeting discharge standards	
Solid waste		
▪ Quantification	▪ Methodology for solid waste quantification should be ascertained ▪ Quantification based on Income group, culture affluence and technology to be considered	▪ Mechanism for graded weighing system either through intermediate transfer station or at the common receiving station to be created. Usually one weigh bridge at any treatment / disposal location required ▪ Quadrate sampling methodology to be adopted in order to reduce quantity as well as quality ▪ HIG, MIG ,LIG based quantification & characterisation of the data is proposed to be taken up ▪ Digital module for SW data from individual ULBs or a daily basis will be formulated ▪ Characterisation for qualitative analysis including inventorisation of existing landfills accumulation and potential for use is also planned.
▪ Collection System & Transport System	▪ Some of the places, efficiency of the collection system is not up to the mark ▪ Most of the Municipal corporations & council attained almost 80 to 90% door to door collection and segregation ▪ Almost 90% o ULBs have achieved 100% transportation of collected waste ▪ Segregation across ULBs is averaging at 85to 90% in dry and waste forms	▪ Ideally most proven method of SWM is 3 Tier System with door to door, community and transfer station approach ▪ 100% efficiency to be achieved ▪ Intermediate ▪ Additionally about 20 Compactors shall be sufficient for end to end collection and transfer
▪ Landfills/ dump yards	▪ Limited capacities of the existing landfills ▪ Potential health hazard due to unscientific of MSW ▪ Leachate management is still an issue posing risk to soil, ground water and human health ▪ Air pollution due to open dumping and unscientific landfills also poses similar risk of exposure	▪ Additional landfill facility for only inerts shall be the ideal scenario of MSW management ▪ Caping of the existed portions of the landfills to be identified and covered ▪ Most of the dump yards shall be utilised as scientific sanitary landfills ▪ Bio-mining potential of exhausted landfills to be planned ▪ Leachate risk assessment and indices is already proposed to be developed to demonstrate risk behaviour of leachate contamination in ground water

		▪ Identification , benchmarking , technology screening and phase-wise reclamation of landfills that are either exhausted or on the verge of exhaustion to be planned
▪ Infrastructure	▪ Mostly composting is the main treatment methodology with about 80% coverage ▪ MRF facility is also available but limited to few ▪ Sanitary landfill are limited to 2-3 ULBs	▪ Intermediate / Transfer station based decentralized waste treatment facility to be evaluated ▪ Additional 20% alternative treatment such as bio-Methanation can be explored
▪ plastic Waste	▪ Lack of SOP for not only quantification but also life cycle analysis [LCA] ▪ Limited understanding / interpretation of EPR / PRO ▪ Only two ULBs lacking implementation of PW notification	▪ Strengthening surveillance of life cycle assessment for type and quantity of Plastic Waste ▪ Effective EPR Policy ▪ Initiation of 100% compliance to PW Rules at the earliest
▪ C&D Waste	▪ Inventorisation of 158 ULBs for C&D waste has been done for the first time in Maharashtra. ▪ All places where inventory has been carried out has proper transportation facility ▪ Almost 50% of the ULBs especially the corporations have C&D facility or have proposed / in pipeline C&D handling facilities.	▪ Detailed Inventorisation of quantity, types, MRF, storage facility, transportation and others as per 2016 notification to be carried out. ▪ Minimum 1 such facility at each of the ULB to be established ▪ Thereby about 225 locations would be required as an ideal scenario however common facilities to merge C&D waste from various ULBs in a predefined radius can also be discussed & planned ▪ System for utilization of recovered material and processed C&D waste to be effectively implemented and monitored
▪ Biomedical Waste	▪ Rooting and effective collection within 48hrs from the time of generation to be effectively handled ▪ Treatment facility lacks implementation of 2016 Notification in line with CPCB audited report in some of the facilities ▪ Limited Inventorization ▪ Grey zone areas within the ambit of zone of coverage of individual CBWTSDF to be verified and catered	▪ Regular Inventorization through automatic / digital platform to be developed which is already planned by MPCB ▪ Up-gradation of existing facility to meet 2016 CPCB norms wherever required is already proposed and notices served by MPCB to non complying facilities / agencies ▪ Additional at least 1-2 facilities to cover the of umbrella zone along with increasing burden on the existing coverage area to be planned ▪ Collection mechanism to be strengthened with additional vehicles to cover vast area and scattered HCF [miniscule quantity]

▪ Hazardous Waste	▪ Domestic HW being mixed with solid waste posing threat ▪ No separate handling of domestic HW ▪ Not effective segregation at source	▪ Either decentralized 4 - 5 step segregation practices to be initiated or at least advisory for intermittent storage and collection of domestic HW to be initiated ▪ Inventory to be initiated and maintained
▪ E Waste	▪ Lack of inventory ▪ Limited understanding of E waste rule and management ▪ Neither segregation nor separate transfer / handling facility ▪ Channelization E-waste from informal sector to formal sector. ▪ Awareness about impact of E-waste on Environment and Rules of E-waste is required. ▪ Authorized collections and Segregation centres are required to be established by Local Bodies.	▪ Detailed inventory for domestic e waste under 26 different categories ▪ Mass awareness campaign ▪ Every ULB to have at least one E waste management centre and minimum one collection / drop centre in a radius of 25-30km ▪ Atleast one e waste processing unit in a district ▪ Awareness through Public Notice. ▪ Co-ordination with Various State Government Departments ▪ Co-ordination with Urban Local Bodies (Municipal Committee /Council /Corporation). ▪ Maharashtra Pollution Control Board has awarded work order to M/s. IRG Systems South Asia Pvt. Ltd. to carry out inventorisation of E-Waste generation in the State of Maharashtra. ▪ Inventory estimates in Study areas indicate that E-waste generation ranges from 837,105.18 tons in 2017 to 1,955,845.71 tons in 2025 in Maharashtra. ▪ In 2017, E-waste in metric tons from TV (CRT/LCD/LED) constitutes 44.04 % of the total inventory followed by Computer (23.59%), Refrigerator (17%), Washing machine (13.13%), AC (0.47%), Fixed Line Phone (0.43%), Cell phones (1.11%) & Printer (0.23%). ▪ In 2025, E-waste in metric tons from Computer constitutes 48.24% of the total inventory followed by TV (CRT/LCD/LED) (27.26%), Refrigerator (12.08%), Washing machine (9.62%), AC (0.33%), Printer (1.20%), Fixed Line Phone (0.11%) & Cell phones (1.16%). ▪ E-Waste Treated (Recycled/Dismantled): As per Annual Report: ▪ Year 2015-16 : 4041.72 MT ▪ Year 2016-17 : 6720.69 MT ▪ MPCB has issued Directions u/s 5 of the Environment (Protection) Act, 1986 read with E-waste (Management) Rules, 2016 to all Municipal Corporations in Maharashtra on

		06/12/2018.
▪ Plastic waste	▪ Total plastic waste generated FY 18-19 is to the tune of about 400000TPA ▪ 26 nos of authorised recyclers are spread across only 9 districts ▪ Treatments majorly being pyrolysis, oils, granules, reprocessing etc. ▪ EPR Policy is still undermined ▪ Network of collection and segregation at source poses a challenge	▪ Every ULB should at least have 1 plastic recycling centre ▪ EPR policy to be implemented in toto ▪ Channeling system for collection segregation transport and handling to be established ▪ Other alternatives for upcycling and recycling to be explored
▪ Noise	▪ Most of the source related noise areas show exposure beyond compliance ▪ Excessive exposure during noise generating potential events/ festivals	▪ Noise mapping to be carried out for zonation purposes ▪ At source control using ▪ physical or natural attenuation methods to be adopted ▪ In the path noise control methodologies using noise absorbers creating zone of inhibition / silence zone to be done ▪ End of the pipe measures such as PEs acoustic enclosures etc. to be adopted ▪ Event based noise control policy to be effectively implemented
▪ Awareness / sensitization	▪ Every year MPCB carried out almost 100 – 150 awareness / sensitization programs for various user groups including reach-out for common man ▪ Capacity building programs to the tune of almost 40-50 in numbers are extended to MPCB staff itself	▪ With almost 1Lac units under the purview of environmental compliance and a population of >11 Crs, there needs to be and massive sensitisation cum capacity building program ▪ R&D projects including green chemistry principles are already being discussed and sponsored by MPCB though it needs further augmentation ▪ Digital media in form of E-Bulletin & E catalyst Moil app is already in place for every individual & a detailed mass communication program is being planned ▪ Though structured programs such as E-Mobility , EODB, AI and many others including self-compliance module, SWM module, Sewage Module are being implemented, MPCB plans to further amplification to reach-out to masses

Annexure III-I – Summary of Action plan for NCAP-Non-Attainment Cities

Ministry of Environment, Forest & Climate Change has formalized National Clean Air Program (NCAP) to tackle the increasing Air Pollution problem in urban area across the country in a comprehensive manner. The NCAP is aimed to meet the prescribed annual average Ambient Air Quality Standards at all the locations in the country in a stipulated time frame with collaborative and participatory approach involving relevant stake holders & Government bodies

CPCB has identified 18 non-attainment cities in the State of Maharashtra, based on the observation of exceedance with respect to National Ambient Air Quality Standards (NAAQS) 2009. Hon'ble National Green Tribunal, Principal Bench, New Delhi in Original Application No. 681 of 2018 vide order dtd. 08.10.2018 directed State of Maharashtra to prepare action plan for 17 non-attainment cities namely: Akola, Amravati, Aurangabad, Badlapur, Chandrapur, Jalgaon, Jalna, Kolhapur, Latur, Nagpur, Navi Mumbai, Pune, Sangli, Ulhasnagar, Mumbai, Solapur and Nashik. In order vide dtd. 06.08.2019, based on PM2.5 and PM10 data from 2014-18 the list on non-attainment cities (NACs) has been updated, which includes one additional city from Maharashtra namely, Thane.

In compliance of the Hon'ble NGT orders, Maharashtra Pollution Control Board (MPCB) had conducted series of Workshops with respective Corporations & Stakeholders for preparation of Action Plans as per CPCB guidelines. CPCB has approved action plan of 17 cities and approved action plans communicated to respective Municipal Corporations for its implementation and necessary actions. The action plan of Thane city is submitted to CPCB for approval and approval of same is awaited.

Maharashtra has received the 1st installment of Grant in aid of 25.2 Cr from MoEF&CC under the National Clean Air Programme for the FY 2019-20. The proposals were requested from respective Municipal Corporation/ Council for the utilization of fund. Based on the proposal received from the Corporation fund has been released for 7 local bodies namely, Aurangabad, Nashik, Solapur, Ulhasnagar, Jalgaon, Jalna and Lature and for remaining corporation funds will be released soon.

For effective implementation of City action plan three level committees namely, steering committee headed by Chief Secretary-GoM, Air Quality Monitoring Committee (AQMC) headed by Principal Secretary-Environment and city level implementation committee headed by District Collector/ Municipal Corporation Commissioner are constituted in the State of Maharashtra. The committees conducting regular meetings with respective stakeholders ensuring compliance of the NGT order.

Annexure III-2 - Urban rural matrix for monitoring network

DRAFT FORMAT FOR STATUS OF CAAQMS / NAMP MONITORING STATIONS UNDER SPCB's /PCC's											
MAHARASHTRA STATE											
Sr.No.	**Population as per census 2011**	**Number of Towns / Cities**	**Sr. No.**	**Name of Towns / Cities with Population**	**CAAQMS**			**Manual Stations**			**Total Required Stations as per CPCB**
					Exisin g station s	**MPCB proposed**	**CPCB Required stations**	**Existing**	**MPCB proposed as per letter dtd : 13-03-2018**	**CPCB Required stations**	
1	**1,00,000 to < 5,00,000**	**25**	1	Achalpur - 1,12,311			1R			1B,2R/C	1 CAAQMS 3 Manual
			2	Ahmednagar - 3,50,859			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			3	Akola - 4,25,817			1R	3		1B,2R/C	1 CAAQMS 3 Manual
			4	Ambernath - 2,53,475			1R	1		1B,2R/C	1 CAAQMS 3 Manual
			5	Badlapur - 1,74,226			1R	1		1B,2R/C	1 CAAQMS 3 Manual
			6	Barshi - 1,18,722			1R			1B,2R/C	1 CAAQMS 3 Manual
			7	Bhusawal - 1,87,421			1R			1B,2R/C	1 CAAQMS 3 Manual

			8	Beed - 1,46,709			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			9	Chandrapur - 3,20,379	2		1R	6		1B,2R/C	1 CAAQMS 3 Manual
			10	Dhule - 3,75,559			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			11	Gondia - 1,32,813			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			12	Ichalkaranji			1R			1B,2R/C	1 CAAQMS 3 Manual
			13	Jalgaon - 4,60,228			1R	3		1B,2R/C	1 CAAQMS 3 Manual
			14	Jalna - 2,85,577			1R	3		1B,2R/C	1 CAAQMS 3 Manual
			15	Latur - 3,82,940			1R	3		1B,2R/C	1 CAAQMS 3 Manual
			16	Malegaon - 4,81,228			1R			1B,2R/C	1 CAAQMS 3 Manual
			17	Nandurbar - 1,11,037			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			18	Navi Mumbai Panvel Raigarh	2		1R	6		1B,2R/C	1 CAAQMS 3 Manual
			19	Osmanabad - 1,11,825			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			20	Panvel - 1,80,020			1R	1		1B,2R/C	1 CAAQMS

											3 Manual
			21	Parbhani - 3,07,170			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			22	Satara - 1,20,195			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			23	Udgir - 1,03,550			1R			1B,2R/C	1 CAAQMS 3 Manual
			24	Wardha - 1,06,444			1R		3	1B,2R/C	1 CAAQMS 3 Manual
			25	Yavatmal - 1,16,551			1R		3	1B,2R/C	1 CAAQMS 3 Manual
2	**5,00,000 to < 10,00,000**	**8**	26	Amravati - 6,47,057			1R, 1 Traffic Domiannt area, 1 C	3		1B,2R/C	3 CAAQMS 3 Manual
			27	Bhiwandi (Nizampur) -7,09,665			1R, 1 Traffic Domiannt area, 1 C			1B,2R/C	3 CAAQMS 3 Manual
			28	Kolhapur - 5,49,236			1R, 1 Traffic Domiannt area, 1 C	3		1B,2R/C	3 CAAQMS 3 Manual
			29	Mira-Bhayandar - 8,09,378			1R, 1 Traffic Domiannt area, 1 C			1B,2R/C	3 CAAQMS 3 Manual
			30	Nanded Waghala - 5,50,439			1R, 1 Traffic Domiannt area, 1 C			1B,2R/C	3 CAAQMS 3 Manual
			31	Sangli Mirak Kupwad - 5,02,793			1R, 1 Traffic Domiannt area, 1 C	3		1B,2R/C	3 CAAQMS 3 Manual

			32	Solapur - 9,51,558	1		1R, 1 Traffic Domiannt area, 1 C	2		1B,2R/C	3 CAAQMS 3 Manual
			33	Ulhasnagar - 5,06,098			1R, 1 Traffic Domiannt area, 1 C			1B,2R/C	3 CAAQMS 3 Manual
3	**10,00,000 to < 50,00,000**	**8**	34	Aurangabad - 11,75,116	1		2R, 1 Traffic Dominant area, 1 C, 1 I	3		1B,2R/C	5 CAAQMS 3 Manual
			35	Kalyan - Dombivali - 12,47,327	2		2R, 1 Traffic Dominant area, 1 C, 1 I			1B,2R/C	5 CAAQMS 3 Manual
			36	Nagpur - 24,05,665	1		2R, 1 Traffic Dominant area, 1 C, 1 I	4		1B,2R/C	5 CAAQMS 3 Manual
			37	Nashik - 14,86,053	1		2R, 1 Traffic Dominant area, 1 C, 1 I	4		1B,2R/C	5 CAAQMS 3 Manual
			38	Pimpri Chinchwad - 17,17,692			2R, 1 Traffic Dominant area, 1 C, 1 I			1B,2R/C	5 CAAQMS 3 Manual
			39	Pune - 31,24,458	1		2R, 1 Traffic Dominant area, 1 C, 1 I	4		1B,2R/C	5 CAAQMS 3 Manual
			40	Thane - 18,41,488			2R, 1 Traffic Dominant area, 1 C, 1 I			1B,2R/C	5 CAAQMS 3 Manual
			41	Vasai - Virar - 12,22,390	1		2R, 1 Traffic Dominant area, 1 C, 1			1B,2R/C	5 CAAQMS 3 Manual

							I				
4	**> 50,00,000**	**1**	42	Greater Mumbai - 1,24,42,373	11		4R, 3 Traffic dominant area, 3 C, 2 I	1		1B in upwind direction,1 B in downwind direction, 2R/C	12 CAAQMS 4 Manual

Remark :	**1. As per CPCB's Draft criteria for designing the Ambient Air Quality Monitoring Network in the State of Maharashtra :**	**CAAQMS Requirement : 101**			**Manual Requirement : 127**	
	2. Existing NAMP & CAAQMS network in Maharashtra	**23**			**54**	
	3. At present Manual Stations are monitoring SO2, NO2 & PM10 parameters					
	4. CAAQMS stations are monitoring all 8 + weather parameters					
	5. There are other manual monitoring stations are in existence at selected locations even though the population is less than 1 Lac					
	6. R : Residential, C : Commercial, I : Industrial, B Background					

Annexure III- MPCB Actions in compliance with Hon'ble NGT order in OA No. 673/2018 - "More river stretches are now critically polluted: CPCB"

The Hon'ble NGT Principal Bench issued order on 20th September, 2018 in Original Application No. 673/2018 mentioning report of CPCB **"More River Stretches are now critically polluted: CPCB".** The report comprises 351 polluted river stretches in India out of that 53 polluted river stretches are in Maharashtra.

- Maharashtra has 9 polluted stretches in priority I and 6 polluted river stretches in priority II. CPCB has considered BOD as a major driving parameter to decide the river polluted stretches.

Priority wise Polluted River Stretches as per CPCB Report September 2018				
Priority I (9)	**Priority II (6)**	**Priority III (14)**	**Priority IV (10)**	**Priority V (14)**
BOD >30mg/l	**BOD (20-30mg/l)**	**BOD (10-20mg/l)**	**BOD (06-10mg/l)**	**BOD (03-06mg/l)**
Godavari	Bhima	Ghod	Bindusar	Amba
Kalu	Indrayani	Kanhan	Bori	Bhatsa
Kundalika	Mula-Mutha	Kolar	Chandrabhaga	Gomai
Mithi	Pawana	Krishna	Darna	Kan
Morna	Wainganga	Mor	Girna	Manjra
Mula	Wardha	Patalganga	Hiwara	Panchganga
Mutha		Pedhi	Koyna	Panzara
Nira		Penganga	Pelhar	Rangavali
Vel		Purna	Sina	Savitri
		Tapi	Titur	Surya
		Urmodi		Tansa
		Venna		Ulhas
		Waghur		Vaitarna
		Wena		Vashisti

The Board issued directions to 15 Municipal Corporations, 29 Municipal Councils and one Cantonment Board to provide adequate sewage treatment plant and to achieve the consented standards prescribed by MoEFCC, GoI. The Board has also directed the above mentioned local bodies to implement short term and long term measures for treatment of sewage and restrict the discharge of untreated/partially treated sewage to the rivers.

After reviewing the water quality data of the designated locations in the rivers of Maharashtra for the period (Jan-Dec) 2018, it is found that the water quality of the rivers in Maharashtra has improved.

The revised list of polluted river stretches as per (Jan-Dec) 2018:

Status Of Polluted River Stretches In Maharashtra Jan – Dec 2018						
Priority	**I**	**II**	**III**	**IV**	**V**	**NA**
Earlier Status	9	6	14	10	14	0
Present Status	4	4	8	15	19	3

Priority I (4)	Priority II (4)	Priority III (8)	Priority IV (15)	Priority V (19)	Non-Polluted River Stretches (03)
Godavari	Kalu	Mula	Nira	Ghod	Urmodi
Mithi	Kundalika	Indrayani	Vel	Mor	Vashisti
Morna	Mutha	Mula-Mutha	Kolar (Mah)	Venna	Panchganga
Waingang a	Bhima	Pawana	Krishna	Waghur	
		Wardha	Patalgang a	Wena	
		Kanhan	Penganga	Bindusar	
		Pedhi	Tapi	Bori	
		Purna	Darna	Chandrabhag a	
			Girna	Hiwara	
			Sina	Koyna	
			Titur	Pehlar	
			Gomai	Amba	
			Kan	Bhatsa	
			Panzara	Manjeera	
			Rangavali	Savitri	
				Surya	
				Tansa	
				Ulhas	
				Vaitarna	

Dry river stretches: Bori, Girna, Gomai, Hiwara, Kan, Mor, Sina, Titur, Waghur, Panzara

Now there are only 40 polluted river stretches in Maharashtra.

Environment Dept., Maharashtra Government issued G.R. vide No. NGT 2018/PC-2/TC-3 dtd.13.12.2018. regarding constitution of River Rejuvenation Committee (RRC) with reference to Hon'ble NGT order, comprising of following members-

1. Director, Environment Deptt., GoM
2. Director, Urban Development, GoM
3. Director, industries Deptt., GoM
4. Member Secretary, MPCB, Mumbai – Convenor

RRC functions under supervision of Principal Secretary, Environment Deptt., GoM. Committee shall prepare Action Plan includes source of pollution and its mitigation.

- **Details of RRC meeting:**

Meeting	Date	Points discussed
1st RRC	14/12/2018	▪ Reviewed draft action plans of polluted river stretches of Priority I rivers ▪ Decided to take to take review of local bodies
2nd RRC	09/01/2019	▪ Reviewed draft action plans of polluted river stretches of Priority II rivers

		▪ Decided to add funding details of STP and its timelines
3rd RRC	23/01/2019	▪ Reviewed and finalized draft action plans of polluted river stretches of Priority I, II, III, IV and V rivers
4th RRC	16/02/2019	▪ Decided to communicate with Water Resource Department to maintain e-flow in the rivers ▪ Decided to communicate with Urban Development department to take necessary steps to provide adequate funds to urban local bodies for installation of sewage treatment & MSW processing facilities in a time bound manner
5th RRC	25/06/2019	▪ RRC reviewed and approved Action Plans for restoration of polluted river stretches in priority III, IV & V. ▪ It was decided that Director Environment will communicate with Water Resource Department and Urban Development Department regarding provision of funds in time bound manner for installation of STPs & MSWM facilities.

Action Plans of all 53 rivers verified by RRC and submitted to CPCB on 31/01/2019.

- Action Plans prepared with the goal of achieving water quality of polluted rivers to bathing standards (i.e BOD < 3 mg/L and FC < 500 MPN/100 ml)
- Action Plans prepared comprising of all the points enlisted in the Hon'ble NGT Order.

CPCB Task Team on Polluted River Stretches called MPCB to give presentation on Action Plan for Priority-I & II polluted river stretches on 12.02.2019 and suggested few additions in Action Plan.

- Accordingly, MPCB updated the Action Plans of Priority I & II rivers.
- Executive summary of action Plans for priority I & II was also communicated to CPCB

RRC has already communicated to Water Resource Department to maintain e-flow in the rivers of Maharashtra adopting good irrigation practices, protection & management of flood plain zone (FPZ), rain water harvesting, ground water charging, planation on both sides of river, setting up of biodiversity parks on flood plains by removing encroachments.

RRC has also communicated to Urban Development department to take necessary steps to provide adequate funds to urban local bodies for installation of sewage treatment & MSW processing facilities in a time bound manner.

Hon'ble CS has taken review of the compliance in the matter OA 673/2018. The details are as follows:

Date of meeting	**Points discussed**	**Directions given by Hon'ble CS**
05/02/2019	MPCB briefed to Hon'ble CS that: ▪ River Rejuvenation Committee is constituted in the state on 13/12/2018 and three meetings were already conducted. ▪ The Action Plans of all 53 polluted	

	river stretches are submitted to CPCB. ▪ MPCB has requested through letter to Urban Development Department with copy to Director, Municipal Administration to take necessary steps to provide adequate funds in time bound manner. This is a pending issue and needs to be complied.	
16/04/2019	Hon'ble Chief Secretary enquired about the status of the polluted river stretches. MPCB stated that on the same date (08.04.2019) as of the Hon'ble NGT order, MPCB submitted the action plans for such stretches in Maharashtra for another case before Hon'ble NGT have been submitted and are accepted with reduced timelines for the action plan implementation from 4-5 years as proposed by local bodies, to within two years.	Hon'ble Chief Secretary directed MPCB to follow up for completion of action plan on priority and submit a progress report in next meeting.
11/06/2019	MPCB briefed Hon'ble CS about the constitution of District surveillance task force to be constituted at the district level.	Hon'ble Chief Secretary directed all District Collectors to conduct the meeting at District level Committees constituted for monitoring the implementation of Action Plan for Polluted river stretches and personally look into the matter wherever land allocation issue arises.
30/08/2019	The Hon'ble NGT has directed to constitute a Special Environment Surveillance Task Force Committee at the district level. Accordingly Task Force Committees are constituted in 26 districts.	Hon'ble CS directed that remaining district collector should constitute the special surveillance task force committees within 15 days.
19.09.2019	MPCB briefed to Hon'ble CS that, All the local Bodies and or the concerned department of the state Government have to ensure 100% treatment of the generated sewage and in default to pay compensation which is to be recovered by the State with effect from 01.04.2020. In default of such collection, the State/UTs are liable to pay such compensation. The CPCB is to collect the same and utilise for the restoration of the environment. ▪ The Board has already issued directions to Corporation and other cities mentioning the levy of the fine	

	to be imposed as per the formula decided by Central pollution Control Board and confirmed by Hon'ble NGT in the said order. ▪ In case of ground water Authorities assigned for levy EC and taking penal action are district collectors for sealing illegal bore well / tube well and to levy environmental compensation for ground water. There after the prosecution of violator will be done by CGWA/ MPCB. ▪ MPCB has issued DO to all District Collectors in this concern.	
19.09.2019	PS, UDD-II briefed to Hon'ble CS that, UDD has identified 29 polluted river stretches for installation of STP and is working with MPCB for further work on remaining polluted stretches. It was stated that currently there are no STPs for some river stretches. It was submitted that, for remaining stretches, proposal for STPs and sewer network needs to be approved.	Hon'ble CS directed UDD to: Consider all the polluted river stretches. Now the Government have to ensure 100% treatment of the generated sewage form entire state as per the Order in Paryavaran Surksha Samaiti. Initially, it can be categorised; A) existing STPs with capacity and focus on its operation as well as improvement. B) Cities/Towns not having STPs C) The City/Town wise status sewer network etc. • Decide population-wise sewage treatment type under Swach Maharashtra Mission e.g. for cities with population above 50,000, will be provided with STP. For smaller towns/villages, Soak pit and defecation sludge treatment plant can be provided.
	PS, RDD, Govt of Maharashtra briefed to Hon'ble CS about the proposed sewage treatment plants for the local bodies in the state. It was informed that Rs. 5-10 lakh per STP is approved from Govt. of India, whereas actual cost for construction of STP is higher (about Rs. 50-60 lakh per STP.) The Department will request the Govt. of India for additional cost provision for the STPs.	Hon'ble CS directed RDD to: • Simplify the methodology for deciding sewage treatment as per population groups (e.g. 500-1000 etc.) of Gram Panchayats(GPs) and standardization of STP technology, design of STP, cost etc. • GPs should use their own and CSR funding for sewage treatment plants.

	It was submitted that various types of toilet are used in Maharashtra, therefore the type in individual household is being checked. Accordingly the technology of sewage treatment will be decided for each GP. He informed that the Panchayats can use CSR fund for the STP construction as per a GR, however the panchayats have not yet started its use for this purpose.	• Acquaint the CEOs & Executive Officers of panchayats with the plans proposed for sewage treatment for villages under their jurisdiction. • Prepare list of villages based on technology of sewage treatment based on population and quantity of sewage generation in the villages. • Make detailed plan for the sewage water treatment and recharge of ground water for each GP as groundwater recharge is crucial for them. Also directed to have discussion with UDD and RDD for deciding the strategy for details of sewage treatment plan for each GP.
19.09.2019	MS, MPCB briefed Hon'ble CS that the norms for treated sewage discharge for Mumbai city were fixed by a CPCB and confirmed by Hon'ble NGT, however now it is challenged by another order. Also there are some court orders, which are contradictory to each other. This is creating issue in the implementation of the proposed STP works as well as Solid waste management plants (e.g. Kanjurmarg facility in Mumbai). There is no clarity regarding the norms.	Hon'ble CS directed Law Dept. GoM to submit an affidavit to Hon'ble NGT regarding the judiciary for giving clarity in this regard and give consolidated single order for all the relevant matters.

MPC Board has issued directions to 17 Municipal Corporations to penalize to the tune of 1paisa/litre of sewage generation under 'Polluter pays principle'. MPC Board has also issued directions to 05 non-complying CETPs to penalize to the tune of 2 paisa/litre for remediation & upgradation to comply with the consented standards.

Thereafter, the Hon'ble NGT issued an order on 28.08.2019 in the matter of OA No. 593/2017 Paryavaran Suraksha Samiti v Union of India and directed to levy Environmental Compensation to the defaulters. Accordingly, the Board has issued directions to 01 Mega city, 09 Million plus cities, 254 Class I cities/towns and 122 Nagar Panchayats as to why Environmental Compensation shall not be levied after the stipulated timeline.

The implementation of Action Plans is under progress. RRC has been taking review of the concerned authorities on regular basis.