

District Environment Plan



Prepared By



Environment Department, Government of Maharashtra



Maharashtra Pollution Control Board

Aurangabad

1.0 Preamble

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 directed that CPCB shall facilitate the District Magistrates in preparation of District Environmental Plan by placing Model plan on its website. This model plan may be adopted as per local requirements by all Districts under supervision of District Magistrate.

The said Order also directs that 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.

Based on State Environmental plans, CPCB and Ministry of Environment, Forest & Climate Change shall prepare National Environmental Plan, under the supervision of Secretary, MoEF&CC and Chairman, CPCB by 31/01/2020. The National Action Plan needs to be submitted before Hon'ble NGT 15/02/2020.

In compliance to above directions, CPCB has prepared a model District Environment Plan (DEP) that covers following thematic areas;

In compliance to above directions and as per the model DEP prepared by CPCB, Environment Action plan for the district is prepared.

2.0 Introduction

Aurangabad is a city in Maharashtra state, in India. It's known for the 17th-Century marble Bibi ka Maqbara shrine, styled on the Taj Mahal. The nearby Shivaji Maharaj Museum, dedicated to the Maratha king Shivaji, displays war weapons and a coin collection. North of the city, the Aurangabad Caves comprise ancient, rock-cut Buddhist shrines. West of the city, battlements surround the medieval Daulatabad Fort. Aurangabad has 4 MIDC areas such as Waluj, Shendra five star MIDC, Chikalthana, Paithan and Railway Station MIDC.

General district profile is presented in the **Table 1** and location is shown in **Figure 1**.

Table 1 District Profile

Description	Details
Average Climate	Minimum Temp: 5.6°C Maximum Temp: 45.9°C. Avg. Rainfall: 734mm.
Geographical Location	The Aurangabad district's North Longitude (Degree) is 19 and 20 and East Longitude (Degree) is 74 to 76. Aurangabad District is located mainly in Godavari Basin and its some part towards North West of Tapi River Basin. This District's general down level is towards South and East and North West part comes in Purna - Godavari river basin.
Area	10,100 Sq. km. [Urban - 141.1 + Rural - 99,587]
Boundaries	It is bordered by the districts of Nashik to the West, Jalgaon to the North, Jalna to the East, and Ahmednagar to the South
Languages Spoken	Marathi, Hindi, English and Urdu are major languages
Population	Total: 3,701,282, [Male: 1,924,469 Female: 1,776,813] [According to 2011 Census Report] 1,479,103.00
Population Density	366 Per Sq. km.
Literacy Rate	79.02
Rivers	Godavari and Tapi and also Purna, Shivna, Kham . Dudhna, Galhati and Girja rivers are the sub rivers of Godavari.
ULBs	8 Numbers [1 Municipal Corporation + 7 Municipal Council]
Municipal Corporations	Aurangabad Municipal Corporation
Villages	1,356 Numbers
Statutory Towns	8 Numbers
Tahsils	9 Numbers
Pin Code	431001 – 431103

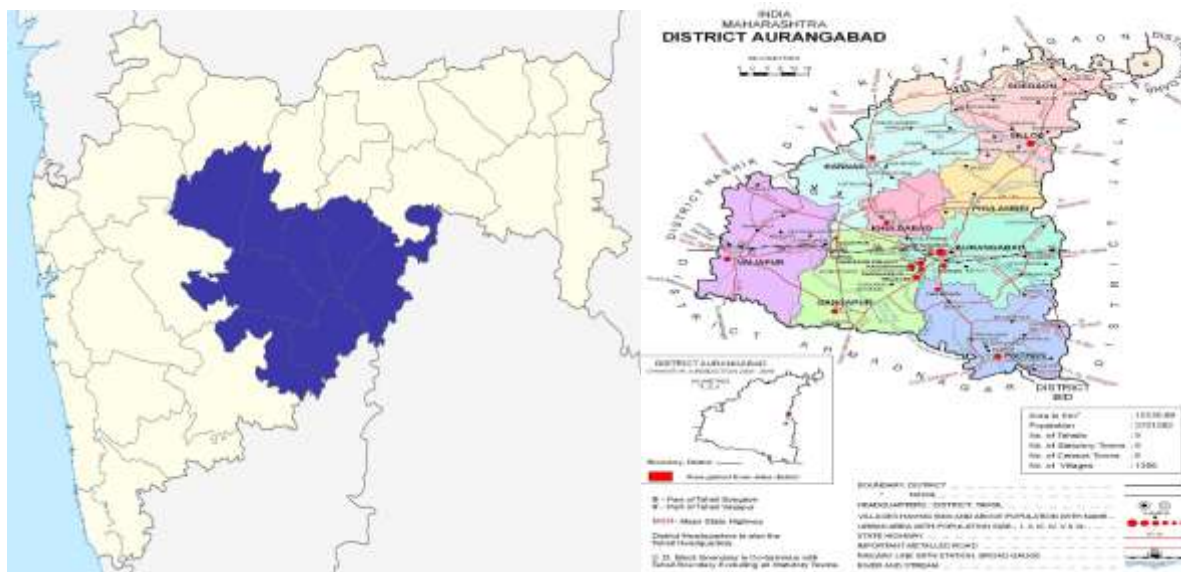


Figure 1 Location of District

3.0 Waste Management Plan

Urban India is facing an ever increasing challenge of providing for the incremental infrastructural needs of a growing urban population. According to the 2011 census, the population of India was 1.21 billion; of this 31% live in cities. It is further projected that by 2050 half of India’s population will live in cities. With this increasing population, management of Municipal Solid Waste (MSW) in the country has emerged as a severe problem not only because of the environmental and aesthetic concerns but also because of the sheer quantities generated every day.

Solid waste management is among the basic essential services provided by municipal authorities in the country to keep cities clean. Primary sources of solid waste are local households, commercial establishments, hospitals, hotels, restaurants, and markets. Local Bodies are responsible for collection, storage, segregation, transportation and disposal of all solid waste generated in the city. There are 8 Urban Local Bodies [ULBs]. in Aurangabad district. **Table 2** represents the list of ULBs along with population. Following section gives insight about waste management of Aurangabad districts.

Table 2 District Profile

Sr. No.	Urban Local Bodies	Population
1.	Aurangabad Municipal Corporation	1,228,032.00
2.	Gangapur Municipal Council	27,745.00
3.	Kannad Municipal Council	40,759.00
4.	Khultabad Municipal Council	18,000.00
5.	Phulambri Nagar Panchayat	16,665.00
6.	Sillod Municipal Council	58,230.00
7.	Soygaon Municipal Council	6,840.00
8.	Vaijapur Municipal Council	41,296.00

3.1 Domestic Solid Waste Management Plan

Aurangabad district is having 8 ULBs with 211 Wards. Municipal Solid Waste [Dry & Wet] generated from each ULBs and details of Other Types of Waste is presented in **Figure 2** due to its less quantity and for easy representation. As per collected data, total solid waste generation of Aurangabad district is 793MTD. wherein, Dry Waste is 356.85MTD and Wet waste is 436.15MTD.

Being most populated city, Aurangabad Municipal Corporation generates maximum quantity i.e. 5305MTD with dry waste is of 160MTD and wet waste 290MTD. Soyagaon generates minimum quantity i.e. 1.6MTD with dry and Wet waste share to the tune of 0.7MTD and 0.9MTD respectively.

Details of other types of waste generation of Aurangabad district is presented in the Figure 3 and interpretation is given as below;

A] Street Sweeping Waste: 23MTD of Street Sweeping Waste is generated from the district. highest share is from Aurangabad with 20MTD whereas Sillod generates lowest quantity i.e. 0.05MTD.

B] Drain Silt Waste: Overall generation of Drain Silt Waste is 38.6MTD. Maximum quantity i.e. 30MTD is generated by Aurangabad and Phulambri Nagar Panchayat stands lowest with 0.06MTD.

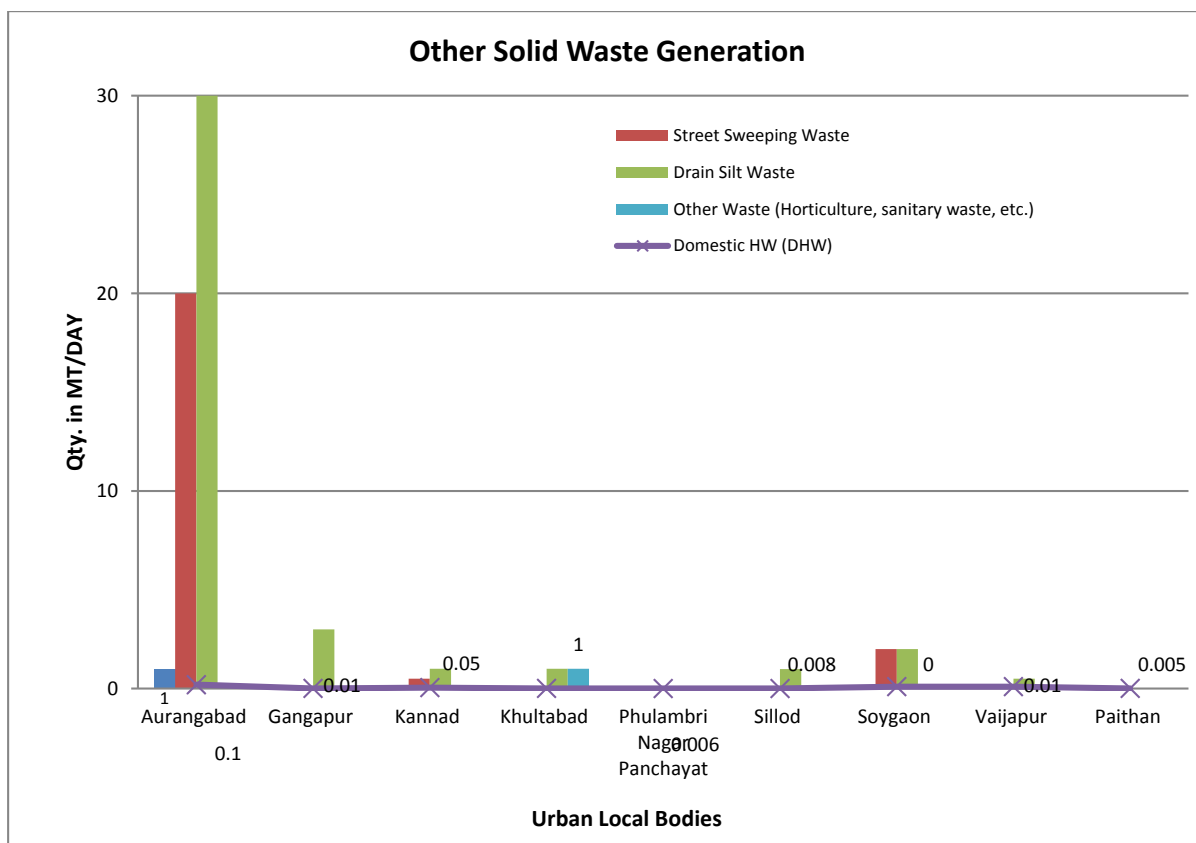


Figure 2 Details of Other Waste Generation

C] Domestic Hazardous Waste (DHW): District generates very less DHW to the tune of 0.5MTD. Highest share in DHW generation is by Aurangabad City and lowest share is of Sillod with 0.004MTD.

D] Other Waste (Horticulture, sanitary waste, etc.): Total Quantity of Horticulture, Sanitary and other waste is 1.2MTD. Maximum portion is generated by Aurangabad.

E] Bulk Waste Generator: 26 number of bulk Waste Generator is there in the district with 70 numbers of onsite facility.

3.1.1 Compliance in Segregated Waste Collection

Districts is 100% complied in terms of segregation of generated solid waste in to the wet and dry waste.

A] Waste Management Operations

It is observed that almost district has 100% provision of door to door waste collection in all ULBs and Mechanical Sweeping is initiated in few ULBs and manual sweeping is done in rest of the ULBs. There are 7 old dump sites and with total stored material of 22,09,856MT. Almost all ULBs has started working of reclamation of old dumping site.

3.1.2 Adequacy of Infrastructure

Availability of infrastructure to handle the waste generated from the district is presented in **Figure 3.**

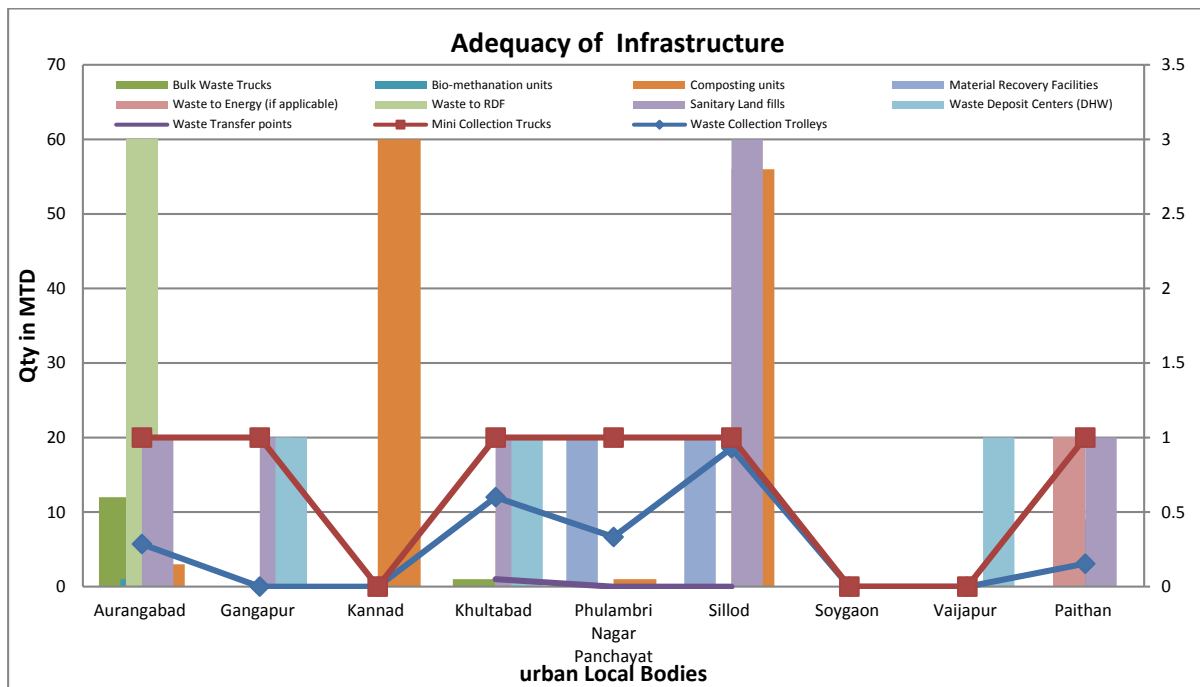


Figure 4 Adequacy of SW Infrastructure

13 numbers of waste Transfer points for all types of waste collection & transportation and 3 waste deposition centres for DHW is provided across the entire district. District is equipped with 120 Waste collection Trolleys, 326, Mini collection Trucks, 13 Bulk transport Trucks. 7 Sanitary Landfill sites are present in the district with total Capacity of 1,54,275MT. Maximum wet waste is treated in the available 131 composting facilities. There are 10 Bio-Methanation units are installed. Aurangabad Municipal Corporation has installed 3 waste to RDF unit and three composting units with one Bio-Methanation unit. District authorities has implemented Solid Waste Management Rules in all 8 ULBs.

3.2 C&D Waste Management Plan

The Construction and Demolition Waste [C&D Waste] generated by Aurangabad district is about 81.9MTD. Being largest corporation, Aurangabad Municipal Corporation contribute maximum share of C&D waste which about 80MTD. Lowest C&D waste is generated by Sillod Municipal Council with the quantity of 0.03MTD.

3.3 Plastic Waste Management

Total Plastic waste generated by Aurangabad district is 72.2MTD. However it is observed that 5 ULBs have not estimated the quantity of plastic waste which makes that total figures

questionable as the present quantum is do not present factual data. Aurangabad generates maximum waste with 70MTD.

It is interesting that though, door to door collection and segregation system is implemented in all 8 ULBs, quantification is not done for all ULBs. 5 ULBs have provided collection centre but information about Aurangabad Municipal Corporation is not available which is the biggest city in the district. There are 153 Plastic Waste Pickers and 28 numbers of Plastic waste recycler but there is no plastic manufacture unit in the district. 8MT/Month plastic is use in Road making. PW Management Rules, 2016 is implemented in all the ULBs and 20 units in Aurangabad city has been closed for sale of carry bags with < 50 micron thickness.

3.4 Biomedical Waste Management

Aurangabad district has 559 Bedded hospitals, 362 Non Bedded hospital, out of which only 887 hospitals have taken authorization. 610Clinics and 6 Veterinary hospitals. Total BMW generation from all above mentioned sources are to the tune of _____MT

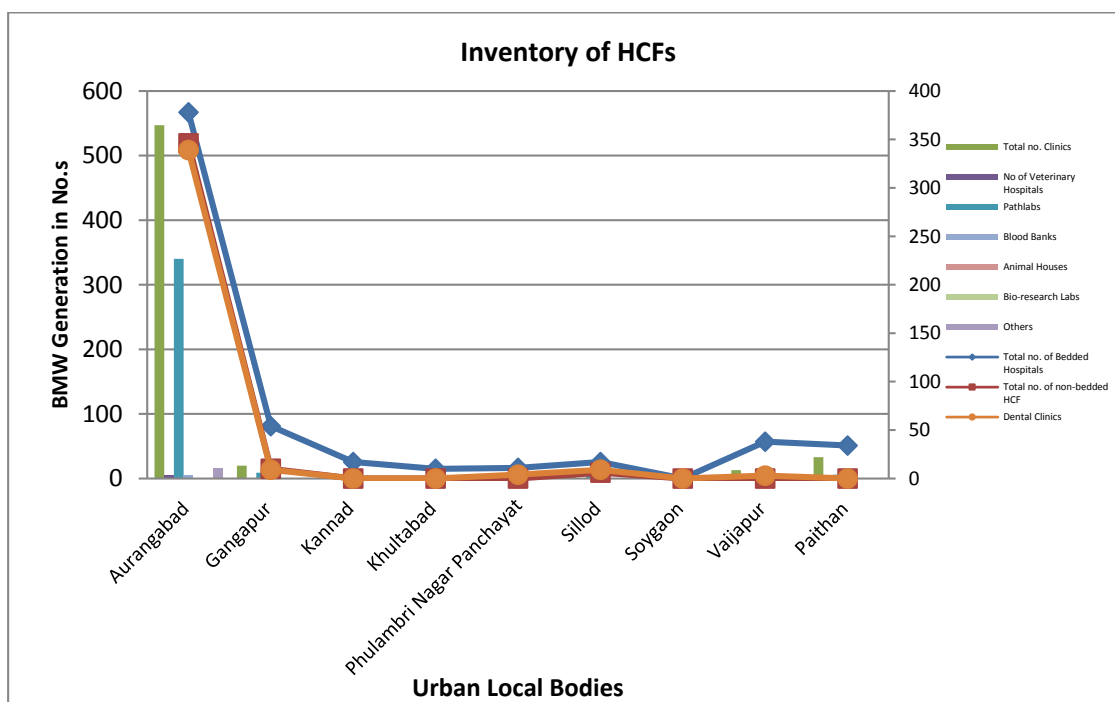


Figure 5 Inventory of BMW Generating Units

There is only 1 Common Facility available for treatment and disposal of BMW There is requirement of at least one CBWTF in each ULB. Inventory of BMW generating units are mentioned in the **Figure 5**.

3.5 Hazardous Waste Management

There are 404 industries generating Hazardous Waste to the tune of 20832.4MT/Annually and all waste is disposed of through land filling. There is no Hazardous waste dump site in the district. All HW generating units have taken authorization and displayed Board of HW Generation in front of Gate.

3.6 E Waste Management

11 Collection Centres are established by ULBs. and 9 are established by Producer under EPR scheme. There are 7 number of authorized E-Waste recyclers / Dismantler.

3.7 Action Plan

As per the above mentioned observation, it seems that almost all ULBs are handling solid waste generated as per the Solid Waste Management Rules, however there are certain issues that needs to be addressed for 100% implementation of the rules as mentioned in **Table 3**.

Table 3 Action Plan for Solid Waste Management

Sectors	Gaps	Action Points	Priority
Domestic Solid Waste			
Quantification	<ul style="list-style-type: none"> ▪ Methodology for solid waste quantification should be ascertained ▪ Quantification based on Income group, culture affluence and technology to be considered 	<ul style="list-style-type: none"> ▪ 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 	Immediate
Collection System & Transport System	<ul style="list-style-type: none"> ▪ Some of the places, efficiency of the collection system is not up to the mark 	<ul style="list-style-type: none"> ▪ Ideally most proven method of SWM is 3 Tier System with door to door, community and transfer station approach ▪ Approximately __ Ghanta Gadi would be required ▪ Additionally about __Compactors shall be sufficient for end to end collection and transfer 	Short to Mid Term

Sectors	Gaps	Action Points	Priority
Infrastructure	<ul style="list-style-type: none"> ▪ Mostly composting is the main treatment methodology with about 80% coverage ▪ Sanitary landfill is limited to few ULBs ▪ RDF Facility is limited to only with 2 ULBs 	<ul style="list-style-type: none"> ▪ Intermediate / Transfer station based decentralized waste treatment facility to be evaluated ▪ Need to install Sanitary landfill ▪ Need to explore and practised RDF facility in almost all ULBs 	High
Plastic Waste	<ul style="list-style-type: none"> ▪ 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 	<ul style="list-style-type: none"> ▪ 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 	High & Immediate
C&D Waste	<ul style="list-style-type: none"> ▪ No facility for C&D Waste Recycling Plant 	<ul style="list-style-type: none"> ▪ Minimum 1 such facility at each of the ULB to be established ▪ System for utilization of recovered material and processed C&D waste to be effectively implemented and monitored 	High
Biomedical Waste	<ul style="list-style-type: none"> ▪ 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 ▪ Limited Inventorization 	<ul style="list-style-type: none"> ▪ Regular Inventorization through automatic / digital platform to be developed ▪ Up-gradation of existing facility to meet 2016 CPCB norms ▪ Additional at least 1 facility to cover the of umbrella zone along with increasing burden on the existing coverage area to be planned ▪ Collection mechanism to be strengthen with additional vehicles 	Very High & Immediate

Sectors	Gaps	Action Points	Priority
		to cover vast area and scattered HCF [miniscule quantity]	
Hazardous Waste	<ul style="list-style-type: none"> ▪ Domestic HW being mixed with solid waste posing threat ▪ No separate handling of domestic HW ▪ Not effective segregation at source 	<ul style="list-style-type: none"> ▪ 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 	Very High & Immediate
E Waste	<ul style="list-style-type: none"> ▪ Lack of inventory ▪ Limited understanding of E waste rule and management ▪ Neither segregation nor separate transfer / handling facility ▪ No Awareness programme conducted by ULBs & PROs 	<ul style="list-style-type: none"> ▪ 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 	Very High & Immediate

4.0 Water Quality Management Plan

There are 6 Rivers in Aurangabad district with 236km in length and 8 drains/nallas are identified meeting in to the river. Total number of bore-well are 6442 and permission for withdrawing water is taken for all. Water quality of the region is monitored through water sampling and analysis for multiple parameters throughout the years and also represented digitally in form of WQI on various platform.

Area of Lake /Ponds are 44 Ha. MPCB conducts regular ground water monitoring through SWMP and NWMP at 4 locations for Surface water and 4 locations for ground water [under NWMP] throughout. Analysis results of surface water & ground water quality is presented in the **Table 3 & Table 4** respectively.

Table 4 Surface Water Quality

Station Code	pH			DO (mg/L)			BOD (mg/L)			FC MPN/100ml		
	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
1312	7.60	8.37	8.01	6.02	7.48	6.86	2.40	4.60	3.20	2.00	120.00	11.83

2158	7.65	8.41	8.04	5.35	7.42	6.73	2.00	4.00	3.04	2.00	70.00	7.83
2159	7.66	8.47	7.97	5.70	7.38	6.73	2.40	4.80	3.30	2.00	110.00	12.00
2160	7.33	8.51	7.89	5.77	7.32	6.65	2.28	6.50	3.61	2.00	85.00	9.25
Average	7.56	8.44	7.98	5.71	7.40	6.74	2.27	4.98	3.29	2.00	96.25	10.23

Where;

1312: Godavari river at Jaikwadi Dam, Village. Paithan

2158: Godavari river at U/s of Paithan at Paithan intake pump house, Village. Jayakwadi, Taluka. Paithan

2159: Godavari river at D/s of Paithan at Pathegaon bridge, Village. Pathegaon, Taluka. Paithan

5160: Godavari river at U/s of Aurangabad Reservoir, Kaigaon Tokka near Kaigaon bridge, Village. Kaigaon, Taluka. Gangapur

Surface water quality results reveals that Average pH is in the range of 7.5 to 8.44, DO is in the range of to 5.7 to 6.7, and BOD is in the range of 2.2 to 3.2. In all samples presence of Faecal Coliform is found in the range of 2 to 10.

Table 5 Ground Water Quality

Station Code	pH			DO (mg/L)			BOD (mg/L)			FC MPN/100ml		
	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
1993	7.18	7.18	7.18	6.12	6.12	6.12	4.20	4.20	4.20	95.00	95.00	95.00
2825	7.49	7.49	7.49	4.90	4.90	4.90	5.80	5.80	5.80	95.00	95.00	95.00
Average	7.34	7.34	7.34	5.51	5.51	5.51	5.00	5.00	5.00	95.00	95.00	95.00

Where;

1993: Dug well at Pandharpur, Gangapur

2201: Dug well at Ranjangaon, Village-Ranjangaon, Taluka-Gangapur

2824: Dug well at Naregaon, Village- Naregaon, Taluka- Aurangabad

2825: Bore well at Wahegaon, near Zilla Parishad school, Paithan

Ground water quality results reveals that Average pH is 7.3, DO found averagely 5.5 and average BOD concentration is 5mg/L. In all samples presence of Faecal Coliform is found with 95 MPN/100ml.

The 8 ULBs generate about 117MLD of sewage with an existing capacity of 211MLD of STP however only 90% of generated sewage is being treated in the STP and about 10MLD sewage is left untreated leaving a deficit of 10%. It is observed that only 4 ULBs have installed STPs and other have not installed any STP. It is observed that only 80% of population is covered under sewage network. Even though MPCB has been eying to formulate policy w.r.t. reuse treated sewage as a regulation, lack of reuse conveyance system and more often than not due to the limited options of reutilization of treated sewage worsened with consistent output quality of treated sewage only leads to complicated disposal options.

Industrial effluent generation is to the tune of 9.5MLD from 1155 numbers of industries of prominently of "Automobile and Engineering". Quantum of treated water is discharged in to the Kham river 4.5MLD. Industries are treating their entire effluent to the best possible norms as stipulated by their permits and same is monitored effectively and regularly through the MPCB. There are 2 Common Effluent Treatment Facilities (CETP).

Detailed Issue based management action plan is provided in **Table 4**.

Table 4 Action Plan for Water Quality Management

Sectors	Gaps	Action Points	Priority
Water Resources	<ul style="list-style-type: none"> ▪ Limited information available on mapping of surface water resources in terms of quantity ▪ Limited Inventorization of quantity, usage, availability exploitation etc. ▪ Limited Rejuvenation / remediation of water bodies ▪ Solid waste dumping i the river bodies 	<ul style="list-style-type: none"> ▪ Thorough Mapping of resources to be taken up ▪ Extensive assessment of quality to be done ▪ Criticality indicators to be established for each water body/resource ▪ Extend water quality monitoring network to include representativeness ▪ Based on the criticality initiate Rejuvenation / remediation ▪ Online Monitoring system for surface water bodies to be established ▪ Protection methods to be developed for creative stoppage of dumping of solid waste in the surface water bodies 	High
Domestic	<ul style="list-style-type: none"> ▪ Correlation between generation and treatment often misleading ▪ Water budgeting exercise often missing ▪ Computation of water 	<ul style="list-style-type: none"> ▪ Digital Platform to accommodate water budgeting / reuse potential ▪ Approximately 10MLD of STP needed ▪ In situ treatment for approx. 	Very high & Immediate

	footprint missing <ul style="list-style-type: none"> ▪ Surveillance /Inventorization in cradle to grave approach absolutely never applied ▪ Limited collection system and treatment facility especially in remote area ▪ Often polluting water resources ▪ No established reuse options / reuse network 	236km River stretches to be developed <ul style="list-style-type: none"> ▪ Strengthen the sewage collection network to cover 100% Population ▪ Policy for reuse / recycle of treated wastewater 	
Industrial	<ul style="list-style-type: none"> ▪ Performance of CETP is questionable ▪ Almost 30 number of industries Non-compliance of in terms of meeting discharge standards 	<ul style="list-style-type: none"> ▪ CETP performance to be more effective in line with various orders of regulatory bodies / courts ▪ Digital compliance methodology to be developed ▪ Disposal system to be under constant surveillance 	High

5.0 Air Quality Management

Air quality assessment and sectoral management needs are ought to be essentially planned and executed. Both CPCB & MPCB through their NAMP & SAMP programme has set up 11 monitoring locations in Aurangabad region. Out of which 4 Manual & 1 CAAQM. Air quality details are taken from the Aurangabad Region based on the Regional Offices / Areas declared by the MPCB. Aurangabad comes under list of Non-Attainment cities with respect to the Ambient Air Quality India (2011-2015) & WHO reports 2014/2018.

From the **Figure 6** it seems that PM₁₀ concentration is above the standard limits at almost all monitored locations. An exceedance factor 2.01 is observed for PM₁₀ that needs immediate attention. Whereas in case of SO₂ & NO_x it is within the permissible limit of NAAQS. In view of the same the primafacea of every ULB shall be to establish at least one such Ambient Air Monitoring Station and coordinate / collaborate with other monitoring organisation to provide for advisory to general public towards health associations and risk of exposure.

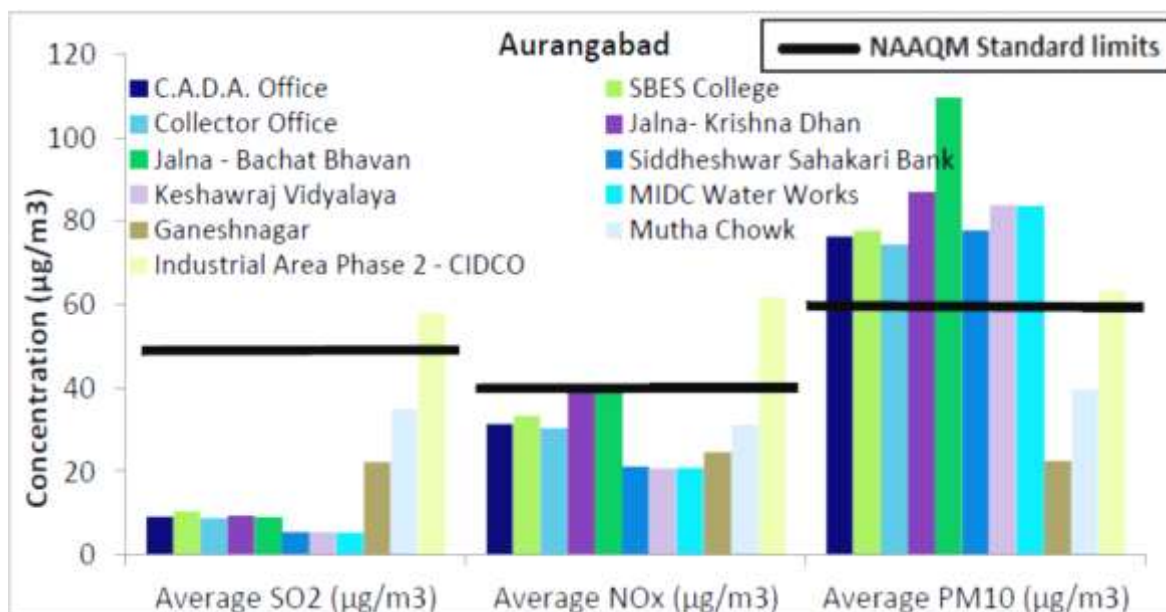


Figure 6 Air Quality of Aurangabad Region

Gap identified and action plan to be adopted with its priority for air quality of Aurangabad region is presented in **Table 5**.

Table 5 Action Plan for Air Quality Management

Sectors	Gaps	Action Points	Priority
Air	<ul style="list-style-type: none"> Most of the places PM₁₀ seems to exceed by a factor of 2 Limited CAAQMS to establish / corroborate inferences Sectoral action plans not effectively established Aurangabad comes under list of Non-Attainment cities with respect to the Ambient Air Quality India (2011-2015) & WHO reports 2014/2018 	<ul style="list-style-type: none"> Emission inventory and source apportionment supported with dispersion and health based iterative process for science based AQM strategy to be established Each ULB to have at least 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 Review and Monitoring Mechanism to be developed to check Compliance and specific mitigation measures taken as per 	High

		<p>the requirement of Non-Attainment Cities</p> <ul style="list-style-type: none"> ▪ Fugitive emission control system for hot spot emission control to be installed ▪ Green barriers / Photo catalyst options to be evaluated ▪ Capacity building to be enhanced 	
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6.0 Mining Activity Management plan

As on date 39 number of Mining licenses given in the District.

7.0 Noise Action Plan

Other than event base monitoring and special projects related / orders monitoring, MPCB carries out annual noise monitoring. There are 74 numbers of noise measuring devices with all ULBs. and Noise quality reveals mainly source specific non-compliance such as traffic related in most of the kerb side analysis. Though zoning categories and regulations therein are particularly specified, in limitation of noise regulations has always been challenge to the regulatory authority. **Table 7** spells potential management plan that could be taken up on priority by each of the ULBs. There is no complaint received in last one year related to the noise pollution.

Table 7 Noise Action Plan

Sectors	Gaps	Action Points	Priority
Noise	<ul style="list-style-type: none"> ▪ Most of the source related noise areas show exposure beyond compliance ▪ Excessive exposure during noise generating potential events/ festivals ▪ 	<ul style="list-style-type: none"> ▪ 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 	High

8.0 Conclusion

There seems to be vast data gaps and a detailed exercise to collate and validate data gathered through this process needs to be urgently taken up in addition to the adopting a holistic & inclusive consultative process of gathering information, collating & converging it in order to be able to device strategies of future. Also, it is equally important that projection for at least next 20 years be done in order to evaluate management plans for futuristic view to meet the objective of such vast exercise. Digital data availability needs to be one of the prime tasks of government & methods of its validation be created with scope for improvement in near future. The practise needs to be a continual one to be updated regularly in order to monitor progress and effectiveness of this process & shall be linked with financial allocations being designed to be promoted by government of the day. With regards