

# District Environment Plan



Prepared By



Environment Department, Government of Maharashtra



Maharashtra Pollution Control Board

## Bhandara

## 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 Bhandara District is prepared.

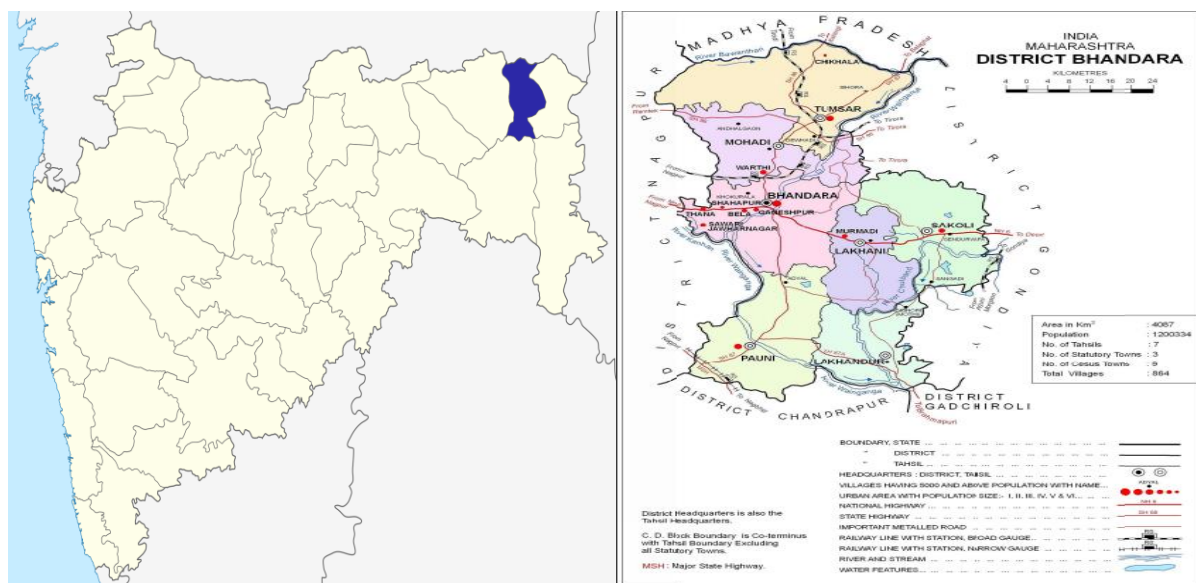
## 2.0 Introduction

Bhandara is a city and municipal council that is the headquarters of Bhandara district in the state of Maharashtra, India. It is connected with NH-53 and NH-247. Bhandara serves as an agricultural center for farmers in the region, who mostly grow rice. The city speaks the regional language of Marathi. Bhandara is split between two rivers, the Wainganga and the Sur Nadi, and crossed by National Highway No. 6. The city is surrounded by industries like Ashok Leyland, Sunflag Steel and an ordnance factory. The Wainganga is the principal river in the district and the only stream that does not dry up in the hot weather.

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

**Table 1 Bhandara District Profile**

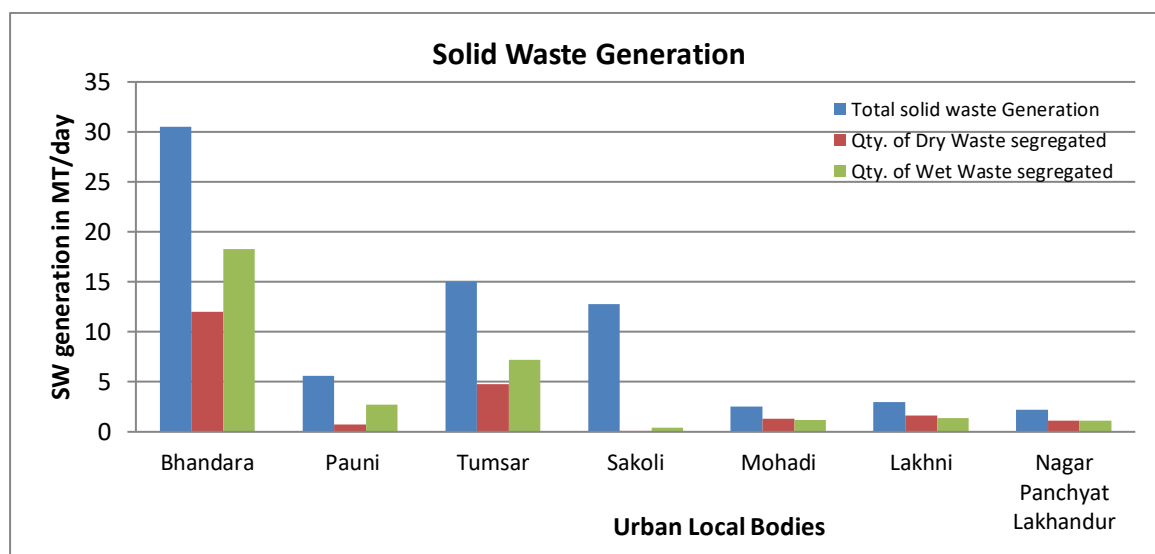
Description	Details
Average Climate	Summer: 41 °C. Winter : 23 °C. Rainfall: 850 mm
Geographical Location	Bhandara is located at 21.17°N 79.65°E in the north-east part of the state.[4] It has an average elevation of 244 meters (800 feet). It is 60 km from the city of Nagpur. It falls on the major National Highway 6 joining Mumbai and Kolkata
Area	4087 Sq. km.
Languages Spoken	Marathi, Hindi, English are major languages but all Indian languages are spoken
Population	Total: 1,200,334 Male: 605,520 Female: 594,814 [According to 2011 Census Report]
Population Density	294 Per Sq. km.
Literacy Rate	83.76
Rivers	Wainganga,Kanhan, Sur Nadi
ULBs	7 Numbers
Municipal Corporations	0
Sub districts	0
Villages	864 Numbers
Statutory Towns	3 Numbers
Tahsils	7 Numbers Tumsar, Mohadi, Bhandara, Sakoli, Lakhani, Pauni and Lakhandur.
Pin code	441904 ,441906

**Figure 1 Location of Bhandara District**

### 3.1 Domestic Solid Waste Management Plan

Bhandara district is having 7 ULBs with 115 Wards. Municipal Solid Waste(Dry & Wet) generated from each ULBs is given in the **Figure2**and details of Other Types of Waste is presented in **Figure 3** due to its less quantity and for easy representation.As per collected

data, total solid waste generation of Bhandaradistrict is 71.7 MTD. Wherein, Dry Waste generation is 21.1 MTD and Wet waste is 34.75 MTD.



**Figure 2 Solid Waste Generation of Bhandara District**

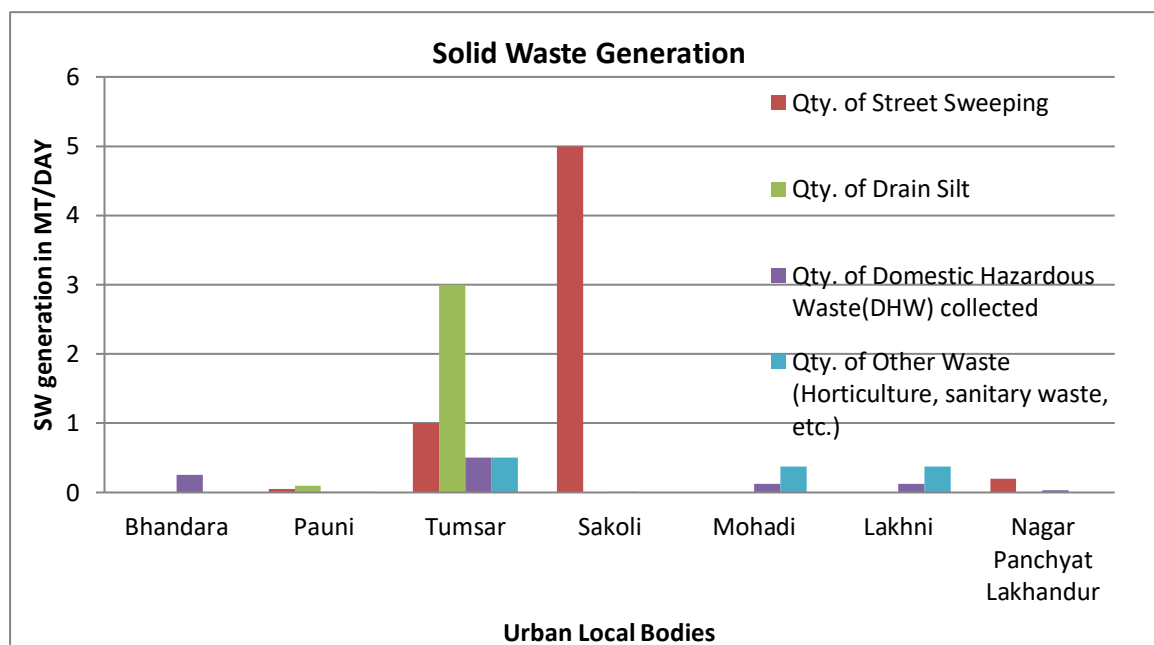
The above graphical representation states that, Maximum quantity of Solid Waste generated is from Bhandara Municipal Council. Bhandara Municipal Council having largest population than the other 6 ULBs the solid waste generation is likely to be greater.

It seems that segregated Wet waste comprises of approximately 48% of total waste generated of the district and segregated Dry waste contributes 37.7%, remaining waste is unsegregated. Being highly populated Bhandara Municipal Council stands on top with the highest quantity i.e. 30.5MTD out of which dry waste is 12MTD and wet waste is 18.25MTD. Lakhndur Nagar Panchayat generates lowest quantity i.e. i.e. 2.28 MTD out dry waste is 1.0 MTD and wet waste is 1.1 MTD. It is observed that quantity of solid waste generation is in line with the respective population of ULBs.

As per the data presented in the **Figure 3**, details of other types of waste generation is presented as below;

**Street Sweeping Waste:** Bhandara district generates 1.86 MTD of Street Sweeping Waste. Maximum quantity of Street Sweeping Waste is generated by Tumsar Municipal Council with total quantity of 1 MTD. The Street sweeping waste generated from Bhandara Municipal council is 0.5MTD which is not possible. Also, the data of Mohadi and Lakhni Municipal Council is not estimated.

**Drain Silt Waste:** Total quantity of Drain Silt Waste generated is 1.65 MTD. It seems that maximum quantity of Drain Silt Waste is generated by Bhandara Municipal Council with total quantity of 0.3 MTD. The Drain silt for Bhandara Municipal council is 0.3 MTD which is not possible. The data of Mohadi and Lakhni Municipal Council is estimated.



**Figure 3 Other Waste Generation of Bhandara District**

**Domestic Hazardous Waste (DHW):** Total DHW quantity generated is 0.22 MTD. Maximum quantity of DHW is generated by Bhandara Municipal council with total quantity of 0.1 MTD and Pouni Municipal Council stands lowest with 0.005 MTD.

**Other Waste (Horticulture, sanitary waste, etc.):** Total Quantity of Horticulture, Sanitary and other waste is 1.39 MTD. Maximum quantity of Other Waste is generated by Tumsar Municipal Council with total quantity of 0.5 MTD and Pauni Municipal Council generates lowest quantity i.e. 0.006 MTD. At 3 ULBs namely Bhandara, Sakoli and Lakhandur Municipal Council the other waste generated is 0 MTD which is not feasible. Some quantity of dust is likely to be generated.

**Bulk Waste Generator:** Bhandara District is having in all 2 Bulk waste generators at Bhandara and Sakoli Municipal council. There are 2 sites of wet waste treatment. Correction done regarding 147 sites of wet waste.

**C&D Waste:** Total 5.38MTD of waste is generated from 7 ULBs from which Bhandara and Pauni municipal councils generates 2MTD waste each. At Lakhandur Nagar Panchyat the waste generated is 0.1MTD need to review the exact quantity of waste generated.

### **3.1.1 Compliance in Segregated Waste Collection**

Total Waste generation from Bhandara district is 71.7MTD and almost all waste is being segregated.

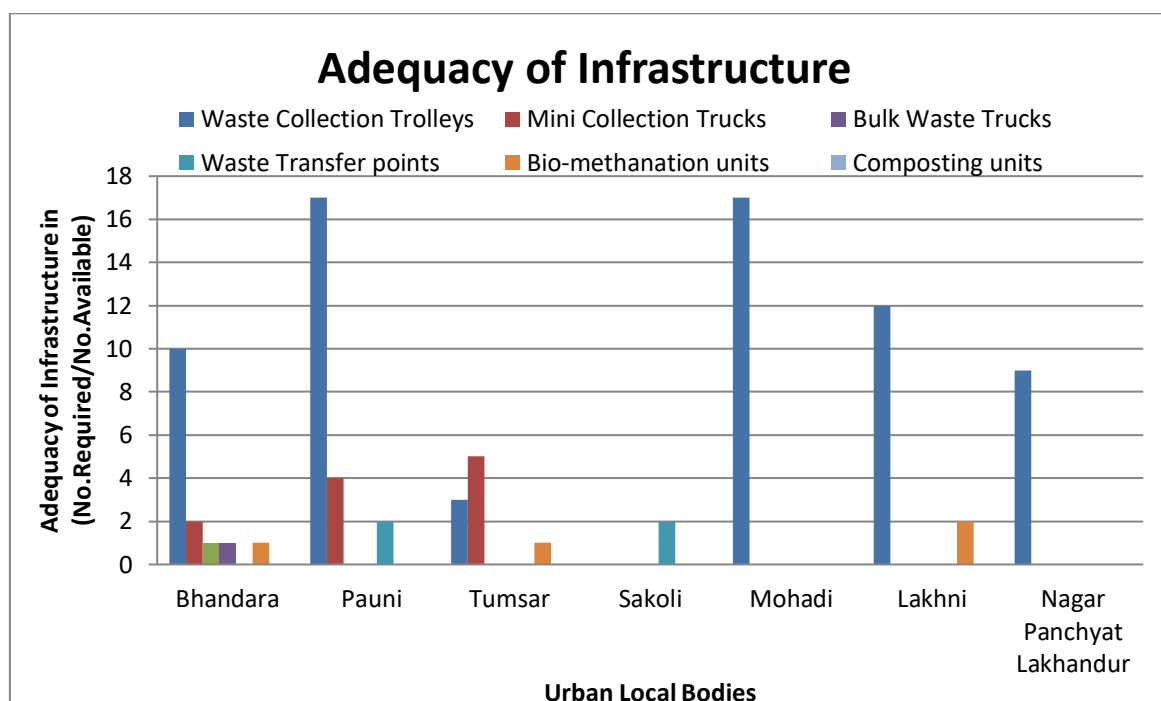
#### **A] Waste Management Operations**

Out of 7 ULBs, 6ULBs have provided 100% door to door collection facility whereas Lakhandur Nagar Panchyat has provided 96% of door to door collection facility. Three ULBs namely Bhandara Municipal council, Mohadi and Lakhni Nagar Panchyat has provide 100% mechanical sweeping system. Manual sweeping is carried out around 100% at 6 ULBs except Tumsar Municipal Council where 75% of manual sweeping is done. 6 Urban Local Bodies except Lakhandur Nagar Panchyat [96%] have kept practise of segregating the waste onsite and further transporting it to respective treatment facility. The collected waste is segregated and further transported to respective treatment facilities like composting facility, Material Recovery Facility, Sanitary Landfills, reclamation of old dump sites and for recycling. The entire district has 4 composting sites for treating 34.75 MT/Day of wet waste generated. All the 7 ULBs carry out composting activity wherein 100% composting of wet waste is done at only 4ULBs and rest 3ULBs carry out the activity in various range. 4 Urban Local Bodies are using the Material Recovery Facility that separates and prepare recyclable materials.

Sanitary landfill facility is provided at only 0 ULBs from which only Tumsar Municipal council carries out 100% landfilling activity. 3 ULBs namely Pauni, Tumsar and Sakoli Municipal Council have initiated Reclamation of old dump site. For proper disposal of generated TSDF/CBMWTF only Sakoli Municipal Council is having linkage. Authorization to waste pickers are initiated by all 7 ULB.

### **3.1.2 Adequacy of Infrastructure**

Availability of infrastructure to handle the waste generated from the Bhandara district is presented in **Figure 4**.



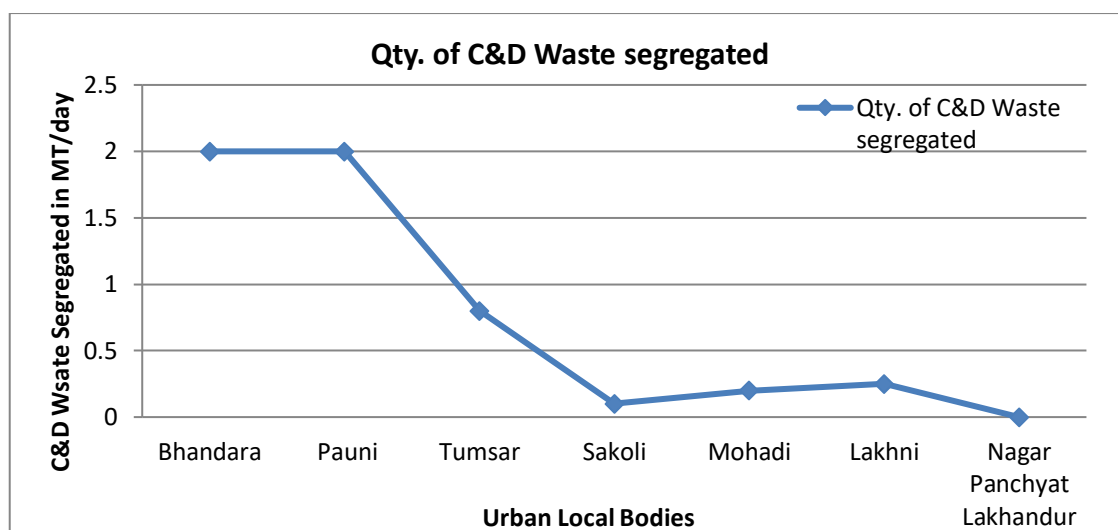
**Figure 4 Adequacy of SW Infrastructure**

It is observed that there are total 3 waste Transfer points in Bhandaradistrict with waste trolley of 68, Mini collection trucks 11 numbers and Bulk transport trucks 4. There are no Bio-Methanation unit in any of the ULBs. 10 Composting units are available to treat wet waste of 32.26MTD[Need to review data, as it is seen that there are in all 21 composting pits]. As per record, out of 7 ULBs, 6 ULBs have implemented the Solid Waste Management Rule whereas Lakhandur Nagar Panchyat is under progress of implementing the Rule.

### 3.2 C&D Waste Management Plan

The Construction and Demolition Waste [C&D Waste] generated by Bhandara district is about 4800 Kg/Day. C&D Waste generated by each ULBs is presented in **Figure 5**. Bhandara and Pauni Municipal Council generate the highest quantity of C&D waste. Least C&D waste is generated by Sakoli Municipal Council with the quantity of 100Kg/Day. Non availability of data will not help in preparing ingenious and executable plan for waste management of the district hence local bodies must ensure proper sampling and factual measurement of the various types of waste being generated.

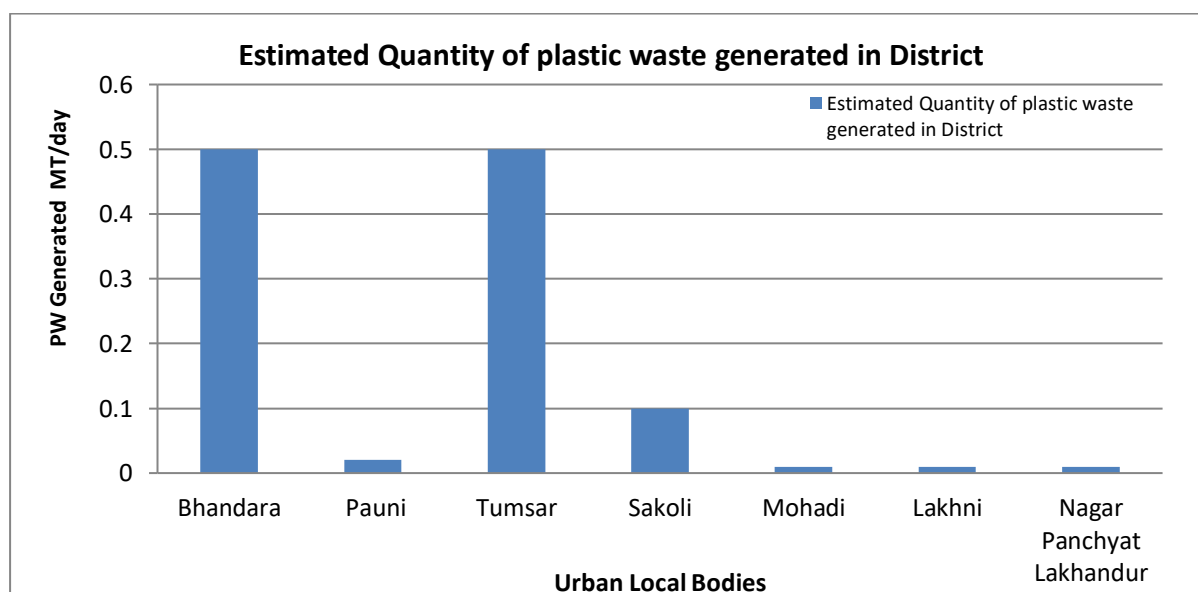




**Figure 5 C&D Waste Generation of Bhandara District**

### 3.3 Plastic Waste Management

Total Plastic waste generated by Bhandara district is 1.1MTD. With 0.5MTD quantity, Bhandara Municipal Council is the highest plastic waste generator and Mohadi, Lakhni and Lakhandur Nagar Panchyat generates 0.01MTD each of plastic waste. [Data needs to be reviewed as the population and plastic waste generation does not match]. In almost all ULBs except Lakhandur Nagar Panchyat [96%], 100% door to door collection and segregation system is implemented with 7 Plastic Waste Collection Centre. There are 20 Plastic Waste Pickers with the authorization for waste collection. District has no Plastic Manufacturer and 2 Waste recyclers. No detail regarding the treatment of plastic waste generated is provided. PW Management Rules, 2016 is implemented in all the ULBs.

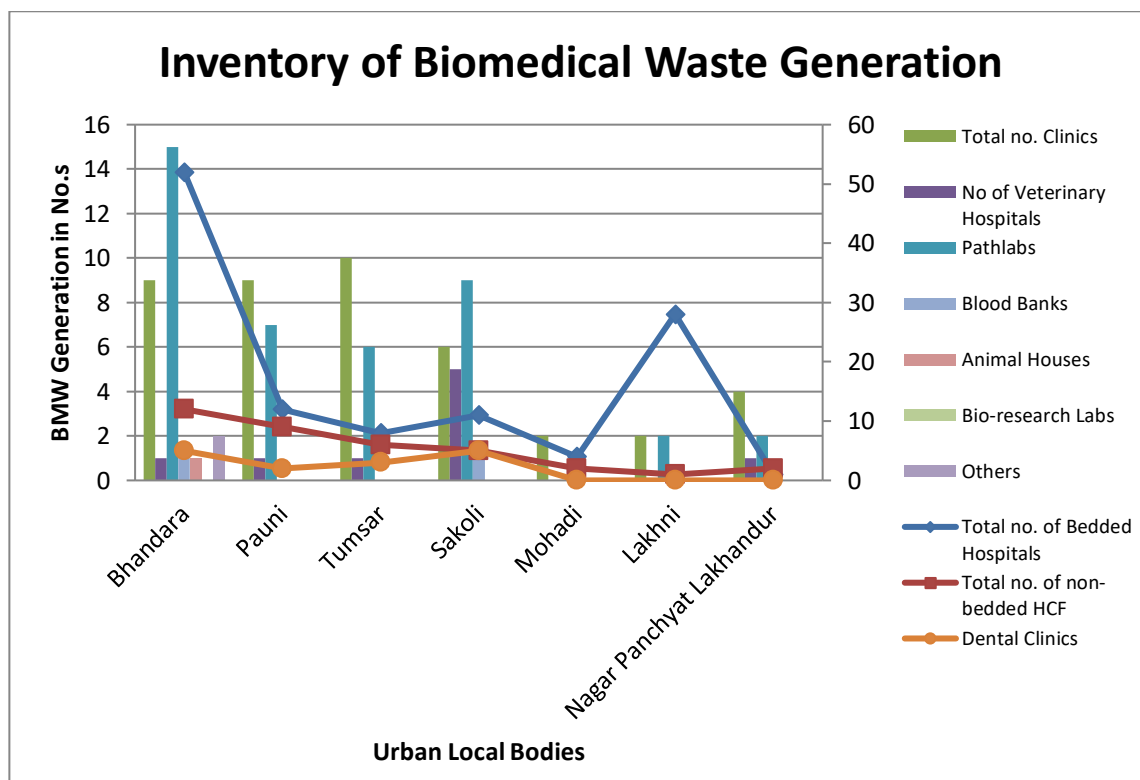


**Figure 6 Details of Plastic Solid Waste Generation**



### 3.4 Biomedical Waste Management

Bhandara District has 116 Bedded hospitals, 153 HCF have taken authorization. 37 are non-bedded hospitals, 42 clinics, 9 veterinary hospitals, 41 pathlabs, 15 dental clinics, 2 Blood banks, etc.



**Figure 7 Details of Bio-Medical Waste Generation**

Adequate Common Facility available for treatment is provided and disposal of BMW and average BW taken by these facilities are 550kg/day. Total quantity of Bio-Medical Waste generated along with the number of CBMWTDF is not provided. CBMWTDF. (CHWTSDF is not available in Bhandara district, but facility operator of Nagpur district is giving service for Bhandara) is not provided.

### 3.5 Hazardous Waste Management

10 Number of industry is established generating 822.5MT/Annually out of which 86MT/Annum is Incinerable 735MT/Annum is of land fillable HW and 1.5MT/Annum is recyclable. There is no Common Treatment Storage Disposal Facility and the generated waste is sent to other district within the state for treatment and disposal.

### 3.6 E Waste Management

No Collection Centres are established by ULBs. There are no authorized E-Waste recyclers / Dismantler and Authorized E-Waste collectors. 1 No Campaigns are conducted for Awareness Campaigns.

### 3.7 Action Plan

As per the above mentioned observation, it seems that almost all ULBs are handling solid waste generated as per the Municipal 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
<b>Domestic Solid Waste</b>			
Quantification	<ul style="list-style-type: none"> <li>Methodology for solid waste quantification should be ascertained</li> <li>Quantification based on Income group, culture affluence and technology to be considered</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>Quadratesampling methodology to be adopted in order to reduce quantity as well as quality</li> </ul>	Immediate
Collection System & Transport System	<ul style="list-style-type: none"> <li>Some of the places, efficiency of the collection system is not up to the mark</li> </ul>	<ul style="list-style-type: none"> <li>Ideally most proven method of SWM is 3 Tier System with door to door, community and transfer station approach</li> <li>100% efficiency to be achieved</li> <li>Intermediate</li> <li>Approximately 15GhantaGadi would be required</li> </ul>	Short to Mid Term
Infrastructure	<ul style="list-style-type: none"> <li>Mostly composting is the main treatment methodology with</li> </ul>	<ul style="list-style-type: none"> <li>Intermediate / Transfer station based decentralized waste treatment facility to be evaluated</li> </ul>	

Sectors	Gaps	Action Points	Priority
	about 80% coverage ▪ MRF facility is also available but limited to few	▪ Additional 20% alternative treatment such as bio-Methanation can be explored ▪ Sanitary landfill need to be provided	
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	High & Immediate
C&D Waste	▪ Lack of SOP for quantification ▪ 2-3 of the ULB need to establish C&D Waste management system	▪ Strengthening surveillance for type and quantity of C&D waste ▪ 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	▪ 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 ▪	▪ Regular Inventorization through automatic / digital platform to be developed ▪ Up-gradation of existing facility to meet 2016 CPCB norms ▪ 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 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"> <li>Domestic HW being mixed with solid waste posing threat</li> <li>No separate handling of domestic HW</li> <li>Not effective segregation at source</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>Inventory to be initiated and maintained</li> </ul>	Very High & Immediate
E Waste	<ul style="list-style-type: none"> <li>Lack of inventory</li> <li>Limited understanding of E waste rule and management</li> <li>Neither segregation nor separate transfer / handling facility</li> <li>Awareness program within the people should be done</li> </ul>	<ul style="list-style-type: none"> <li>Detailed inventory for domestic e-waste under 26 different categories</li> <li>Mass awareness campaign</li> <li>Every ULB to have at least one E waste management centre and minimum one collection / drop centre in a radius of 25-30km. Due to non-industrialization E waste generator are very minimum)</li> <li>At least one e waste processing unit in a district (Backward district E waste generation is very meagre)</li> <li>Awareness program should be arranged</li> </ul>	Very High & Immediate

#### 4.0 Water Quality Management Plan

There are 2 Rivers in Bhandara district with 122.55km in length. The 7 ULBs generate about 23.25MLD of sewage and no STP is present for treatment of generated sewage. However, it is also many a time the deficit as a representative of treatment capacity / capability.

Industrial effluent is much more regulated wherein 4.6MLD from 80 numbers of industry like Agro, Metallurgic, Power, mining Automobile, limited to the entire district are made to treat almost the entire effluent to the best possible norms as stipulated by their permits, monitored effectively and regularly.

There is no description of CETP given. (CETP is neither available nor required due to less generation of Industrial effluent)

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"> <li>▪ Limited information available on mapping of surface water resources in terms of quantity</li> <li>▪ Limited Inventorization of quantity, usage, availability exploitation etc.</li> <li>▪ Limited Rejuvenation / remediation of water bodies</li> <li>▪ Solid waste dumping i the river bodies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Thorough Mapping of resources to be taken up</li> <li>▪ Extensive assessment of quality to be done</li> <li>▪ Criticality indicators to be established for each water body/resource</li> <li>▪ Extend water quality monitoring network to include representativeness</li> <li>▪ Based on the criticality initiate Rejuvenation / remediation</li> <li>▪ Online Monitoring system for surface water bodies to be established</li> <li>▪ Protection methods to be developed for creative stoppage of dumping of solid waste in the surface water bodies</li> </ul>	
Domestic	<ul style="list-style-type: none"> <li>▪ Correlation between generation and treatment often misleading</li> <li>▪ Treatment plant should be provided</li> <li>▪ Water budgeting exercise often missing</li> <li>▪ Computation of water</li> </ul>	<ul style="list-style-type: none"> <li>▪ Digital Platform to accommodate water budgeting / reuse potential</li> <li>▪ Approximately 30MLD of STP needed</li> <li>▪ Strengthen the sewage collection network to cover 100% Population</li> </ul>	Very high & Immediate

	footprint missing ▪ 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	▪ Policy for reuse / recycle of treated wastewater	
Industrial	▪ Separate information of Limited industries discharging wastewater in to the river ▪ CETP details not provided ▪ 3 number of industries Non-compliance of in terms of meeting discharge standards	▪ CETP details need to be provided. (CETP is not available in this district) ▪ Digital compliance methodology to be developed ▪ Disposal system to be under constant surveillance	

## 5.0 Air Quality Management

As it is Bhandara district being one of the most vibrant and outgrowing areas in Maharashtra, (Being a rural area and backward area in respect of Industrialization. Air pollution is not a major concern). Air quality assessment and sectoral management needs are ought to be essentially planned and executed.

It seems that PM10 is Ambient Air is one of the prime reason of the concern and historically Bhandara has been in the centre of controversy with regards its air quality management. In view of the same the prime facia 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.

Inventory and policy formulation action plan is stated in **Table 5**.

**Table 5 Action Plan for Air Quality Management**

Sectors	Gaps	Action Points	Priority
---------	------	---------------	----------

Air	<ul style="list-style-type: none"> <li>▪ Most of the places PM10 seems to exceed by a factor of around 2 - 4</li> <li>▪ Limited CAAQMS to establish / corroborate inferences</li> <li>▪ Sectoral action plans not effectively established</li> </ul>	<ul style="list-style-type: none"> <li>▪ Emission inventory and source apportionment supported with dispersion and health based iterative process for science based AQM strategy to be established</li> <li>▪ 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</li> <li>▪ Fugitive emission control system for hot spot emission control to be installed</li> <li>▪ Green barriers / Photo catalyst options to be evaluated</li> <li>▪ Capacity building to be enhanced</li> </ul>	
-----	--	---	--

## 6.0 Mining Activity Management plan

Being directly under the promissory control of District Collector, the total lease land and the mining in Bhandaradistrict is 467Hectares. It is important to mention that sand mining is carried out with due permission from respective authorities of MPCB and State Environment Department. 8 industries are complying with SPCB and CPCB standard

## 7.0 Noise Action Plan

Other than event base monitoring and special projects related / orders monitoring, MPCB carries out annual noise monitoring at 17 locations. 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 6** spells potential management plan that could be taken up on priority by each of the ULBs.



**Table 6 Noise Action Plan**

<b>Sectors</b>	<b>Gaps</b>	<b>Action Points</b>	<b>Priority</b>
Noise	<ul style="list-style-type: none"> <li>▪ Most of the source related noise areas show exposure beyond compliance</li> <li>▪ Excessive exposure during noise generating potential events/ festivals</li> </ul>	<ul style="list-style-type: none"> <li>▪ Noise mapping to be carried out for zonation purposes</li> <li>▪ At source control using physical or natural attenuation methods to be adopted</li> <li>▪ In the path noise control methodologies using noise absorbers creating zone of inhibition / silence zone to be done</li> <li>▪ End of the pipe measures such as PEs acoustic enclosures etc. to be adopted</li> <li>▪ Event based noise control policy to be effectively implemented</li> </ul>	

## 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 to action plans, the priorities shall be aligned based on sustainability objectives.