District Environment Plan

Prepared By

Environment Department, Government of Maharashtra

Maharashtra Pollution Control Board

Kolhapur

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 Kolhapur District is prepared.

2.0 Introduction

The city of Kolhapur is situated on the banks of the Panchgangariver and the Sahyadri mountain range is surrounded. It is a city famous for its historic castles, temples and royal places of the East Royals. It is one of the best places to discover the glory and grandeur of India. Kolhapur is about 387 km from the financial capital of India. KolhapuriSaj is in the distance and the famous necklace for Indian crafts leather slippers, Kolhapuri slippers and her private local jewellery is named KolhapuriSaj. Kolhapur is famous for the Sri Mahalaxmi Temple. The Bhosle dynasty was the well known kings of Kolhapur and they proudly treated themselves as descendants of the descendants of ChhatrapatiShivajiMaharaj. King ChhatrapatiShahji II was the last ruler of the Paura Kolhapur state. The rulers of Kolhapur encouraged theatre, wrestling and other arts. Today, Kolhapur is a modern and industrial city.

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

Table 1 Kolhapur District Profile

Description	Details
Average Climate	Summer: 33 to 35°C. Winter: 24 to 26 °C. Rainfall: 19 to 30 °C.
Geographical Location	It lies in the Sahayadri mountains in the Western Ghats.Chandgad is the coolest place in the Kolhapur district. Tambraparni river dam is the spectacular place nearUmgaon village. Also nearby dams are Radhanagari and kalambawadi.
Area	7685 Sq. km
Boundaries	Kolhapur is an inland city located in south-west Maharashtra state, 373 km South of Mumbai & 228 km of south of Pune, 615 km noth-west of

Description	Details
	Bengaluru and 530 km west of Hyderabad. Within Maharashtra, Kolhapur's nearest cities and towns are Ichalkaranji (27 km), Kodoli (35 km), PethVadgaon (15 km) Kagal (21 km), KasabaWalva (30km) Sangli (49 km), Satara (115 km). Kolhapur has an elevation of 569 metres (1867 ft). [*According to 2011 Census Report*]
Languages Spoken	Marathi, Hindi, English are major languages but all Indian languages are spoken
Population	Total: 3,876,001; Male: 1,980,658Female: 1,895,343
Population Density	504 per sq.km
Literacy Rate	81.51
Rivers	Panchganga, Krishna, Savithri, Veena, Koyna, Gayathri
Sub districts	4 Numbers
Villages	1216 Numbers
Statutory Towns	10 Numbers
Tahsils	12 Numbers Karveer, Kagal, Ajara, ChnadgadBhudargad, Shahuwadi, Panhala, Hatkanangale, Shirol, Radhanagari, Gaganbawada and Gadhinglaj.
Pin code	416001-15

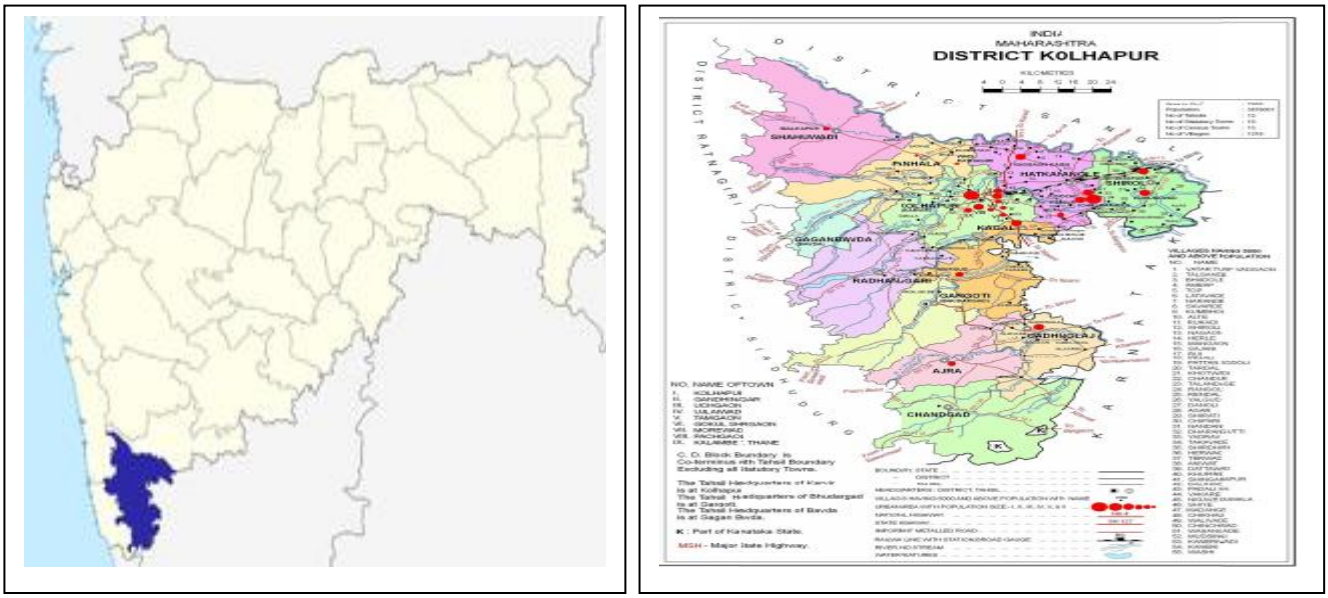

Figure 1 Location of Kolhapur District

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. In Kolhapur city 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 15 Urban Local Bodies [ULBs] in Kolhapur district.

3.1 Domestic Solid Waste Management Plan

Kolhapur district is having 15 ULBs with 119 Wards. Municipal Solid Waste [Dry & Wet] generated from each ULBs. As per collected data, total solid waste generation of Kolhapur district is 350.77MTD. Wherein, Dry Waste generation is 192.92MTD and Wet waste is 157.84MTD.

It seems that Wet waste comprises of approximately 45% of total waste generated of the district and Dry waste contributes 55%. Kolhapur District stands on top with the highest quantity i.e. 200MTD out of which dry waste is 72MTD and wet waste is 120MTD. Malkapur generates lowest quantity i.e. 1MTD out dry waste is 0.6MTD and wet waste is 0.4MTD. It is observed that quantity of solid waste generation is in line with the respective population of ULBs.

Kolhapur district generates 5MTD of Street Sweeping Waste.The quantity of street sweeping waste is generated from Ichalkaranji. The wastes from other ULBs are not estimated.Drain silt waste is not estimated from any ULBs. Total DHW quantity generated is 2.11MTD.Maximum quantity of DHW is generated by Kolhapur Corporation with total quantity of 2.0MTD and Ichalkaranji stands lowest with 0.1MTD. Data is available for only 2 ULBs.

Total Quantity of Horticulture, Sanitary and other waste is 5.01MTD.Maximum quantity of Other Waste is generated by Ichalkaranji is 5MTD and Panhala generates lowest quantity i.e. 0.010MTD. Data is not available for any other ULBs except Ichalkaranji and Panhala.

Kolhapur district is having total 6 Bulk Waste Generator with the highest numbers in Ichalkaranji and total number of onsite facility provided for treatment of wet waste is 10. Inventory is not done for any other ULBs.

Total Waste generation from Kolhapur district is 350.77MTD and almost all waste is being segregated.

3.1.1 Infrastructure Adequacy

Door to Door Collection

Only Ichalkaranji has provided 100% door to door collection facility of the waste. All the other ULBs have provided about 70-80% of collection system.

Mechanical Road Sweeping is not initiated at any of the ULBs whereas 100% manual sweeping is carried out at all the ULBs and rest of other ULBs have not provided Mechanical

Road Sweeping facility. Almost 100% of waste is being transport through segregated waste transport system

Out of 15 ULBs, only 1 ULBs namely Kolhapur Corporation has installed digester with bio-methanation production capacity of 60%.

Kolhapur district generates approximately 1329MTD of wet waste and Out of which 81.7% is treated through composting.

Out of 15 ULBs, 2 ULBs is using Multi Re Use Facility to separate and prepare recyclable material whereas 12 ULBs have not installed URF facility.

No provision for sanitary landfill. Reclamation of old dump site is only initiated at Ichalkaranji. Only 2 ULBs have linkage with waste to energy boiler / cement plant. 14 ULBs have linkage with recycler whereas 1 ULBs has not started the process yet.

14 ULBs have issued authorization to the waste pickers. 15 ULBs have linkage with TSDF / CBMWTF.

It is observed that there are total 6 waste Transfer points in Kolhapur district with waste trolley of 83, Mini collection trucks 34 numbers and Bulk transport trucks 6. Total number of Bio - Methanation units present are 2. Total 27 Composting units available to treat wet waste.

3.2 C&D Waste Management Plan

The Construction and Demolition Waste [C&D Waste] generated by Kolhapur district is about 2920MTD/Annum.The entire generated waste is disposed by landfilling without processing or by filling low lying area.

3.3 Plastic Waste Management

Total Plastic waste generated by Kolhapur district is 11.18MTD. With 6.08MTD quantity at Kolhapur Corporation is the highest plastic waste generator whereas Panhala generates least amount of plastic waste i.e 0.002MTD except 5 ULBs whose data is not estimated. It is observed that waste generation, collection and segregation data for 5 ULBs is not estimated.

Door to Door collection facility is done at 10 ULBs achieving segregation of the same upto 85%. There are 153 Plastic Waste Pickers in district with the authorization for waste collection. District has only one Plastic waste collection centre located in Kagal. It is observed that only Ichalkaranji has obtained linkage with PROs of producers. District has total 8 Plastic Waste Recycler within district. All ULBs have implemented PW Management Rules, 2016

3.4 Biomedical Waste Management

Bedded hospital are 900 numbers, 900 HCF have taken authorization. 1526 are non-bedded hospitals, 1526 have taken authorization. There are total 15 Veterinary hospitals. Total BMW generation from all above mentioned sources are to the tune of 2042Kg/Day

There are 2 Common Facility available for treatment and disposal of BMW and adequate BW taken by these facilities.

3.5 Hazardous Waste Management

239 number of industry are established in Kolhapur district generating 45583.27 MT/Annum. Out of total waste generated, 5424.56MT is incinerable; 32910.4MT goes to land fill and 7248.31MT Recyclable / utilizable HW. It is observed that all the industries are authorized. It is noted that no Common Treatment Storage Disposal Facility in district, however the waste is sent to Common Treatment Storage Disposal Facility in other district within the state.

3.6 E Waste Management

There are 2 authorized E-Waste recyclers / Dismantler at GokulShirgaon MIDC and Kagal MIDC. It is observed that District Administrator has provided awareness Campaign.

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
Domestic 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	Immediate
Collection System & Transport System	▪ Some of the places, efficiency of the collection system is not up to the mark	▪ 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 ▪ Approximately 70 GhantaGadi would be required	Short to Mid Term
Infrastructure	▪ Mostly composting is the main treatment methodology with about 80% coverage ▪ MRF facility is also available but limited to	▪ Intermediate / Transfer station based decentralized waste treatment facility to be evaluated ▪ Additional 20% alternative treatment such as bio-Methanation can be explored	

Sectors	Gaps	Action Points	Priority
	few ▪ No Sanitary landfill are present	▪ Sanitary landfill can be proposed	
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	▪ 2-3 of the ULB need to establish C&D Waste management system	▪ 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 to cover vast area and scattered HCF [miniscule quantity]	Very High & Immediate
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	Very High & Immediate

Sectors	Gaps	Action Points	Priority
E Waste	▪ Lack of inventory ▪ Limited understanding of E waste rule and management ▪ Neither segregation nor separate transfer / handling facility	▪ 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 2 Rivers in Kolhapur district with 80.7km in length. With respect to the data collated about MLD of untreated /partially treated sewage flows in to the riverine length thereby [posing challenge for attaining clean water in the river.

The 15 ULBs generate about 140.43MLD of sewage with an existing capacity of 86MLD of STP. However, it is also many a time the deficit as a representative of treatment capacity / capability. 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 out put quality of treated sewage only leads to complicated disposal options.

On the other hand industrial effluent are much more regulated wherein 52.5MLD from 594 numbers of industry, 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 with the aid of final disposal / treatment in the 4 number of CETP.

Finally, it is quintessential as part of the ULBs to map HFL, demarcate and protect flood plains especially in light of the erratic precipitation witness in the recent years in some of the ULBs ULBS have already included this features as their regulatory mandate though the irrigation department seems to be directly responsible for the same.

All the above needs to be combined with the effort of sensitization and awareness at all level in order to formulate and implement successful water quality management strategy though the same is limited to some number of ULBs as of now & a 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	▪ Limited information available on mapping of surface water resources in terms of quantity ▪ Limited Inventorization of quantity, usage, availability exploitation etc. ▪ Limited Rejuvenation /	▪ 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	High

	remediation of water bodies ▪ Solid waste dumping i the river bodies	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	
Domestic	▪ Correlation between generation and treatment often misleading ▪ Water budgeting exercise often missing ▪ Computation of water 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	▪ Digital Platform to accommodate water budgeting / reuse potential ▪ Approximately 55MLD of STP needed ▪ 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	Very high & Immediate
Industrial	▪ Limited information of industries discharging wastewater in to the river ▪ Performance of CETP is questionable	▪ 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

As it is Kolhapur district being one of the most vibrant and outgrowing areas in Maharashtra, 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 3 manual stations across the district.

It seems that PM_{10} is Ambient Air is one of the prime reason of the concern and historically Kolhapur has been in the centre of controversy with regards its air quality management. An exceedance factor as per the monitored data that needs immediate attention as is the case in most of the areas of India. 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	▪ Limited CAAQMS to establish / corroborate inferences ▪ Sectoral action plans not effectively established	▪ 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 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 ▪ 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	

6.0 Mining Activity Management plan

The total lease land and the mining in Kolhapur district is 39.72 Hectares. Recently enough 3 numbers of non complying units have been served with the notices

7.0 Noise Action Plan

Other than event base monitoring and special projects related / orders monitoring, MPCB carries out annual noise monitoring at 4 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

Sectors	Gaps	Action Points	Priority
Noise	▪ 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	High

		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	