

ACTION TAKEN REPORT AND ACTION PLAN FOR COMPLIANCE OF SOLID WASTE MANAGEMENT RULES 2016

Submitted before the NGT Southern zone Chennai in OA No. 442/2013
heard on 21/06/2021

The total municipal solid waste generated in Kochi Municipal Corporation area is 326 tonnes per day. The per capita waste generation is 0.541kg. Of the total waste generation about 306 TPD (92%) of wastes are collected of which the 206 TPD of organic fraction is treated in the compost plant. The remaining 100 TPD of non-biodegradable wastes after recovering valuable plastic materials are landfilled. About 9 tonnes of wastes are processed at source by the households and about 10 tonnes of wastes are processed through the biobins operated by the CREDAI(Confederation of Real Estate Builders Association)

Major sources of MSW generation in the city include domestic sources such as individual households, apartments, commercial establishments such as hotels, restaurants,markets institutions etc. As per the draft Kochi Climate Action Plan report prepared by GIZ, a German cooperation agency supporting Kochi Corporation under the Sustainable Development Smart cities project domestic and commercial establishments such as small shops are the major contributors of waste generation accounting to about 57% followed by hotels and restaurants contributing 10%, vegetable fruits meat etc contributing 7% and so on.

As per the Environmental Impact Assessment report prepared by L&T Infra Engineering in 2019 for the waste to energy project organic fraction accounts about 63% of the total waste generated. Non-biodegradable wastes including plastic, textiles leather etc contribute 31% of the waste generated. As per a study conducted by C-HED a research supporting wing of Kochi Corporation in 2016 79.8% of waste at collection point is organic waste.

Updated status of the implementation of the SWM Rules 2016 in brief is furnished below. Status of major works such as biomining of legacy waste, waste to energy project, leachate treatment are furnished separately with revised action plan for

implementation of the projects as part of complying the SWM Rules 2016 at the end of this report. The present status of compliance in implementation of the SWM Rules 2016 is as given below.

1. Rule 22(1): Identification of suitable sites for setting up solid waste processing facilities

Kochi Corporation had identified, constructed, commissioned and is operating a 250 tonnes per day capacity Windrow compost plant at Brahmapuram for treating the biodegradable fraction of the waste since April 2008(*Whereby the Rule 22(1) is complied*)

2. Rule 22(2) identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more .

Vide letter No. PCB/RO-EKM/GEN-97/12 dated 22/08/2019 Chief Environmental Engineer, Regional Office Ernakulam had informed after inspection that the land identified by Corporation in Brahmapuram is not suitable as per the guidelines of CPCB.

A request has been placed with the Government vide letter No. MOE2/3760/18 dated 19/11/2019 to waive the conditions of siting landfill and to grant special permission.

Vide G.O (Rt)No.1198/2020/LSGD dated 18/06/2020, Government have accorded sanction to Kerala Enviro Infrastructure Limited and Clean Kerala Company Limited for constructing regional sanitary landfill in the land purchased by KINFRA from FACT near Brahmapuram by utilizing 25 acres of land.

Construction of the scientific landfill will be taken up through the forthcoming Kerala Solid Waste Management project.

3. Rule 22(3) Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities

Suitable site was procured in 2004 and Solid waste treatment plant was established in 2008 itself. Status regarding the establishment of scientific landfill is as given in the above paragraph.

- 4. Rule 22(4) Enforcing waste generators to practice segregation of bio-degradable, recyclable combustible, sanitary waste domestic hazardous and inert solid waste at source.*

99% of Households in Kochi Corporation area store wastes in segregated form (Biodegradable waste and Non-biodegradable wastes separately). 7,262(4.32%)HHs have adopted source level treatment and wastes generated from 8204 HHs(4.88%) are treated through biobins operated by CREDAI(Confederation of Real Estate Builders Association)

5% of HHs in and around Fort Kochi who were reluctant in source segregation was brought on board by distributing 30000 bins, under the Cochin Smart Mission (Smart City Project)

About 70% of shops/commercial establishments store wastes in segregated form. Earlier this was 59.8%

- 5. Rule 22(5) Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.*

There are about 1,67,935 households in Kochi Corporation. Wastes are directly collected from about 1,50,730 HHs (90%) (Door to door collection of wastes). In about 7,262(4.32%)HHs source level treatment of wastes are adopted. And in another 8204 HHs(4.88%) CREDAI a real estate builders association is taking care of the waste management. In total 99.2% of the total wastes are either collected by door to door collection or processed at source.

- 6. Rule 22(6) Ensure separate storage, collection and transportation of construction and demolition waste.*

In compliance with the construction and demolition waste management rules 2016, the C&D wastes are not collected nor mixed with the other wastes collected, transported and treated by Corporation. C&D wastes are reused for filling low lying areas and filling of basement areas and for construction of

pavement tiles and kerb stones. Construction of construction and Demolition waste treatment plant is separately included in the action plan.

7. Rule 22(7) Setting up solid waste processing facilities by all local bodies having 100000 or more population

Kochi Corporation had set up a 250 TPD capacity windrow composting plant (one of the technologies specified in CPHEEO manual and SWM Rules 2016) for solid waste processing in 2008 itself. [As part of improving waste treatment a waste to energy plant will also be set up in Brahmapuram where there is a functional compost plant. Updated status is furnished separately.](#)

8. Rule 22(8) Setting up solid waste processing facilities by local bodies and census towns below 100000 population.

Not applicable to Kochi Corporation as the population of Kochi Corporation is above 100000.

9. Rule 22(9) Setting up common or stand alone sanitary landfills or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreated inert wastes as permitted under the Rules

Status is same as furnished for Rule 22(2)

10. Setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules.

Not applicable to Kochi Municipal Corporation

11. Rule 22(11) Bio-remediation or capping of old and abandoned dump sites

The work of biomining of legacy waste has been awarded to M/s Zonta Inratech Private Limited Vide LOA No. No.MOE2/3760/20 dated 23/07/2021. [Status update is furnishes separately.](#)

STATUS OF MAJOR WORKS TO BE CARRIED OUT AT BRAHMAPURAM TO COMPLY WITH THE DIRECTIONS OF NGT

Biomining of Legacy waste:

Vide G.O (Ms)No.8/2020/DMD dated 05/03/2020, invoking the provision under Section 24(e) of Disaster Management Act 2005 the task of scientific management of legacy waste accumulated at Brahmapuram waste dumping yard was taken over by the Government in LSG Department as the financial bid/quoted rate of the tender floated by Kochi Corporation on 26/10/2019 was not approved by the Corporation Council in its meetings held on 28/01/2020, 06/02/2020,22/02/2020, 28/02/2020,02/03/2020 and 03/03/2020.

Fresh tenders were floated by KSIDC as per the directions in the G.O mentioned in the above paragraph on 20/03/2020. As there was only one participant, the work was retendered on 24/06/2020. The tender procedures were completed by KSIDC on 12/10/2020.

As Vide letter No.238/DC1/2020/LSGD dated 22/10/2020 Kochi Corporation was directed by the Government to examine the quantity of legacy waste assessed and the rate quoted by the consortium led by M/s Zonta Infratech Pvt Ltd, the bidder selected for the rehabilitation of municipal solid waste dump site at Brahmapuram in consultation with KSPCB and submit the report NIT Calicut was engaged to conduct a drone survey which was completed on 09/02/2021. The final report submitted by NIT Calicut was submitted to the Government on 07/04/2021.

Vide G.O(Rt)No.1219/2021/LSGD dated 27/06/2021 Government have directed to issue work order to the agency(M/s Zonta) identified through the tender process. Based on the Council Resolution No.1 dated 22/07/2021 the work was awarded to M/s Zonta Infratech Pvt Limited the agency identified for the work of biomining Vide LOA No. No.MOE2/3760/20 dated 23/07/2021.

Waste to Energy project:

As the concessionaire M/s GJ Ecopower Private Limited could not demonstrate and submit the financial closure or financial plan for funding the project even after 1400 days of signing the agreement, Government vide G.O

(Rt)No.805/2020/LSGD Dated 30/04/2020 cancelled the approval granted to the concessionaire M/s GJ Ecopower Pvt Ltd and directed Kochi Corporation to terminate the concession agreement.

KSIDC was directed to float fresh tenders for the waste to energy project. The concession agreement was terminated by Kochi Corporation accordingly. The concessionaire was also heard by the Government as directed by Hon'ble High Court and Vide G.O (Rt)No.1064/2020/LSGD dated 05/06/2020 Government affirmed that the concessionaire would not be able to implement the project even if more time is granted and directed KSIDC to go ahead with tendering of the work.

New tenders for waste to energy plant were invited by MD, KSIDC on 24/06/2020(as the concession agreement signed in February 2016 was cancelled by the Government as the concessionaire could not submit the financial close) with last date for submission of bids on 04/09/2020. As only one bidder got qualified retenders were invited on 08/01/2021 with closing date on 23/01/2021.

M/s Zonta Infratech has been selected as the successful bidder. Evaluation and finalisation of the tender is being done at the Government level. It is learnt that the file is under the consideration of the cabinet and regarding the transfer of land to KSIDC for subleasing to the concessionaire of waste to energy project agenda is placed before Kochi Corporation Council for its approval.

Leachate treatment of the existing compost plant

The work for preparation of DPR for leachate treatment plant was awarded after tendering process to the lowest bidder on 29/07/2019. GIZ a German cooperation agency who supports Corporation under the Sustainable Urban Development - Smart Cities project was also engaged to suggest suitable technology for the leachate treatment plant. As the technology proposed by GIZ that of Sequencing Batch Reactor was different from that proposed by Suchitwa Mission of Electrocoagulation, the council that met on 03/03/2020 referred the matter to the Health Standing Committee and the committee wanted to take a suggestion from Suchitwa Mission.

Accordingly Suchitwa Mission was requested on 04/08/2020. Vide letter No.1202/G/2018/SM dated 09/11/2020 Suchitwa mission had directed to take up construction of leachate treatment plant only after constructing the collapsed

roof of the compost plant and assessing the actual quantity of leachate generated. Till then the leachate shall be treated in the septage treatment plant.

Accordingly 5 truckloads of leachate are taken to the septage treatment plant and treated there. New leachate treatment plant construction will be taken up along with the new compost plant.

Construction of collapsed roof and structure of the compost plant shed

An amount of Rs.1 Crore has been budgeted in the plan fund of 2020-21 for preparing the design and initial work. The work was tendered and an agency M/s Esteem Builders was selected. Agreement executed on 15/06/2021 with 4 months completion time. Work of preparing design is in progress. Preliminary survey has been completed. Tendering of the work will be initiated soon after completion of the design works.

Operation of MRFs and construction of MCFs

MCF will be constructed in each of the 21 Health Circles. Details furnished in the attached Action plan

Authorisation from Pollution Control Board

The application for renewal of authorisation obtained in 2008 was submitted to Pollution Control Board on 01/07/2016 with the processing fee of Rs.30000 (DD.No.400893 dated 01/07/2016) vide letter no.MOE2/21941/16 dated 01/07/2016 and vide letter no. MOE2/21941/16 dated 28/10/2016 proposal for leachate treatment plant was also submitted to the Environmental Engineer of Ernakulam District Office –II.

An amount of Rs.7,80,000 was also remitted towards the required fees on 02/05/2017 vide letter Letter No.MOE2-6224/2014 dated 27/04/2017. No communication is sent to us after submission of the application for authorisation/consent to operate. Vide letter no. MOE2-10948/17 dated 11/06/2021 Pollution Control Board was requested to advice us on whether a fresh application is to be filed. No communication is yet received in this regard.



Secretary
Kochi Municipal Corporation

Action plan is enclosed with this report.

#	KEY ACTIONS	Deadline	Remarks
1	Door to door collection of wastes		
	Increasing and retaining door to door collection	30/11/2021	
	Retaining of segregation of wastes at source	30/11/2021	
	Increasing the efficiency of door to door collection in shops/establishments	30/11/2021	
	Ensuring segregation of wastes in establishments and shops	30/11/2021	
	Structuring the Haritha Karma sena/Kudumbasree/Self Help Group for assistance in waste management and collection	30/11/2021	
	Assigning the responsibility of Households -wardwise for collection of waste	30/11/2021	
2	Treatment of non-biodegradable wastes		
	Operation of MRFs constructed at 5 points in the city	12/10/2021	
	Planning of MCFs in 21 Health Circles	30/10/2021	
	Implementation/construction of MCF in each Health Circle	30/10/2022	
3	Biomining of leagacy waste		
	Awarding of the work of biomining	23/07/2021	
	Execution of work contract agreement with the agency selected for biomining	8/8/2021	
	Mobilisation of men and machinery for biomining	8/9/2021	
	Completion of the work of biomining	30/01/2023	
4	Waste to Energy plant(PPP)- 300 Tonnes per day capacity		
	Tendering of the works	23/01/2021	Completed
	Handing over of land to the concessionaire through KSIDC, the nodal agency for waste to energy projects	30/07/2021	Pending with Council
	Formation of SPV and signing of contract		Approval of tender under the consideration of the Government
	Obtaining statutory and regulatory clearances including Environmental clearance Implementation of the project/commissioning of the project		

5	Leachate treatment and Construction of compost plant			
		Selection of consultant for preparation of detailed design for the compost plant	15/06/2021	Completed
		Preparation of design	15/11/2021	
		Preparation of estimate and tendering of the work	15/02/2022	
		Implementation of the project/commissioning of the project	15/02/2023	
		Selection of consultant for preparation of DPR for Leachate Treatment Plant	10/9/2021	
		Preparation of DPR	10/2/2022	
		Obtaining Technical Sanction from Suchitwa Mission	10/5/2022	
		Implementation of the project/commissioning of the project	15/02/2023	
	Construction and Demolition waste treatment plant			
		Selection of consultant for preparation of DPR	10/9/2021	
		Preparation of DPR for C&D waste treatment plant	15/11/2021	
6		Obtaining TS from Suchitwa Mission	20/04/2022	
		Implementation of the project/commissioning of the project	30/04/2023	




 Secretary
 Suchitwa Mission Corporation