

Justice Dr. P. JYOTHIMANI

CHAIRPERSON
State Monitoring Committee
of
National Green Tribunal
for
Solid Waste Management in Tamilnadu

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12.06.2019
Date :

To
The Hon'ble Chairperson,
National Green Tribunal,
Faridkot House, Copernicus Marg,
New Delhi.

Respected Mylord,

I am forwarding herewith the first report of the State Level Monitoring Committee for Tamil Nadu constituted by the Hon'ble National Green Tribunal, New Delhi.

I am also to inform to Your Lordship that after the close monitoring of the functioning of the Solid Waste Management through its Ministry in the State of TamilNadu and after making physical verification in various ULBs in the State to ascertain about the implementation of the Solid Waste Management and other rules, I am pleased to inform Your Lordship that there has been good response and improvement by the ULBs. The ULBs, particularly the Municipalities which are 124 in the State of Tamil Nadu and 12 Corporations apart from 528 Town Panchayats, have been sending their periodical reports to the Committee which are closely studied and discussed in the review meetings followed by various directions.

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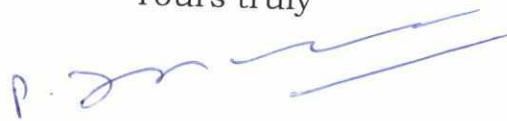
Date :

There are no major issues relating to Solid Waste Management in the State as it is seen that more than 70 % source segregation have been completed. The continuous monitoring will definitely yield good result since the Committee is insisting for 100 % source segregation by June 2019.

I have enclosed copies of the report send by two Municipal Corporations namely Coimbatore Corporation and Vellore Corporation as a model document for Your Lordship's kind consideration. I request Your Lordship to consider the report for passing appropriate orders.

With Regards .

Yours truly



Justice Dr. P.Jyothimani

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**FIRST REPORT OF THE STATE LEVEL COMMITTEE OF STATE
OF TAMIL NADU RELATING TO MONITORING OF THE SOLID
WASTE MANAGEMENT IN THE STATE.**

SUBMITTED TO THE Hon'ble NATIONAL GREEN TRIBUNAL
FARIDKOT HOUSE, COPERNICUS MARG, NEW DELHI

AND
THE APEX MONITORING COMMITTEE, NEW DELHI.

The Hon'ble National Green Tribunal, Principal Bench, New Delhi in the order dated 16.01.2019 passed in Original Application No. 606/2018 constituting State Level Committees for Monitoring the implementation of Solid Waste Management Rules and other connected rules in the State Level Justice Dr.P.Jyothimani, Former Judge, Madras High Court and Former Judicial Member, National Green Tribunal was made as Chairperson for the State of TamilNadu. As he was the Chairperson of the Regional Monitoring Committee of the Southern Region, for which the Government has provided office at No. 183, EVR. Periyar Salai, (Poonamallee High Road) Kilpauk, Chennai-10 with staff strength drawn from various departments by way of deputation, even after constitution of the State Level Committee for TamilNadu the same office as well as staff were permitted by the Government to continue for the function of the State Level Committee.

As per the order of the National Green Tribunal, apart from the Chairperson, the Member Secretary of the TamilNadu Pollution Control Board has been made as the Member Secretary of the State Level Committee with other members who are Secretaries to the Urban

270 Development, Municipal Administration, Health, Rural Development and Environment apart from a representative of Central Pollution Control Board. The Central Pollution Control Board has nominated Dr.Rajkumar of its Regional Office, Bangaluru as Member of the Committee. As the Member Secretary of the TamilNadu Pollution Control Board has represented that while as per the order the Pollution Control Board will take up the responsibility of meeting the entire expenditure, requested the Chairperson to permit the Principal Secretary, Municipal Administration and Water Supply Department which is the department entrusted with the task implementation of Solid Waste Management in the State of TamilNadu, who was the Member Secretary of the Regional Monitoring Committee as per the order of the Hon'ble National Green Tribunal, dated 30.10.2018, may be permitted to continue as the Member Secretary of the State Level Committee of TamilNadu for the convenience of convening the meetings of the State Level Committee (SMC). Accordingly as an interim measure and subject to further orders of the National Green Tribunal, Principal Secretary, Municipal Administration and Water Supply Department, Government of TamilNadu was requested to continue as the Member Secretary of the State Level Committee and convene the meetings of the Committee, while the State Pollution Control Board is to provide all monetary assistance. Infact a formal application has also been filed before the Hon'ble Principal Bench by sending the details to the Consultant (Judicial)

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National Green Tribunal on 29.01.2019 requesting to place the same before the Hon'ble Chairperson for consideration.

The order of the Hon'ble National Green Tribunal, dated 16.01.2019 has directed first meeting of the State Monitoring Committee to be convened positively before 15.02.2019 and continue to hold meetings periodically as found necessary as per the direction of the Chairperson of the Committee. Accordingly the first meeting of the State Level Committee was called and held at the Old Conference Hall, TamilNadu Secretariat, Fort St. George, on 12.02.2019 at 10.30 AM. The said meeting was attended by more than 19 officials from various Departments, including Commissioners of various Corporations and Regional Directors of Municipal Administrations (RDMA), Commissioner of Municipal Administration (CMA) apart from all the official members. After detailed discussion, various directions were issued to the Local Bodies and the following decisions were taken and resolutions passed :

- 1) Aim of the State Level Monitoring Committee is to continue progressive results of compliance of Waste Management Rules 2016 and other allied rules as per directions of the Hon'ble National Green Tribunal. Every Corporation and Municipality must send periodical progress in respect of door to door collection and 100 % Source Segregation.
- 2) Policy Note and Action Plans, ULB wise need to be submitted by each of the Local Body and following time lime for implementation of Solid Waste Management to be followed:

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- (i) Notification of ULB wise policy and action plan by all Local Bodies - 15.03.2019
 - (ii) 100 % door to door collection - 30.04.2019
 - (iii) 100 % Source Segregation - 31.05.2019
 - (iv) 100 % Processing of Solid Waste - 30.06.2019
- 3) All ULBs shall conduct sensitization programme involving students, traders and public conveying the ambit of Solid Waste Management Rules 2016, Plastic Waste Management Rules 2016, E-Waste Management Rules 2016 and Bio-Medical Waste Management Rules 2016.
 - 4) All ULBs shall apply for authorization under Solid Waste Management Rules 2016 before 15.04.2019 and TamilNadu Pollution Control Board as statutory body and Regulator shall grant authorization on merit within the prescribed time limit.
 - 5) Action shall be taken against all manufacturers, traders, retailers and shop owners as per Plastic Waste Management Rules 2016 and as per the notification of the Government of TamilNadu totally banning Plastic (One time Use) in the State.
 - 6) All brand owners of Multilayer plastics must obtain endorsement of EPR issued by the Local Body and shall obtain registration from the Tamil Nadu Pollution Control Board immediately and report to the Committee.
 - 7) All Primary Health Care Centers and Hospitals shall apply for authorization under Bio-Medical Waste Management Rules 2016 before 30.04.2019 and the Tamilnadu Pollution Control

Board shall provide the list of Hospitals which are authorized under Bio-Medical Waste Management Rules.

- 8) All Health Care establishments shall ensure that the Bio-Medical Waste is not mixed with other Solid Waste.
- 9) All Local Bodies shall furnish details on Solid Waste Management in the format prescribed by the State Level Committee, copy of which have been circulated, the model copy which below :

Status of Solid Waste Management

Name/Address of ULBs (Category wise)	Name of contact person, contact nos. & E.mail IDs	Population	Total no. of areas/wards	Collection & Segregation at source (Areas/wards covered Door to Door collection)	Total Quantity of Waste Generation	Total no. of Material Recovery Facility	Status of existing facility	Proposed technology for treatment	Status of DPR	Major hurdles in implementation
Description (All informations shall be provided individual ULBs name wise)										
<i>Provide individual Name & address of ULBs (corporations, municipalities and panchayats) with category wise</i>	<i>Provide landline, mobile number, email ids of minimum two officials dealing SWM (individual ULBs)</i>			<i>Give present status of wards where D-D is implement-ted As well as time target to achieve by 30.04.19 100% collection and Segregation</i>	<i>Provide total quantity as well as break up 1. Wet, 2.Dry 3.Recyclable 4.Plastic 5.inert 6. Present quantity of legacy waste</i>	<i>Provide details of no. facility 1.Required 2.Available</i>	<i>Details of old dumpsite: 1.abandoned (proposal for bio mining & rehabilitation for capped & uncapped sites) 2. Any proposal for using rehabilitated dumpsites 3.Existing/Present technology adopted for treatment 4. Time target to complete the above</i>		<i>Give status of individual ULBs wise DPR, whether it is prepared or not and its level of implementation</i>	<i>Financial, technical & scientific etc.</i>

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In the first meeting the State Level Committee (SMC) the following Nodal Officers were appointed to coordinate with the State Level Committee.

- 1) Municipal Administration and Water Supply Department – Commissioner, Municipal Administration
- 2) Environment & Forest Department – The Additional Chief Environment Engineer – TNPCB.
- 3) Health Department – Director of Medical Education
- 4) Rural Development and Panchayat Raj – Director of Rural Development and Panchayat Raj.
- 5) Housing and Urban Development – Deputy Secretary
- 6) Animal Husbandry – Director of Animal Husbandry and Veterinary Department

The above said meeting was followed by a 2nd meeting immediately on 22.02.2019 in the Secretariat Complex of Municipal Administration and Water Supply Department at 04.30 PM. In the meeting attended by all the official members of the State Level Committee apart from the Commissioner, Greater Chennai Corporation, Joint Commissioner of Municipal Administration, Commissioner of Municipal Administration, Chief Engineer of the Greater Chennai Corporation apart from Director of Town Planning, the participants were requested to see that their department officials furnish details about the implementation of Solid Waste Management to the State Monitoring Committee with a specific insistence that every one of the officials should take real and serious interest in the implementation failing which they may have to answer to

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the Hon'ble National Green Tribunal. The Chairperson has reiterated that implementation of the rules is a statutory obligation and no excuse can ever be entertained by the Committee.

The 3rd meeting of the State Level Committee was convened in the Secretariat Complex, Fort St. George, Government of TamilNadu on 29.03.2019 at 11.00 AM. Apart from the official Members of Committee, the Chief Secretary of State of TamilNadu has participated. In addition, the Commissioner of Municipal Administration, Chief Engineer of the Greater Chennai Corporation, Executive Engineer the Greater Chennai Corporation, Special Secretary, Rural Development Department, Superintending Engineer Directorate of Town Panchayats, Joint Chief Environment Engineer, TamilNadu Pollution Control Board, Deputy Secretary, Animal Husbandry and Fisheries Department and Director of Rural Development have participated. Again the Chairperson and Member Secretary have insisted the importance of following and implementing the Solid Waste Management fully, have requested the members to see that 100 % Source Segregation and Door to Door collection and implemented.

That apart, it was decided that the members shall ensure that the District Collectors of all districts conduct review meetings atleast once in a month in respect of implementation of the Solid Waste Management Rules. The Chief Secretary present, has accepted to give instruction to all District Collectors in that regard. The particulars submitted by the

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Urban Local Bodies including the 12 Corporations in the State of TamilNadu and 124 Municipalities pursuant to earlier decision and in the format prescribed were analyzed in the meeting and it was found that few of the ULBs have no Legacy Waste like Sembakkam, Komarapalayam, Narasingapuram (Salem Region) Avadi, Virudhachalam, Rameshwaram, Thoovakudi, Thiruverkadu, Valparai and Cuddalore apart from one Corporation namely Tiruppur Corporation. The detailed discussion in the meeting revealed concrete steps taken relating to the disposal of the Legacy Waste, either by process of Bio Mining and Bio-methanation. The Chairperson brought out the concern of some ULBs about the financial constraint and want of scientific expertise particularly in Madurai, Sivakasi and Salem as indicated in the format submitted to the Committee. The Chief Secretary has assured that immediate steps will be taken to resolve the stalemate in those ULBs. It was decided that the Micro Compost Centres (MCC) in the decentralized form for processing degradable waste and Onsite Compost Centres (OCC) have shown good result and the Government will provide appropriate financial assistance. The State Level Committee will visit these ULBs and with the help of expertise, a solution will be arrived at. It was decided to have sensitization programme relating to Solid Waste Management in the Universities, Colleges, among Bulk Waste Generators like Hotels, Hospitals, apart the Municipal staffs to be the conducted by various programmes.

The Principal Secretary Department of Health has produced list of Government Hospitals and particulars relating to authorization and permission granted to those Hospitals under the Bio-Medical Waste Management Rules. The Chairperson and Member Secretary have requested the Health Secretary to obtain particulars about the private hospitals as to the compliance and treatment of Bio-Medical Waste. It was decided to have surprise inspection in the Hospitals by the Members of the Committee to verify and ascertain the proper implementation of the Bio-Medical Waste Rules in the State of TamilNadu. It was further decided that suitable places to be identified under C&D Waste Management Rules by instructions to the District Collectors to take emergent steps. It was also resolved that all Departments must make a combined and co-ordinated effort relating to the implementation of the Rules particularly from the stage of sanctioning of plan by the Urban Development Authorities, specifically insisting the necessity of allotting space for Solid Waste Management while approving the plans.

The Chief Secretary has shared certain best practices adopted in TamilNadu under Solid Waste Management Rules and informed that 20,000 sanitary workers got appropriate training under the AMRUT Mission. She also informed that in the State of TamilNadu, the Solid Waste Management activities are also carried out by engaging Self Help Groups (SHG) under various schemes like National Urban Livelihood Mission, Integrated Urban Development Mission, Swachh Bharath Mission.

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The meeting resolved requesting the remaining ULBs to furnish details and send continuous report indicating periodical progress, in the format provided. The meeting thus concluded. It was informed that since the Model Election Code of Conduct is in operation, officials of various Departments are unable to conduct review meetings and the same will be continued after the election process are completed more vigorously.

The 4th meeting of the State Level Committee was held on 30.04.2019 at the Secretariat Complex, Chaired by the Chairperson of the Committee and all members of the Committee have participated apart from the Commissioner of Municipal Administration, Commissioner Greater Chennai Corporation, Director, Rural Development and Panchayat Raj, Joint Director, Directorate of Town Panchayat, Chief Engineer, Greater Chennai Corporation, Chief Engineer, Commissionerate of Municipal Administration and Superintending Engineer. After detailed deliberation of all the issues relating to Solid Waste Management including C&D waste and Bio-Medical Waste the followed decisions were taken.

1) As the Cement Factories are mandated to receive re-cyclable and non-re-cyclable wastes as per the rules and Central Government Notification and having found that only ACC Ultra Tech and Dalmia Cement Factory have under taken to take the said waste and other Cement Factories have not responded, the State Pollution Control Board is requested to organize a meeting along with Commissioner of Municipal

Administration and all cements plants, in order to dispose to non-recyclable waste. It was further decided to study about the usage of plastic for laying and relaying roads to large extent as it is stated that such roads are formed in some ULBs. It was decided that the ban on single use plastic must to be enforced strictly by all ULBs and violaters should be dealt with sternly.

2) The Committee has placed its appreciation relating to the constitution of Special Task Force (STF) as per the Government decision in G.O. (Ms) No. 58, MA&WS Department, dated 20.04.2019 and requested for the District Collectors and Commissioners to take immediate steps in nominating the members to the Special Task Force (STF) and Communicate to the State Monitoring Committee.

3) The places for dumping C&D waste must be notified as per the rules forthwith, after the areas are ear-marked in various districts. The Chairperson has already informed all the members of the committee through a whats-up group that the waste are dumped on the sites of National Highways as it was found near Saveetha Dental College, Poonamallee and other places and therefore it was felt that identification of the place for dumping C&D waste must be given priority

4) Regarding the treatment of compostable waste particularly relating to the Bulk Waste Generators like the Multi-storied Buildings, the Committee felt that the organization like CREDAI and their services must to be utilized and steps to be taken in that regard.

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5) It was felt that Bio-Medical Waste Management and its implementation in many of the hospitals particularly the private hospitals are not in accordance with the rules and Principal Secretary, Health who is also member of the committee, has assured to make inspection of private hospitals and it was decided to have surprise inspection by the Committee after the election process are completed. The following format has been prescribed after consulting the member nominated by the Central Pollution Control Board, in respect of Bio-Medical Waste Management

Format to be furnished by Health Dept.

Name of the town/city	Total No. of HCFs(Mention govt. / private)		Quantity of waste generation		Total no. of Ayurveda, siddha etc	Quantity of waste generation	Total No. of veterinary hospitals	Quantity waste generation
	Bedded	Non-bedded	Bedded	Non-bedded				

Name of HCFs (Mention govt. / private)	No. Of Beds	Quantity of waste generation	Whether obtained membership with CBMWTF	Whether obtained consents under water Act & Air Act	Validity	Whether obtained authorisation from TNPCB	Validity

Format to be furnished by POLLUTION CONTROL BOARD.

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Name of CBMWT Fs	No. of HCFs covered	Quantity of waste collected	Installed Capacity	Operating Capacity	Name & No. of incineration / pyrolysis with capacity	No. of autoclave with capacity	No. of shredders with capacity	Whether complying with new norms *	Installation & connectivity of OCEMS	Whether obtained consents under water Act & Air Act	Validity	Whether obtained authorisation from TNPCB	Validity

6) Regarding the EPR (Extended Producer Responsibility) particularly relating to plastic waste management, the meeting held with CII (Confederation of Indian Industry) and Plastic Manufacturers Association in the presence of the Secretaries who are members in which the Chairperson of the State Monitoring Committee has also participated it was already decided to study about the EPR (Extended Producer Responsibility) Pattern based on Maharashtra and Punjab Model. The State Monitoring Committee has decided to have another round of the meeting to arrive at decision.

7) Regarding the Vellalore Dumping Yard in Coimbatore City Municipal Corporation which has been reference to the State Monitoring Committee by the Hon'ble National Green Tribunal for monitoring the implementation and Udthagamandalam Municipality relating to Theetukkal dumping yard which was also referred by the Hon'ble National Green Tribunal for on ward monitoring of implementation, the

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State Monitoring Committee has decided to conduct an inspection and sitting in Coimbatore City Municipal Corporation and visit the Udhagamandalam after the election process the model code of conduct come to an end. In the mean time the Principal Secretary, MA&WS who is the Member Secretary of the State Monitoring Committee has directed all the officials to show substantial progress for implementation of the Solid Waste Management so as to file report to the Hon'ble National Green Tribunal.

In addition to the periodical review meeting held by the State Monitoring Committee,

The Chairperson of the Committee during his private visit to various areas in TamilNadu, has made visit to the Municipal Solid Waste Management schemes. Accordingly a visit was made by the Chairperson to Sivakasi Municipality, accompanied by the Commissioner Mr.P.Ashokumar and Municipal Engineer Mr.Srinivasan. It was informed that out of the decentralized 6 MCCs, 3 are completing construction and will be put to use very shortly. In respect of the remaining 3 MCCs, alternate locations are being identified. A visit was made to the MCC at Viswanathan Market, Sivakasi, Municipal burial ground, Onsite Compost area (OCC) at Coronation Park apart from MCC at PKSA Arumugam Road, behind Ambedkar Statue. It was informed that Self Help Groups are involved in Solid Waste Management and also imparting knowledge to the people. The periodical programmes are being conducted to School

Children; College Students creating awareness about segregation, non littering etc., there is a Bio Medical Waste Processing Centre in a nearby area at Virudhunagar.

However on visiting most of the areas in Sivakasi it was found that the sewage system has not been properly maintained and few incidents of open sewage drains, waste are being dumped were also noticed. After discussion with the Commissioner and the Municipal Engineer, a direction was issued to involve effectively the residents of the area, particularly the business people who all financially well placed carrying on big business on Matches, Crackers, Paper Industry etc., and sensitize them to keep the area in a clean and neat atmosphere.

The Chairperson has visited Tiruvarur Municipality and various areas connected with Solid Waste Management on 01.03.2019 along with the Commissioner Mrs. Uma Maheswari and Sanitary Inspector. A visit was made to the Bio-mining process area at Neivillakku Thoppu where the construction was in progress. Even though there are no major issues regarding Solid Waste Management in Tiruvarur, there is a problem of Legacy Waste to an approximate extent 37605 m³. The Commissioner has informed that Bio-mining process is being completed and further progress will be communicated to the State Level Monitoring Committee. In continuation of the said visit, the Chairperson also the visited Pudukottai on 02.03.2019 and inspected along with Municipal Commissioner various functions of Solid Waste Management.

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The Chairperson along with the Principal Secretary, Municipal Administration and Water Supply Department who is the Member Secretary of the State Level Monitoring Committee and Commissioner of Municipal Administration has visited Vellalore dumping yard at Coimbatore on 22.03.2019 accompanied by the Corporation Commissioner, Mr.Shravankumar and the Executive Engineer Mr.Saravanakumar. The process of Municipal Waste carried on in the area by the Special Purpose Vehicle (SPV) was inspected and various directions issued. This was in furtherance of a direction of the Hon'ble National Green Tribunal, New Delhi in disposing a batch of cases with a direction to the Committee to monitor the progress. In continuation of the earlier sitting which was after giving notice to the parties, it was decided to have a next sitting based on the progress made by the Corporation in the dumping yard and after due to notice to the parties.

On a private visit to Ooty, the Chairperson has visited one day to Theetukkal which is a dumping area in the hilly region. The Hon'ble National Green Tribunal while disposing a batch of cases has directed the Committee to monitor the implementation of various schemes of the Municipality. After extensive visit of the entire area it was found that the dumping area which is in the hilly region covers nearly 15 acres which belong to the Forest Department. It was informed by the Health Officer that permission has been obtained from the Forest Department in respect of 5 acres. Regarding the remaining 10 acres a proposal has been

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given by the Municipality to give alternate land to the Forest Department and the same is likely to be completed soon. Nevertheless, it has been seen that the dumping was done without following scientific procedure and in some area methane gas was being found. Particularly when the entire mountain area surrounding this place, and of course including dumping place, are dense forest and additionally wild animal like Panthers, Tigers are stated to be roaming in the area and therefore the Municipal Health Officer was strictly informed to the sensitive nature of the Forest and imminent necessity of taking immediate action to scientifically treat the dump and restore the mountain area. Even the compound wall has not been constructed which is the most unsafe. It was decided to raise in the review meeting and fix a detailed official visit of the members along with experts and officials of the Pollution Control Board and Central Pollution Control to find out a solution and implement forthwith.

There was another alarming situation regarding throwing of Solid Waste including plastic in large quantity, at Kanniyakumari about which complaint was received by the Chairperson and it was circulated to all members of the Committee in the whatsapp group. When a private visit was to be made to Kanniyakumari, the Chairperson has called some officials of the Municipality and the Pollution Control Board since election code of was in operation and made visit. It was found that it is the sensitive area being the starting point of entrance to India from the

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southern side opposite to Indian Ocean called "O" point of Kanniyakumari - Kashmir National Highways. It was found that in the entire area which belong National Highway, in the vacant places on both side of the road, the business people in Kanniyakumari have clandestinely thrown their waste during night time. When complaint was sent to Municipality, it appears that they have taken action to remove the waste. It is informed that certain fine has also been imposed when some traders were caught during night time. In spite of such efforts, illegal conduct continues. The Pollution Control Board has no sufficient staff strength in the area and during visit, the Chairperson was able to find the correctness of the complaint. Even though some steps have been taken by the Municipality by carrying on cleaning process, it is felt that a large scale action as permanent cure must be taken to maintain the sensitive area like developing road side park on both side of the road for 3km with the help of NHAI and L&T who are involved in laying a road from Kanniyakumari to Thiruvananthapuram. The said issue will be discussed on the next review meeting after the Election Process. In fact the review meeting is scheduled to 30.05.2019.

In the 5th meeting of the State Level Monitoring Committee which was held on 30.05.2019 at the Public Works Department Conference Hall, Secretariat, Government of TamilNadu, participated by all members of the Committee and the special invitees which included the Commissioner of Municipal

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Administration, it was decided to complete the process of source segregation throughout the State of TamilNadu, by June 2019 and report the same to the Committee. The Health Department has submitted a report regarding Bio Medical Waste Management. The Committee has been informed that Collectors of all Districts are taking appropriate actions in locating the places for C&D Waste. It was decided to communicate to the Railways and Airport Authorities situated in the State and study about the Waste Management process followed by them.

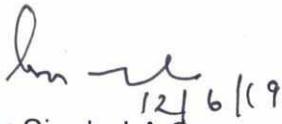
The Committee has decided to fix date of hearing in Coimbatore in respect of the Vellalore Dumping Yard, referred by the Hon'ble National Green Tribunal, in June 2019. Based on the appraisal of the Chairperson regarding his visit to Theetukal dump yard at Ooty which was again referred to the Committee by Hon'ble National Green Tribunal for monitoring, it was decided to fix a date as earliest as possible to make a visit and resolve the issue with experts. It was also decided to request the Government of TamilNadu in consultation with NHAI and L&T to form a road side park for 3 kms on both sides at "O" Point in the Kanniyakumari - Kashmir National Highways, to prevent dumping of waste by the traders on both sides of the Highway.

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A meeting of the owners of hotels situated in Chennai Corporation limit was convened on 10.06.2019 at Greater Chennai Corporation Auditorium at the instance of the State Level Committee. More than 400 Hotel owners have participated in which the importance of source segregation and legal obligations of hotels which are Bulk Waste Generators, to compost the Bio-degradable Waste in their premises was highlighted by the Chairperson and a timely solution has been provided by the Commissioner of Greater Chennai Corporation. The Member Secretary of the Committee has also participated. Steps are being taken to convene the meeting of Hospitals in the city of Chennai on 17th June or any subsequent date to sensitize about the Bio Medical Waste Management Rules.

It is submitted that in furtherance of appointment of State Level Monitoring Committee by the Hon'ble National Green Tribunal, the State Level Monitoring Committee of TamilNadu headed by the Chairperson with active support of the Member-Secretary and other members including the Tamil Nadu State Pollution Control Board have been scrupulously conducting review meetings, spot inspections and meeting all stakeholders sensitizing the importance of implementing the Solid Waste Management and other Rules. So far enormous awareness has been created among the public and other stakeholders. The periodical reports submitted

by the ULBs to the Committee and the spot visit shows that there are tremendous improvement the implementation of the rules and Corporations and Municipalities are taking effective steps to restore the lands in dump yards particularly legacy waste yards. The efforts of the Committee is monitoring implementation will be continued as per the directions of the Hon'ble National Green Tribunal. The above report is submitted for consideration.



Harmander Singh, I.A.S.,
Member – Secretary
Principal Secretary
Municipal Administration and Water
Supply Department,
Government of Tamil Nadu,
Chennai-9



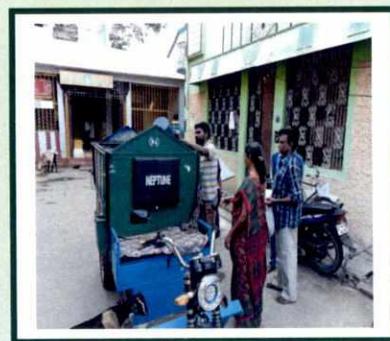
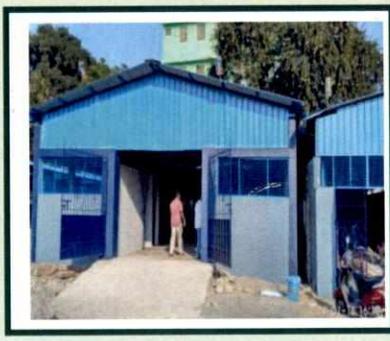
Justice Dr.P.Jyothimani,
Chairperson
State Monitoring Committee of NGT
for Solid Waste Management in
TamilNadu



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SOLID WASTE MANAGEMENT POLICY AND STRATEGY FOR VELLORE CITY MUNICIPAL CORPORATION

(Following the SWM Rules, 2016)



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CHAPTER I

OBJECTS AND REASONS

1.1 INTRODUCTION

Managing waste properly is essential for building a sustainable and liveable habitat but remains a challenge for any urban local body in India today. Rapid urbanisation and changing lifestyles have led to the generation of huge amounts of garbage and waste in the urban areas, so much so, over the past few years, just the handling this Municipal Solid Waste (MSW) has assumed the proportion of a major organizational, financial and environmental challenge.

Recognising this, Ministry of Environment & Forests (MoEF), Govt. of India had notified Municipal Solid Waste (Management & Handling) Rules, 2000 which was subsequently revised into Solid Waste Management Rules, 2016.

1.2 SOLID WASTE MANAGEMENT RULES 2016

The responsibilities of various Ministries, Departments and local bodies for sustainable solid waste management have been highlighted in the SWM Rules, 2016.

1.3 STATE POLICY OF SWM

Rule 11(a) of the SWM Rules, 2016 states that:

“ Prepare a state policy and solid waste management strategy for the state or the union territory in consultation with stakeholders including representative of waste pickers, self help group and similar groups working in the field of waste management consistent with these rules, national policy on solid waste management and national urban sanitation policy of the ministry of urban development, in a period not later than one year from the date of notification of these rules”

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Based on the above rule, the Government of Tamil Nadu, in its notification part II section 3, notified solid waste management policy and strategy.

1.4 URBAN LOCAL BODIES BYE-LAW

Rule 15(a) of the said rules states that :

The Local authorities and panchayat shall

“Prepare a solid waste management plan as per state policy and strategy on solid waste management within six months from the date of notification of state policy and strategy and submit a copy to respective departments of State Government or Union territory Administration or agency authorised by the State Government or Union territory Administration”

In continuation of the above rule, the duties and responsibilities of the Vellore City Municipal Corporation have been incorporated in its bye-law (notification 2 Vellore district Gazette special notification dated 19.04.2017) which came into effect from 01.05.2017.

1.5 URBAN LOCAL BODIES LEVEL SOLID WASTE MANAGEMENT POLICY AND ACTION PLAN

The state monitoring committee of SWM constituted by the NGT had insisted that the ULBs should prepare the ULB level SWM policy and plan and notify the same in the Gazette.

Hence Vellore City Municipal Corporation prepared its own SWM policy and plan as stated in the subsequent chapters

This policy and action plan include present status of Solid Waste Management , Issues and Short fall, Vision, Goal, Objectives , Implementation and Action Plan

CHAPTER- II,
PRESENT STATUS OF SOLID WASTE MANAGEMENT IN
VELLORE CITY MUNICIPAL CORPORATION

2.1 DOOR TO DOOR COLLECTION AND SEGREGATION

Vellore City Municipal Corporation is part of Vellore District with an area of 87.92 sq.km. It consists of 60 wards and 124380 households. The population as per 2011 census is 504079 while the current population (2019) is 568549. It is spread over 87.92 square kilometer with a total length of 745 Km of roads.

- ✓ The wet and Dry waste are collected on Door steps every day
- ✓ The E- Waste & Domestic Hazardous waste such as Napkin, Diaper collected along with wet waste.

Table 1: Percentage of D2D collection & source segregation

Waste Generation	210TPD
Door to Door Collection%	100 %
Source Segregation %	100 %

2.2 QUANTITY OF WASTE GENERATION

Vellore City Municipal corporation generates a total of 210 MT/ day of solid waste with a per capita generation of 325 gms/day/person including bulk generation. In 60 wards the whole SWM processing activities is covered under 42 MCCs in different locations

Table 2 Waste Generation

S. N O	Source of Waste	No. of HH/ Assessment	Per Capita Waste generati on (in grams)	Waste Generation			Total Waste Generat ion in TPD
				in TPD			
				Wet Waste	Dry Waste	Tot al	
1	2	3	4	5	6	7	8
1	Domestic	124380	325	83	47	130	210
2	Commercial	7861	250	25	10	35	
3	BWG	175	-	30	15	45	
4	Industrial	2	-	-	-	-	

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2.3 COLLECTION AND TRANSPORTATION

- BOV Vehicles are used at 400 HH/vehicle /day (covering 3 Trips)
- LCV vehicles are used at 1200 HH/Vehicle/day (covering 3 Trips)
- Primary collection at Door steps is being done and wastes collected are directly transported to processing centre. This is being done using
 - ✓ 75 Push carts, 245 Tricycles, 100 BOV and 44 LCV for 124380HHs
 - ✓ 2 nos Tipper and 5 nos LCV for 7861 Commercial

175 BWGs have been identified in Vellore City Municipal Corporation Corporation comprising 103 Kalyana Mandapams 33 Hotels and 39 Educational institutions.

Register related to the BWG are being maintained as per the guidelines provided in the SWM Rule 2016 and CPHEEO manual.

Total waste generated to the tune of 45 TPD is being handled by the BWGs themselves with the establishment of onsite facilities. In this way about 20% of waste is reduced by the Vellore City Municipal Corporation at the collection stage itself as per the provisions of SWM Rules 2016.

2.4 PROCESSING STATUS ON DISPOSAL OF SOLID WASTE

- ✓ Handled, processed and converted as compost
- ✓ Micro level compost centre are being established on Decentralized basis in 42 Locations
by dividing the town into 4 zones (covering 1 to 60 wards)
- ✓ Saleable Dry wastes such as Recyclable plastic waste are sold to recyclers and the workers are permitted to share the monetary benefits.
- ✓ The Non Saleable dry waste collected are being sent to the doorstep of Ultratech Cement Factory at Ariyalur by the Corporation

CHAPTER-III

ISSUES AND SHORTFALL

The Major issues such as (i) Short fall in primary collection vehicles (ii) Lack of Public awareness and Community Participation in segregation of Waste and handling of Waste (iii) Inadequate processing facilities, accordingly the gap analysis in each activity of Solid Waste Management is done for Vellore City Municipal Corporation

3.1 SHORTFALL IN PRIMARY COLLECTION VEHICLES:

- I. At present, primary collection of waste on door to door basis is being done by utilizing 100 Battery Operated Vehicles, 49 Light Commercial Vehicles, 75 Push carts and 245 Tricycles. 116 BOVs will be purchased before 31.05.2019 and the entire collection process will be mechanized.
- II. The following norms scientifically suggested by the Commissioner of Municipal Administration are followed to determine the required number of vehicles for primary collection of solid waste at door step accordingly; adequacy is verified for further plan of action.

Battery Operated vehicles	Payload capacity is 0.75 cu. m /400kg	400 households shall be covered using one vehicle with minimum of three trip per day (@150 households per trip)
Light Commercial Vehicles	Payload capacity is 2cu.m /800 kg	1200 households shall be covered using one vehicle with minimum of three trip per day (@400 households per trip)

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Table 3 : Vehicle gap analysis °

Type of vehicle	House hold covered	Required (including standby 10%)	Available	Balance	Remarks
				8 th SHPC Sanctioned	
BOV (for 65 % of HH)	80847	222	100	--	116 BOVs Purchase in Smart City Funds, in lieu of Push carts and Tricycles
LCV (for 35 % of HH)	43983	41	46	--	
Commercial & Market waste	7861	2 tipper lorry and 3LCV	2 & 3	--	--
Push carts	--	--	75	--	--
Tricycles	--	--	245	--	--

3.2 ISSUES IN SCIENTIFIC PROCESSING AND DISPOSAL

At present 42 MCCs functioning in Vellore City Municipal Corporation for processing on wet waste. The Entire wet waste generated in Vellore City Municipal Corporation is difficult to process in the 42 MCCs, since these MCCs are overloaded.

It is proposed to process the entire wet waste by following decentralized Micro Compost Centers and Onsite Compost Centers to achieve 100% processing in Vellore City Municipal Corporation. The construction process of proposed 9 MCCs and 20 OCCs will be completed on or before 31.05.2019.

CHAPTER- IV**VISION, GOALS, OBJECTIVES ON SWM FOR VELLORE CITY MUNICIPAL CORPORATION****4.1 VISION**

To provide quality of life to the people of Vellore City Municipal Corporation and to make the town livable through sustainable Solid Waste Management strategy

4.2 GOAL

- (i) To have high standard of cleanliness in Vellore City Municipal Corporation
- (ii) To ensure 100% Door to Door collection of the waste and prohibition of unhygienic system of disposal by the households
- (iii) To ensure 100% waste segregation at source
- (iv) To promote the practice of Reduce, Reuse, Recycle and Recover
- (v) To have "No Landfill Concept"
- (vi) To achieve ""Zero Waste Concept"

4.3 POLICY OBJECTIVE

Objectives shall endeavor to

- (i) Protect public health and environment
- (ii) Make the citizen to realize the responsibility and accountability on SWM
- (iii) Minimizing the generation of Solid Waste through sustainable IEC on 4R Concept
- (iv) Involving the community groups, Religious leaders, RWA, CBOs, SHGs to ensure community participation in Managing and minimizing the municipal solid waste locally.
- (v) Conduct periodical meeting and discussion to dispose the wet waste through composting process and to promote bio Manure

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- (vi) Provide integrated solution to dispose the solid waste (both wet and dry waste) with cost effective and efficient delivery of service
- (vii) Dispose the dry waste through the vendors
- (viii) Build in capacity of Municipal staffs through periodical training.
- (ix) Promote the town to have better star rating in SWM
- (x) Make the SWM services self-sustaining by collecting user charges to cover operation & Maintenance cost of the services and levy taxes to meet out the cost of capital investment.
- (xi) Follow the polluter pay principle to bear the cost associated for damaging the environment
- (xii) Eliminate the practice of throwing the waste in to the water bodies and eliminate the practice of burning the garbage on road sides

CHAPTER- V
IMPLEMENTATION STRATEGY

5.1 IMPLEMENTATION STRATEGY

Door to Door Collection	<ul style="list-style-type: none"> • Dry waste and Wet waste collection on daily basis • Domestic Hazardous waste will be collected separately during wet waste collection • E waste collection alongwith dry waste. • C & D waste on need basis • Waste will not be collected from the Bulk waste generators
Source Segregation	<ul style="list-style-type: none"> • 100 % Source Segregation ensured through sustainable IEC activities engaging all staff.
Transportation	<ul style="list-style-type: none"> • Primary collection at door step using Battery Operated vehicles and Light commercial vehicles with proper route chart and trip chart • Eliminating Secondary storage Bins on roadside • Minimizing secondary transportation
Scientific Disposal of Waste	<ul style="list-style-type: none"> • Disposal of wet waste through composting and Establishing Micro level Compost Centers , On Site Composting Centers on Decentralized approach for processing and disposal of wet waste and green waste • Bio gas technology for food waste . • Disposing the dry waste to the identified vendors for recycling • Plastic waste and other recyclable waste to dispose to the recyclers • Other non recyclable but combustible are transported to the door step of Ultra Tech Cement Factory, Ariyalur by the corporation as Co-fuel.

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	<ul style="list-style-type: none">• Dead animals disposed scientifically through burial method in the earmarked site• Hazardous waste and E waste to collect and store at MCC by Corporation and periodically dispose the same to PCB for further process• C & D waste to collect and store in the earmarked location and to use on needy basis.
IEC activities , Capacity buildings and motivation	<ul style="list-style-type: none">• Periodical meeting with Religious leaders, RWAs , NGOs, elected body members Bulk Waste Generators and periodical training to sanitary workers• Updating the knowledge of the personnel involving in SWM

5.2 SWM MONITORING CELL

The Corporation constituted a SWM Monitoring Committee under the Chairmanship of City Health Officer comprising the Senior Sanitary Officer as Member secretary, other members including Executive Engineer, Zonal Assistant Commissioners, Sanitary Officers, Assistant Engineer / Junior Engineer, Nominees from Rotary club, Lions club, VIT, CMC, Golden Temple and Hotel Association, Lodge Owner Association, Nethaji Market Traders Association.

This committee will meet once in a month and discuss the implementation strategy and facilitate the ULB for implementation of SWM

5.3 HOME COMPOSTING

Corporation will take all effort to promote the Home Composting practice among the citizen through intensive campaign.

CHAPTER- VI ACTION PLAN

- 1) The infrastructural facilities pertaining to the Solid Waste Management shall be considered as two categories:
 - (i) Immovable infrastructure ie., the land and the facility developed based on the desirable technology to process the and dispose the Solid waste being generated on daily basis. This has to be developed considering the future vision and population projection for a period of minimum of 10 years .
 - (ii) Movable infrastructure ie., the vehicles need to determined based on the life of the vehicle and quantity of waste to be transported on daily basis without stagnation and accumulation for long period.
- 2) Considering the projected population for the year 2030 the requirement of the processing facilities is determined and the gap is analyzed for future development. Whereas the movable infra ie., the vehicles requirement s are determined for the present population and garbage quantity and the gap analysis has to be done as a continuous process every year.
- 3) At present, the total quantity of waste generated is 210 TPD. In the next ten years i.e., 2030, with the increase in population, quantity of waste will obviously increase by 15% (245 TPD).The capacity of the Micro Composting Centers and Onsite Composting Centers available at present is sufficient to handle the increased generation of waste in the next five years and the Corporation is insisting home composting and barrel composting in the residential areas to process the generated of waste.
- 4) The normal practice of analyzing the requirement of vehicles based on the increase in population and quantity of waste on a sustainable basis will be followed. In the same manner, sufficiency of workers will be analyzed and action will be taken to fill the gap either through engaging Self Help Groups or by engaging workers through Outsourcing agency.

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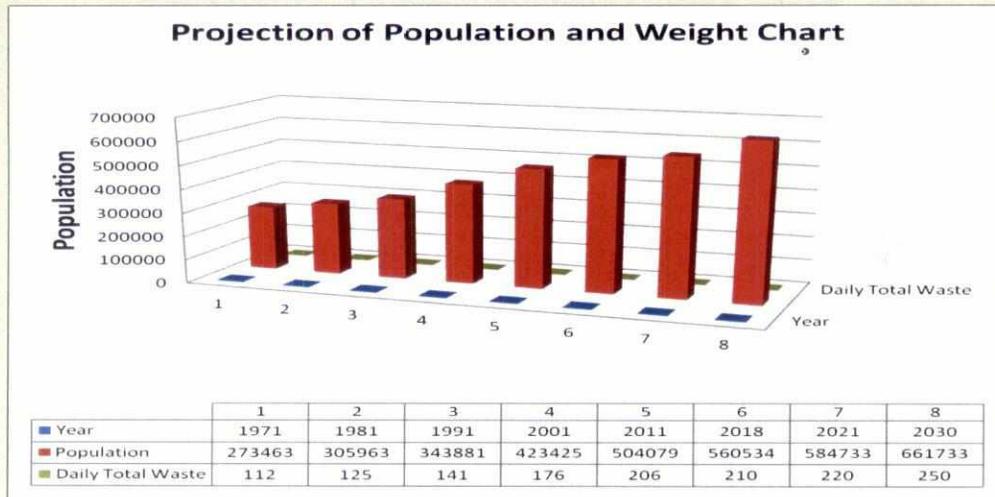


Figure 1: Projection of Population

6.1 DOOR TO DOOR COLLECTION AND SEGREGATION AT SOURCES

- Presently D2D collection of generated waste achieved is 100%, however in-anticipation of Population growth, expansion of households and vertical expansion of town, Continuous IEC activities is planned to have sustainability in maintaining 100% D2D Collection.
- For source segregation, awareness is given by Religious leaders, Students to their parents , Animators/SHGs and all Corporation staffs to citizen/waste generators to insist the need of continuous effort on segregation of waste as Wet (Bio-degradable) and Dry (Non Bio-degradable / Recyclable / Inert) Waste and Home Composting which will considerably reduce the quantity of collection.

6.2 COLLECTION MECHANISM OF DIFFERENT TYPES OF SOLID WASTE

The Solid Waste Management Rules, 2016 state that waste generators/citizens are responsible for the management of their waste at the source of its generation. They should take responsibility for source segregation as bio-degradable & non bio-degradable waste (recyclable and inert waste). The segregated waste is being collected properly by the sanitary workers every day except Sunday. The waste is being collected in commercial areas on Sundays.

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Figure 2 : Primary Collection



Figure 3 : D2D Collection and Segregation of Domestic Solid Waste

At present, primary collection of waste on Door to Door basis is being done by utilizing 100 Battery Operated Vehicles (BOV), 49 Light Commercial Vehicles (LCV), 75 Push carts and 245 Tricycles. Further 116 Battery Operated Vehicles will be purchased. The entire collection is being carried out with the

305 engagement of 1513 sanitary workers at present (376 nos Permanent, 59 nos Consolidated and 1078 nos Outsourcing sanitary workers) Vellore City Municipal Corporation is entailed to engage 1513 sanitary workers as per **GO Ms. No. 101. Dated 30.04.1997**, permission obtained from CMA for engaging 1078 outsourcing sanitary workers.

In view of eliminating the conventional vehicles such as pushcarts and tricycles it is proposed to procure 116 nos of BOVs to collect the solid waste at door step on day to day basis. The pushcarts used in the collection process hitherto will be used for transporting silt collected from drains and for transport of compost generated in the MCCs. Safety equipment such as hand gloves, face masks, reflected jackets, gumboots, helmets and raincoats are issued to all sanitary workers to handle the waste hygienically and safely.

6.3 WET WASTE COLLECTION (Bio Degradable waste):

Wet Waste includes all items that are considered Bio Degradable or soiled items, kitchen waste such as stale food, fruits and vegetables. The details of disposal mechanism of wet waste are discussed below.

- At present, domestic waste is being collected on day to day basis using the 100 BOVs and 44 LCVs, 75 Push carts and 245 Tricycles.
- Route chart are prepared for each vehicle, each waste collectors with designated streets, households and trips.
- Wet waste from the commercial area is collected by using the earmarked Light commercial vehicles.
- Market waste is being collected using the available Tipper Lorries and LCV.
- Domestic Hazardous waste such as Diapers, Napkins, blood stained cottons etc., are separately collected during the wet waste collection and sent for incineration on daily basis available incinerators at MCC Centers

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6.3.1 Existing Processing Mechanism of Wet Waste in Vellore City Municipal Corporation

At present, 108 MT capacity of wet waste is being processed in the Aerobic composting, Home Composting (Land available households), Onsite Composting Centers and Biomethanisation Plant . The detailed processing mechanism is given in Table 3

Table 4: Wet Waste Processing Mechanism in Vellore City Municipal Corporation

S.No	Methods of Composting	Capacity of Composting in MT
1	Senguttai	3.5
2	Pallikuppam	3.0
3	Dharapadavedu Housing Board	3.0
4	Gandhi Nagar Office	2.5
5	Kalinjur Office	2.5
6	Sarkar thoppu	2.0
7	Sarkar thoppu	2.0
8	Gandhi Nagar 19 th East Street	2.0
9	Kagithapattarai	3.5
10	Zone II office	2.5
11	Rangapuram	2.5
12	Kurinji Nagar	2.5
13	Zone Office II Campus	2.5
14	Balaji Nagar , Thottapalayam	2.5
15	Shanmuga Adigalar Sangam	2.5
16	Fillter Bed Road	3.0

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S.No	Methods of Composting	Capacity of Composting in MT
17	Jobbar Thoppu	2.0
18	Sastri Nagar	2.5
19	Otteri Road	2.0
20	Bagayam Police Station	2.5
21	Ammananguttai road	2.0
22	Periyathanam st	2.5
23	Sastri Nagar	2.5
24	DKM College back Side	2.5
25	Bagayam Police Station Near	2.5
26	Palla Edayanpatti Otteri Road	2.5
27	Chitheri 1	2.5
28	Chitheri 2	2.5
29	Ariyur 1	2.5
30	Ariyur 2	2.5
31	Thobikana, Thorappadi 1	2.5
32	Thobikana, Thorappadi 2	2.5
33	Ambedkar street ChinnaAllapuram	1.5
34	Adavanthal Eri st	2.5
35	Sasthiri Nagar	2.0
36	Near lake, Konavattam	2.5
37	Near Pachaiamman koil Shenpakkam	2.5
38	Fort Round Road	2.5

S.No	Methods of Composting	Capacity of Composting in MT
39	Eswaran koil st Shenpakkam	2.5
40	New Bus Stand 2	2.5
41	Ditter Line	1.5
42	New Bus Stand 1	2.5
	Total	103.00

The existing methods of processing of wet waste followed in the ULB namely Aerobic method, Anerobic method and Home Composting are detailed below

A. Aerobic Method

Vellore City Municipal Corporation has adopted method of composting by using Aerobic Method at 42 Nos Decentralized Micro composting centers. This method is adopted to reduce the Secondary transportation and storage and it is easier to operate the decentralized method of processing mechanism of wet waste successfully.



Figure 4 Micro Compositing Centre

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Figure 6 : Visit by TMT.ALMITRA PATEL, Member of Supreme Court Committee for Solid Waste Management on 06.03.2019

B. Home composting

Vellore City Municipal Corporation is steadily moving towards promoting home composting with the involvement of citizen. IEC activities are carried out to encourage home composting among the households so as to motivate them to process the wet waste generated by them. This is done by utilizing the services of Animators. At present 1252 Households are practicing home composting processing about 750 Kg/day of wet waste (biodegradable waste).



Figure 7 : Home Composting

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C. Anerobic Compositing Method

Vellore City Municipal Corporation processed daily about 3 MT wet waste by Biomethanisation plant at Crematorium, new bus stand Vellore. The produced Bio gas utilized to cremation.



Figure 8: Anaerobic Compositing Method

6.3.2 Future Action Plan for Wet Waste Processing Mechanism in Vellore City Municipal Corporation

It is proposed to process the entire wet waste by following decentralized Micro Compost Centers and Onsite Compost Centers to achieve 100% processing in Vellore City Municipal Corporation. The construction process of proposed 9 MCCs and 20 OCCs will be completed on or before 31.05.2019.

A. Micro Composting Centers (MCC):

The MCCs are proposed to be established in 9 nos with the capacity of 25 MT covering 16325 households.

The location details are tabulated in below Table:

Table 5: MCC Details

S.no	MCC Location		Present status (Proposed/ Ongoing)
1	Kangeyanallore	Ward 13	Under Construction
2	Sarkar Thoppu	Ward 15	
3	Kalinjur ward office	Ward 10	
4	Kaghiapattari	Ward 16	
5	Kurinji Nagar	Ward 18	
6	Rangapuram	Ward 20	
7	Zone II Office -1	Ward 23	
8	Zone II Office -2	Ward 23	
9	Amanakuttai	Ward 37	

After completion the services areas for the above MCCs will be redistributed from the existing MCCs which cover more waste.

Construction of new Micro Composting Centres



Figure 9 : Amanakuttai MCC

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Figure 10 : Kagidhapattari MCC



Figure 11 : Zone-2 Office MCC

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A. Onsite Composting Center (OCC) for Garden waste Collection

The waste generated at parks, horticultural waste and cut down tree branches are addressed by developing Onsite composting facility wherein the above wastes along with the daily collected waste from the nearby households are processed. Vellore City Municipal Corporation had established 20Nos. of Onsite Compositing Center with a handling capacity of 2.0 TPD as detailed below:



Figure 12 : Onsite Composting Center in Vellore City Municipal Corporation

Table 6 : Details of Onsite Compost Centres

S.No	Location of Garden MCC	Capacity of the wet waste processing facility (TPD)
1	VG Rao Nagar C sector Park	0.1
2	Jaganathan Nagar Park	0.1
3	Jothi Nagar Park	0.1

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S.No	Location of Garden MCC	Capacity of the wet waste processing facility (TPD)
4	9 th East Main Road Park	0.1
5	Amma park- Sindhu Garden	0.1
6	Vaibava Nagar Park	0.1
7	Gopalakrishna Nagar	0.1
8	Kurinji Nagar Park	0.1
9	TN Govt Housing Board PH-IV Sathuvachari	0.1
10	Science Park ,Vallalar	0.1
11	PF Office Back Side Sathuvachari	0.1
12	Thiru. Vi.ka street park Phase I Sathuvachari	0.1
13	CMC Colony	0.1
14	Thendral Nagar	0.1
15	Sastri Nagar Childrens Park	0.1
16	Sabapathi Nagar park	0.1
17	Jeeva Nagar Park	0.1
18	Rahim Nagar Park	0.1
19	Thorapadi Police quarters Park	0.1
20	Vasanthapuram Park	0.1
		2.00

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6.4 ROUTE MAPPING AND TRIP CHART MECHANISM

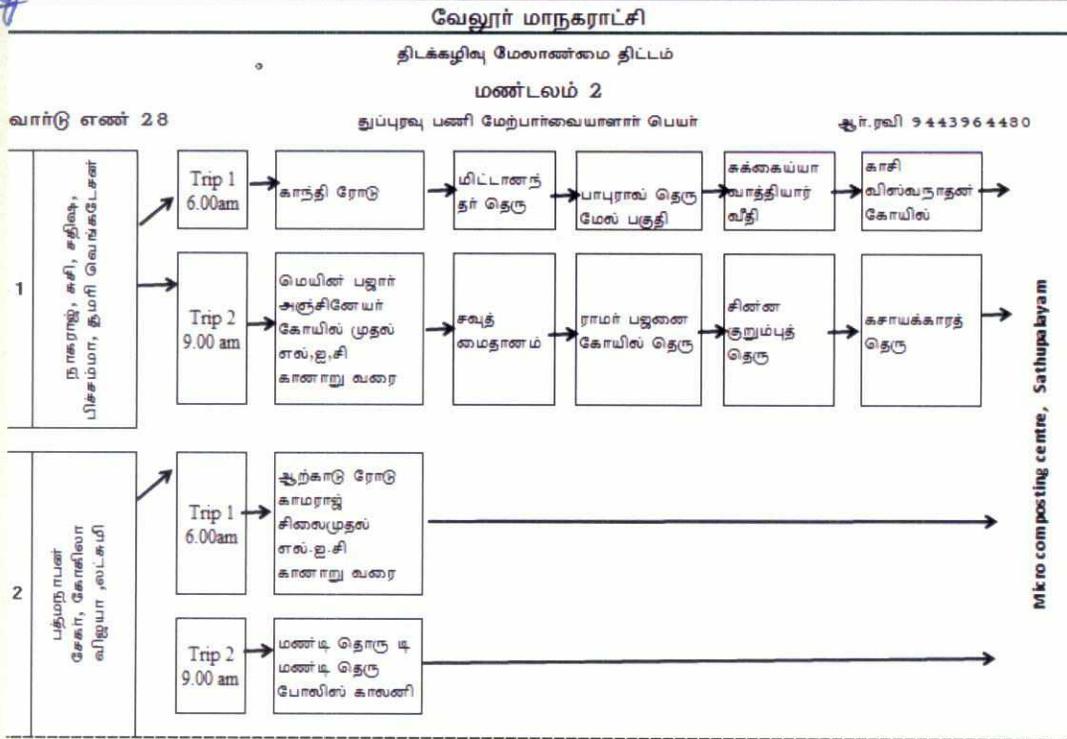
The Route chart for collection and disposal of wet waste to the earmarked decentralized Micro composting centers and onsite composting centers is prepared by classifying the collection areas into areas adjoining the processing centers, nearer to the collection centers and farther distance from the collection centers.

The trip chart, the workers in charge, supervisors in charge are also finalized for each decentralized Micro composting centers covering the details of number of households are disclosed to the Residential Welfare Association (RWA) and the public for awareness and cooperation with the Vellore City Municipal Corporation.

Figure 13 Route Chart for Door to Door Collection



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Sanitary Supervisor : R.Subramanian

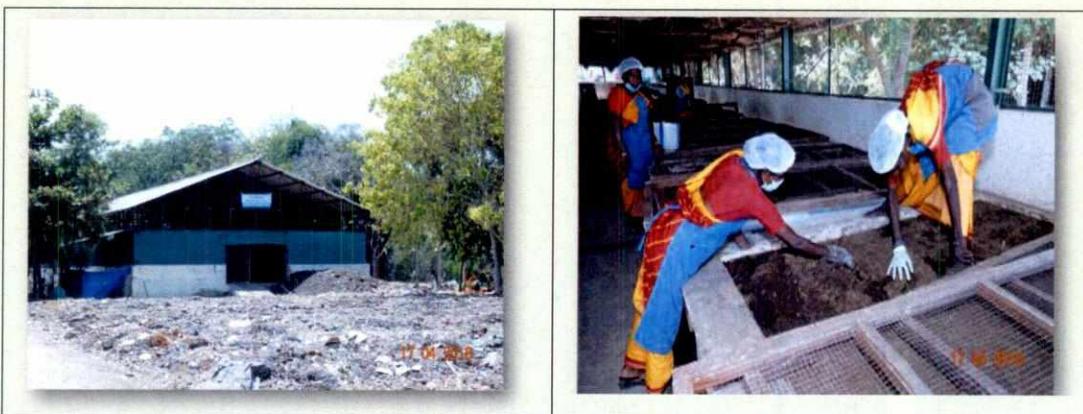
Sanitary Officer : K.Sivakumar

6.5 BULK WASTE GENERATORS (BWG)

175 BWGs have been identified in Vellore City Municipal Corporation comprising 103 Kalyana Mandapams 33 Hotels and 39 Educational institutions.

Register related to the BWG are being maintained as per the guidelines provided in the SWM Rule 2016 and CPHEEO manual. Approximately 45 TPD waste generated by BWGs have been processed by themselves.

Hence the bulk waste generators are disposing their waste either in their premises or outsourcing method like piggery.



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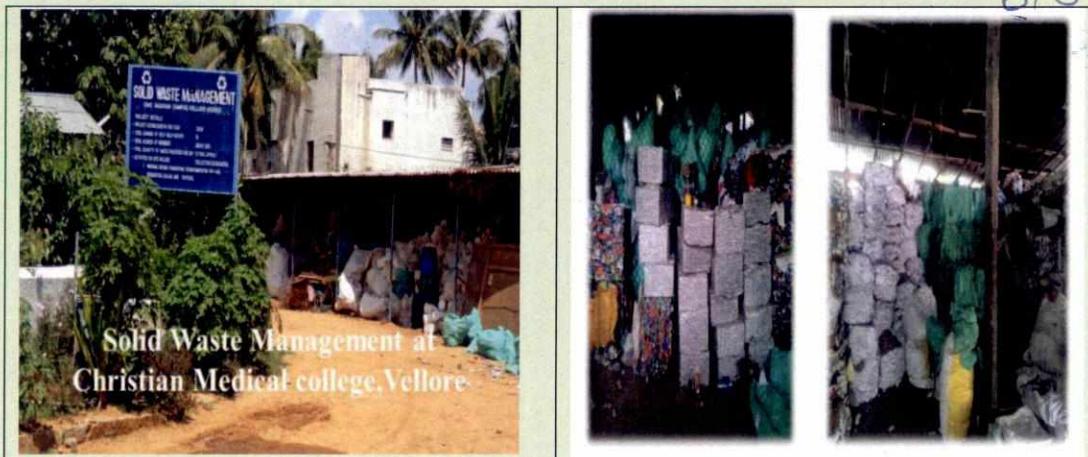
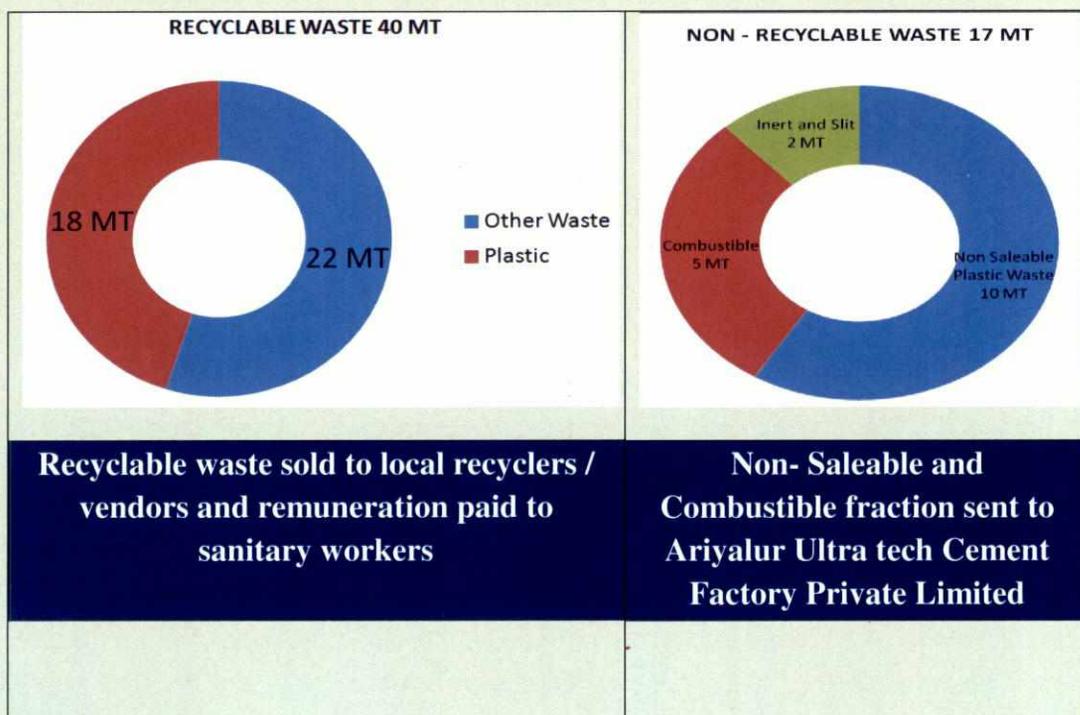


Figure 14: Bulk Waste Generators processing – Sripuram Golden Temple , Ariyur & CMC Hospital

6.6 DRY WASTE (NON-BIO DEGRADABLE) COLLECTION

Dry Waste includes all items that are not considered Wet (Bio Degradable) or soiled items. This includes both recyclable and non-recyclable materials. The details of composition of dry waste such as Recyclable waste and Non-recyclable waste is given below.

Composition of Dry Waste



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Figure 15: MCC Bagayam – Flagging off first trip to Ultra Tech Cement Factory by District Collector on 02.07.2018

- Dry Waste is being collected separately on daily basis.
- About 80 MT of collected recyclable waste is sold to the authorized vendors/Recyclers available in and around Vellore City Municipal Corporation every week. The sold amount is distributed to sanitary workers who are involved in the collection task in order to motivate the workers to play a key role in this collection mechanism.
- A separate register is being maintained for getting necessary acknowledgement from the sanitary workers for the receipt of amount by them.
- The existing non-recyclable/non-saleable fraction of waste is transported to Ariyalur Ultra tech Cement Factory Pvt., Ltd, for usage as co-fuel. An MOU between the outsourcing contractor and ultratech Cement Factory Pvt., Ltd, Ariyalur, had been entered to this effect.
- Also, the ULB has a plan to use the plastic and combustible fraction of waste in the Pyrolysis plant that will be established in Vellore City Municipal Corporation to achieve a sustainable solution for disposal of this fraction of waste.

6.7 DOMESTIC HAZARDOUS WASTE & E- WASTE COLLECTION

- Domestic Hazardous waste such as Diapers, Napkins, blood stained cottons, Paramedical wastes are separately collected during the daily waste collection and sent for incineration on daily basis located at the existing MCC Centers.
- The other domestic hazardous wastes are being collected on a weekly basis along with dry waste and there is a proposal to establish a Resource Recovery Centre at Sarkar Thoppu Compost yard located in ward No.15 where facilities will be made available to deposit domestic hazardous waste and will be disposed to notified processing centers through Tamil Nadu Pollution Control Board (TNPCB). The work will be completed before December 2019.
- Dedicated bins have been provided in the 42 MCC for collection of E-waste. The E-waste collected by the sanitary workers are segregated and stored. It has been transported to the e waste disposal company at M/s. *TES-AMM* (India) Private Limited A-18, SIPCOT Industrial Growth Centre,, Panrutti A Village, Oragadam, Sriperumbudur Tk., Kancheepuram, Tamil Nadu 631604.
- Rigorous IEC activities have been carried out to educate the Public regarding the establishment of separate centre for the deposition of domestic hazardous waste and E-waste generated by them and they are encouraged to deposit such wastes in dedicated bins provided in the all MCCs on their own.

6.8 BIOMEDICAL WASTE:

- There are 38 numbers of hospital, 32 numbers of clinics, 8 numbers of nursing homes are enlisted.
- Generated Biomedical Waste in Vellore City Municipal Corporation is handed over to the M/s Ken Bio Link Biomedical Waste Management Company, who is the authorized facilitator by TNPCB.
- All hospital (Both Govt & Private) including CMC Have made tieup with M/s Ken Biolink for handling the Bio Medical Waste

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- Register Containing the Name, Location, and the name of disposal facilitators of Nursing homes and Hospitals are maintained by the ULB for reference and information.
- The clinics and Nursing homes have been sensitized to prominently display the name of authorised facilitator in their place for the awareness of the public at large.

6.9 CONSTRUCTION & DEMOLITION WASTE:

- Sathupalayam yard is notified as common collection point for all C & D Waste generated in Vellore City Municipal Corporation.
- The C&D waste generated by the Vellore City Municipal Corporation (About 2 TPD)is mainly consumed by public themselves for filling the basement, foundation within their premises and a very meager quantity is expected to be disposed is collected by earmarked vehicle.

By suitably, a holistic solution to the problem of Solid Waste Management will be following the methodologies for scientific processing and disposal of entire fraction of waste (Both wet waste and dry waste) generated in the ULB as described above attained by Vellore City Municipal Corporation.

6.10 DISPOSAL OF LEGACY WASTE AND RECLAMATION OF DUMP SITE

There is one dump yard in Vellore City Municipal Corporation situated at Saduperi with an extent of 7.89 acres . Out of 7.89 acres, 6.5 acres land has been dumped with garbage over the past four decades. Dumping has been completely stopped since February 2018 and action has been taken by Vellore City Municipal Corporation to remove the legacy waste dumped in the compost yard through the Bio mining process and about 6.5 acres of land will be reclaimed. Tenders has been called for Biomining process and work order has been issued to M/s Eco garb for carrying out Bio Mining After the remediation of dumpsite through Biomining, by Vellore City Municipal Corporation will take steps to notify its status as “**Dumpsite free ULB**” in District gazette. It has been planned to construct community Hall or Recreational Parks after the land is reclaimed through Bio mining.

6.11 PLANNING FOR VEHICLE AND TRANSPORTATION

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- ✓ Bin free town
- ✓ Eradication of Pushcarts and Tricycles
- ✓ Encouraging Primary collection at the door step of individual households
- ✓ Utilizing high capacity vehicle for collection of Garbage/Solid waste at commercial, Market area, De-silting the Drain and collection of C&D waste

Table 7 : Vehicle gap analysis

Type of vehicle	House hold covered	Required (including standby 10%)	Available	Balance	Remarks
				8 th SHPC Sanctioned	
BOV (for 65 % of HH)	80847	222	100	-	116 BOVs Purchase in Smart City Funds in lieu of Push carts and Tricycles
LCV (for 35 % of HH)	43983	41	44	-	
Commercial & Market waste	7861	2 Tipper lorry and 5 LCV	2+5		-
Push carts	--	--	75	--	--
Tricycles	--	--	245	--	--

6.12 ADEQUACY FOR SECONDARY COLLECTION VEHICLES

The present mechanism followed for processing the wet waste for conversion as bio manure is a localized cum decentralized approach. Hence the need of secondary storage (bins), collection and transportation is eliminated.

6.13 PLANNING FOR MANPOWER

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- ✓ All the staff involved in SWM have to be periodically provided with training on methodology and technology to keep them updated with skill knowledge
- ✓ At present, 1513 nos.of Sanitary workers (376 permanent, 59 Consolidated pay and 1078 outsourced) are engaged in the collection process.
- ✓ Action has to be taken to have adequate sanitary workers and supervising staff.

Sl. No	No of HHs	Required sanitary workers	Regular Sanctioned strength	outsourcing permission obtained	As on date available	shortfall	Remarks
1	124380	1513	674	1078	1513 (376+59+1078)	--	--

- Also the ULB has engaged 375 Sanitary Workers through SHG exclusively for undertaking day to day functionality of MCC.

6.14 PROCESSING AND DISPOSAL

- Decentralized approach
- Micro composting the wet waste
- Identify sufficient site / Land and keep in reserve to address the future requirement.
- Storing the recyclable waste and disposing the same to the identified vendors.
- Establishing Pyrolysis Plant to dispose the non-recyclable waste (Except inert and C&D waste)
- Keeping Hazardous waste/E-waste at RRC and disposing the same to PCB periodically by maintaining register.

- Domestic Hazardous waste such as Napkin and Diaper is to be incinerated separately on a daily basis.
- Improving the facility to handle the increased quantity periodically.
- Towards dump yard free city.
- Curbing the practice of throwing the Garbage into water bodies/drain and eradicate the burning practice.
- Disposing the End product after processing the waste viz., compost and other materials to the identified vendors by maintaining proper registers.
- The existing Non-recyclable waste stored in Resource Recovery Centre and subsequently the waste will be sent to cement factory.

Table 8 : Adequacy of Wet Waste Processing Facility

Source of waste	Quantity of wet waste (TPD)	Total quantity of wet waste (TPD)	Processing method	No. of facilities available	Capacity Of Facilities (TPD)	Total Capacity of processing facility (TPD)	Shortfall (TPD)
Domestic	83	108	MCC	42	103	108	NIL
Park			OCC	20	2		
Commercial	25		BMT	1	3		

Note: 1. Bulk Waste Generators are processing their own waste to the capacity of 45 MT by onsite composting and outsourcing.

Table 9 : Dry Waste Generation

Source of Waste	Quantity of dry waste (TPD)	Total Quantity of dry waste (TPD)
Domestic and Park	47	57
Commercial	10	

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Table 10 : Dry Waste Disposal

Disposing method	Recyclable (TPD)	Non-recyclable (TPD)	Total Quantity of dry waste(TPD)	Shortfall (TPD)
Recyclers	40	0	57	
Cement Industries	0	17		
Stored in Corporation	0	0		

** Note: Non-recyclable waste stored in division office and subsequently the waste will be sent to cement factory.

6.14 INTEGRATION OF INFORMAL SECTOR

SWM Rules, 2016 prescribe establishment of a system to recognize organizations of waste pickers or informal waste collectors to promote and establish a system for integration of these authorized waste-pickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste. Accordingly, measures have been taken to integrate the authorized waste pickers to increase their income. Identification cards have been distributed for successful inclusion of them into sustainable handling and disposal of solid waste.

6.16 POLLUTER PAYS PRINCIPLE

SWM Rules, 2016 authorize ULBs to prescribe user fee from time to time as deemed appropriate and collect the fee from the waste generators. Accordingly, Vellore City Municipal Corporation has framed bye-law and published in the district gazette. The annual demand for SUC is Rs. 5.74 crore. Criteria for levying spot fine for persons who litters or fails to comply with the provisions of these rules have also been highlighted in the bye-law. The corporation has collected fine amount Rs. 98,900/- (2018-2019)

6.17 CAPACITY BUILDING OF SANITARY WORKERS

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To attain the system sustainability in Solid Waste Management, periodical refreshment training is planned and training has been given to 360 sanitary workers and the balance sanitary workers will be given training in a phased manner.



Figure 16 : Capacity Building of Sanitary Workers

6.18 COMMUNITY AWARENESS

My waste my responsibility is the motto of the Corporation

- 1) 100% Door to Door Segregation the following activities done:
- 2) Sent 1,28,000/- Individual letters through Postal department asking public segregation, avoiding banned plastics.
- 3) Engaging Religious leaders, all temples, Churches and Jamad have been involved by meeting them in person for source segregation.
- 4) All the top Government officials started segregation ie. Collector, Superintendent of Police, Commissioner etc.,
- 5) Awareness among 226 School Children and declaration obtained from parents of all school children regarding source segregation through the class teachers.

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- 6) Rotary, Lions leaders started segregation and member's follows.
- 7) Private littering prevented by placing boards stating the land earmarked for public purpose (250 boards).
- 8) Door to Door declaration obtained from every house hold through sanitary workers.



Figure 17 : Community Awareness / IEC activities

6.19 SALE OF MANURE GENERATED

At present manure generated from the MCC / OCC sold to farmers at marginal cost. Vellore City Municipal Corporation proposed to tie up with Department of Horticulture/ Agriculture /Forest to be roped in for the periodical intake of manure generated at the centers.

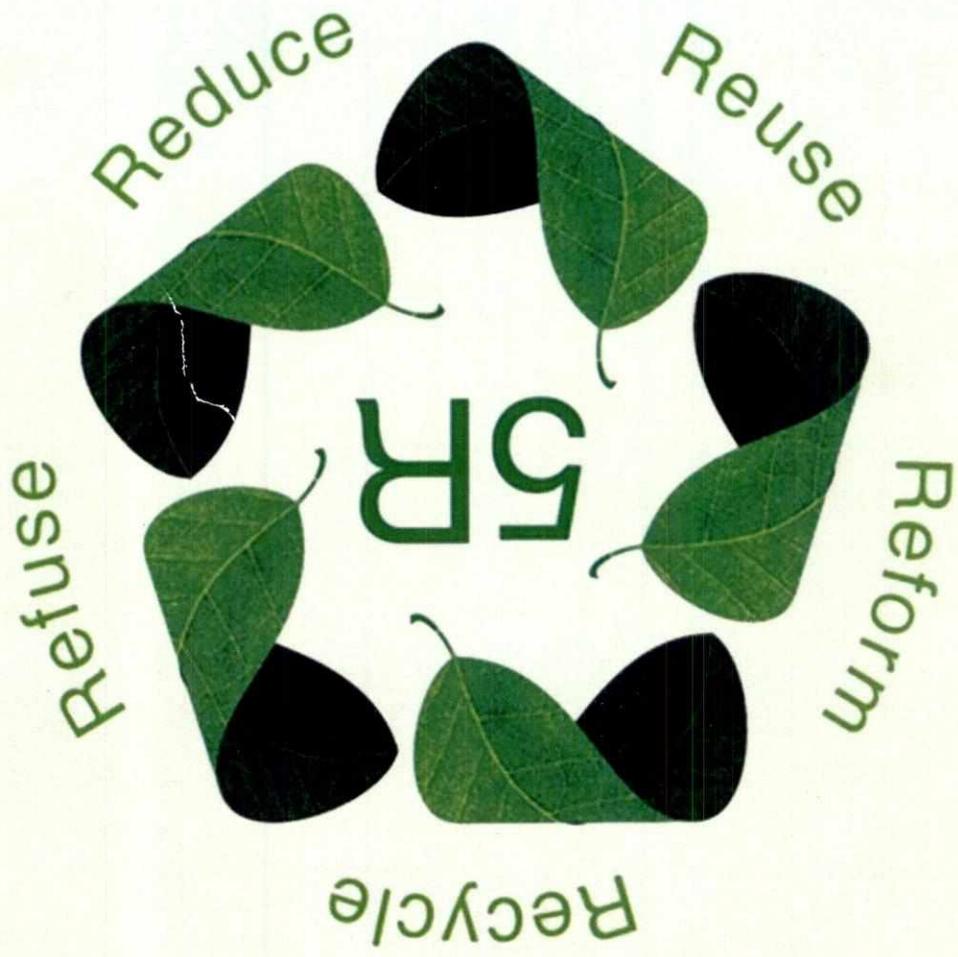


Figure 18: Sale of Manure

TIME FRAME ON ACTION PLAN

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Sl.No	Action Plan	Timeline
1	100 % Door to Door Collection	Achieved To be monitored continuously
2.	100 % Source Segregation	Achieved To be monitored continuously
3	Prevention of burning and throwing the waste to the water bodies	Achieved To be monitored continuously
4.	Communicating the Reduce Reuse Recycle to the community	Continuous process
5.	Bye law pertaining to the Solid waste Management Rules, 2016 and Plastic waste management Rules, 2016	Framed
7.	Processing facility for wet waste	42 MCC completed and 9 MCCs will be completed before 31.05.19
8	Disposal Mechanism of Dry Waste	Practiced and Continuous process.
9	Identifying the storage facility for domestic hazardous waste and E waste	Dec 2019
10	Identifying the storage facility and disposal mechanism for construction debris	Oct 2019
11	Bio mining	Before Dec 2019.
12	Battery Operated Vehicle(116Nos)	Before 31.05.2019
13	Bin free city	Achieved
14	Integration of informal sectors/ SHGS	Completed
15	Formation of SWM monitoring Committee at Municipal Corporation level	Formed
16	Dump free city	Achieved To be monitored continuously



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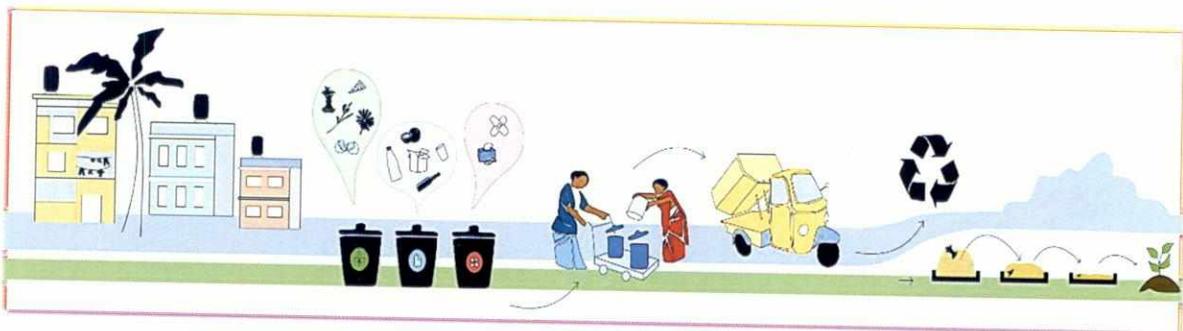


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SOLID WASTE MANAGEMENT POLICY AND ACTION PLAN

COIMBATORE CITY MUNICIPAL CORPORATION





SOLID WASTE MANAGEMENT POLICY AND ACTION PLAN

COIMBATORE CITY MUNICIPAL CORPORATION



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DEFINITIONS

1. **Aerobic composting** means a controlled process involving microbial decomposition of organic matter in the presence of oxygen
2. **Anaerobic digestion** means a controlled process involving microbial decomposition of organic matter in absence of oxygen
3. **Authorization** means the permission given by the State Pollution Control Board or Pollution Control Committee, as the case may be, to the operator of a facility or urban local authority, or any other agency responsible for processing and disposal of solid waste
4. **Biodegradable waste** means any organic material that can be degraded by micro-organisms into simpler stable compounds
5. **Bio-methanation** means a process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich biogas
6. **Brand owner** means a person or company who sells any commodity under a registered brand label
7. **Buffer zone** means zone of no development to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total area allotted for the solid waste processing and disposal facility
8. **Bulk waste generator** means and includes buildings occupied by the Central government departments or undertakings, State government departments or undertakings, local bodies, public sector undertakings or private companies, hospitals, nursing homes, schools, colleges, universities, other educational institutions, hostels, hotels, commercial establishments, markets, places of worship, stadia and sports complexes having an average waste generation rate exceeding 100kg per day
9. **Bye-laws** means regulatory framework notified by local body, census town and notified area townships for facilitating the implementation of these rules effectively in their jurisdiction
10. **Combustible waste** means non-biodegradable, non-recyclable, non-reusable, non-hazardous solid waste having minimum calorific value exceeding 1500 kcal/kg and excluding chlorinated materials like plastic, wood pulp, etc.
11. **Composting** means a controlled process involving microbial decomposition of organic matter

12. **Contractor** means a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job for service providing authority
13. **Co-processing** means use of non-biodegradable and non-recyclable solid waste having calorific value exceeding 1500k/cal as raw material or as a source of energy or both to replace or supplement the natural mineral resources and fossil fuels in industrial processes
14. **Decentralized processing** means establishment of dispersed facilities for maximizing the processing of biodegradable waste and recovery of recyclables closest to the source of generation so as to minimize transportation of waste for processing or disposal
15. **Disposal** means the final and safe disposal of post processed residual solid waste and inert street sweepings and silt from surface drains on land to prevent contamination of ground water, surface water, ambient air and attraction of animals or birds
16. **Domestic hazardous Waste** means discarded paint drums, pesticide cans, CFL bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes and contaminated gauge, etc., generated at the household level
17. **Door to door collection** means collection of solid waste from the door step of households, shops, commercial establishments, offices, institutional or any other non-residential premises and includes collection of such waste from entry gate or a designated location on the ground floor in a housing society, multi-story buildings or apartments, large residential, commercial or institutional complex or premises
18. **Dry waste means waste other than bio-degradable waste and inert street sweepings and includes recyclable and non-recyclable waste, combustible waste and sanitary napkin and diapers, etc.**
19. **Dump sites** means a land utilized by local body for disposal of solid waste without following the principles of sanitary land filling
20. **Extended Producer Responsibility (EPR)** means responsibility of any producer of packaging products such as plastic, tin, glass and corrugated boxes, etc., for environmentally sound management, till end-of-life of the packaging products
21. **Facility** means any establishment wherein the solid waste management processes namely segregation, recovery, storage, collection, recycling, processing, treatment or safe disposal are carried out.
22. **Fine** means penalty imposed on waste generators or operators of waste processing and disposal facilities under the bye-laws for non-compliance of the directions contained in these rules and/or bye-laws
23. **Form** means a Form appended to this policy

24. **Handling** includes all activities relating to sorting, segregation, material recovery, collection, secondary storage, shredding, baling, crushing, loading, unloading, transportation, processing and disposal of solid wastes
25. **Inert** means wastes which are not bio-degradable, recyclable or combustible street sweeping or dust and silt removed from the surface drains
26. **Incineration** means an engineered process involving burning or combustion of solid waste to thermally degrade waste materials at high temperatures
27. **Informal waste collector** includes individuals, associations or waste traders who are involved in sorting, sale and purchase of recyclable materials.
28. **Leachate** means the liquid that seeps through solid waste or other medium and has extracts of dissolved or suspended material format.
29. **Local body for** the purpose of these rules means and includes the Municipal Corporation, municipality, Nagar panchayat.
30. **Materials recovery facility (MRF)** means a facility where non- compostable solid waste can be temporarily stored by the local body or any other entity mentioned in rule 2 or any person or agency authorized by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorized informal sector of waste pickers, informal recyclers or any other work force engaged by the local body or entity the purpose before the waste is delivered or taken up for its processing or disposal.
31. **Non-biodegradable waste** means any waste that cannot be degraded by micro-organisms into simpler stable compounds.
32. **Operator of a facility** means a person or entity, who owns or operates a facility for handling solid waste which includes the local body and any other entity or agency appointed by the local body
33. **Primary collection** means collecting, lifting and removal of segregated solid waste from source of its generation including households, shops, offices and other non-residential premises or from any collection points or any other location specified by the local body
34. **Processing** means any scientific process by which segregated solid waste is handled for the purpose of reuse, recycling or transformation into new products
35. **Recycling** means the process of transforming segregated non- biodegradable solid waste into new material or product or as raw material for producing new products which may or may not be similar to the original products

36. **Redevelopment** means rebuilding of old residential or commercial buildings at the same site, where the existing buildings and other infrastructures have become dilapidated
37. **Refuse Derived Fuel (RDF)** means fuel derived from combustible waste fraction of solid waste like plastic, wood, pulp or organic waste, other than chlorinated materials, in the form of pellets or fluff produced by drying, shredding, dehydrating and compacting of solid waste
38. **Residual solid waste** means and includes the waste and rejects from the solid waste processing facilities which are not suitable for recycling or further processing.
39. **Sanitary land filling** means the final and safe disposal of residual solid waste and inert wastes on land in a facility designed with protective measures against pollution of ground water, surface water and fugitive air dust, wind-blown litter, bad odour, fire hazard, animal menace, bird menace, pests or rodents, greenhouse gas emissions, persistent organic pollutants slope instability and erosion
40. **Sanitary waste** means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste
41. Schedule the Schedule appended to this policy.
42. **Secondary storage** means the temporary containment of solid waste after collection at secondary waste storage depots or MRFs or bins for onward transportation of the waste to the processing or disposal facility
43. **Segregation** means sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste, non-biodegradable wastes including recyclable waste, non-recyclable combustible waste, sanitary waste and non-recyclable inert waste, domestic hazardous wastes, and construction and demolition wastes.
44. **Service provider** means Agency / Contract which / whom has undertaken work outsourcing / maintenance of sanitation in the ULBs.
45. **Solid waste** means and includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non-residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the area under the local authorities and other entities.
46. **Sorting** means separating various components and categories of recyclables such as paper, plastic, cardboards, metal, glass, etc., from mixed waste as may be appropriate

- to facilitate recycling.
47. **Stabilizing** means the biological decomposition of biodegradable wastes to a stable state where it generates no leachate or offensive odours and is fit for application to farm land, soil erosion control and soil remediation.
 48. **Street vendor** means any person engaged in vending of articles, goods, wares, food items or merchandise of everyday use or offering services to the general public, in a street, lane, side walk, footpath, pavement, public park or any other public place or private area, from a temporary built up structure or by moving from place to place and includes hawker, peddler, squatter and all other synonymous terms which may be local or region specific; and the words "street vending" with their grammatical variations and cognate expressions, shall be construed accordingly.
 49. **Transfer Point** means a facility created to receive solid waste from collection areas and transport in bulk in covered vehicles or containers to waste processing and, or, disposal facilities.
 50. **Transportation** means conveyance of solid waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions
 51. **Treatment** means the method, technique or process designed to modify physical, chemical or biological characteristics or composition of any waste so as to reduce its volume and potential to cause harm.
 52. **User fee** means a fee imposed by the local body and any entity on the waste generator to cover full or part cost of providing solid waste collection, transportation, processing and disposal services.
 53. **Vermi-composting** means the process of conversion of bio - degradable waste into compost using earth worms;
 54. **Waste generator** means and includes every person or group of persons, every residential premises and non-residential establishments including Indian Railways, defense establishments, which generate solid waste emphasis to prevention, reduction, reuse, recycling, recovery and disposal, with prevention being the most preferred option and the disposal at the landfill being the least
 55. **Waste picker** means a person or groups of persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation the streets, bins, material recovery facilities, processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood.

CHAPTER – I BACKGROUND

Municipalities have overall responsibility for Municipal Solid waste Management. However most are unable to provide proper system to tackle the current situation. Magnitude and density of urban population in India is increasing rapidly and consequently the Municipal agencies spend about 5 -25% of their budget on MSWM.

Despite of such heavy expenditure, the present level of service in many urban areas is so low that there is a threat to the public health in particular and the environmental quality in general. Collection and transportation activities constitute approximately 80–95% of the total budget of MSWM. Hence, it forms a key component in determining the economics of the entire MSWM system. On the contrary, disposal and treatment of waste is an underinvested area and open dumping, uncontrolled and poorly managed landfills are a common feature across most Indian cities and towns. The results pose a serious threat to the underground water reserves and surface water bodies through run –offs. The challenges of municipal solid waste management range from insufficient capital expenditure, non-affordability to meet the O&M, lack of technical know-how, lack of public awareness, non-availability of land and fighting the opposition from the neighborhoods where the MSW facility is located.

Managing the problem of solid waste in a more integrated and comprehensive manner, makes it imperative for the ULB to set forth a strategy to address the different aspects of sanitation management related tackling solid waste in a systematic, coordinated and time-bound manner. Though the Solid Waste Management (SWM) Rules, 2016 make the ULBs responsible for management of wastes, ULBs have to partner with private waste management companies, NGOs and RWAs for various segments of the MSW value chain due to various capacity constraints. In order to implement and comply with the SWM Rules, 2016 and overcome capacity constraints at the local level, The Coimbatore Corporation have come up with centralized waste management systems at the ULB level or regional level either on Non-PPP or PPP approach. Centralized waste management systems at the city level are being practiced in Guwahati, Hyderabad and Chennai, among others. Regional level SMW management facilities have come up in Tamil Nadu and Gujarat. The need of the hour is to devise an efficient solid waste management system where in decision-makers and waste management planners can deal with the increase in complexity, and uncertainty.

The Solid Waste Management Rules, 2016 (the 'SMW Rules'), issued by the Ministry of Environment and Forests, Government of India, under the Environment (Protection) Act, 1986, prescribe the manner in which the Authorities have to undertake collection, segregation, storage, transportation, processing and disposal of the municipal solid waste (the 'MSW') generated within their jurisdiction under their respective governing legislation. In this context, there is a need to revisit, develop, and implement appropriate strategy framework to guide the urban local bodies for effectively handling MSW in order to comply with the SWM Rules, 2016 notified by the Ministry of Environment & Forest, Govt. of India and related regulations. The framework will guide and support the urban local bodies in the state for managing the solid waste scientifically and cost effectively.

1.1 About The SWM Rules 2016

Ministry of Environment, Forest and Climate change, Government of India under the provision of Environment Protection act 1986, notified latest regulations “Solid Waste Management Rules 2016”, vide S.O. 1357 (E), dated 8th April 2016. The notification spells out clear duties to different stakeholders as mentioned below:

- Duties of waste generators
- Duties of Ministry of Environment, Forest and Climate Change
- Duties of Ministry of Urban Development
- Duties of Department of Fertilizers, Ministry of Chemicals and Fertilizers
- Duties of Ministry of Agriculture, Government of India
- Duties of the Ministry of Power
- Duties of Ministry of New and Renewable Energy Sources
- Duties of the Secretary-in-charge, Urban Development in the States and Union territories
- Duties of District Magistrate or District Collector or Deputy Commissioner
- Duties of Central Pollution Control Board
- Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations
- Duties of State Pollution Control Board or Pollution Control Committee
- Duty of manufacturers or brand owners of disposable products and sanitary napkins and diapers
- Duties of the industrial units located within one hundred km from the refused derived fuel and waste to energy plants based on solid waste
- Criteria for Duties regarding setting-up solid waste processing and treatment facility
- Also, to tackle other solid waste, Ministry notified the following rules under the provision of Environment protection act 1996:
 - Construction and Demolition Waste Management, 2016
 - E Waste (Management) Rules, 2016
 - Plastic Waste Management Rules, 2016
 - Bio- Medical (Management and Handling) Rules, 2016

1.2 Solid Waste Management Scenario In India

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The urban growth in India is faster than the average for the country and far higher for urban areas over rural. The proportion of population residing in urban areas has increased from 27.8 % in 2001 to 31.80 % in 2011 and likely to reach 50% by 2030. The number of towns has increased from 5,161 in 2001 to 7,935 in 2011. The rapid growth in urban areas has not been backed adequately with provisioning of basic sanitation infrastructure and thus leaving many Indian cities deficient in services as water supply, sewerage, storm water drainage, and solid waste management.

It is estimated that Urban India generates about 1,43,449 metric tons per day of municipal solid waste, as per the Central Pollution Control Board (CPCB), 2014-15. The per capita waste generation in major cities ranges from 0.20 Kg to 0.6 Kg. Generally, the collection efficiency ranges between 70 to 90% in major metro cities whereas in several smaller cities the collection efficiency is below 50%. The collection and disposal of municipal solid waste is one of the pressing problems of city life, which has assumed great importance in the recent past.

Treatment of waste and scientific disposal of urban waste is not only absolutely necessary for the preservation and improvement of public health but it has an immense potential for resource recovery. The composition of MSW at generation sources and collection points in India is observed to mainly consist of a large organic fraction (40–60%), ash and fine earth (30–40%), paper (3–6%) and plastic, glass and metals (each less than 1%).

It is also estimated that the Urban Local Bodies spend about Rs.500 to Rs.1500 per tons on solid waste for collection, transportation, treatment and disposal. About 60-70% of this amount is spent on street sweeping of waste collection, 20 to 30% on transportation and less than 5% on final disposal of waste, which shows that hardly any attention is given to scientific and safe disposal of waste.

Landfill sites have not yet been identified by many municipalities and in several municipalities, the landfill sites have been exhausted and the respective local bodies do not have resources to acquire new land. Due to lack of disposal sites, even the collection efficiency gets affected.

Very few Urban Local Bodies in the country have prepared term plans for effective Solid Waste Management in their respective cities. For obtaining a long term economic solution, planning of the system on long-term sustainable basis is very essential. As per the World Bank Statistics, incorporated by the High- Powered Expert Committee in its Report on Indian Infrastructure and Services, the following is the report card on Solid Waste

Management in Indian Cities:

• Primary collection	-	38 per cent
• Segregation of recyclables	-	33 per cent
• Street sweeping	-	72 per cent
• Transportation	-	52 per cent
• Processing	-	9 per cent
• Disposal	-	1 per cent

The Energy and Resources Institute (TERI) has estimated that by 2047, waste generation in Indian cities will increase five-fold to touch 260 million tons per year (Asnani 2006). A study by the World Bank (2006) puts India's annual generation of municipal solid waste to be somewhat lower, i.e., in the range of 35 to 45 million ton, amounting to about 100,000 to 120,000 metric tonne every day. It is also estimated that the annual increase in overall quantity of solid waste in India's cities will be at a rate of 5 % per annum.

The fact that a large part (over 60%) of India's waste is bio-degradable, provides an opportunity for composting. While lifestyle changes, especially in the larger cities, are leading to increased use of packaging material, and per capita waste generation is increasing at about 1.3% per annum, the biodegradable component is still expected to be much higher than in industrialized countries.

Even with current levels of highly inadequate service, solid waste management accounts for 25-50 % of a ULB's expenditure (World Bank 2006), but cities recover less than 50 per cent of the O&M cost, according to a study by the Ministry of Urban Development, Government of India (2010b). The distribution of the expenditure is heavily loaded in favour of collection and transportation, and little attention is paid to processing and scientific disposal of the waste.

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CHAPTER - II

CURRENT STATUS OF SOLID WASTE MANAGEMENT IN COIMBATORE CITY
MUNICIPAL CORPORATION

2.1 Coimbatore Corporation SWM Profile

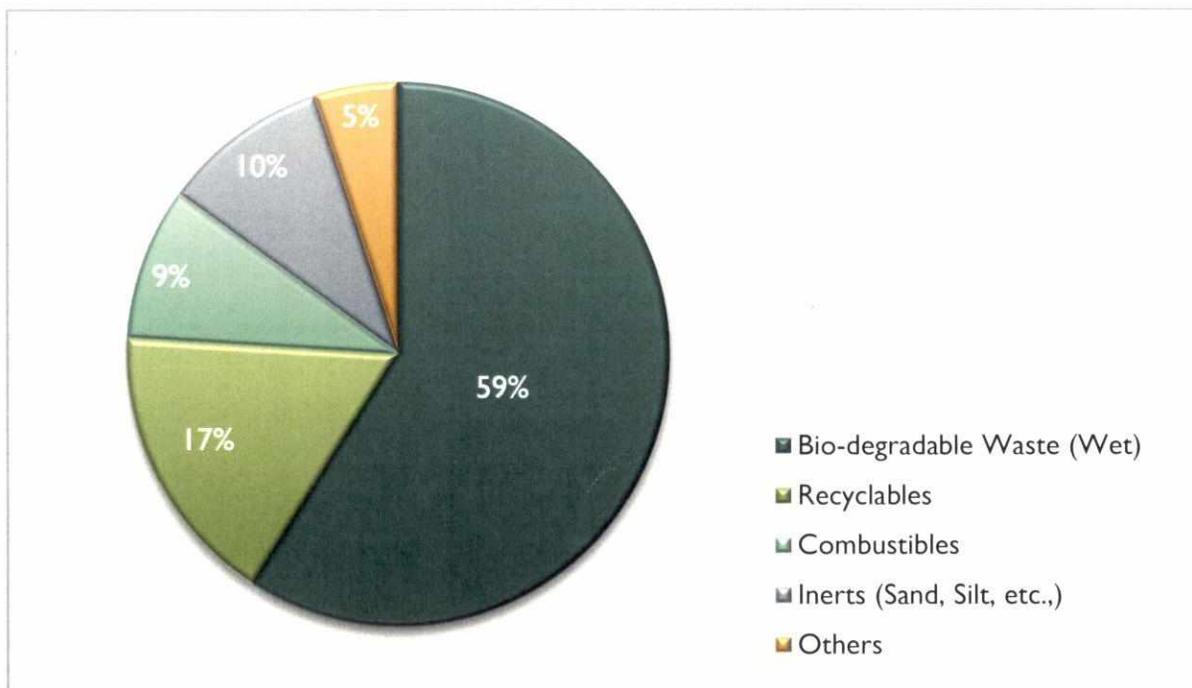
Area	257.04 Sq.Kms
Administrative Wards	100
Zones	5
Population as on 2011	1251237
Present Population	1666182
Floating Population	165000
Per capita generation of waste	400 gms/person/day
Total No. of Households	521851
Total No. of Commercial Establishments	42175
Estimated Quantity of MSW Generated	860 MT Per Day
North Zone	59.23 Sq.Kms
East Zone	73.66 Sq.Kms
West Zone	45.43 Sq.kms
South Zone	56.07 Sq.Kms
Central Zone	22.65 Sq.Kms
No. of Hotels and Restaurants	879
No. of Kalyana Mandapams, Marriage Halls, etc.,	94
No. of Vegetable Markets including Uzhavar Sandhai	20
No. of Slaughter Houses	4
No. of Lodges and Guest Houses	106
No. of Cinema Theatres	25
No. of Major Shopping Complexes/Malls	5
No. of Educational Institutions	128
No. of Hospitals, Nursing Homes, Clinics, etc.,	89
No. of Educational Institutions	128
No. of Community Toilets	295
No. of Public Toilets	76

2.2 Waste Generation

Waste Generation in the City (Households and City's Floating Population)	732.00 MT
Waste Generated through Bulk Waste Generators (Hotels, Restaurants, Kalyana Mandapams, Marriage & Party Halls, Lodges, Vegetable/Fruit/Flower Markets, etc.,)	129.00 MT
Total Waste Generated in the City	860.00 TPD

2.3 Waste Characteristics

1	Bio-degradable Waste (Wet)	59%	507.40
2	Non-biodegradable Waste (Dry)		
	Recyclables	17%	146.20
	Combustibles	9%	77.40
3	Inerts (Sand, Silt, etc.,)	10%	86.00
4	Others	5%	43.00



2.4 Processing of Bio-Degradable Waste and Garden Waste

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Processing of Bio-Degradable Waste (Wet) and Garden Wastes	Processing Facility Now Available/Newly Proposed In Mts	Now Processed in Mts
At The Facility Available Now		
Waste-to-Compost Plant at Vellalore (Available)	375.00	250.00
Vermi-compost Plant at Vellalore (Available)	100.00	50.00
Four Biogas Plants (Available)	5.50	5.50
MCC's Already Sanctioned For Wet Waste Processing		
67 MCC's already sanctioned and under Construction	306.00	0.00
OCC's Proposed for Garden Waste Processing		
78 OCC's already sanctioned and under Construction	135.50	0.00
TOTAL	922.00	305.50

2.5 Processing and Disposal of Non-Biodegradable Dry Wastes

Processing and Disposal of Non-Biodegradable Dry Wastes	Qty in Mts
Non-biodegradable Dry Recyclables tie up with Local Vendors, ITC, Recyclers etc.,	146.20
Non-biodegradable Dry Combustibles to ACC Cement Plant at Madukkarai	77.40

2.6 Processing and Disposal of Inerts and Other Wastes

Processing and Disposal of Inerts and Other Wastes	Qty in Mts
Inerts (Sand, Silt, etc.,) to Sanitary Landfill	86.00
Others (Domestic hazardous, Sanitary Wastes) as per SWM Rules, 2016	43.00

2.7 Primary & Secondary Collection – Infrastructure Availability

S.No	Description	Available Now
1	Containerized Push Carts	1983 Nos
2	Battery Operated Vehicles	52 Nos
3	Smaller Tippers (“TATA” ACE)	50 Nos
4	Tipper Tractors	12 Nos
5	Dumper Placer Lorries (Single Bin Lifter)	11 Nos
6	Dumper Placer Lorries (Twin Bin Lifter)	48 Nos
7	Refuse Collector Lorries (Semi-Compactors)	37 Nos
8	Refuse Collector Lorries (Compactors)	26 Nos
9	Tipper Lorries (Light & Heavy)	34 Nos
10	Dry Waste Collection Vehicles	5 Nos
11	Dry Waste Storage Hubs	5 Nos

2.8 Secondary Transportation – Infrastructure Availability

S.No	Description	Available Now
1	Waste Transfer Stations with Stationary Compactor	3 Nos
2	Hook Loaders (Bulk Refuse Carriers)	31 Nos
3	Hook Loader Bins of 22 Cu.m capacity	45 Nos

2.9 Processing & Disposal - Infrastructure Availability

1	Tipper Lorries	5 Nos
2	Wheel Loaders	1 No
3	Track Type Wheel Dozers (Bull Dozer)	1 No
4	Excavator cum Loaders	1 No
5	Windrow Turner	1 No
6	Tractor Dozer s	2 Nos
7	Tractor Mounted Grabbers	2 Nos
8	Front End Loader	1 No
9	Track Type Hydraulic Crawler Excavator	1 No

CHAPTER – III ISSUES AND SHORTFALL

The Major issues such as (i) Inadequate planning (ii) Lack of in-house capabilities (iii) Lack of Public awareness and Community Participation in segregation of Waste and handling of Waste (iv) Inadequate processing facilities (v) Improper implementation strategy have been considered and accordingly the gap analysis in each activity of Solid Waste Management is done for Coimbatore City Municipal Corporation

3.1 Issues in Collection and Transportation

- Requirements of primary collection vehicle are arrived and type of vehicles, capacity of the vehicle and number of trips per vehicle based on the types of source from where the waste has to be collected. Finally the "Gap" is analyzed to take action to procure adequately.
- Route chart and Trip chart for each vehicle with designated sanitary workers are to be planned and followed.
- Adequate awareness among the citizen has to be generated

3.2 Issues in Scientific Processing and Disposal

- Insufficient manpower with adequate knowledge in processing at compost yard
- Wet waste processing at MCC has to be started.
- Human resource requirement were estimated for MCC operation and maintenance to be outsourced

3.3 Issues in In-House Capabilities

- All the staff involved in SWM has to be periodically provided with training on methodology and technology to keep them with updated skill knowledge.
- The shortfall in man power to address the SWM has to be determined by conducting GAP analysis
- Coimbatore City Municipal Corporation is entitled to engage 2164 no. of sanitary workers for door to door waste collection a short fall of 780 workers were found.
- Permission has been accorded for engaging 780 sanitary workers through outsourcing
- Action has to be taken to have remaining sanitary workers and supervising staff.

CHAPTER - IV
NEED FOR POLICY, VISION AND OBJECTIVE
POLICY & STRATEGY CONSIDERATIONS

Need for Policy

It is pertinent to note that the draft regulations of Solid Waste Management Rules 2016 were published in the year 2015 and the Coimbatore Corporation took immediate cognizance of these rules and published a gazette.

Since the SWM rules were only officially notified in 2016 and there has been an order from the NGT for all the states to have in place a Solid Waste Management Policy document, there is a need to consolidate into a single policy document - the various policies and strategies followed by the Coimbatore corporation in adherence to SWM Rules 2016.

Liveability Index: Ministry of Housing and Urban Affairs (MoHUA) developed a set of “Liveability Standards in Cities” to generate a Liveability Index and Rate Cities. One of the identified categories is “Solid Waste Management” and the following are the three core indicators:

1. Household level coverage of municipal solid waste collection
2. Efficiency of collection of municipal solid waste
3. Extent of municipal solid waste recovered through reuse

Seven Star Rating: Ministry of Housing and Urban Affairs developed a set of “Protocol for Star Rating of Garbage-Free Cities”. The star-rating initiative, developed by the Swachh Bharat Mission – Urban will be rating cities on a 7-star rating system based on multiple cleanliness indicators for solid waste management, such as;

1. Door-to- Door Collection
2. Segregation at source
3. Sweeping of public, commercial and residential areas (no visible eyesores on streets)
4. Waste Storage Bins, Litter Bins and material recovery facility
5. Bulk Waste Generators compliance
6. Scientific Waste Processing, Scientific Landfilling and C&D Waste Management
7. User Fees, Penalties, Spot Fines for littering and Enforcement of Ban on Plastic
8. Citizen grievance redressal and feedback system
9. Eradication of crude dumping of garbage and dump remediation

10. Cleaning of storm drains and surface of water bodies

11. Waste Reduction

12. Visible beautification in the city.

Swachh Survekshan: To improve urban sanitation, Minister of Housing and Urban Affairs announced 'Swachh Survekshan' for ranking of cities. To scale up the coverage of the ranking exercise and encourage cities to actively implement mission initiatives in a timely and innovative manner.

"Municipal Solid Waste Management" is considered as one of the initiatives under Swachh Survekshan. The following are the set of indicators under Municipal Solid Waste – Sweeping, Collection, Transportation, Processing and Disposal;

- Availability of Automated Systems in Collection and Transportation of MSW
- Efficiency of Waste Collection and Management of Construction & Demolition Waste
- Solid Waste Management in Commercial Areas
- Solid Waste Management in Residential Areas
- Door to Door Waste Collection done and Transported from residential areas
- Efficiency in Transportation of Waste to Disposal/Treatment Sites

With this background, this document will outline, specific to Municipal Solid Waste Management, the Objectives of the Coimbatore Corporation, to approach and ensuring implementation of SWM Rules 2016, the implementation strategies, monitoring mechanisms and the achievements so far.

The Hon'ble. National Green Tribunal, New Delhi has also laid down directives from time to time to ensure that air, water and soil pollution is avoided in all ULBs to safeguard the protect the environment and resultant ill effects on the citizens. The policy also takes into account the concerns of the Honourable. NGT and its directives to ensure that all ULBs in the state of TN adhere to the pollution control norms with respect to handling of municipal solid wastes and safe disposal.

4.1 Vision

The Coimbatore city has a **vision** of transforming City into neat, clean and litter-free areas, (with special focus on hygienic and affordable sanitation for the urban poor and women) for best in class liveability; health standards; environment, tourism and investment attractiveness.

Goals and Service outcomes: The overall goal is to ensure 100% compliance to the SWM Rules 2016 and related legislations w.r.t to municipal solid waste in all the ULBs through multi-stakeholder partnership approach.

4.2 Objectives

Achieve and Sustain the SWM Benchmarks and compliance to SWM Rules 2016 and NGT directions by guiding the ULBs for effective implementation of SWM Rules, 2016, NGT directives and other relevant regulations in a systematic manner, with reference to;

- ✓ Source Segregation
- ✓ Collection
- ✓ Transportation
- ✓ Treatment and Safedisposal

This can be achieved through various means which includes, but not limited to, the following;

- Establishing guiding principles for the ULBs to put in place plans for Effective Solid Waste Management – especially in Collection and Transport
- Identifying appropriate Resource Recovery and Processing options based on the local contexts.
- Providing the required tools, tackles and equipment to the workforce to be able to implement the plans effectively.
- Ensure centralized and decentralized monitoring and feedback systems are in place to not only monitor the progress but to ensure course correction where necessary.
- Put in place a system for continuous and effective stakeholder engagement necessary to ensure compliance in the short run and sustainability in the long run.

4.3 Policy and Strategy Considerations

4.3.1 Policy approach

All efforts shall be made to achieve paradigm shift from “Linear Approach” to “A Circular Economy Approach to Solid Waste Management” as an opportunity for developing “Social and Private Sector Entrepreneur” in the SWM; and by encouraging the reputed institutions to take up research and support the ULBs in this endeavour.

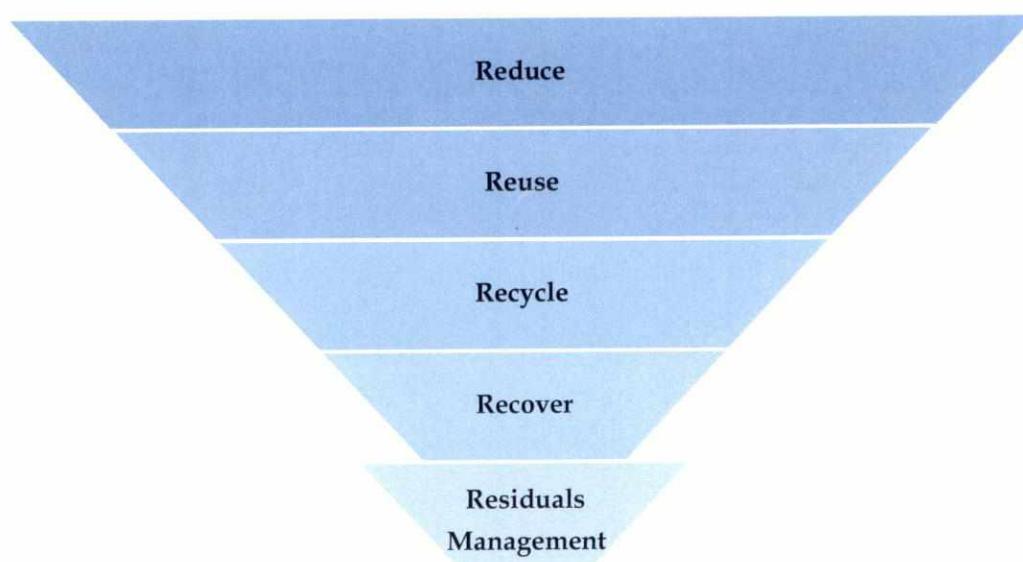


4.3.2 Zero Waste & Circular Economy Approach:

Zero waste approaches aim to reduce and ultimately eliminate garbage. The 5 R pollution prevention hierarchy is a useful planning tool for moving towards zero waste. Once all achievable opportunities at a higher level have been taken, only then should the next level be looked at. For example, opportunities for recycling should be explored only after all opportunities for reduction and reuse of materials have been exhausted.

4.3.3 Benefits:

- Make waste management affordable, as the overwhelming majority of the collected waste will be recycled
- Reduction in the disposal costs; as minimum waste will be reaching the landfill and reduce the pressure on the land requirements for land fills
- Generate revenue from the sale of recyclable materials;
- Generate revenue from the sale of compost



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4.4 Policy Commitment:

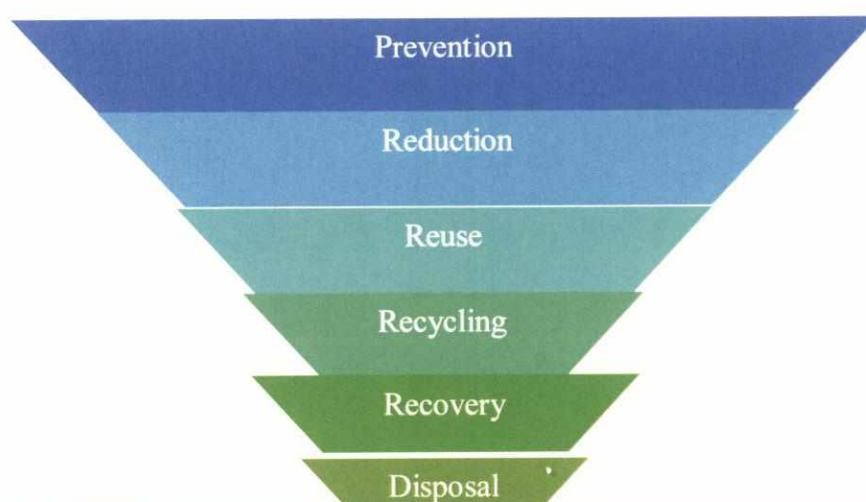
The Coimbatore Corporation is committed in providing clean and safe environment by giving priority for the effective implementation of Solid Waste management Rules 2016.

Policy aims at achieving the Service Level Benchmarks (SLBs) by 2023 and achieving reduced quantity of solid waste reaching the landfill and not more than 20%; over a period of 10 years

Efforts shall be initiated for having SWM Plan including the treatment and landfill for rejects.

4.5 Waste Hierarchy

While formulating the policies and programs, thrust shall be given to the following waste management hierarchy by all the concerned:



PREVENTION BEING THE MOST PREFERRED OPTION AND THE DISPOSAL AT THE LANDFILL BEING THE LEAST

4.6 Regulatory Compliance:

- The ULBs shall incorporate the provisions of SWM Rules, 2016 in their bylaws for effective implementation.
- The ULBs shall take necessary action for obtaining authorisation and the provisions of SWM Rules, 2016 for setting up waste processing, treatment or disposal facility, if the volume of the waste exceeding 5 MT per day including sanitary landfills from the State Pollution Control Board.
- ULBs shall prepare and submit annual report in form IV by 30th April of the succeeding year to the Director of Municipal Administration.

- The District Collector shall review the performance of the local bodies at least once in a quarter on the implementation of solid waste management rules and take corrective measure in consultation with CMA.

4.7 Planning:

- The Town Planning Department to ensure in the master plan of the bulk waste generators regarding provision for on-site setting up solid waste processing facility (*Action: DTCP*).
- The ULBs shall complete the process of identification and allocation of suitable land for setting up of processing and disposal facilities of solid waste and incorporate the same in the master plan (land use plan) within a period of six months. (*Action: ULBs*)
- All the SEZ, Industrial Estate and Industrial parks shall earmark 5% of the total area of the plot or minimum 5% of plot area or sheds for recovery and recycling facility, in case of upcoming one. In case of existing SEZ / IE / IPs the TNUFIDCO and TNSPCB to study the feasibility for incorporating the same depending upon the unallotted plots and to ensure incorporating the provisions in the master plan. TNSPCB to ensure the compliance through their concerned management under the provisions of the Water Prevention & Control of Pollution (P&CP) Act 1974 as amended and the Air (P&CP) Act 1981 as amended. (*Action: TNSPCB*).
- Arrangements for door to door collection of segregated solid waste from all Households including slums and informal settlements, Commercial, Institutional and Other non-residential premises;
- System to recognize organizations of waste pickers or informal waste collectors and promote integrating in the solid waste management Plan;
- Facilitate formation of SHGs, provide identity cards and thereafter encourage integration in solid waste management including door to door collection of waste;
- Setting up of Dry Resource Centers/Material Recovery Facilities (MRF) or Secondary Storage Facilities with sufficient space for sorting of recovery materials;
- To inventoried the vegetable/fruit/flower/meat/poultry /fish market and to study the feasibility for promoting decentralized compost plant/Bio-methanation plant at suitable locations in the markets or in the vicinity of the markets;
- Inventorize parks and gardens and to study the feasibility for treating horticulture waste separately;
- Study the requirement for treating segregated bio-degradable with the processing facility like compost plant, bio methanation plant or any such facility;

- To prepare street sweeping plan of daily, or on alternate days or twice a week depending on the density of the population, commercial activity and local situation.

4.8 Stakeholder Engagement:

Involvement of citizens especially for achieving segregation at source is very important. The ULBs to promote home composting, bio-gas generation systems, decentralized processing of waste at community level; subject to control of odor and maintenance of hygienic conditions around the facility.

- To inventoried the manufacturers or brand owners of disposable products, in a phased manner, such as tin, glass, plastic packing and sanitary napkins and diapers and seek financial assistance to the ULBs for establishing the waste management system. The identified manufacturers and brand owners to be encouraged for taking up CSR programs in waste management system and support the ULBs.
- The ULB to implement a scheme for registration of waste pickers and waste dealers and complete within a period of six months.
- The ULB shall build the capacities of RWAs on solid waste management and the technologies available for de-centralised processing facilities.

4.9 Decentralized facility:

The ULB shall inventorize the bulk waste generators (Waste generation rate exceeding 100 kgs per day) to ensure segregation at source and also to explore the possibility for de-centralised facility for handling wet waste and to prepare action plan within six months.

- Inventorize the bulk waste generators (Waste generation rate exceeding 100kgs per day) / residential welfare and market associations / gated communities and institutions more than 5000 sq.m of the area / hotels and restaurants to ensure the segregation of waste at source for handing over recyclable material to either the authorized waste pickers or authorized recyclers and to assess the feasibility for developing on site composting / bio methanization for treating bio degradable waste
- It is proposed to introduce incentive a property tax rebate for those bulk generators implementing on-site segregation and treatment facility for full quantity of waste generated.

4.10 User Fee

As per Rule 15 (f) of Solid Waste Management Rules, 2016 of Ministry of Environment, Forest and Climate Change of GOI, the local authorities shall prescribe from time to time User Fee as deemed appropriate and collect the fee from the waste generators on its own or through authorized agency.

It is proposed to levy user fee for SWM on waste generators / owners and occupiers of all buildings and lands in the ULBs along with property tax as indicated here under:

4.11 Penalties:

Impose fines for littering, open defecation and disposing waste indiscriminately etc., on persons or agencies in ULB.

Prohibition of open burning of waste on lands and at landfill site. Any person or body responsible for such burning shall be liable to pay any person or body responsible for such burning, shall be liable to pay environmental compensation of Rs. 5,000/- (Rupees Five Thousand only) in case of simple burning, while Rs. 25,000/- (Rupees Twenty-Five Thousand only) in case of bulk waste burning. Environmental compensation shall be recovered as arrears of land revenue by the competent authority in accordance with law.

ULB shall encourage the citizens for bringing to the notice of the ULB in case of any one indulging in the open burning.

4.11.1 Whoever fails to intimate about organizing an event or gathering of more than 100 persons or fails to ensure segregate the waste at source and hand over to segregated waste to waste collector or agency specified by the ULB, shall be liable to pay the penalty of Rs 5,000/- plus double the clean-up cost as estimated by the competent person of the ULB.

4.11.2 In case of mixing of Bio-medical waste with non-bio medical waste, the same shall not be lifted. Non-biomedical waste as defined vide Bio-Medical Rules 2016. In case of non-segregation of waste properly, the ULB shall issue a notice to the healthcare facility with a copy to TNSPCB requesting them to initiate appropriate action under the provisions of Bio-medical Rules, 2016, on the culprit.

4.11.3 Non-biomedical waste as defined vides Bio Medical Rules, 2016. In case of Non-Segregation of waste properly, the ULB shall issue a notice to the healthcare facility with a copy to TNSPCB requesting them to initiate appropriate action under the provisions of Bio- medical Rules, 2016, on the culprit.

4.12 Health and Safety

Protecting health and safety of all the workers handling solid waste is to be given priority. ULBs shall ensure Personal Protective Equipment (PPE) including uniform, florescent jacket, hand gloves, rain coats appropriate foot wear and mask to all workers handling the solid waste and to ensure the same used by the workers.

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4.13 Special Permissions

ULBs shall introduce a permit system for organizing an event or gathering of more than 100 persons at any unlicensed place. The organizers shall submit solid waste management and area clean-up program after the event is over, at least three working days in advance of the event.

4.14 Encouraging usage of Refuse Derived Fuel (RDF)

The TNSPCB shall inventoried the units using fuel and located within 100 Kms from solid waste-based RDF plants and to ensure to replace at least 5% of their fuel requirement with RDF. The progress shall be reviewed periodically in the state level advisory board.

4.15 Separate restrictions for the land fill management

All efforts shall be made to allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre- processing rejects and residues from waste processing facilities to go to sanitary landfill. All efforts shall be made to restrict maximum quantity of 20% of the solid waste reaching the landfill.

4.16 Existing unscientific dump sites

ULBs to inventoried all the existing unscientific dumpsites and prepare plan of action for Bio-mining or Bio-remediation or scientifically capping as per the feasibility. The progress shall be reviewed periodically in the state level advisory board.

4.17 Awards

To enhance the involvement of the stakeholders and to recognize the good performance, the ULB to introduce an annual award scheme in the following categories and awarded.

- ✓ To recognize onsite solid waste treatment facility developed by Institutions, Commercial Establishments, Hotels & Restaurants, Hospitals, Apartments, Gated Communities, IALAs and Educational Institutions, to encourage onsite segregation and disposal resulting into reduced quantity reaching the secured landfill site.

CHAPTER – V
IMPLEMENTATION STRATEGY

5.1 Implementation Strategy:

Door to Door Collection	<ul style="list-style-type: none"> • Wet waste collection on daily basis • Dry waste collection on weekly basis (every Wednesday) • Domestic Hazardous waste like that napkin, diapers will be collected separately during wet waste collection on a daily basis. • Domestic Hazardous waste like that tube light, paint container and other waste will be collected weekly basis. • E waste collection on monthly basis • C & D waste on need basis • Waste will not be collected from the Bulk waste generators
Source Segregation	<ul style="list-style-type: none"> • 100 % at Source Segregation ensured through sustainable IEC activities engaging Animators(Green Ambassadors)
Transportation	<ul style="list-style-type: none"> • Primary collection at door step using Battery Operated vehicles and Light commercial vehicles with proper route chart and trip chart • Eliminating Secondary storage Bins on roadside • Minimizing secondary transportation
Scientific Disposal of Waste	<ul style="list-style-type: none"> • Disposal of wet waste through composting and Establishing Micro level Compost Centers , On Site Composting Centers on Decentralized approach for processing and disposal of wet waste and green waste • Disposing the dry waste to the identified vendors for recycling • Plastic waste and other recyclable waste to dispose to the recyclers • Other non-recyclable but combustible to dispose to the vendors who need it use as furnace fuel or to dispose through Pyrolysis plant through PPP mode. • Other non-recyclable and non-combustible waste and silt are disposed along with C & D waste • Dead animals disposed scientifically through burial method in the earmarked site • Hazardous waste and E waste to collect and store at Resource Recovery Center by Municipality and periodically dispose the same to PCB for further process • C & D waste to collect and store in the earmarked location and to use on needy basis.
IEC activities , Capacity buildings and motivation	<ul style="list-style-type: none"> • Periodical meeting with RWAs , NGOs, elected body members Bulk Waste Generators and periodical training to sanitary workers • Updating the knowledge of the personnel involved in SWM

5.2 SWM Monitoring Cell

The Municipality will constitute a SWM Monitoring Committee under the Chairmanship of Municipal Chairman comprising the Commissioner as Member secretary and five other members including Health officer/ sanitary officer, Engineer, Town planner, and two elected representatives.

This committee will meet once in a month and discuss the implementation strategy and facilitate the ULB for implementation of SWM

5.3 Home Composting

Municipality will take all effort to promote the Home Composting practice among the citizen through intensive campaigning.

5.4 City Level Technical Advisory Group for Solid Waste Management

A technical advisory group for solid waste management will be formed by individual drawn from various institutions and the cross section of the society. The group will closely work with the corporation to implement solid waste management.

CHAPTER – VI DETAILED ACTION PLAN

6.1 Door-to-Door Collection

- As of now 1352 Push Carts are deployed for collection from the Households. It is Proposed to replace all Push Carts by BOV's and LCV's
- As of now 52 Battery Operated vehicles and 50 LCV's are deployed for collection from households. It is Proposed to procure additional 796 BOV's at an estimated cost of RS.10432.80 Lacs and 102 LCV's at an estimated cost of Rs.572.20 Lacs under Smart Cities Mission Program for D2D collection. Tenders already received for the same.
- As of now 1384 sanitary workers are available for D2D collection as against the total requirement of 2164 Nos – Proposed to outsource the gap of 780 workers. Action taken for calling for tenders.

6.2 Source Segregation

- Earnest and continuous efforts are being taken to encourage Citizens/Households to practice segregation of wastes into three categories namely Wet, Dry and Domestic hazardous wastes
- Flagship programmes namely SUNYA Project, Clean City Programme, Guinness World Record for the Largest Recycling Lesson , Swachh Bharat Mission, Capacities Project, e-waste management programme, Swachh School Programme, etc., is being implemented for creating awareness through Citizen Engagement
- As of now 80% Households practice Source segregation
- It is targeted to achieve 100% Source segregation by 31-04-2019

6.3 Litter Bins & Waste Storage Bins

- As of now 2500 Litter Bins have been placed in Commercial areas
- Action taken for procurement of additional 500 Sets of Pole Mounted Twin Litter Bins (Green & Blue) with Permanent Structure under Swachh Bharat Mission Programme
- 2589 Nos of Road side waste storage bins of capacity 1100 Lts, 600 Lts, 2.5 Cu.m capacity are available
- All the Road side waste storage bins will be removed in a phased manner once BOV's and LCVs for D2D Collection are put in place thereby the wards will be **Sans Bin**

6.4 Waste Transfer Stations

- 3 Waste Transfer Stations have been constructed at three locations Viz., Peelamedu, Ukkadam and Sathy Road with a provision for collection and storage of Wet and Dry wastes separately
- 2 Nos are now in operation with a handling capacity of 300 TPD and 1 transfer station of 125 TPD capacity at Sathy Road is temporarily closed due to road widening work by the NH Department for Fly over construction
- Secondary Transportation of wastes from transfer station to the waste processing and disposal facility is now being carried out by a Private Operator through PPP arrangement

6.5 Public Sweeping

- Street Sweeping in commercial areas is carried out twice in a day including night sweeping
- As of now 874 sanitary workers are available for street sweeping as against the total requirement of 1324 Nos – Proposed to outsource the gap of 450 workers – Action taken for calling for tenders

6.6 Wet Waste Processing

- Under De-centralised waste processing of wet wastes of 306 MTs for which action taken for establishing 69 MCC's at the ward level
- Work is under completion stage for 20 MCC's and 49 MCC's is under various stage of construction under Smart Cities Mission Fund
- Under Swachh Bharat Mission it is to establish Home composting in 50,000 Households in 2019

6.7 Dry Waste Processing

- 4 Dry Waste Resource Centers are now under operation at Vellalore site, Appanaickenpalayam, Kavundanpalayam and Sai Baba Colony.
- Dry Recyclable Waste Collected from the households and commercial establishments at source are transported to the Dry Waste Resource Centers for further sorting and final disposal.
- Additional 5 Dry Waste Resource Centres already proposed under SBM Scheme – 3 Facilities completed & is operational and 2 facilities under construction

6.8 MRF Facility

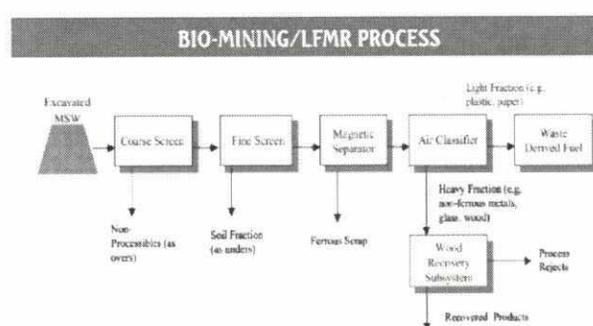
- Material Recovery Facility available at the Centralized waste processing plant at Vellalore being operated by a private operator through PPP arrangement

6.9 Scientific Landfill

- Sanitary Landfill Facility is established through PPP Mode and the same is under Operation since 2011
- About 100 TPD of Comingled waste (Mixed Waste) not found suitable for waste processing, Pre-processing rejects, Post-processing rejects and inerts generated daily at the Compost Plant is disposed of at the Sanitary Landfill.
- 3 Old & Abandoned MSW Dumpsites at Ondipudur , Kavundampalayam and Vellalore sites has already been Scientifically Capped and being monitored by a Private operator through a PPP Project

6.10 Disposal of Legacy Waste and Reclamation of Dump Site At Vellalore

- Topographical/Contour Survey and Quantification of Old Legacy Wastes was conducted using Mobile Mapping Equipment (LIDAR TECHNOLOGY) at Vellalore site in order to undertake any one of the projects subject to their feasibility under the Remediation and Closure Plan Options
- As per the Topographical/Contour Survey it has been assessed that about 15,50,070 Cu.m of Old Wastes is already dumped in Open Ground in 68.56 Acres land at Vellalore site
- In order to dispose of the 15, 50,070 Cu.m of Old Waste in a scientific manner it is proposed to undertake Bio-mining/Landfill Mining and Reclamation (LFMR) Process.
- The legacy waste of 15.00 Lakhs Cu.m lying at Vellalore an estimate for Bio-mining/Landfill Mining and Reclamation (LFMR) Process has been prepared for Rs.99.11 Crores which is sanctioned by CSCL Board and proposed sent to TUFIDCO to be placed for approval by State High-power Sanction Committee



6.11 Construction & Demolition waste

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- It is estimated that about 100 TPD of C&D waste is generated in the city and 17 location has been identified for collection and storage of the wastes
- Falling in line with the Construction and Demolition Waste Management Rules, 2016 the CCMC had invited bids for Setting-up of 100 TPD Capacity Processing and Recycling Facility for Construction and Demolition Waste in Coimbatore City through PPP Mode and work was awarded to a private firm
- Due to Perceivable Non-performance of the Concessionaire and default on the part of the firm, the contract agreement already concluded with the firm was terminated
- Action has been taken for inviting fresh tenders for the above mentioned work

6.12 Domestic Hazardous Waste& E- Waste Collection

- Domestic Hazardous waste generated daily such as Diapers, Napkins, blood stained cottons, etc. are being collected separately during the segregated waste collection on daily basis and the same is disposed by incineration process through the incinerator in Micro Composting Center and Resource recovery center.
- Action is being taken to collect the other domestic hazardous waste such as discarded paint containers, garden pesticides and chemical agents, Detergent containers, etc., on monthly basis particularly on every fourth Saturday. Citizens are being informed in this regard. It is proposed to store the collected domestic hazardous waste at Resource Recovery Center and will be handed over periodically to Pollution Control Board for further processing and disposal and the relevant register and accounts for this disposal will be maintained for reference and record. This will be practiced from 01.06.2019
- Storage facilities for E- Waste is also planned to be provided in the proposed resource recovery centers. It is also planned to collect the E-Waste from the door steps and will be stored in the earmarked location in the Resource Recovery Centers and the same will be disposed by handing it over to recyclers and keeping registers for record. This will also be practiced from 01.06.2019
- The citizens are being continuously informed to hand over the domestic hazardous waste and E-Waste on a specific day mentioned by the municipality or to deposit the same directly to the E-Waste collection center/Hazardous waste collection center established Resource Recovery Center

6.13 Biomedical waste

- Generated Biomedical Waste in Coimbatore City Municipal Corporations the Private and Government Hospitals are handed over to a private operator, who is the authorized facilitator in Coimbatore by TNPCB, who in turn process them in the existing Bio medical waste treatment facility.

- Register Containing the Name, Location, and the name of disposal facilitators of Nursing homes and Hospitals are maintained by the ULB for reference and information.
- The clinics and Nursing homes have been sensitized to prominently display the name of authorized facilitator in their place for the awareness of the public at large

6.14 Plastic waste

- Continuous raids undertaken for below 50 micron thickness plastics and single use plastics
- Enforcement and imposed fines of Rs. 50,000/- in a year
- Notices were issued to all traders to avoid single-use plastics
- Alternate products for plastics are being marketed at *PASUMAI ANGAADI* at Corporation Main office under Smart City Mission
- Recently Conducted at two days EXPO (*MANCHA PAI*) for alternate products on 27-10-2018

6.15 Bulk Waste Generators (BWGs)

- 432 Bulk Waste Generators identified and issued notice for Onsite Composting
- 29 Bulk Waste Generators Practicing Onsite Composting
- 50 Apartments engaged private service provider “No Dumping” for Waste Processing and Disposal

6.16 Refuse Derived Fuel (RDF)

- 400 TPD Capacity RDF Production Plant proposed at Vellalore through PPP Mode
- Project under the caption Nationally Appropriate Mitigation Action (NAMA) Project for “Waste Solutions for a Circular Economy in India” is taken up through German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMU), UK's Department of Energy and Climate Change (DECC), Danish Ministry of Energy, Utilities and Climate (EFKM), Danish Ministry of Foreign Affairs (MFA) and European Commission for funding climate change projects is taken up for implementation with the following Project Activities/ components:
 - ✓ Creating a role-model Source Segregation System
 - ✓ Setting-up semi-mechanized Material Recovery Facilities
 - ✓ Upscaling existing and setting-up new Recycling Facilities
 - ✓ Enabling viable operation of existing Compost Facilities and piloting innovative organic waste treatment technology in new plants

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- ✓ Supporting Refuse Derived Fuel (RDF) Co-Processing in cement plants through model RDF Facilities

6.17 Preventing Solid waste from entering into Water Bodies

Action for installation of suitable mechanism such as screen mesh, grill, nets, etc., in water bodies such as Nallahs, drains to prevent solid waste entering into water bodies has already been initiated

6.18 Notification of Bye-laws, User Fee and Penalty Provision

- The Coimbatore City Municipal Corporation Solid Waste Management By-Laws, 2016 has already framed by the CCMC for timely implementation. The same has duly been notified in the District Government Gazette for its full compliance under the 2016 Rules.
- All the owners/occupiers of the households, Shops, Restaurants, Office Buildings and Shopping Complexes shall pay the SWM User Charges based on their property tax.
- The Corporation is already collecting user charges from Commercial establishments such as hotels, hospitals, educational institutions, etc.,
- various penal clauses against violators was already provided has been provided in the SWM Bye-laws
- The Coimbatore City Municipal Corporation Solid Waste Management By-Laws, 2016 has already framed by the CCMC for timely implementation. The same has duly been notified in the District Government Gazette for its full compliance under the 2016 Rules.
- All the owners/occupiers of the households, Shops, Restaurants, Office Buildings and Shopping Complexes shall pay the SWM User Charges based on their property tax.
- The Corporation is already collecting user charges from Commercial establishments such as hotels, hospitals, educational institutions, etc.,

6.19 Citizen Grievance Redressal

Resolution of Complaints is done within SLA in Swachata App

6.20 Constitution of City Level Technical Advisory Group for Solid Waste Management

A technical advisory group for solid waste management will be formed by individual drawn from various institutions and the cross section of the society. The group will closely work with the corporation to implement solid waste management.

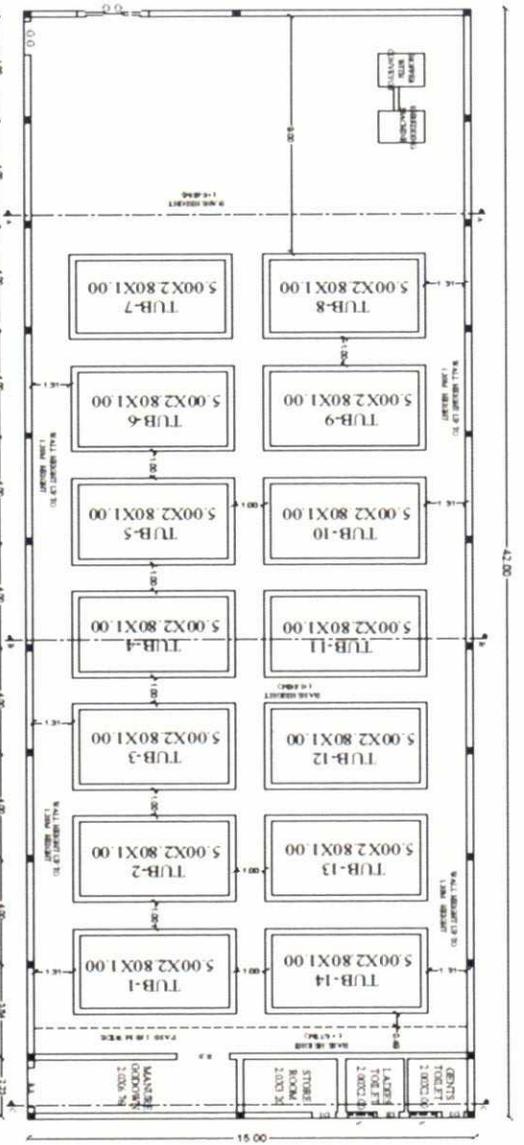
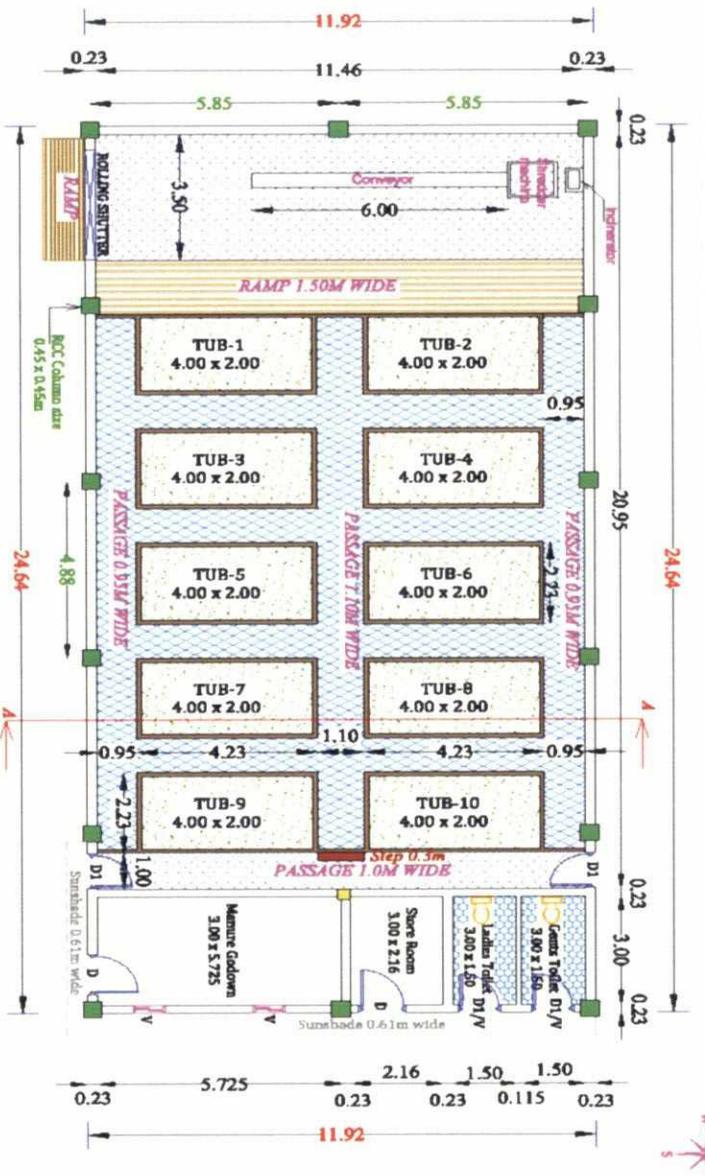
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6.21 Abstract Micro Composting Centres

S. No	Zone	2.00 MT MCC's	5.00 MT MCC's	Total Units	Total Tonnage
1	North	0	13	13	65.00 MT
2	East	0	8	8	40.00 MT
3	West	5	16	21	90.00 MT
4	South	2	12	14	64.00 MT
5	Central	6	7	13	47.00 MT
	TOTAL	13	56	69	306.00 MT

6.22 Lay Out Plan of The Proposed 2.00 Mts Capacity MCC

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LOCATION OF MCC's PLOTTED IN GOOGLE MAP



6.23 MCC's Already Taken Up By CCMC In Phase 1

S.No	Zone	Ward No.	Location of MCC	Capacity in MTs
1	West	23	Uzhavar Santhai at Cowly Brown Road in R.S.Puram	5.00
2	West	23	Corporation Open Site at Sir Shanmugam Road in R.S.Puram	5.00
3	West	24	Corporation Open Site at Valakkai Mandi, Thadgam Road	5.00
4	Central	74	Corporation Reserve Site at Parri Nagar (Near Mano Nagar)	5.00
5	South	77	Chokkampudur Crematorium Premises	5.00
6	South	79	Subramaniapuram Scheme Road (Near Ward Office)	5.00
7	Central	81	CMC Colony Variety Hall Road	5.00
8	South	84	SI Ward Office, Kempatty Colony	5.00
9	South	85	Corporation Reserve Site at Kurinchi garden	5.00
10	Central	4	Corporation Reserve Site at Abirami Nagar	2.00
			TOTAL CAPACITY	47.00

6.24 MCC's Already Sanctioned in Phase 2 (47.00 Mt) Smart Cities Mission Scheme

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S. No	Zone	Ward No.	Location of MCC	Capacity in MTs
11	Central	86	Ukkadam Sewage Farm Premises	5.00
12	East	36	Corporation Reserve site in Brindhavan Nagar	5.00
13	North	44	Sanitary Inspector's Ward Office Premises in Ramasamy Nagar	5.00
14	South	90	Kovaipudur Q-Block Near Ph-III Tank	5.00
15	West	9	Old MSW Dumping site at Kavundampalayam	5.00
16	West	10	MGR Market Premises at Mettupalayam Road	5.00
17	West	22	Old Vehicle Maintenance Workshop at Bharathi Park Road 2nd Cross	2.00
18	West	17	Onapalayam Burial Ground Premises	2.00
19	North	4	AppanaickenPalayam Burial ground Premises	5.00
20	West	74	Corporation Reserve Site at Anna Nagar	2.00

6.25 MCC's Proposed To Be Taken in Phase 3 Smart Cities Mission

S.No	Zone	Ward No.	Location of MCC	Capacity in MTs
21	West	5	Mullai Nagar Old Compost Yard	5.00
22	West	18	Sundapalayam Burial Ground Premises	5.00
23	West	16	VNR Nagar Burial Ground Premises	5.00
24	West	15	Jeeva Nagar Sunnambu Kalavai Premises at Marudhamalai Main Road	5.00
25	West	19	Veerakeralam Burial Ground Premises	5.00
26	West	17	Corporation Reserve Site at Balaji Nagar Near Marudhamalai	5.00
27	West	13	Venkitapuram Burial Ground Premises	5.00
28	West	14	Corporation Reserve site at Anna Nagar	2.00
29	West	22	Corporation Open site at Bharathi Park MTP Road Junction	2.00
30	West	22	Corporation Reserve Site at Murugan Mills Quarters	5.00
31	West	21	Panaimarathur Burial ground	5.00

6.26 MCC's Proposed To Be Taken in Phase 3 Smart Cities Mission

S.No	Zone	Ward No.	Location of MCC	Capacity in MTs
32	West	10	K.S.Ramasamy Street	5.00
33	West	24	Arokiyasamy Road Music College Premises	5.00
34	East	66	Corporation Reserve Site at Rajiv Gandhi Nagar, Uppilipalayam	5.00
35	East	59	Ondipudur Thiruvalluvar Nagar Pallam (Opp to Burial Ground)	5.00
36	East	58	Burial Ground Premises at Ramanujam Nagar Varadharajapuram	5.00
37	East	57	G .V .Residency open space	5.00
38	East	33	Corporation Reserve Site at Vaiyapuri Nagar, Kalappatti	5.00
39	East	56	Corporation Reserve Site at HUDCO Colony Peelamedu	5.00
40	East	63	Open Space Reserve near Singanallur Lake	5.00
41	South	86	Ponvizha Nagar Ukkadam	5.00
42	South	87	Chinna Sudukadu at Kuniyamuthur	5.00
43	South	91	Corporation Reserve Site at Om Sakthi Nagar	5.00
44	South	97	Behind Aliyar MSR Phase-1	5.00
45	South	93	Corporation Reserve Site at Min Nagar	5.00
46	South	94	Sengappa Kona Street	2.00
47	South	95	Chathiram street (Near ward office)	2.00
48	South	100	Tharun Garden	5.00
49	South	98	Elango Nagar	5.00
50	Central	74	Veerappa Devar Colony	2.00
51	Central	72	Chellappa Gounder street, Kattoor	2.00
52	Central	72	VOC Park Premises (Near BOOT House)	5.00
53	Central	50	Corporation reserve Site at Gandhi Nagar	5.00
54	Central	68	Valliammal street (80 feet road)	2.00
55	Central	54	Semozhi Poonga Premises	2.00
56	Central	53	C.K.Colony Income tax quarters (Opp to OMNI bus stand)	2.00
57	Central	45	Sanganoor Narayanasamy Street Burial Ground Premises	5.00

58	Central	52	Shastri Nagar Burial Ground Premises behind Sathy Road Ramp	5.00
59	North	41	Gandhi Ma Nagar Open Ground	5.00
60	North	41	Srivaari Garden, Ramakrishnapuram (Behind MSR Tank)	5.00
61	North	38	Vilankurichi Road Old Burial Ground Premises at Peelamedu	5.00
62	North	30	Corporation MSR Premises at Vilankurichi Road Saravanapatti	5.00
63	North	43	Valarmathi Nagar	5.00
64	North	55	Old Vandipettai Ground at Sengadu	5.00
65	North	26	Vellakinaru Housing Unit (Near water tank)	5.00
66	North	1	Daily Market Premises at Thudiyalur	5.00
67	North	40	V.G Rao Nagar Reserve site at Avarampalayam	5.00
68	North	42	Old Compost Yard premises at Athipalayam Road, Chinnavedampatti	5.00
69	North	31	Vetri Nagar (back side) at Saravanampatti in Ward No.31 of North zone	5.00
			TOTAL CAPACITY	259.00

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6.27 Time Frame on Action Plan

Sl. No	Action Plan	Timeline
1	100 % Door to Collection	Before 30.09.2019
2.	100 % Source Segregation	Before 30.09.2019
3	Prevention of burning and throwing the waste to the water bodies	Achieved to prevent SWM rules 2016 Byelaw framed and continuous monitoring
4.	Communicating the Reduce Reuse Recycle to the community-	Before 30.09.2019
5.	Bye law pertaining to the Solid waste Management Rules 2016 and Plastic waste management Rules 2016	Framed and notified
7.	Processing facility for Wet Waste	Before 31.08.2019.
8	Disposal Mechanism of Dry Waste	Before 31.08.2019.
9	Construction of Resource Recovery Center storage facility for domestic hazardous waste and E waste	Achieved.
10	Identifying the storage facility and disposal mechanism for construction debris	Under Process. Before 31.12.2019
11	Bio mining and RDF Plant	Before 31.03.2020.
12	Purchase of Battery Operated Vehicle & Light Commercial vehicle	Before 31.08.2019.
13	Bin Free City	Before 31.03.2020.
14	Integration of informal sectors/ SHGS	Before 31.12.2019.
15	Formation of SWM monitoring Committee at Municipal Corporation level	Before 31.08.2019.
16	Dump free city	Before 31.03.2020.

*mm
nackm
11/4/19*

*12/11/19
CHD*

*11/04/19
EE*

CS/14

*KS
21/04/19*
**COMMISSIONER
COIMBATORE CORPORATION**