



Ministry of Housing & Urban Affairs
Govt. of India

CAPACITY BUILDING PROGRAMME ON IMPLEMENTATION OF WASTE MANAGEMENT RULES, 2016



Ministry of Environment, Forest &
Climate Change, Govt. of India



Tool Kit on Solid Waste Management Rules 2016



Central Pollution Control Board



National Productivity Council

TOOLKIT ON IMPLEMENTATION OF SOLID WASTE MANAGEMENT RULES, 2016

**Guidelines of
implementation
for SWM
Rules, 2016**

**Roles &
responsibilities
of stakeholders**

**Successful
case studies**

**Sample RFP
for door to
door collection
& transportation
of waste**

Your Guide For
**Safe & Scientific Management of
Solid Waste**

1st Edition
June, 2019

Preface

National Productivity Council (NPC) is pleased to present to you the 'Toolkit for implementation of solid waste management rules, 2016'. This toolkit has been crafted specially for all the stakeholders involved in the generation, collection, storage, transportation & treatment of solid waste.

The toolkit has six sections broadly classified under environmental issues of guidelines of implementation for SWM Rules, 2016, roles and responsibilities of various stakeholder, successful case studies and sample RFP for door to door collection & transportation of solid waste. It provides useful tips, dos and don'ts, methods and practices that should be followed in the solid waste management.

The toolkit has been brought together by a team of good technocrats and environmentalists from various regulatory authorities in the country. It has been carefully reviewed by experts.

This toolkit is to ensure safe and scientific management of solid waste for all the citizens everywhere at all times.

NPC would welcome any suggestions and feedback on this publication so that 'The Toolkit' becomes a trusted companion and part of all stakeholders.

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Note: 1. All pictures used in the toolkit are from various sources, which have been duly referred to.
2. This publication is purely for education purpose and not for commercial purpose.

MASTER INDEX

Part I	Guidelines of implementation for SWM Rules, 2016	1
	Sample Proformas	
	a. Proforma for assessing the gaps in service delivery	44
	b. Methodology of conducting sample survey	46
Part II	c. Proforma for data collection	55
	d. Proforma for need assessment	65
Part III	Annex case studies of Panaji , Warangal, Surat, Pune & Mumbai	72
Part IV	Type of vehicles, equipment and technology to be used for different level of cities	87
Part V	Model RFP for door to door collection and transportation of waste	95
Part VI	List of SWM Empanelled Agencies BY GOI	182

CONTENTS

Part - 1 : Guidelines of Implementation for SWM Rules, 2016

1.0	Introduction	1
2.0	Applicability of Rules	1
3.0	The Mandates	2
3.1	Duties of Waste Generators	2
3.2	Measures to be taken by Local Authorities to Ensure Compliance by Waste Generators	4
4.0	Duties of Authorities/Stakeholders	6
4.1	Ministry of Environment, Forest and Climate Change (MoEFCC)	6
4.2	Ministry of Housing & Urban Affairs (MoHUA)	7
4.3	Ministry of Chemicals and Fertilizers (MoC&F)	9
4.4	Ministry of Agriculture & Farmers Welfare (MoAFW)	9
4.5	Ministry of Power (MoP)	11
4.6	Ministry of New and Renewable Energy (MNRE)	11
4.7	Secretary, Urban Development (States & UTs)	12
4.8	Secretary, Village Panchayats or Rural Development Department	15
4.9	District Magistrate or District Collector or Deputy Commissioner	17
4.10	Central Pollution Control Board (CPCB)	17
4.11	State Pollution Control Board or Pollution Control Committees	19
4.12	Local (Municipal) Authorities, Village Panchayats of Census Towns & Urban Agglomerations	21
4.13	Manufacturers or Brand Owners of Disposable Products and Sanitary Napkins & Diapers	30
4.14	Industrial units Located within 100 km from Refuse Derived Fuel (RDF) and 'Waste to Energy' Plants based on Solid Waste	31
5.0	Timeframe for Implementation	32
6.0	Need of Institutional Strengthening as well as Training and Capacity Building of Local Authorities to Facilitate Implementation of the Rules Effectively	33
6.1	Training Programs and Handholding where Required	34
6.2	Financial Allocations	35
	Annexure - A	41

1.0 Introduction

Solid waste management is one among the important components of Swachh Bharat Mission. It has a direct impact on the health, environment, and quality of life of the citizens and on the aesthetics of the urban areas. With a view to improve Solid Waste Management in urban areas in the country, erstwhile Ministry of Environment & Forests (MoEF), Govt. of India had notified Municipal Solid Waste (Management & Handling) Rules, 2000. The time limit up to 31 December, 2003 was prescribed to implement these rules. However, for various reasons best known to municipal authorities, the rules could not be implemented in an appropriate manner by most of the urban local bodies in India. Piece meal approach was adopted by the local authorities. A survey of compliance of MSW Rules, 2000 by class-I cities in India was carried out and it was revealed that even after deadline of three years given under the rules was over, only about 9% waste was treated and less than 1.5% waste was disposed off scientifically or safely. The situation did not improve even after 10 years of the dead line. In year 2013, the Central Pollution Control Board (CPCB) reported that only 68% waste was being collected in the urban areas in the country. Out of total waste

generated, about 19% waste was being treated and a very insignificant portion of 1.6% waste was being disposed off in a scientific manner. Looking to the dismal performance of the urban local bodies over a period of 13 years; Ministry of Environment, Forest & Climate Change (MoEFCC), Govt. of India decided to re-visit the provision of rules and come up with a fresh set of comprehensive rules



which may address the issues of solid waste management in the country holistically, bridge the gaps noticed and facilitate efficient and expeditious implementation of the rules. The process of framing new rules was initiated in year 2013 and the new rules have been finally notified on 8 April, 2016 in supersession of old rules. The new rules have been named as **Solid Waste Management Rules, 2016**.

This toolkit has been developed for assisting different stakeholders in the management of solid waste as per Solid Waste Management Rules, 2016.

2.0 Applicability of Rules

The earlier MSW (M&H) Rules, 2000 were applicable to municipal authorities only. The applicability of the new Solid Waste Management Rules, 2016 has now been increased to cover, besides urban local bodies in the country, all urbanised villages having a population of over 5000 and declared as census towns as per national census 2011. These rules are also now applicable to large villages declared as census towns, the applicability of these rules has been extended to notified areas, notified industrial townships, areas under the control

of Indian Railways, airports, airbases, ports and harbours, defence establishments, special economic zones, state and central government organisations, places of pilgrims, places of religious & historical importance as may be notified by respective state government from time to time and to every domestic, institutional, commercial and any other non residential solid waste generator situated in the areas covered under the rules.

3.0 The Mandates

It is significant to note that the new set of Solid Waste Management (SWM) Rules, 2016 makes every waste generator accountable for the management of solid waste that he/she generates.

SWM Rules, 2016 mandate every waste generator to discharge his obligations specified in the Rule 4 as under:

3.1 Duties of Waste Generators

- (1) Every waste generator shall:
 - a) segregate and store the waste generated by them in three separate streams namely bio-degradable, non biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the direction or notification by the local authorities from time to time;
 - b) wrap securely the used sanitary waste like diapers, sanitary pads etc., in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping material as instructed by the local authorities and shall place the same in the bin meant for dry waste or non- bio-degradable waste;
 - c) store separately Construction and Demolition (C&D) waste, as and when generated, in his own premises and shall dispose off as per the Construction and Demolition Waste Management Rules, 2016; and
 - d) store horticulture waste and garden waste generated from his premises separately in his own premises and dispose off as per the directions of the local body from time to time.
- (2) No waste generator shall throw, burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.
- (3) All waste generators shall pay such user fee for solid waste management, as specified in the bye-laws of the local bodies.
- (4) No person shall organise an event or gathering of more than one hundred persons at any unlicensed place without intimating the local body, at least three working days in advance and such person or the organiser of such event shall ensure segregation of waste at source and handing over of segregated waste to waste collector or agency as specified by the local body.
- (5) Every street vendor shall keep suitable containers for storage of waste generated during the course of his activity such as food waste, disposable plates, cups,

cans, wrappers, coconut shells, leftover food, vegetables, fruits, etc., and shall deposit such waste at waste storage depot or container or vehicle as notified by the local body.

- (6) All resident welfare and market associations shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.
- (7) All gated communities and institutions with more than 5,000 sqm. area shall, within one year from the date of notification of these rules and in partnership with the local body, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorized recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.
- (8) All hotels and restaurants shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

It is important to note that new Rules:

- Prohibit littering, burning & burying of waste.
- Lay emphasis on segregation and storage of bio-degradable, non bio-degradable and domestic hazardous wastes at source in three separate bins by waste generators and keeping C&D waste and horticulture waste separately as and when generated for safe disposal as per the directions of the Urban Local Body (ULB) / separate set of Rules framed by MoEF&CC.



- Gives stress on decentralized processing such as home composting/bio gas generation or community level treatment.
- Directs waste generator to hand over segregated waste to authorised waste pickers or waste collectors.
- Mandates paying user fees to local bodies as may be specified in their bye-laws.

3.2 Measures to be taken by Local Authorities to Ensure Compliance by Waste Generators

The regulatory framework, which requires behavioural change and day to day compliance by the citizens, need to be widely publicized through a well structured awareness campaign. The state agencies and local authorities therefore need to draw up a plan of creating public awareness expeditiously.

Following steps may be taken in this regard:

- The urban development department and/or department in charge of panchayats may form a committee comprising of:
 - Representative of the secretariat department
 - CMA/DMA/CDO
 - Two mayors/two BDOs
 - Two chair persons of municipal authorities/gram panchayats
 - Two municipal commissioners
 - Two executive officers/two secretaries of village panchayat
 - Two officers in charge of SWM in local authorities
 - One NGO
 - Two members of civil society
 - One subject expert
- This committee may deliberate on planning the Information, Education & Communication (IEC) campaign, various modes of communication, the intensity of communication, time frame and budgetary requirements
- This committee may recommend the IEC activities to be taken up centrally through professional agencies and the activities that may be taken up at city/town/village level and propose allocation of budget for the same.
- The professional agency may be hired by state government/DMA/CMA/CDO within three months and IEC material may be got prepared within two months from date of work order.
- In the mean time, the local level IEC



activities may be initiated by the local authorities. On receiving the IEC material from professional agencies, IEC campaign may be intensified and its outcome may be assessed. The campaign may principally focus on educating waste generators (citizens) on :



- Not to litter waste on the streets, drains, water bodies, open spaces etc.
 - Not to burn or bury the waste
 - Segregate wet and dry waste at source and store in two separate bins (educate on bio-degradable and non bio-degradable waste components)
 - Keep domestic hazardous waste, C&D waste, horticulture waste separately as and when generated and deal with them as directed by local authority from time to time
 - How to handle sanitary waste, diapers, as and when generated
 - Practice the concept of Reduce, Reuse, Recycle and Recover (RRRR)
 - Practice home/institutional level composting/bio-gas generation or community level composting/bio-gas generation
 - Handover recyclables to waste pickers or recyclers at source
 - Handover segregated waste to the waste collectors
 - Pay user charges for the sustainability of the project.
 - Educating street vendors, resident welfare associations, market associations, gated communities & institutions, hotels & restaurants to discharge their obligation as per Rule 4.
- The impact of IEC campaign may be carefully monitored and assessed at the local level each quarter and corrective measure may be taken to ensure that the citizens adhere to directions contained in Rule '4' and are fully aware that their failure to comply may lead to punishment under the municipal bye-laws
 - The local authority may also create a mechanism to take punitive action against the defaulters and publicize the same to deter others
 - With a view to motivate waste generators on home composting and bio-gas generation, local authority may organise local training programs or pictorial guidelines and declare incentives.



4.0 Duties of Authorities/Stakeholders

Besides making the citizens responsible as above, the Rules have prescribed duties of various concerned authorities/stakeholders as mentioned under:

1. Ministry of Environment, Forest & Climate Change
2. Ministry of Housing & Urban Affairs
3. Ministry of Chemicals and Fertilizers
4. Ministry of Agriculture
5. Ministry of Power
6. Ministry of New and Renewable Energy Sources
7. Secretary, Urban Development of state governments
8. Secretary, Village Panchayats/Rural Development Department of state governments
9. District Magistrate/District Collector/Deputy Commissioner
10. Central Pollution Control Board
11. State Pollution Control Boards or Pollution Control Committees
12. Local (Municipal) Authorities and Village Panchayats of Census Towns & Urban Agglomerations
13. Manufacturers or Brand Owners of Disposable Products/Sanitary Napkins/Diapers
14. Industrial Units located within 100 km from Refuse Derived Fuel/Waste to Energy Plants based on Solid Waste

Rule nos. '5' to '18' of SWM Rules, 2016 clearly lay down the duties of aforesaid authorities/stakeholders

The duties of various authorities/stakeholders and actions that need to be undertaken to ensure implementations of the SWM Rules, 2016 are elaborated further.

4.1 Ministry of Environment, Forest and Climate Change (MoEFCC)

Duties of Ministry of Environment, Forest and Climate Change (MoEFCC):

- (1) The Ministry of Environment, Forest and Climate Change shall be responsible for overall monitoring of the implementation of these rules in the country. It shall constitute a Central Monitoring Committee under the Chairmanship of Secretary, Ministry of Environment, Forest and Climate Change comprising officer not below the rank of Joint Secretary or Advisor from the following :
 - 1) Ministry of Housing & Urban Affairs
 - 2) Ministry of Rural Development
 - 3) Ministry of Chemicals and Fertilizers
 - 4) Ministry of Agriculture
 - 5) Central Pollution Control Board
 - 6) Three State Pollution Control Boards or Pollution Control Committees by rotation
 - 7) Urban Development Departments of three State Governments by rotation

- 8) Rural Development Departments from two State Governments by rotation
 - 9) Three Urban Local bodies by rotation
 - 10) Two census towns by rotation
 - 11) FICCI, CII
 - 12) Two subject experts
- (2) This Central Monitoring Committee shall meet at least once in a year to monitor and review the implementation of these rules. The Ministry of Environment, Forest and Climate Change may co-opt other experts, if needed. The Committee shall be renewed every three years.

Actions Recommended for MoEF&CC for implementation of the Rule:

Ministry of Environment, Forest and Climate Change (MoEF&CC) being overall responsible for monitoring of the implementation of the Rules, MOEF&CC may take up this work immediately by inviting all stakeholders to appraise them of their roles and request them to plan & strategise implementation of the functions entrusted to them. Unless all stakeholders come on board and simultaneously plan for the activities to be undertaken by them, it would not be possible to implement the Rules effectively in the given time frame.

Soon after the first meeting, in initial six months, the monitoring committee may be convened on a bi-monthly basis to take a stock of the situations and ascertain whether all the stakeholders listed in Rules '5' to '18' have initiated the measures entrusted to them followed by half yearly review meeting in first two years to review the implementation of the Rules. Annual review may be taken only thereafter. The MoEF&CC may also consider rolling out the rules in all the states by organising state level sensitization workshops simultaneously as time is running out.

4.2 Ministry of Housing & Urban Affairs (MoHUA)

Duties of Ministry of Housing & Urban Affairs (MoHUA):

- (1) The Ministry of Housing & Urban Affairs (MoHUA) shall coordinate with State Governments and Union territory Administrations to:
 - (a) take periodic review of the measures taken by the states and local bodies for improving solid waste management practices and execution of solid waste management projects funded by the Ministry and external agencies at least once in a year and give advice on taking corrective measures;
 - (b) formulate national policy and strategy on solid waste management including policy on waste to energy in consultation with stakeholders within six months from the date of notification of these rules;
 - (c) facilitate States and Union Territories in formulation of state policy and strategy on solid management based on national solid waste management policy and national urban sanitation policy;
 - (d) promote research and development in solid waste management sector and

- disseminate information to States and local bodies;
- (e) undertake training and capacity building of local bodies and other stakeholders; and
- (f) provide technical guidelines and project finance to states, Union territories and local bodies on solid waste management to facilitate meeting timelines and standards.

Actions recommended on priority for implementation of the Rule:

1. MoHUA may immediately appoint a team of consultants/experts to prepare draft national policy and strategy on Solid Waste Management including policy on waste to energy within three months and organise stakeholder consultations inclusive of a few state representatives and experts to critically look at the practicability of policy & strategy prepared by the ministry before notifying the policy and strategy.
2. Issue suitable guidelines to the States/UTs to prepare similar policy and strategy for their respective states. This need to be done in a time bound manner as the timeline given for this activity is already over.

3. MoHUA may organise state level or regional level training and capacity building programs for sensitising local authorities and stakeholders on various provisions of SWM Rules, 2016 and steps that need to be taken by various stakeholders for the implementations of the Rules by drawing experts from central agencies, institutions and various states. This may be planned on a war footing in consultation with state governments. While organising such programs, all logistics may be provided by state agencies in their respective states using SBM funds, the MoHUA may take the responsibility to provide faculty for imparting training.



4. MoHUA may immediately identify at least three to four institutions in the country and entrust them the task of research and development in the following areas of SWM.
 - a. Identification of appropriate technologies for treatment of various components of waste within the parameters of SWM Rules, 2016.



- b. Identification of suitable tools, equipment, and vehicles for storage at source, primary collection, secondary storage and transportation of waste in various levels of cities and towns.
 - c. Manpower and machinery requirements for various activities in SWM sector.
5. MoHUA may create a mechanism for funding the SWM projects in various states and review the performance of local authorities and agencies through identified experts/institutions on a quarterly basis in the first year followed by half yearly review in subsequent years.

4.3 Ministry of Chemicals and Fertilizers (MoC&F)

Duties of Department of Fertilisers, Ministry of Chemicals and Fertilisers:

- (1) The Department of Fertilisers through appropriate mechanisms shall:
 - (a) provide market development assistance on city compost; and
 - (b) ensure promotion of co-marketing of compost with chemical fertilisers in the ratio of 3 to 4 bags: 6 to 7 bags by the fertiliser companies to the extent compost is made available for marketing to the companies.

Actions Recommended for implementation of the Rule:

The success of composting industry will depend heavily on this support from this ministry to the local bodies and to waste processing industry in the country.

The department may therefore take the following measures expeditiously:

1. The Department of Fertilizers in the Ministry of Chemicals and Fertilizers may create a database of compost plants set up in all urban centres in India in consultation with Central Pollution Control Board and respective state governments.
2. Create a state wise mechanism to ascertain whether the compost meets the quality standards laid down and the quantity of compost produced each day/month.
3. Create a mechanism for its marketing within the state to the extent possible through their fertilizer outlets along with chemical fertilizers in the proportion mentioned in the Rules.
4. Optimally utilise the market development assistance fund in propagating the use of compost with chemical fertilizer to protect soil health and transport of compost from the producers to the consumer end.

4.4 Ministry of Agriculture & Farmers Welfare (MoAFW)

Duties of Ministry of Agriculture & Farmers Welfare, Government of India:

The Ministry of Agriculture & Farmers Welfare, through appropriate mechanisms, shall:

- (a) provide flexibility in Fertiliser Control Order for manufacturing and sale of compost;

- (b) propagate utilisation of compost on farm land;
- (c) set up laboratories to test quality of compost produced by local authorities or their authorised agencies; and
- (d) issue suitable guidelines for maintaining the quality of compost and ratio of use of compost visa-a-vis chemical fertilizers while applying compost to farmland.

Actions Recommended for implementation of the Rules:

1. The Ministry of Agriculture & Farmers Welfare need to take a very pro-active measure in educating the farmers on the benefits of use of city compost in their farm land to protect soil health from the adverse impacts of using chemical fertilizer, improve porosity of soil and moisture retaining capacity and provide desired nutrients to the plants.
2. The use of compost may be integrated in the Ministry's ongoing campaigns for increasing agriculture production.

3. The ministry may critically look at the ground reality of the quality of compost that can be produced from urban bio-degradable waste and the standard laid down for city compost in the fertilizer control order and considers providing flexibility in acceptance of compost for application on farm land without compromising on the critical aspects.



4. With a view to facilitate local authorities and operators of the composting facilities to test the quality of compost they produce from time to time, the ministry may set up or facilitate private sector setting up laboratories in various parts of the states on a chargeable basis to make them self sustainable and create a mechanism of certifying whether the compost meets the quality as per the fertilizer control order.



5. The ministry may guide the manufactures on adopting processes that may help in maintaining quality of compost and its marketability.
6. The ministry may issue guidelines on the use of compost along with chemical fertilizers in suitable proportions for various types of agricultural products.

4.5 Ministry of Power (MoP)

Duties of the Ministry of Power:

The Ministry of Power through appropriate mechanisms shall:

- (a) decide tariff or charges for the power generated from the waste to energy plants based on solid waste.
- (b) compulsory purchase power generated from such waste to energy plants by distribution company.

Actions Recommended for implementation of the Rule:

1. The Ministry of Power, in co-ordination with Central Pollution Control Board, may create a data base of existing waste to energy plants, the new waste to energy plants coming up in the country and their potential of generating power from waste.
2. The ministry may look at the recent report of the task force on waste to energy set up by the planning commission (12th May 2014) and assess the future potential of waste to energy projects over a period of next 20-25 years from the quality & quantity of non bio-degradable combustible waste that are allowed to be utilised for power generation.
3. The ministry may determine the tariff or charges for the purchase of power generated from waste to energy plants by critically looking at the cost of generating power at these plants and the fair rate that need to be paid for the sustainability of such plants in the country.
4. The ministry may mandate the power distribution companies to purchase the power from waste to energy plants at the rates prescribed.

4.6 Ministry of New and Renewable Energy (MNRE)

Duties of Ministry of New and Renewable Energy (MNRE):

The Ministry of New and Renewable Energy through appropriate mechanisms shall:

- (a) facilitate infrastructure creation for 'waste to energy' plants; and
- (b) provide appropriate subsidy or incentives for such 'waste to energy' plants.

Actions Recommended for implementation of the Rules:

1. MNRE has a very important role to play in the promotion of waste to energy plants. The ministry needs to carefully look at the SWM Rules, 2016 and evaluate the potential of generating power from the non recyclable combustible fraction of waste and give suitable advice to local authorities and investors about the suitability of urban residual combustible waste for generation of power at a reasonable cost.

2. Ministry may advise the states and local authorities on appropriate technologies that could be adopted for power generation from solid waste.
3. The ministry may assess the capital and O&M cost of 'waste to energy' plants and workout the viability gap and come up with an incentive scheme for promoting 'waste to energy' plants in the country.
4. Ministry may facilitate creation of necessary infrastructure for facilitating construction of 'waste to energy' plants.

4.7 Secretary, Urban Development (States & Uts)

Duties of the Secretary–in-charge, Urban Development in the States and Union Territories (UTs):

- (1) The Secretary, Urban Development Department in the State or Union Territory through the Commissioner or Director of Municipal Administration or Director of local bodies shall,-
 - (a) 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;
 - (b) while preparing State policy and strategy on solid waste management, lay emphasis on waste reduction, reuse, recycling, recovery and optimum utilisation of various components of solid waste to ensure minimisation of waste going to the landfill and minimise impact of solid waste on human health and environment;
 - (c) state policies and strategies should acknowledge the primary role played by the informal sector of waste pickers, waste collectors and recycling industry in reducing waste and provide broad guidelines regarding integration of waste picker or informal waste collectors in the waste management system.
 - (d) ensure implementation of provisions of these rules by all local authorities;
 - (e) direct the town planning department of the State to ensure that master plan of every city in the State or Union territory provisions for setting up of solid waste processing and disposal facilities except for the cities who are members of common waste processing facility or regional sanitary landfill for a group of cities; and
 - (f) ensure identification and allocation of suitable land to the local bodies within one year for setting up of processing and disposal facilities for solid wastes and incorporate them in the master plans (land use plan) of the State or as the case may be, cities through metropolitan and district planning committees or town and country planning department;
 - (h) direct the town planning department of the State and local bodies to ensure that a

separate space for segregation, storage, decentralised processing of solid waste is demarcated in the development plan for group housing or commercial, institutional or any other non-residential complex exceeding 200 dwelling or having a plot area exceeding 5,000 square meters;

- (i) direct the developers of Special Economic Zone, Industrial Estate, Industrial Park to earmark at least five percent of the total area of the plot or minimum five plots or sheds for recovery and recycling facility.
- (j) facilitate establishment of common regional sanitary land fill for a group of cities and towns falling within a distance of 50 km (or more) from the regional facility on a cost sharing basis and ensure professional management of such sanitary landfills;
- (k) arrange for capacity building of local bodies in managing solid waste, segregation and transportation or processing of such waste at source;
- (l) notify buffer zone for the solid waste processing and disposal facilities of more than five tons per day in consultation with the State Pollution Control Board; and
- (m) start a scheme on registration of waste pickers and waste dealers.

Actions Recommended for Implementation of the Rules:

The Secretary, Urban Development Department (UDD) of states/UTs has a very critical role to play at the state level to facilitate and ensure the implementation of the Rules by the urban local authorities in the state. The most critical activities that secretary, UDD need to take up simultaneously is:

- Prepare State Policy and Strategy on SWM in line national policy and strategy that may be prepared by MoHUA laying emphasis on waste Reduce, Reuse, Recycle & Recovery (RRRR) and integrating informal sector in waste management systems.
- Ensure implementation of SWM Rules by all local authorities
- Identification and allocation of land for processing and disposal of waste
- Facilitate establishment of common landfills for cluster of cities to achieve economy of scale and facilitate professional management of landfills.
- Notify buffer zone/no development zone around processing and disposal facilities
- Arrange training and capacity building programmes

The Secretary, UDD of state governments may initiate the following steps:

1. Secretary UDD may appraise all urban local bodies in the state about the provisions of SWM Rules 2016, the timelines to be achieved and motivate them to take appropriate measures towards implementations of the Rules. He may lay stress on ensuring:
 - a. Community participation and waste Reduce, Reuse, Recycle & Recovery (RRRR)
 - b. Segregation of wet and dry waste and storage of waste at source in two separate bins, involvement of waste pickers and recyclers in reducing waste
 - c. Door to door collection
 - d. Decentralised processing and minimising collection and transport cost and waste going to landfills

- e. Setting up of regional common landfills for disposal of residual waste
- f. Pay user charges for the sustainability of the system.



2. Secretary UDD may simultaneously assign the task to prepare state policy and strategy on SWM before December, 2017. This document may be fine tuned on receiving national policy and strategy document from MOUD and then circulated to local bodies in the state within the time limit of one year prescribed in the rules.
3. Secretary UDD may assess the requirement of land for processing and disposal of waste by various sizes of cities & towns in the state adopting the yard sticks given below and ascertain the availability of suitable land with local bodies.

S. No.	Cluster size population	Land requirement for regional landfill per 1 lakh population	Land requirement for processing of waste per 1 lakh population
1	1 to 5 lakh	15 Acres	1 acre
2	5 to 10 lakh	12 Acres	1 acre
3	10 lakh +	8 Acres	1 acre

4. Advise the district collectors to allocate suitable land to the local authorities who do not have suitable land/adequate land for setting up processing and disposal facility in a given time frame.
5. With a view to minimize requirement of land for sanitary landfills, economise in O&M cost of landfills, facilitate professional management of landfills and reduce the scope of public outcry against setting up city wise landfills very close to habitation, Secretary UDD may facilitate establishment of regional sanitary landfills in the state for cluster of cities which are close to each other.
6. He may identify large parcels of waste land away from habitation which can meet 20-25 years' requirements of land for the cluster of the cities falling within a radius of 50 km from the land identified and develop a mechanism of its professional management on a cost sharing basis. Satellite imagery may be used for identifying large parcels of land in the state which could be allocated for setting up regional facilities.
7. The secretary UDD may with the assistance of DMA or CMA or DM determine buffer zone for restricting development around the processing and disposal sites. A minimum

distance as advised by CPHEEO, MOHUA may be notified from the boundary of the land required for processing and disposal of waste prohibiting development in that area. As such this buffer zone may be included within the land to be allocated to local authorities to ensure that no development takes place within the buffer zone.

8. With a view to promote recovery of recyclables and recycling of waste, the secretary UDD may direct the developers of special economic zones, industrial estates and industrial park to earmark at least 5% of their total land and construct shades for resource recovery, segregation and recycling of waste and direct all the industries situated within the estate to avail this facility to promote recycling.
9. Secretary UDD may give special emphasis to training and capacity building of local bodies in the areas of segregation and processing at source of waste generation as well as in the collection, transportation, community or city level processing and final disposal of residual waste at the sanitary landfill.

10. With a view to promote recycling and waste minimization, the secretary UDD may facilitate registration of waste picker, recyclers and waste dealers in their respective cities so that they could be involved in door to door collection of recyclables or its collection from material recovery facilities. The waste pickers could be motivated to get involved in door to door collection of waste in a way that they take away the recyclables to earn their living and also derive some income from door to door collection of other waste to improve their financial health and quality of life.



11. With a view to promote decentralized processing in the state, the secretary UDD may direct its town planning department and municipal authorities to ensure that adequate space is earmarked for segregation, storage and decentralized processing of solid waste in all schemes of group housing or commercial, institutional or non residential complexes having more than 200 dwelling units or a plot area exceeding 5000 sq meters. This may be done by adding a condition in the building plan regulations as well as by listing out all existing housing schemes, commercial and institutional complexes that fall in the above category and direct them to set apart a portion of land and create common facilities for storage and processing of waste within the campus.
12. The secretary UDD as head of the department may create a mechanism to review the performance of all urban local bodies under his charge once in quarter and take suitable measures for expeditious implementation of the Rules.

4.8 Secretary, Village Panchayats or Rural Development Department

Duties of the Secretary–in-charge of Village Panchayats or Rural Development Department in the States and Union Territories:

(1) The Secretary–in-charge of Village Panchayats or Rural Development Department in the State and Union territory shall have the same duties as the Secretary–in-charge, Urban Development in the States and Union territories, for the areas which are covered under these rules and are under their jurisdictions.

Actions Recommended for implementation of the Rule:

- The secretary in charge of gram panchayats (with whatever name called) need to play the similar role as envisaged from secretary urban development, in respective of census towns (urbanised panchayats above 5000 population that are declared as census towns in their states.
- The Secretary Panchayats need to list out the panchayats that are declared as census towns in each district, appraise the district and block level development officers to educate the notified census towns on their role and responsibilities under as SWM Rules, 2016.
- For the sake of uniformity, the secretary may get developed simple IEC (Information, Education and Communication) material in vernacular language for creating public awareness in census towns and share it with all the districts under his charge.
- Regional training programs may be organised for census towns. District and block level officers in charge of Swachh Bharat Mission (SBM) may be charged with the responsibility to ensure that the census towns implement the Rules effectively.
- Villages being small entities, very simple systems of waste management may be adopted and decentralized processing at the door step or at a community level may be advocated. Segregation and storage of bio-degradable (food waste) and non bio-degradable wastes may be insisted at source.
- Emphasis may be laid on home composting or bio-gas generation. The segregated recyclables can be passed on to waste pickers or recyclers from the door step or it may be collected by the panchayats, stored at a common shade and sold out periodically to recyclers.
- The panchayats may have to be additionally educated on managing animal dung and animal feed waste. Such wastes are generally deposited by each rural household on the streets. Such sites of waste deposition could be converted into vermi-pits and animal dung can be converted into a useful bio



- organic fertiliser by the households.
- The panchayats could be encouraged to continue the current practice of households cleaning the areas in front of the dwelling units and organise sweeping of commercial streets and important public places schools, offices etc.

4.9 District Magistrate or District Collector or Deputy Commissioner

Duties of District Magistrate or District Collector or Deputy Commissioner:

The District Magistrate or District Collector or as the case may be , the Deputy Commissioner shall:

- (a) facilitate identification and allocation of suitable land as per clause (f) of Rule '11' for setting up solid waste processing and disposal facilities to local authorities in his district in close coordination with the Secretary-in-charge of State Urban Development Department within one year from the date of notification of these rules;
- (b) review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development.

Actions Recommended for Implementation of the Rules:

The District Magistrate is the most respected officer in the district administration having wide powers and his words are treated as commands. He has two principal roles to play.

- 1) In close coordination with secretary UDD of the state, prepare a data base of urban local bodies and census towns in his district, their population, waste generation rate, requirement of land for processing and disposal of residual waste (as per yard stick given earlier) and availability of suitable land with each urban area. He may identify the deficiency in the availability of land with the local authorities and allocate suitable lands for processing and disposal of waste to the urban local bodies which do not have suitable land available with them. He may allocate the land either free of cost or on a token lease rent for a period of 25-30 years.
- 2) Review the performance of urban local bodies and census towns in his district at least once in a quarter to ensure waste segregation, collection, transportation, processing and disposal as per SWM Rules, 2016 and take corrective measures as required in consultation with CMA, DMA and secretary UDD/panchayats.

4.10 Central Pollution Control Board (CPCB)

Duties of Central Pollution Control Board.-

The Central Pollution Control Board shall:

- (a) co-ordinate with the State Pollution Control Boards and the Pollution Control Committees for implementation of these rules and adherence to the prescribed standards by local authorities;
- (b) formulate the standards for ground water, ambient air, noise pollution, leachate in respect of all solid waste processing and disposal facilities;
- (c) review environmental standards and norms prescribed for solid waste processing facilities or treatment technologies and update them as and when required;
- (d) review through State Pollution Control Boards or Pollution Control Committees, at least once in a year, the implementation of prescribed environmental standards for solid waste processing facilities or treatment technologies and compile the data monitored by them;
- (e) review the proposals of State Pollution Control Boards or Pollution Control Committees on use of any new technologies for processing, recycling and treatment of solid waste and prescribe performance standards, emission norms for the same within 6 months;
- (f) monitor through State Pollution Control Boards or Pollution Control Committees the implementation of these rules by local bodies;
- (g) prepare an annual report on implementation of these rules on the basis of reports received from State Pollution Control Boards and Committees and submit to the Ministry of Environment, Forest and Climate Change and the report shall also be put in public domain;
- (h) publish guidelines for maintaining buffer zone restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tons per day of solid waste;
- (i) publish guidelines, from time to time, on environmental aspects of processing and disposal of solid waste to enable local bodies to comply with the provisions of these rules; and
- (j) provide guidance to States or Union territories on inter-state movement of waste.

Actions Recommended for Implementation of the Rules:

- CPCB is an apex body for preventing environmental pollution in the country. The CPCB need to keep a track on the implementation of these Rules through the eyes of State Pollution Control Boards/Committees.
- It may in initial three years, take a quarterly review of the implementation of the Rules by urban local bodies, census towns and other entities covered under the Rules through State Pollution Control Boards and advise them to take follow- up/punitive action. The most important role is however to prescribe the standards of ground water, ambient air, noise pollution, leachate in respect of new technologies in SWM sector and monitor the adherence to environmental standards prescribed from time to time for Solid Waste processing facilities and disposal sites in the country.

- It needs to ensure that these standards are maintained by all local authorities/operators of the facility. CPCB may take a half yearly critical review of the adherence to the standards by local authorities and operators of the facilities through State Pollution Control Boards/Committees and through its own staff where considered necessary.
- As the apex body it may also issue guidelines from time to time on the environmental aspects of processing and disposal facilities and also publish guidelines for maintaining buffer zones restricting any residential, commercial or any other construction activity from the outer boundary of processing or disposal facility of different capacities.
- The CPCB may issue guidelines on inter-state movement of waste to facilitate setting up of regional processing and disposal facilities

4.11 State Pollution Control Board or Pollution Control Committees

Duties of State Pollution Control Board or Pollution Control Committee:

- (1) The State Pollution Control Board or Pollution Control Committee shall,-
 - (a) enforce these rules in their State through local bodies in their respective jurisdiction and review implementation of these rules at least twice a year in close coordination with concerned Directorate of Municipal Administration or Secretary-in-charge of State Urban Development Department;
 - (b) monitor environmental standards and adherence to conditions as specified under the Schedule I and Schedule II for waste processing and disposal sites;
 - (c) examine the proposal for authorisation and make such inquiries as deemed fit, after the receipt of the application for the same in Form I from the local body or any other agency authorised by the local body;
 - (d) while examining the proposal for authorisation, the requirement of consents under respective enactments and views of other agencies like the State Urban Development Department, the Town and Country Planning Department, District Planning Committee or Metropolitan Area Planning Committee, as may be applicable, Airport or Airbase Authority, the Ground Water Board, Railways, power distribution companies, highway department and other relevant agencies shall be taken into consideration and they shall be given four weeks time to give their views, if any;
 - (e) issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;
 - (f) synchronise the validity of said authorisation with the validity of the consents;
 - (g) suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated: provided that no such authorization shall be suspended or cancelled without giving notice to the local body or operator, as the case may be; and

- (h) on receipt of application for renewal, renew the authorisation for next five years, after examining every application on merit and subject to the condition that the operator of the facility has fulfilled all the provisions of the rules, standards or conditions specified in the authorisation, consents or environment clearance.
- (2) The State Pollution Control Board or Pollution Control Committee shall, after giving reasonable opportunity of being heard to the applicant and for reasons thereof to be recorded in writing, refuse to grant or renew an authorisation.
- (3) In case of new technologies, where no standards have been prescribed by the Central Pollution Control Board, State Pollution Control Board or Pollution Control Committee, as the case may be, shall approach Central Pollution Control Board for getting standards specified.
- (4) The State Pollution Control Board or the Pollution Control Committee, as the case may be, shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year.
- (5) The State Pollution Control Board or the Pollution Control Committee may give directions to local bodies for safe handling and disposal of domestic hazardous waste deposited by the waste generators at hazardous waste deposition facilities.
- (6) The State Pollution Control Board or the Pollution Control Committee shall regulate Inter-State movement of waste.

Actions Recommended for Implementation of the Rules:

State Pollution Control Board (SPCB) has a very critical role to play for enforcing the implementation of the Rules in the respective states. The SPCB may therefore draw out plan to effectively ensure implementation of the Rules which may include:

- Review implementation of rules twice a year and enforce compliance
- Monitor adherence to environmental standards
- Give authorization for setting up treatment and disposal facilities
- Regulate inter-state movement of waste
- Give directions to local bodies for safe handling and disposal of domestic hazardous waste
- Get the standards laid down through CPCB for the technologies which are new and no standards have been prescribed earlier
- Take proactive measure to appraise the local authorities from time to time the deficiency observed in the implementation of the Rules and the corrective measures

the local authorities need to take to avoid penal action. This program could be jointly organized by the state agency and state PCB at least once in a year.

4.12 Local (Municipal) Authorities, Village Panchayats of Census Towns & Urban Agglomerations

Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations.-

The local authorities and Panchayats shall,-

- (a) 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;
- (b) arrange for door-to-door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non residential premises. From multi-storage buildings, large commercial complexes, malls, housing complexes, etc., this may be collected from the entry gate or any other designated location;
- (c) establish a system to recognise organisations of waste pickers or informal waste collectors and promote and establish a system for integration of these authorised waste-pickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste;
- (d) facilitate formation of Self Help Groups, provide identity cards and thereafter encourage integration in solid waste management including door to door collection of waste;
- (e) frame bye-laws incorporating the provisions of these rules within one year from the date of notification of these rules and ensure timely implementation;
- (f) prescribe from time to time user fee as deemed appropriate and collect the fee from the waste generators on its own or through authorised agency;
- (g) direct waste generators not to litter i.e. throw or dispose of any waste such as paper, water bottles, liquor bottles, soft drink cans, tetra packs, fruit peel, wrappers, etc., or burn or burry waste on streets, open public spaces, drains, waste bodies and to segregate the waste at source as prescribed under these rules and hand over the segregated waste to authorised the waste pickers or waste collectors authorised by the local body;
- (h) set-up material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or

- from material recovery facilities; Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be printed white and those for storage of other wastes shall be printed black;
- (i) establish waste deposition centres for domestic hazardous waste and give direction for waste generators to deposit domestic hazardous wastes at this centre for its safe disposal. Such facility shall be established in a city or town in a manner that one centre is set up for the area of twenty square kilometres or part thereof and notify the timings of receiving domestic hazardous waste at such centres;
 - (j) ensure safe storage and transportation of the domestic hazardous waste to the hazardous waste disposal facility or as may be directed by the State Pollution Control Board or the Pollution Control Committee;
 - (k) direct street sweepers not to burn tree leaves collected from street sweeping and store them separately and handover to the waste collectors or agency authorised by local body;
 - (l) provide training on solid waste management to waste-pickers and waste collectors;
 - (m) collect waste from vegetable, fruit, flower, meat, poultry and fish market on day to day basis and promote setting up of decentralised compost plant or bio-methanation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions;
 - (n) collect separately waste from sweeping of streets, lanes and by-lanes daily, or on alternate days or twice a week depending on the density of population, commercial activity and local situation;
 - (o) set-up covered secondary storage facility for temporary storage of street sweepings and silt removed from surface drains in cases where direct collection of such waste into transport vehicles is not convenient. Waste so collected shall be collected and disposed of at regular intervals as decided by the local body;
 - (p) collect horticulture, parks and garden waste separately and process in the parks and gardens, as far as possible;
 - (q) transport segregated bio-degradable waste to the processing facilities like compost plant, bio-methanation plant or any such facility. Preference shall be given for onsite processing of such waste;
 - (r) transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility;
 - (s) transport construction and demolition waste as per the provisions of the Construction and Demolition Waste Management Rules, 2016;
 - (t) involve communities in waste management and promotion of home composting, bio-gas generation, decentralised processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facility;
 - (u) phase out the use of chemical fertilizer in two years and use compost in all parks, gardens maintained by the local body and wherever possible in other places under its jurisdiction. Incentives may be provided to recycling initiatives by informal waste recycling sector.
 - (v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector

participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Housing & Urban Affairs from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as:

- a) bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes;
- b) waste to energy processes including refuse derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns;
- (w) undertake on their own or through any other agency construction, operation and maintenance of sanitary landfill and associated infrastructure as per Schedule-I for disposal of residual wastes in a manner prescribed under these rules;
- (x) make adequate provision of funds for capital investments as well as operation and maintenance of solid waste management services in the annual budget ensuring that funds for discretionary functions of the local body have been allocated only after meeting the requirement of necessary funds for solid waste management and other obligatory functions of the local body as per these rules;
- (y) make an application in Form-I for grant of authorisation for setting up waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tonnes per day including sanitary landfills from the State Pollution Control Board or the Pollution Control Committee, as the case may be;
- (z) submit application for renewal of authorisation at least sixty days before the expiry of the validity of authorisation;
- (za) prepare and submit annual report in Form IV on or before the 30th April of the succeeding year to the Commissioner or Director, Municipal Administration or designated Officer;
- (zb) the annual report shall then be sent to the Secretary -in-Charge of the State Urban Development Department or village panchayat or rural development department and to the respective State Pollution Control Board or Pollution Control Committee by the 31st May of every year;
- (zc) educate workers including contract workers and supervisors for door to door collection of segregated waste and transporting the unmixed waste during primary and secondary transportation to processing or disposal facility;
- (zd) ensure that the operator of a facility provides personal protection equipment including uniform, fluorescent jacket, hand gloves, raincoats, appropriate foot wear and masks to all workers handling solid waste and the same are used by the workforce;
- (ze) ensure that provisions for setting up of centres for collection, segregation and storage of segregated wastes, are incorporated in building plan while granting

- (zf) approval of building plan of a group housing society or market complex; and frame bye-laws and prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules and delegate powers to officers or local bodies to levy spot fines as per the bye laws framed; and
- (zg) create public awareness through Information, Education and Communication (IEC) campaign and educate the waste generators on the following; namely:-
 - (i) not to litter;
 - (ii) minimise generation of waste;
 - (iii) reuse the waste to the extent possible;
 - (iv) practice segregation of waste into bio-degradable, non-biodegradable (recyclable and combustible), sanitary waste and domestic hazardous wastes at source;
 - (v) practice home composting, vermi-composting, bio-gas generation or community level composting;
 - (vi) wrap securely used sanitary waste as and when generated in the pouches provided by the brand owners or a suitable wrapping as prescribed by the local body and place the same in the bin meant for non-biodegradable waste;
 - (vii) storage of segregated waste at source in different bins;
 - (viii) handover segregated waste to waste pickers, waste collectors, recyclers or waste collection agencies; and
 - (ix) pay monthly user fee or charges to waste collectors or local bodies or any other person authorised by the local body for sustainability of solid waste management.
- (zh) stop land filling or dumping of mixed waste soon after the timeline as specified in Rule '22' for setting up and operationalisation of sanitary landfill is over;
- (zi) 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 and the sanitary landfill sites shall meet the specifications as given in Schedule-I, however, every effort shall be made to recycle or reuse the rejects to achieve the desired objective of zero waste going to landfill;
- (zj) investigate and analyse all old open dumpsites and existing operational dumpsites for their potential of bio-mining and bio-remediation and wherever feasible, take necessary actions to bio-mine or bio-remediate the sites;
- (zk) in absence of the potential of bio-mining and bio-remediation of dumpsite, it shall be scientifically capped as per landfill capping norms to prevent further damage to the environment.

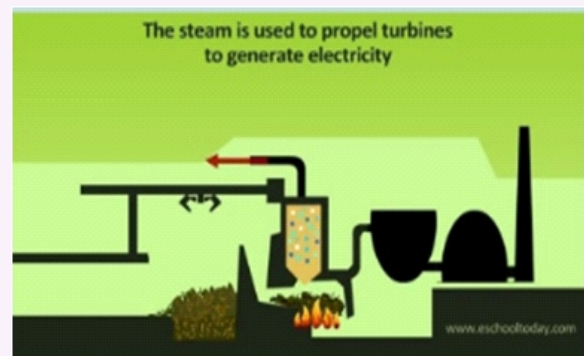
Actions Recommended for implementation of the Rule:

Municipal authorities and village panchayats of census towns are the authorities which are primary responsible for the management of Solid waste in their jurisdiction. These

authorities need to take series of measures to ensure that the Solid Waste is minimized, safely stored, collected, transported, processed and disposed of in an environmentally acceptable manner.

The following steps may be taken on priority by all local authorities covered under the Rules:

- Prepare solid waste management plan as per state policy
- Create public awareness on role of the community in the management of Solid Waste
- Prohibit littering, direct segregation of waste at source, arrange door to door collection of segregated waste from households and other commercial and institutional premises
- Promote home composting, bio-gas plant, community level processing
- Recognize organizations of waste pickers/informal recyclers and integrate them into the systems of SWM
- Set-up/facilitate the setting-up of, though private operator, a common facility for bio-methanation or composting of segregated wet waste. (Though high in capital cost, Bio-methanation is a preferred option as it may produce less odour and also produce energy or bio-fuel/gas)
- Setup/facilitate setting up of, by private sector, Material Recovery Facilities (MRF) as defined in the Rules, for sorting of recyclables by authorised waste pickers/recyclers etc and provide easy access to them at the facility. Such MRF should have established channels for utilization or recycling of segregated material, such as plastic/metal/glass waste, to recyclers integrated with RDF Plant with linkage to cement plants or to



waste feed based industrial boilers or integrated with 'Waste to Energy' plants to produce electricity.

- Setup domestic hazardous waste deposition centres at suitable locations in the urban area. Each small city or town may have at least one such centre where as large cities may have multiple centres with density of 1 centre per 25 sq.km city area.
- Facilitate constructions and O&M of waste processing facilities.
- Transport segregated waste to waste processing facility/material recovery facility
- Setup sanitary landfill for disposal of residual waste
- Frame bye-laws within one year, prescribe spot fines & ensure timely implementation.
- Prescribe user fees

Description of duties and responsibilities of urban local bodies, urbanised panchayats and urban agglomerations:

The local authorities mentioned above need to take several actions simultaneously as under to ensure expeditious implementation of the Rules as spelt out in Rule '15':

- i) The local authorities should carefully look at the state policy and strategy that may be circulated to them and prepare Solid Waste Management plan for the local body and take measures for time bound implementation of the Rules. This may be done by setting up a task force within the organisation for preparing the plan. External assistance of experts may be taken if and when required to make a comprehensive sustainable plan in keeping with state policy.
- ii) While the policy document is under preparation; the local body may in accordance with SWM Rules, 2016; take up a massive public awareness campaign to educate the masses on the following:
 - a) Not to litter on the streets, open spaces, water bodies, drains etc.
 - b) Keep at least two bins of 12-15 litre capacity at home one for biodegradable (wet) waste and another for non biodegradable (dry) waste.
 - c) Segregate wet and dry waste at source and store in separate bins.
 - d) Make an effort to do home composting or bio-gas generation from bio-degradable waste and handover recyclables to waste pickers or recyclers and minimize the waste at source and handover the remaining waste to the waste



collectors designated by the local authority.

- e) Municipal authority may involve, educate and promote the community in home composting, bio-gas generation and decentralised processing ensuring that it does not cause any unhygienic conditions, odour etc.
- f) As and when any domestic hazardous waste is generated, it may not be mixed with the waste kept in bins meant for wet and dry waste and instead it may be kept separate for being handled separately and safely.
- g) As and when Construction and Demolition (C&D) or horticulture waste is generated in the premises, such waste shall also be kept separate and disposed off as per C&D Waste Rules 2016 and SWM Rules 2016 respectively.

- iii) The awareness campaign may be followed by organising door to door collection of the segregated waste. The local authority may identify areas accessible by motorized vehicles and non accessible areas in the city and plan for door to door collection on a daily basis. Keeping in view high density of Indian waste, a light commercial vehicle of 3-5 cum capacity may be procured per 2000 households and a containerised tri cycle or hand cart may be procured per 200 households for door to door collection from in accessible areas. The collection vehicles may have central partition to facilitate collection of wet and dry waste in separate compartments or collection system/timings may be specified to collect wet and dry waste separately. The door to door collection may be adopted as per Annexure – A.



- iv) Collection from large commercial complexes or gated housing societies may be organised from the entry gate or designated locations instead of collecting waste from individual units. Such complexes could be directed to store their waste in a segregated manner at designated location to facilitate easy collection
- v) With a view to promote recycling, identify or promote waste pickers/recyclers/associations/organisations/self-help-groups and make an effort to integrate them into the system of primary collection of waste that may enable them to pick up recyclables from the door step to earn their living without being part of the municipal establishment. They could be given identity cards by the local authority as persons associated in Solid Waste Management of the city. The association could participate in the tender process for taking contracts for door to

door collection by suitably relaxing the condition of the contract in favour of informal sector without compromising on the quality of service.

vi) **Creation of Material Recovery Facilities (MRF)**

The ideal situation would be to facilitate the collection of recyclables from the door step. In a situation where integration of waste pickers/recyclers has not been made at the waste collection stage, the municipal authority may provide one more opportunity to waste pickers/authorised recyclers to pick up recyclables from the waste stream before the waste is taken up for processing or disposal. MRF may be set up at such location that it may minimise multiple handling and transportation of waste. The MRF may therefore be suitably set up near the transfer station or at a location in close proximity to the waste processing facility. Waste pickers/recyclers may be given free access to MRF to pick up recyclables so that the quantity of waste is minimised and recyclables are optimally processed for deriving new product saving natural resources. The MRF facility should have adequate space to enable rag pickers/recyclers to weed out recyclables from rest of the waste.

vii) With a view to ensure safe disposal of domestic hazardous waste, the municipal authority may set up one or more hazardous waste collection centre with the density of 1 such centre per 25 sq km of the city area and give directions to the citizens to deposit all their domestic hazardous waste at such centre during the time specified. The municipal authority may tie up and make arrangement with hazardous waste disposal facility in consultation with state pollution control board for ensuring safe transportation and disposal of such waste. The centre so established may be well equipped to store separately and safely various types of domestic hazardous wastes.

viii) The municipal authority may promote setting up decentralized compost plants or bio-methanation plants at suitable locations within the vegetable, fruit, flower, meat, fish, poultry markets or in the vicinity of markets and minimise the cost of collection, transportation and centralized processing. The market associations could be motivated to set up such facility and educate its members to segregate all bio-degradable wastes and deposit at the processing facility that may be created within the market or in the vicinity of the market and contribute towards the cost of O&M of such facility.



ix) Municipal authority may set up compost plants within the parks and gardens for processing horticulture and garden waste and utilize the same within the parks and gardens to the extent possible thus minimize the cost of collection and

transportation of this organic matter as well as reduce the cost of purchasing fertilizers.

- x) The municipal authority may create a mechanism of collection and transportation of different streams of waste as under:
 - a) Bio-degradable waste from the door step to the processing facility
 - b) Dry non bio-degradable wastes including recyclables wastes that are not handed over to waste pickers or recyclers at the door step, to the material recovery facilities set up at secondary storage, transfer station or at waste processing facility
 - c) Street sweepings to the disposal site through MRF
 - d) Construction and demolition waste from the city in terms of C&D Waste Rules, 2016
 - e) Horticulture and garden waste that could not be composted within the premises.

- xi) Municipal authority may identify locations where secondary storage facilities need to be created to enable street sweepers to deposit the waste collected by them in their handcars/tricycles etc to facilitate onward transportation in bulk to the MRF/disposal facilities. Such facilities may be created at the rate of at least 4 storage depots per sq



km of the city area and to ensure that a bin is available at an interval of 500 meters and sanitation worker does not have to walk for more than 250 meters to deposit his waste in the container. The size of container could depend on quantity of waste expected to be received at the depot. These depots should be kept clean and the waste deposited in the containers must be transported before the bins start overflowing or at least twice a week whichever is earlier. Effort should be made to directly transport the street sweepings through collection vehicles and make the city bin less.

- xii) Municipal authority may construct or facilitate the construction, operation, and maintenance of solid waste processing facilities on their own or through private sector participation or through any agency and ensure optimum utilisation of all components of waste adopting most appropriate technology such as bio methanation, microbial composting, vermi composting, anaerobic digestion technology and 'waste to energy' from combustible fraction of non recyclable waste or keep aside combustible material and supply the same as feed stock to solid waste based power plants or cement kilns.

- xiii) Municipal authority may undertake on their own or through any other agency the construction, operation and maintenance of sanitary landfill and associated infrastructure such as internal roads, office, shade for parking of vehicles and machineries, washrooms etc for the disposal of residual waste such as streets sweepings, silt from drains, residual waste from processing facilities etc.

4.13 Manufacturers or Brand Owners of Disposable Products and Sanitary Napkins & Diapers

Duty of manufacturers or brand owners of disposable products and sanitary napkins and diapers.-

- (1) All manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of waste management system.
- (2) All such brand owners who sell or market their products in such packaging material which are non-biodegradable shall put in place a system to collect back the packaging waste generated due to their production.
- (3) Manufacturers or brand owners or marketing companies of sanitary napkins and diapers shall explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.
- (4) All such manufacturers, brand owners or marketing companies shall educate the masses for wrapping and disposal of their products.

Actions Recommended for implementation of the Rules:

The manufacturers of disposable products need to be conscious about their corporate social responsibility and take proactive measures to facilitate implementation of the Rules as under:

- Provide financial assistance to local authorities to establish waste management system to collect, transport and dispose off disposable material from the waste streams.
- The manufacturers of branded products using non bio-degradable packaging material shall put in place a system to collect back such packaging material from their outlets or by setting up special waste collection centres. They may incentivise waste pickers/recyclers to join hands with the local authority in collection of such waste.
- The use of sanitary napkins and diapers is increasing rapidly in the country. Therefore before the management of such waste becomes very cumbersome, manufacturers of sanitary napkins and diapers may be persuaded to explore the possibility of using

recyclable materials or provide pouch or wrapper for safe disposal of such waste. It may be emphasised that in larger interest and environmental production the first option of replacing non bio-degradable component from their product would be most desirable.

4.14 Industrial units Located within 100 km from Refuse Derived Fuel (RDF) and 'Waste to Energy' Plants based on Solid Waste

Duties of the industrial units located within one hundred km from the refuse derived fuel and waste to energy plants based on solid waste-

All industrial units using fuel and located within one hundred km from a solid waste based refuse derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refuse derived fuel so produced.

Actions Recommended for Implementation of the Rules:

- The local authorities may prepare a list of industries situated within 100 km from the urban area and ascertain the requirement of power/fuel of such plants.
- The local authorities may explore the option of setting up RDF plant within their own city or for a cluster of cities at a suitable location at their own or through private sector participation.
- The local authority together with the operator of the facility may negotiate with the industry to utilise RDF produced by the local authority in their industry as an optional fuel, taking into consideration the calorific value of RDF vis-à-vis the fuel the industry currently uses in the plant and the cost benefit the industry may derived by using RDF in leave of conventional fuel.
- In case the matter does not get settled through negotiations, the industry may be mandated to use RDF at least to the extent of 5% of the fuel they use in the industry as per Rule '18' above.

5.0 Timeframe for Implementation

The Rules lay down a time frame for implementation of Rules by the local bodies and/or other concerned authorities, by creating necessary infrastructure on their own or by engaging agencies, as per the table below:

Sl. No.	Activity	Time Limit from Date of Notification of Rules
1	Identification of suitable sites for setting up solid waste processing facilities	1 year
2	Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary land fill facilities by all local authorities having a population of 0.5 million or more	1 year
3	Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities	2 year
4	Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary , domestic hazardous and inert solid wastes at source	2 year
5	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities	2 year
6	Ensure separate storage, collection and transportation of construction and demolition wastes	2 year
7	Setting up solid waste processing facilities by all local bodies having 100000 or more population	2 year
8	Setting up solid waste processing facilities by local bodies and census towns below 100000 population.	3 year
9	Setting up common or stand alone sanitary landfills by or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules	3 year
10	Setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules	3 year
11	Bio-remediation or capping of old and abandoned dump sites	5 year

6.0 Need of Institutional Strengthening as well as Training and

Capacity Building of Local Authorities to Facilitate Implementation of the Rules Effectively

Institutional Strengthening:

- Solid waste management requires managerial and technical skills
- Each city should have directorate or department of SWM
- The department should be headed by an environmental or civil engineer with experience in SWM

The institutional structure of the SWM department could be as under:

Cities above 50 lakh Population

- Public Health Engineer or Environmental Engineer or Civil Engineer having training in environmental or public health engineering of the level of Chief Engineer to be in charge of SWM department
- Superintending Engineer per 40 lakh population or part thereof
- Rest of the officers, supervisors etc. as per yardsticks already indicated in Sections 1.4.5.4.2 to 1.4.5.4.5 of the national manual

Cities between 20 and 50 lakh Population

- Public Health Engineer or Environmental Engineer or Civil Engineer having training in environmental or public health engineering of the level of Superintending Engineer to be the Head of SWM Department
- Public Health or Environmental Engineer or Civil Engineer having training in environmental or public health engineering of the level of Executive Engineer
- One Executive Engineer per 20 lakh population or part thereof
- Rest of the supervisors and staff as per the yardstick already indicated in Sections 1.4.5.4.2 to 1.4.5.4.4 of the national manual

Cities between 5 and 20 lakh Population

- Public Health or Environmental Engineer or Civil Engineer having training in environmental or public health engineering of the level of Executive Engineer to be in-charge of SWM department
- Public Health or Environmental Engineer or Civil Engineer having training in environmental or public health engineering of the level of Assistant Executive Engineer per 5 lakh population
- Public Health or Environmental Engineer or Civil Engineer having training in environmental or public health engineering of the level of Assistant Engineer per 2.5 lakh population

- One experienced Junior Engineer, per 2.5 lakh population
- Chief Sanitary Inspector or Sanitary Officers, Sanitary Inspectors, Sanitary Sub-inspectors and Sanitary Supervisors as per yardstick indicated in Section 1.4.5.4.2 of the manual

Cities between 2.5 and 5 lakh Population

- Public Health or Environmental Engineer or Civil Engineer having training in environmental or public health engineering in the Grade of Assistant Executive Engineer to be in charge of SWM department
- Public Health or Environmental Engineer in the grade of Assistant Engineer to look after the transportation, processing and disposal of waste
- One experienced Junior Engineer, per 2.5 lakh population
- Chief Sanitary Inspector or Sanitary Officers to supervise storage, street sweeping, and primary collection of waste per 1 lakh population
- Sanitary Inspectors, Sanitary Sub-inspectors, Sanitary Supervisors as per yardstick indicated in Section 1.4.5.4.2 of the national manual

Cities between 1 and 2.5 lakh Population

- One experienced graduate engineer or Equivalent Health Officer
- One experienced Junior Engineer per 1 lakh population
- Qualified sanitation diploma holder Chief Sanitary Inspector or Sanitation Officer to look after the collection, transportation, processing and disposal of waste: 1 per 1 lakh population/part thereof or 1 per 2 Sanitary Inspectors, whichever is less. Qualified sanitation diploma holder Sanitary Inspector: 1 per 50,000 population/part thereof or 1 per 80 sweepers, whichever is less
- Qualified sanitation diploma holder Sanitary Sub-inspector: 1 per 25,000 population/part thereof or 1 per 40 sweepers, whichever is less. Sanitary Supervisors (a person who can read, write, and report): 1 per 12,500 population/part thereof or 1 per 20 sweepers, whichever is less.
- Towns below 1 lakh Population
- One experienced Junior Engineer, if the population is more than 50,000 or in places with high floating population
- One qualified sanitation diploma holder or Chief Sanitary Inspector or as Sanitary Officer if the population is more than 50,000
- One qualified Sanitary Inspector per 50,000 population
- One qualified Sanitary Sub-inspector per 25,000 population. One Sanitary Supervisor per 12,500 population

6.1 Training Programs and Handholding where Required

The subject of solid waste management has remained neglected for a very long time and the personnel engaged in SWM services have very little exposure to modern systems and

technologies for managing the waste efficiently and cost effectively. The personnel at various levels need to be imparted training and subjected to refresher courses from time to time. States may be given support to set up a few model SWM projects in the state to enable other cities to replicate the best practices. Handholding of such select cities may be done through panel of experts.

6.2 Financial Allocations

Solid waste management services could be supported from various sources of finance such as SBM (U), fourteenth finance commission grants, state finance commission grants as well as internal finances of the state and municipal authorities. Capital investments could be found from the aforesaid sources. However, for the sustainability of the SWM services, adequate funds need to be made available for the O&M of the service.

Certain measures, as mentioned below, must be taken to ensure suitability:

1. Levy of user fees to cover part of the cost of service.
2. Adopt PPP model of service delivery to reduce financial burden on the ULB towards capital investment and manage the service efficiently and cost effectively.
3. Restrict expenditure on non essential/discretionary municipal services and divert municipal funds towards essential mandatory services such as SWM.
4. Involve community in waste minimization through the concept of RRRR to reduce the day to day cost of operations.

7.0 Criteria for Duties regarding Setting-up Solid Waste Processing & Treatment Facility

- (1) The department in-charge of the allocation of land assignment shall be responsible for providing suitable land for setting up of the solid waste processing and treatment facilities and notify such sites by the State Government or Union Territory Administration.
- (2) The operator of the facility shall design and setup the facility as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and the manual on solid waste management prepared by the Ministry of Housing & Urban Affairs.
- (3) The operator of the facility shall obtain necessary approvals from the State Pollution Control Board or Pollution Control Committee.
- (4) The State Pollution Control Board or Pollution Control Committee shall monitor the environment standards of the operation of the solid waste processing and treatment facilities.
- (5) The operator of the facility shall be responsible for the safe and environmentally sound operations of the solid waste processing and/or treatment facilities as per the guidelines issued by the Central Pollution Control Board from time to time and the Manual on Solid Waste Management published by the CPHEEO, Ministry of Housing & Urban Affairs and updated from time to time.
- (6) The operator of the solid waste processing and treatment facility shall submit annual report in Form III each year by 30th April to the State Pollution Control Board or Pollution Control Committee and concerned local body.

8.0 Criteria and Actions to be taken for Solid Waste Management in Hilly Areas

In the hilly areas, the duties and responsibilities of the local authorities shall be the same as mentioned in Rule '15' with additional clauses as under:

- (a) Construction of landfill on the hill shall be avoided. A transfer station at a suitable enclosed location shall be setup to collect residual waste from the processing facility and inert waste. A suitable land shall be identified in the plain areas down the hill within 25 kilometers for setting up sanitary landfill. The residual waste from the transfer station shall be disposed of at this sanitary landfill.
- (b) In case of non-availability of such land, efforts shall be made to set up regional sanitary landfill for the inert and residual waste.
- (c) Local body shall frame Bye-laws and prohibit citizen from littering wastes on the streets and give strict direction to the tourists not to dispose any waste such as paper, water bottles, liquor bottles, soft drink cans, tetra packs, any other plastic or paper waste on the streets or down the hills and instead direct to deposit such waste in the litter bins that shall be placed by the local body at all tourist destinations.

- (d) Local body shall arrange to convey the provisions of solid waste management under the bye-laws to all tourists visiting the hilly areas at the entry point in the town as well as through the hotels, guest houses or like where they stay and by putting suitable hoardings at tourist destinations.
- (e) Local body may levy solid waste management charge from the tourist at the entry point to make the solid waste management services sustainable.
- (f) The department in- charge of the allocation of land assignment shall identify and allot suitable space on the hills for setting up decentralized waste processing facilities. Local body shall set up such facilities. Step garden system may be adopted for optimum utilization of hill space.

9.0 Criteria for Waste to Energy Process

- (1) Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilized for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.
- (2) High calorific wastes shall be used for co-processing in cement or thermal power plants.
- (3) The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tonnes per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorization.
- (4) The State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days.

10.0 State Level Advisory Body

- (1) Every Department in-charge of local bodies of the concerned State Government or Union territory administration shall constitute a State Level Advisory Body within six months from the date of notification of these rules comprising the following members, namely:-

Sl. No.	Designation	Member
1.	Secretary, Department of Urban Development or Local self government department of the State	Chairperson, ex-officio
2.	One representative of Panchayats or Rural Development Department, not below the rank of Joint Secretary to State Government	Member, ex-officio
3.	One representative of Revenue Department of State Government	Member, ex-officio
4.	One representative from Ministry of Environment, Forest and Climate Change, Government of India	Member, ex-officio
5.	One representative from Ministry of Urban Development, Government of India	Member, ex-officio
6.	One representative from Ministry of Rural Development, Government of India	Member, ex-officio
7.	One representative from the Central Pollution Control Board	Member, ex-officio
8.	One representative from the State Pollution Control Board or Pollution Control Committee	Member, ex-officio
9.	One representative from Indian Institute of Technology or National Institute of Technology	Member, ex-officio
Sl. No.	Designation	Member
10.	Chief town planner of the state	Member
11.	Three representatives from the local bodies by rotation	Member
12.	Two representatives from census towns or urban agglomerations by rotation	Member
13.	One representative from reputed Non-Governmental Organization or Civil Society working for the waste pickers or informal recycler or solid waste management	Member
14.	One representative from a body representing Industries at the State or Central level	Member
15.	One representative from waste recycling industry	Member
16.	Two subject experts	Member
17.	Co-opt one representative each from agriculture department, and labour department of State Government	Member

- (2) The State Level Advisory Body shall meet at least one in every six months to review the matters related to implementation of these rules, state policy and strategy on solid waste management and give advice to state government for taking measures that are necessary for expeditious and appropriate implementation of these rules.
- (3) The copies of the review report shall be forwarded to the State Pollution Control Board or Pollution Control Committee for necessary action.

11.0 Annual Report

- (1) The operator of facility shall submit the annual report to the local body in Form-III on or before the 30th day of April every year.
- (2) The local body shall submit its annual report in Form-IV to State Pollution Control Board or Pollution Control Committee and the Secretary-in-Charge of the Department of Urban Development of the concerned State or Union Territory in case of metropolitan city and to the Director of Municipal Administration or Commissioner of Municipal Administration or Officer in-Charge of Urban local bodies in the state in case of all other local bodies of state on or before the 30th day of June every year. UDD of each state shall display consolidated Annual Report of SWM on their respective website.
- (3) Each State Pollution Control Board or Pollution Control Committee as the case may be, shall prepare and submit the consolidated annual report to the Central Pollution Control Board and Ministry of Urban Development on the implementation of these rules and action taken against non complying local body by the 31st day of July of each year in Form-V. All SPCBs / SPCs shall display the Annual Report of SWM on their website and also display success stories in their states.
- (4) The Central Pollution Control Board shall prepare a consolidated annual review report on the status of implementation of these rules by local bodies in the country and forward the same to the Ministry of Urban Development and Ministry of Environment, Forest and Climate Change, along with its recommendations before the 31st day of August each year.
- (5) The annual report shall be reviewed by the Ministry of Environment, Forest and Climate Change during the meeting of Central Monitoring Committee.

12.0 Accident Reporting

In case of an accident at any solid waste processing or treatment or disposal facility or landfill site, the Officer-in-charge of the facility shall report to the local body in Form-VI and the local body shall review and issue instructions if any, to the in-charge of the facility

13.0 Schedules

The SWM Rules, 2016 contain two schedules prescribing the details as mentioned further. These schedules should be referred for complying with the specifications and the standards prescribed therein.

- | | | |
|---------------|---|---|
| Schedule – I | : | Specifications for Sanitary Landfills |
| Schedule – II | : | Standards for Processing and Treatment of Solid Waste |

Schedule No.	Sections	Details Prescribed
Schedule – I Specifications for Sanitary Landfills	A.	Criteria for site selection
	B.	Criteria for development of facilities at the sanitary landfills
	C.	Criteria for specifications for land -filling operations and closure on completion of land filling
	D.	Criteria for pollution prevention
	E.	Criteria for water quality monitoring
	F.	Criteria for ambient air quality monitoring
	G.	Criteria for plantation at landfill site
	H.	Criteria for post-care of landfill site
	I.	Criteria for special provisions for hilly areas
	J.	Closure and rehabilitation of old dumps

Schedule No.	Sections	Details Prescribed
Schedule – II Standards for Processing and Treatment of Solid Waste	A.	Standards for composting
	B.	Standards for treated leachates
	C.	Standards for incineration

14.0 Forms

The formats of different documents relevant to the Rules have been given in the form of forms in Rules. The different prescribed forms and their contents have been given further.

S. No.	Form No.	Description of Form Details
1.	Form - I	Format of application for obtaining authorisation under solid waste management rules for processing/recycling/treatment and disposal of solid waste
2.	Form - II	Format for issue of authorisation
3.	Form - III	Format of annual report to be submitted by the operator of facility to the local body
4.	Form - IV	Format for annual report on solid waste management to be submitted by the local body
5.	Form - V	Format of annual report to be submitted by the state pollution control board or pollution control committee to the central pollution control board
6.	Form - VI	Format of accident reporting

Standard of Door to Door Waste Collection Expected

The city council/corporation may be divided into units of households, shops, establishments each and allot 1 LCV for door to door collection of waste per 1500 units. Two sanitation workers per unit may be assigned the work of door to door collection of waste every day in the morning between 7 am and 11 am or any other time that may be convenient to the households and between 9 am and 1 pm in commercial areas. For collecting waste from 25% of inaccessible areas, the council may use containerized tricycles. The council may divide households in groups of 200 nos. and allocate work of door to door collection to one sanitation worker per 200 households.

1. Standard of Services in the Areas Accessible through Motorized Vehicles

- a. The concessionaire shall deploy at least one covered motorized tipping LC vehicle per 1500 households for Door to Door Collection of Waste, from residential and non-residential premises. The vehicles shall have non-conventional horn so as to alert the citizens about the arrival of waste collection vehicle. If capacity of vehicle is smaller number of vehicles shall be increased proportionately.
- b. Motorized vehicles shall ply on roads, streets, lanes & bye-lanes and each vehicle shall be accompanied by at least 2 sanitary workers. The driver shall blow the horn and the sanitary workers shall blow the whistle intermittently and collect the Waste from all the households, shops & establishments situated on both sides of the road/street in the wards allotted under the contract for Door to Door Collection. The waste collectors shall collect the domestic/trade bins from the member or representative of the households, shops or establishments who may come forward to hand over the Waste to the waste collector on hearing the horn or the whistle. GPS system is to be installed in the vehicle.
- c. Waste collectors shall in a routine course, educate citizens to segregate Bio-degradable and Non bio-degradable waste and keep ready in two bins and handover as soon as they hear the sound of the horn or whistle.
- d. The waste collector shall transfer the contents of the domestic/trade bin into the waste collection vehicle and return back the container to the person who had handed over the waste.
- e. The waste collector shall also pick up the Waste from the entrance of the premises if kept in a lift-able container not exceeding 60 liters capacity by the Waste generator. Waste collector, after emptying the container into waste collection vehicle, shall keep back the container to its original place.
- f. In case of multi storied buildings or large commercial complexes/malls the waste collector will not be required to approach each unit in the premises. The waste collector shall report in front of the premises near the entrance at the ground floor, announce his arrival and give reasonable time to the residents/traders/occupiers/management of the premises to deliver their Waste to the waste collector.



- g. The Concessionaire may enter into a working arrangement with large commercial/institutional establishment/malls etc to pick up their Waste from a fixed point in their premises easily accessible to the waste collection vehicle.
- h. The waste collectors shall move from house to house to collect the Waste from the entrance and shall not insist on the households to come to the vehicle and deposit the Waste inside the vehicle.
- i. The waste collectors shall not enter inside the household premises for collection of Waste to save time and avoid any allegations of theft.
- j. The waste collection vehicle shall move slowly in the residential & commercial areas during the collection process and intermittently stop for a while to enable the waste collectors to deposit the Waste collected from the Door to Door Collection into the vehicle
- k. The waste collection staff shall wear the uniform and behave decently with the citizens they serve.
- l. The waste collectors shall not demand any charges from the citizens for rendering service unless specifically permitted by the Authority.
- m. The Concessionaire shall maintain the fleet of covered vehicles in a good working condition with minimum 20 % spare vehicles (CPHEEO) to maintain the adequacy of the fleet on the road.

2. Door to Door collection through tricycles in inaccessible areas

Concessionaire may divide each inaccessible area into the units of 150 to 250 houses each depending on density of houses and access to roads and lanes. In difficult terrain, average 200 households per private waste collector worker is suggested. One part time worker per unit may be assigned the work of door to door collection of waste every day in the morning between 7am and 11am or any other time that may be convenient to the households. Containerized tricycles may be used as mentioned below:-

- a. Part time workers may be deployed in wards by the Concessionaire through RWAs, NGOs or private sector preferably by upgrading the rag pickers or engaging the existing private sweepers working in several colonies and housing areas.
- b. Waste collector should have a bell attached to the tricycle or given a whistle. He should ring the bell or blow the whistle announcing his arrival at the place of his work and start collecting the waste from the doorstep. The people may be directed that on hearing the bell, they should come out and hand over their domestic bin/bins to the waste collector or deposit their domestic biodegradable waste as well as recyclable waste into the separate compartment of the handcart of the waste collector.
- c. There must be provision for covering the waste while transferring the waste on tricycle and ensure that there should not be spillage of waste during transportation. The condition of the tricycle should be well-maintained with proper signage.



SAMPLE PROFORMAS

a)	Proforma for assessing the gaps in service delivery	44
b)	Methodology of conducting sample survey	46
c)	Proforma for data collection	55
d)	Proforma for need assessment	65



A) PROFORMA FOR ASSESSING THE GAPS IN SERVICE DELIVERY

Sr. No.	Type of service	Standard of service expected	Existing level of service	Gap in service delivery
1	Segregation and storage of waste at source, 1) Bio degradable waste & Non bio degradable wastes in 2 separate bins 2) C&D waste 3) domestic hazardous waste 4) horticulture waste	100%		
2	Primary collection of bio degradable and non bio degradable waste from the door step (which is not treated at household level or given away to recycler)	100%*		
3	Deposition of domestic hazardous waste at its collection center	100%*		
4	Deposition of C&D waste at collection centers (as per C&D waste Management Rules)	100%*		
5	Managing horticulture waste as per directions of municipal authority	100%		
6	Sweeping of streets	100%		
7	Secondary storage of street sweepings if required	100%		

*100% means all households and area covered with all the provisions.

8	Transportation of waste in covered vehicles on a regular basis	100% (Based on transport vehicle type)		
9	Processing of bio degradable waste	100% (Based on MT) Generation = Processing		
10	Handing over recyclables to waste pickers/recyclers	100% (Based on MT) Generation = Recycling)		
11	Segregating non recyclable but combustible waste for waste to energy & or processing of such waste for RDF making / Co-processing	100% (Generation = Waste to Energy + RDF + Co-Processing)		
12	Processing of C&D waste	100% (Generation = Processing)		
13	Disposal of inert residual waste at the landfill	100% (Generation = Inert)		
14	Cost recovery through user fees	80%*		
15	Monitoring & resolving public complaints	80%*		

*Based on assigned value by MoHUA / Municipal Corporation / CPHEEO

Waste Generation = Waste Collection

Waste Collection = (Processing + Recyclable + Non-Recyclable+ Inert) + C&D Waste + Domestic Hazardous Waste + Horticulture Waste + Sweeping of Waste

Note: If Sr. no. 2,3,4 (primary collection, deposition of domestic hazardous waste and C&D waste) is ensured 100%, Sr. no. 11,12 & 13 (segregation for RDF/ Coprocessing, C&D processing and landfill disposal). It implies that if service provision is ensured to be 100%, 100% disposal is also achievable. Sr. nos 3,4 & 5 have one to one relationship with Sr. nos 11, 12 & 13.

B) METHODOLOGY OF CONDUCTING SAMPLE SURVEY

Table of Contents

Instructions to surveyor	47
1 Economic status of households	47
2 Estimation of waste generation rates at a household level	47
3 Estimation of street waste and silt collected from surface drains	54

METHODOLOGY OF CONDUCTING SAMPLE SURVEY TO ASSESS WASTE GENERATION RATES & MANNER OF DETERMINING THE QUANTITY OF WASTE GENERATED IN THE VILLAGE

Instructions to surveyor

The surveyor is advised to have meetings with the mayor/chairman, the municipal commissioner/executive officer and a few key well informed officers and citizens etc, to understand the approximate no. of HH falling in the three economic categories mentioned below and do extensive field visits to collect the required information as shown in the tables below:

1 Economic status of households

Surveyor may ascertain during local consultations the economic status of HH in the village under survey

Table 1: Economic Category of households

Economic Category	Number of Households
High Income Households (>US \$12235) ^k	
Middle Income Households (US \$1006 - 12235) *	
Low Income Households (<US \$1006)*	
Total	

*GNI / per capita / Year

2 Estimation of waste generation rates at a household level

The surveyor may select 10% or 25 households each whichever is less from high income, middle income and low income households for undertaking detailed survey as under and record the findings in table 2A & 2B 3, 4,5 & 6 as under:

The surveyor may undertake an exercise to determine the quantum of bio degradable, non bio degradable waste generated at household level every 24 hours. He may draw samples for 3 consecutive days by distributing pre-numbered/marked one set of two waste storage bags per day for three days to each household selected and request the household to 1) segregate wet and dry waste at home 2) store in one of the bags all their bio-degradable waste (food waste) **which they normally throw away**. 3) Store in another bag all Non bio-degradable waste (dry waste such as paper, plastic, metal, glass, bottles) etc which they generally throw away on the streets, drains, open spaces etc. This should not include the recyclable material they generally keep aside for sale to kabadiwala/recycler and 4) Handover both the bags each day to the surveyor.

The surveyor should then arrange to collect the bags at pre-informed timing each day and weigh the domestic waste bags individually and record the weight of bio degradable waste and non biodegradable waste against the name of waste generator for 3 days and keep day to day records of the same in the formats given.

The surveyor should not mix food waste with dry recyclables at any stage of this exercise. He should only mix the dry non biodegradable waste collected from 10% households or 25 HH category wise **whichever is less** and find out the quantum of recyclables such as paper, plastic, metal, glass etc and inert waste such as dust in the waste delivered by high income, middle income and low income households separately. This exercise should be repeated for 3 days and accurate details should be recorded in the formats given.

**SEPARATE SAMPLES MAY BE DRAWN FROM 10% OR 25 OF SUCH PREMISES
WHICHEVER IS LESS ON THE LINES INDICATED FOR SAMPLING HOUSEHOLD
WASTE AND THAT DATA MAY BE ADDED IN THE TOTAL WASTE GEENRATION
OF THE CITY/TOWN/VILLAGE**

Table 2A: Estimates of Quantity of biodegradable Solid Waste in Sample of Households

Household Number	Name of Head of Household/ Commercial Shop Owner/ School-College Principal	Number of family members (N1)/ Teacher/Students /Staff	Weight of biodegradable solid waste generated per day (Grams)				
			Day 1	Day 2	Day 3	Avg	
High Income							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10..... n							
Total							
Middle Income							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10.... n							
Total							
Low Income							
1							
2							
3							
4			School / College				
5							
6							
7							
8			Commercial Shop				
9							
10..... n							
Total							

Note: For village, Survey shall be carried out for 7 days including weekends which shall also cover commercial shops College, schools, Hospital, Dispensaries

**TABLE 2B: Average of three day measurements to get one-day value for each household
(Calculating from Table 2A)**

Category Total (for all samples) days	Average Number of members (N1) per household	Category Average weight (A) biodegradable solid waste generated in selected households daily (kg.)
High Income Households		
Middle Income Households		
Low Income Households		

Table 3: Estimates of non biodegradable waste and its Components in Sample of Households:

Waste Composition: Dry Non biodegradable Waste collected from group of 10% households from high income, middle income and low income category should be mixed (group wise) and thereafter various components of waste such as paper, plastic, metal, glass and inerts (ash, dust) may be separated manually and weighed and recorded and the component wise details of waste generated by each category of household may be given in the proforma 3 below:

Category of households (total of 10% samples each)	Non biodegradable Waste (Gram) Total of day 1	Table 3 (1) (Day 1)					
		Paper component in 1 (Gram) 2	Plastic component in 1 (Gram) 3	Metal component in 1 (Gram) 4	Glass component in 1 (Gram) 5	Other non biodegradable waste component in 1(gm) 6	Dust & other inert component in 1 (Gram) 7
High Income Households							
Middle Income Households							
Low Income Households							

Table 3.(2) (Day 2)

Category of households (total of 10% samples each)	Non biodegradable Waste (Gram) Total of day 1	Paper component in 1 (Gram) 2	Plastic component in 1 (Gram) 3	Metal component in 1 (Gram) 4	Glass component in 1 (Gram) 5	Other non bio degradable waste component in 1(gm) 6	Dust & other inert component in 1 (Gram) 7
High Income Households							
Middle Income Households							
Low Income Households							

Table 3.(3) (Day 3)

Category of households (total of 10% samples each)	Non biodegradable Waste (Gram) Total of day 1	Paper component in 1 (Gram) 2	Plastic component in 1 (Gram) 3	Metal component in 1 (Gram) 4	Glass component in 1 (Gram) 5	Other non bio degradable waste component in 1(gm) 6	Dust & other inert component in 1 (Gram) 7
High Income Households							
Middle Income Households							
Low Income Households							

Table -4. Average (Day 1+2+3) data given in tables 3 (1,2,3 above) (for group of samples taken in each category)

Calculate the average value for each cell by averaging the values in that cell for day 1, 2 and 3. For example, add the values in the paper column - High income cell for day 1, day 2 and day 3 and divide by 3.

Category Total (for all samples)	Paper (Gram)	Plastic (Gram)	Metal (Gram)	Glass (Gram)	Inserts (street sweepings, dust) (Gram)
High Income Households					
Middle Income Households					
Low Income Households					

Table 5 average of waste generation rate per household/day in each category (Divide the figures given in table 2 B for bio degradable waste and table 4 above for non bio degradable waste by the number of samples taken in each category)

Category	Food Waste (Gram)	Paper (Gram)	Plastic (Gram)	Metal (Gram)	Glass (Gram)	Inserts (street sweepings, dust) (Gram)
High Income Households						
Middle Income Households						
Low Income Households						

Note: prepare similar details for commercial/institutional waste samples and add the quantities in the quantities derived from household waste generation assessment.

Table 6: Summary table showing waste generated by total household in each category

Put in this table the various components of waste generated per household/day as per table 5 above X by total households in each category

Category	Total Food Waste (Gram)	Total Paper waste (Gram)	Total Plastic waste (Gram)	Total Metal waste (Gram)	Total Glass waste (Gram)	Other mixed waste	Total household waste total of (2to7)	Total ash waste (grams)
1	2	3	4	5	6	7	8	9
	Figure as per table 5 above X Number of Household in each category as per table 1 above	Figure as per table 5 above X Number of Household in each category as per table 1 above	Figure as per table 5 above X Number of Household in each category as per table 1 above	Figure as per table 5 above X Number of Household in each category as per table 1 above	Figure as per table 5 above X Number of Household in each category as per table 1 above	Figure as per table 5 above X Number of Household in each category as per table 1 above		Figure as per table 5 above X Number of Household in each category as per table 1 above
High Income								
Middle Income								
Low Income								
Total								

3. Estimation of street waste and silt collected from surface drains

The surveyor may assess the quantity of waste generated in the form of street sweepings and the silt removed from surface drains (Naalis) by studying the pattern of such waste collected by street sweepers and add this quantity of inert waste separately in the final total of the waste generated in the city.

S. NO.	TYPE OF WASTE	QUANTITY OF WASTE GENERATED PER DAY (KG)
1	BIO DEGRADABLE WASTE (TABLE 6-2)	
2	RECYCLABLE WASTE (TABLE 6-TOTAL OF 3-7)	
3	NON BIO DEGRADABLE OTHER WASTE DUST WASTE (TABLE 6 COLUMN 9)	
4	COMMERCIAL/INSTITUTIONAL WASTE	
5	STREET SWEEPINGS/SILT FROM THE DRAINS AS PER FIELD ASSESSMENT	
	TOTAL	

C) PROFORMA FOR DATA COLLECTION

Contents

A. CITY PROFILE	56
B. INSTITUTIONAL PROFILE OF THE CITY	57
C. PRESENT SCENARIO OF SOLID WASTE MANAGEMENT PRACTICES	58
a. Storage of waste at source	58
b. Primary collection of waste	58
c. Street sweeping	59
d. Waste storage depot.	60
e. Transportation of waste	61
f. Processing of waste.	62
g. Disposal of waste.	62
h. Disposal of dead animals	63
D. Financial aspects (Give on Separate Sheets.)	63
E. Health Aspects	63
F. Legal aspects	64
G. Special Problems	64
H. Special efforts made	64

**Proforma for data collection for the purpose ascertaining the current status of
SWM & gaps in service delivery in terms of SWM Rules, 2016**

Name of the City	
name of the district/ s covered	
Name of the region	
name of the country	

A. CITY PROFILE

a. Area of municipal limit _____ Sq. Km

b. Population :

Population	1991	2001	2011	current population
Decadal growth	%	%	%	

c. No. of wards :

No. of municipal wards	No. of sanitation wards

d. Ward-wise area & population (please attach statement)

e. Ward-wise No. of IDP settlements & IDP population (please attach statement)

f. Details of Households, shops, offices, schools etc. in the city

Type of property	No. of units	approximate quantity of Waste generated per day
Households		
Shops and workshops		
Offices and institutions		
Industries		
Vegetables markets		
Fruits markets		
Meats markets		
Fish markets		
No. of hospitals		
No. of nursing homes		
no. of beds in the hospitals/ nursing homes		
No. of path laboratories		
Total no. of hotels		
No. of beds in the hotels		
No. of restaurants		
Others		
Total		

- g. Main industries in the city (attach list)
- h. Main tourist and pilgrimage spots in the city (attach list)
- i. Rainfall and climate

Annual rainfall	Minimum temperature	Maximum temperature

- j. Water table in the area
- k. No. of drains / streams in the city

B. INSTITUTIONAL PROFILE OF THE CITY

- a. Organizational chart of the local Government body (please attach)
- b. Organizational chart of SWM department (please attach)
- c. Manpower details (sanitary worker and drivers)

Type of sanitation workers/drivers	No. of permanent sanitation workers/ drivers	no of temporary sanitary workers /drivers	sanitation workers on contract/ drivers
street sweepers			
drain cleaners			
transportation staff			
engaged in treatment of waste			
engaged for disposal of waste			
Driving of vehicles			

- d. Supervisory staff deployed

designation	Nos.
lowest level supervisor	
sanitary inspector	
chief sanitary inspector	
environmental/ civil engineer	
health officer	
director	
Total	

- e. Tools given to sanitary workers for Street sweeping, surface drain cleaning, etc. and the frequency of replacing tools.

- 1.
- 2.
- 3.

C. PRESENT SCENARIO OF SOLID WASTE MANAGEMENT PRACTICES

a. Storage of waste at source

1.	Whether households, shops and establishment Keep domestic, trade, institutional bins at the Source of waste generation for storage of waste? If yes; What percentage of population stores the waste at source?	<u>Yes/No</u> (%)
2.	What percentage of population throws the waste on streets, open spaces, etc	(%)
3.	Whether there is a system of segregation of recyclable waste at source? If yes; What percentage of households/ shops/ establishments keep separate bins for storage of bio degradable (wet food waste) and dry non biodegradable (recyclable) waste at source?	<u>Yes/No</u> (%)

b. Primary collection of waste

1.	Have you introduced any system of door to door collection of waste from households , shops and establishments If yes, the no. of wards and percentage of population covered through Door to door collection system?	<u>Yes/No</u> (%)
2.	Whether any private sector/ NGO /CBO/Resident welfare association is involved in D2D collection ? If yes, give full details on a separate sheet	<u>Yes/No</u>
3.	Mention the system of waste collection adopted in the City for collection of household waste, commercial waste, market waste, bio-medical waste, construction waste. (Attach a sheet mentioning the above details)	

- viii. Whether each sweeper is given independent handcraft.
- ix. Whether the handcrafts are containerized or are traditional necessitating unloading the waste on the ground?
- x. Duty hour of the street sweeping
- xi. Type of brooms given – Long handled or short handled?
- xii. What minimum distance the sweeper has to walk with his handcart to unload the waste at the waste storage
- xiii. Whether street sweeping is done on all the days of the Year, including Sundays and public holidays. If not, on which days no work is done.
- xiv. Whether private sector/NGO is involved in this activity? If yes give full details.
- xv. No. of Mechanised Sweeping Machines.

d. Waste storage depot.

- i. Whether the city has secondary waste storage System (dust bin)
- ii. If yes, give ward-details in a separate table as under:

Name of the ward	No. of open waste storage sites	No. of masonry bins	No. of round concrete pipe bins	No. and type of covered metal containers	Other type of bins, if any	Total bins / storage sites in the ward	total storage capacity of the bins / sites

- iii. Normal distance between two bins
- iv. Bin population ratio in each ward. (Population of the ward divided by no. of bins)
- v. whether waste collected from the door step and the streets is stored separately
Or
Whether both types of waste are mixed in a common bin/vehicle
- vi. Whether private sector/ NGO is involved in this activity? If yes, give details
- vii. Frequency of lifting waste from open waste storage sites and clearing the street bins / containers:

viii. Show all waste storage sites on the city map

e. Transportation of waste

i. No., type and age of vehicles utilized for Transportation of waste. (Attach statement)

Type of vehicles	No. of vehicles	Volume of each vehicle in MT/ capacity to lift containers.	Age of the vehicle

ii. No. of trips made by each type of vehicle in one shift

iii. No. of drivers deployed

iv. No. of shifts in which transportation activity is carried out.

First shift	Second shift	Third shift
.....MT	.....MT	.....MT

v. Quantity of waste transported each day.

vi. How the quantity of waste transported is measured?

By weight (through Weigh Bridge) , volume, or visual estimate.?

vii. Whether the waste collected from the door step is transported directly to waste processing site ?

viii. If no, whether door step collected waste is mixed with street sweepings during transportation of waste ?

ix. What are the average distance the vehicle has to travel to reach the processing /disposal site?

x. Whether transportation of waste is carried out on all the days of the year including Fridays /Sundays and public holidays.

xi. Whether there is any arrangement for transportation of bio-medical waste, hotel waste, construction and demolition (C&D) waste separately.
If yes, give details for each on a separate page.

xii. Whether private sector is involved in this activity?
If yes, give details.

Yes/No

xiii. Give existing Route map for transportation of waste ?

f. Processing of waste.

i. Whether any processing of solid waste is being done?
(such as vermi composting/ microbial composting /
Bio-methanation/RDF/waste to energy.)
If yes, give details.

Yes/No

ii. Quantity of waste treated each day

iii. Technology/ technologies adopted

iv. Area of the processing site.(in acres/hectors)

v. Distance of the processing sites in KM from

- City center
- Boundary of the city
- Nearest residential area
- nearest water body
- nearest airport (if within 20 km)
- historical / religious place(if with I one km)
-

vi. Whether private sector/NGO is involved in this activity?
if yes, give details.

Yes/No

g. Disposal of waste.

I. How many municipal solid waste disposal sites (dumpsites)-
are available with the local body. Give details as under:

name of dump site /landfill site	whether open dump or sanitary landfill	Distance from the city centre.	distance from nearest city boundary	area in hectare	distance from habitation, water body, airport, historical monument , imp. Religious place(if within 1 km)	since when in use? /dump	expected life of landfill site

- ii. Whether the waste deposited at the landfill site is spread on day to day basis?
- iii. Whether the waste deposited at the landfill site is covered with inert material on day to day basis?
- iv. What are the equipments available at the landfill Site for spreading/ compacting/covering the waste,
- v. Do you have separate arrangement for collection, transportation and disposal of bio-medical waste?
if yes, give details.

h. Disposal of dead animals

- i. How do you dispose dead animals?
- ii. Whether private sector/NGO/ contractor is involved in this activity?
If yes, give details. _____

D. Financial aspects (Give on Separate Sheets.)

- a. Give details of the annual revenue & capital budget of the local body in last three years.
- b. Give details of the allocation of funds for SWM (such as street sweeping, primary collection Secondary storage , transportation ,processing and disposal of waste including Staff salaries) in the budget during last three years.
- c. Give details of the amount actually spent on providing SWM (such as street sweeping, primary collection secondary storage, transportation, processing and disposal of waste during last 3 years. This should include salary of sanitation staff, supervisors, drivers, vehicle maintenance, petrol, diesel, etc. used for SWM department.)
- d. whether the user charges are levied from the beneficiaries?
if yes give the detailed structure of levy of user fees from Residential, Commercial, Institutional, premises etc.

E. Health Aspects

- a. Whether any protective gears such as uniforms, shoes, masks and gloves, etc., are given to sanitary workers.
if yes, give details.
- b. Whether sanitary workers are subjected to periodical medical check.
if yes, give details.
- c. Whether any medical allowance or free medical service is given to sanitary workers.
if yes, give details.

F. Legal aspects

Whether local government has framed Bye-laws for regulating solid waste management in the city?
If yes, give details

Yes/No

G. Special Problems

Give details of special problems if any faced by the local government in Solid Waste Mgmt.

H. Special efforts made

Give details of special efforts, if any, made by the local government to improve solid waste Management practices.

Date:

I. Whether management information system / monitoring mechanism is in place?
If yes, give details.

J. Whether any fines are levied for littering of waste on the streets and for non adherence to bye laws?
if yes, give details.

Signature of Head of the organization

D) PROFORMA FOR NEED ASSESSMENT

Table of Contents

1.	General details	66
2.	Need Assessment	66
	A) Door to door collection	66
	B) Street sweeping	68
	C) Secondary storage of waste	68
	D) Transportation of waste	69

Proforma for determining need of Vehicles, Equipment, Manpower & Finances for SWM

1. GENERAL DETAILS

Sr. No	Particulars	
1	Name of the city/town	
2	Area in sq.km	
3	Population (2011 census)	
4	Total waste generated/day	
5	Total waste transported/day	
6	Distance of processing facility/facilities	
7	Distance of landfill/dumpsite	

2. NEED ASSESSMENT

A) Door to door collection

a. Population living in accessible areas having motorable streets

b. Population living in inaccessible areas not having motorable streets such as slums, congested areas

c. Need for door to door collection from accessible areas:

i. Light covered commercial vehicles of 3cum/5cum capacity with central partition for storage of wet and dry waste separately @ 1 vehicle per 7500/10000 population respectively to cover entire population of the city (including inaccessible areas) city population/7500 or 10000 as the case maybe)

ii. Need of waste collectors to accompany Light commercial vehicle (LCV) for d2d collection (2persons per 1 LCV as per (i) above)

iii. Need of drivers for door to door collection of waste (1 driver per LCV as per (i) above)

d. Need for door to door collection from inaccessible areas:

i. Containerized tricycles (4/6 containers) required @1 tricycle per 1000 population living in inaccessible areas as per A (b) above for d2d collection & direct transfer of waste in collection vehicles stationed outside the congested areas set apart from c (i) above

ii. Need of waste collectors (1person per 1000 population shown in A (b) above)

e. Spare vehicles and tricycles required for immediateLCV.....Tricycle replacement in case of break down and preventive maintenance to ensure reliability of service [10% of LCV shown in c(i)& 5% of tricycles shown in d(i)]

f. Cost of vehicles, equipment & manpower per year:

Item	Quantity required	Unit cost (Rs.)	Total cost/ annual cost
LCV	As per c(i) above	As per market rate approx (6.5 lacs)	
Containerized tricycle (including 4/6 containers of 250/300lt capacity)	As per d(i) above	As per market rate (approx Rs.15000)	
Waste collectors for D2D collection vehicle	As per c (ii) above	As per prevailing minimum daily wage in the state	
Waste collectors for d2d collection through tricycle	As per d (ii) above	As per prevailing minimum daily wage in the state	
Drivers for d2d collection	As per c (iii) above	As per prevailing minimum daily wage in the state	

Note: The state agency may ascertain the prevailing market rate of LCVs and tricycle as well as minimum wage rates to the officials concerned to maintain uniformity in determining costs.

B) Street sweeping

- i. Requirement of street sweepers (Average requirements of street sweepers 1 per 500 running mt)

Type of roads	Road length in km	Yardstick for manpower deployment	Manpower required for street sweeping
High density areas	—	1 per 350 running mt	
Medium density	.....km	1 per 500 running mt	
Low density	.....km	1 per 750 running mt	
Total			

- ii. Number of handcarts/tricycle required @1 per street sweeper as per B(i) above+5% additional for replacement in case of break down

- iii. Cost of handcarts/tricycles B(i) X unit cost of handcart/ tricycle

C) Secondary storage of waste

Note: secondary storage facilities may be provided in a situation where it may not be convenient to transfer street sweepings from handcarts/tricycles directly to collection vehicle stationed at strategic locations to facilitate street sweepers to transfer their waste into collection vehicles meant exclusively for street sweepings and silt from surface drains etc.

- i. No of secondary waste storage depots required in the city/town @ 4 covered black color containers per sq.km of city area if bin size selected is ranging between 3 & 5 cum volume or 8 per sq.km if the bin size selected is between 0.6 and 1.1 cum volume (city area in sq.km X 4 or 8) depending on the density of population and quantum of waste is generated in a given area. A mix of both can also be adopted

ii. Cost of containers

Type of containers	No. of metal containers required	Unit cost	Total cost
4.5 cum	As per C(i) above	As per market rate (approx 60,000/-)	
3 cum	As per C(i) above	30,000/-	
1.1 cum	As per C(i) above	24,000/-	
0.6 cum	As per C(i) above	10,000/-	

iii. Construction of transfer station :

- If the distance between collection area and processing/disposal facility is more than 15 km, it is desirable to have transfer station @ 1 transfer station per 300-400 tonnes of waste or part thereof.
- The transfer station should have either large hauling vehicles or static compactor and large containers for bulk transfer of waste. The capacity of hauling vehicle or container should be at least 10 metric tonnes of waste. 3 trips to the processing/disposal site would be possible in a working shift carrying at least 30 tonnes of waste per hauling vehicle or large container with container lifting device.
- In small cities where quantity of waste is less, a simple transfer station may be proposed where small vehicles can go over a ramp and directly transfer the waste into large hauling vehicles parked at a lower level.
- The cost of transfer station would vary according to the quantum of waste to be transported. It could vary between 1 and 4 crores rupees. The cost may be estimated @ 1crore per 100 tonnes of waste to be handled at a transfer station including facility of computerized weigh bridge costing around Rs. 10 lacs.

D) Transportation of waste

Quantity of waste currently being transported per day	.....
Quantity of waste that need to be transported per day as per tentative estimation as under	..... Metric tonnes

Yardstick

Town under 1 lac population	250 grams/capita/day
City between 1 & 5 lacs population	350 grams/capita/day
City between 5 & 20 lacs population	400 grams/capita/day
City between 20 & 50 lacs population	500 grams/capita/day
City above 50 lacs population	600 grams/capita/day

Note: If the waste estimation carried out on the field reveals larger quantity of waste, that figure may be taken into consideration.

ii. No. and type of vehicles required for transportation of waste

Type of vehicle	No. of vehicle required	Unit cost	Total cost
LCV for D2D collection	As per A (c)(i)+ A (e)		
Dumper placers for lifting 3-5 cum containers	.....@1 vehicle per 10 containers		
Refuse collectors/compactor for 0.6 to 1.1 cum containers	....@1 compactor per 60 containers or part thereof		
Large hauling vehicles for bulk transfer of waste from d2d collection vehicles/ 3-5 cum containers at transfer station if distance of processing facility/disposal site is more than 15 km	....@1 large hauling vehicle per 30 tonnes of waste to be transported		
Spare vehicles required	Minimum 10% vehicles may be additionally procured for pressing into service in case of break down or preventive maintenance		

Total manpower requirement for collection and transportation of waste

Sr. No.	Type of service	Manpower required	Daily wage cost	Annual cost
1	Waste collectors for D2D collection	As per A(f)		
2	Drivers for D2D collection	As per A(f)		
3	Street sweepers	As per B(i)		
4	drivers for Transportation of containers & large hauling vehicles	As per D (ii)		
5	Sanitation workers to accompany transport vehicles covered in 4 above	@ 2 per vehicle		

Total capital cost Rs....

Total establishment cost per year Rs.....

Date:

PART - III

ANNEX CASE STUDIES

- 1. Panaji**
- 2. Warangal**
- 3. Surat**
- 4. Pune**
- 5. Mumbai**



A Journey towards a Successful Waste Management System Leading to a Landfill-less City

Location: Panaji

Year of Start: 2003

Main Players: Corporation of the City of Panaji (CCP), school and college staff and students, resident welfare associations (RWAs), local leaders and celebrities.

Approach: Panaji, the capital of Goa, is a city with a strong cultural heritage. Apart from being a popular tourist destination, it is also an administrative centre and commercial hub for the state. Under the strong political will and administrative leadership of the Municipal Commissioner, a comprehensive city revitalisation campaign was launched to improve sanitary conditions and solid waste management (SWM). The “Bin Free in 2003” campaign was part of the “Together for Panjim” initiative. Under this initiative, the following strategies were adopted to significantly improve the SWM system.

Technical Strategy:

1. Community bins were substituted by trolley bins as an intermediate stage of transfer.
2. Modifications were made in the hydraulic arm of the garbage trucks to enable transfer of waste from the trolley bin into the truck without manual intervention.
3. Segregation at source was initially introduced as wet and dry segregation (two bins). As of 2015, source segregation is undertaken in eight clear waste streams (wet, paper, plastic bags, metals or glass, non-recyclable, tetra packs, cardboard, and plastic bottles) with designated colour coding for the waste fractions.
4. Household bins with screw on lids were designed to prevent spillage of garbage by stray animals when households keep waste outside for collection.
5. Material recycling stations were established within colonies for further segregation of dry waste.
6. Decentralised composting units were constructed for converting wet waste into manure for community usage. Hotels were also asked to install decentralised composting units in their premises.
7. Tie-ups were made with various recycling units for selling bulk segregated wastes. Extended Producer Responsibility (EPR) initiatives were adopted through innovative measures like:
 - (i) tie-ups with local dairies for paying residents a specified amount for returning washed empty plastic milk bags at the local dairy booths; and
 - (ii) tie-up with Tetra Pak (company) for buyback of empty tetra packs.
 - (iii) Co-processing of plastics and other dry fraction rejects in the cement industry.
8. Two baling machines (1 ft x 1 ft and 1 m x 1 m) for bailing dry fractions or plastic waste for different cement plants were designed. Bailed waste was sent to four different cement plants, 250 km–600 km from the CCP, for co-processing.
9. Hazardous wastes like batteries and tube lights were segregated and, once sufficient quantities were obtained, transported to the treatment, storage, and disposal facility (TSDF) in Karnataka.

Manual on Municipal Solid Waste Management

10. E-waste and thermocol were collected separately, but currently no tie-ups exist between them.

Institutional Strategy:

11. A SWM cell was formed in the CCP, headed by a Waste Management Officer.
12. The field services were headed by a Sanitary Inspector who was in charge of 15 supervisors to oversee the waste collection and transportation of each zone.
13. Intensive monitoring was carried out by the corporation staff.
14. Centralised complaint redressal system was established with a 24-hour helpline to clear any uncollected or unattended garbage. Quick response vehicle was designated for the purpose.
15. Adequate health and safety measures were provided to the sanitary workers.

Public Communication Strategy:

16. To initiate the segregation process at the household level, green and black bins were provided to the residents at subsidised rates.
17. For increasing community participation in this drive, the Municipal Commissioner and the Waste Management Officer organised meetings to disseminate the details of Segregated transport



Segregation of dry waste into 8 streams



Composting units in housing societies

TECHNICAL ASPECTS: SEGREGATION, COLLECTION AND TRANSPORTATION

The management system, its functioning, and the segregation of waste at household level.

18. As part of the campaign, cultural programmes like music festivals, fairs, and carnivals were held with a theme and message of civic hygiene and responsibilities of citizens toward maintaining cleanliness in the city.
19. Involvement of schools and colleges in the campaigns were promoted.
20. Waste management was introduced to children from primary school onward, and children learned the different colour codes for segregation in school.

Financial Strategy:

21. User charges were introduced by the CCP and collected by the supervisors.
22. Maintaining the ward-wise accounts, the supervisors were responsible for payment of cash incentives to the collection and transportation workers and for depositing the surplus amount.

21. Other revenue sources were
22. sale of compost;
23. sale of segregated waste for recycling like plastic bottles, cardboard boxes, etc.;
24. And EPR initiatives, e.g., with Tetra Pak.
25. Costs were incurred by the CCP for bailing and transporting waste for co-processing to cement plants. This acted as an incentive for increasing recycling tie-ups with other players in the market.

Outcome:

26. Collection of segregated waste from the households was 100%, and waste was further sorted into eight waste streams at the recycling stations.
27. Rag pickers, women volunteers, and self-help groups (SHGs) were actively involved in streamlining the waste management system.
28. Segregated waste was transported to the recycling units and compost units for further processing.
29. Recycling efficiency improved through market creation and tie-ups for PET bottles, plastic bags, etc.
30. Waste to landfill was minimised through effective management by co-processing waste fractions and sending hazardous waste to TSDF.

Success Factors:

31. The vision for the city was clear, and there was a strong and stable leadership.
32. Institutional and managerial models were established within the CCP.
33. Technical innovations were designed for segregation, minimal manual handling of waste, co-processing, EPR, and tie-ups.
34. Intensive campaigning and meetings with RWAs on the overall concept of source segregation were promoted. Youth, local celebrities, corporation staff, and communities were actively involved in awareness generation activities. The waste segregation system was integrated in the curricula from primary level onward.

Manual on Municipal Solid Waste Management

Overall Sustainability:

The expenditure on the solid waste programme has been managed entirely from the CCP's own sources. Collection of user charges and the various recycling initiatives have resulted in the financial sustainability of the project. The cash incentive scheme for the workers has ensured the programme is running on the ground. And surplus fund is deposited into the CCP's account for later use or innovation.

Source: CCP

Case study 2: Warangal

The Clean Cities Championship: A Participatory Approach for Improved Municipal Solid Waste Management in Warangal

Location: Warangal

Population: 3,512,576 (Census, 2011)

Year of Start: 2012

Main Players: Directorate of Municipal Administration, Government of Andhra Pradesh, Warangal Municipal Corporation (WMC), Clean Cities Foundation, Andhra Pradesh Industrial & Technical Consultancy Organisation, Andhra Pradesh Pollution Control Board, communities, and school students.

Approach: In order to make waste management a competitive sport, the Clean Cities Foundation in partnership with the Directorate of Municipal Administration started the initiative of source segregation and door-to-door collection service in collaboration with Andhra Pradesh Pollution Control Board and Andhra Pradesh Industrial & Technical Consultancy Organisation. This was a low-cost participatory approach for integrated municipal solid waste management. The process included a hands-on approach to planning a sound waste management system and then implementing cost-effective solutions on the ground. Strong leadership from the administrators and politicians ensured participation and revenue generation for sustaining the process.

The following approach was adopted:

- Financial grants for the championship were first secured from different departments at state level.
- Intensive pre-championship activities were carried out, namely:
 - ✓ Planning inputs: Assessment of resource and capacity enhancement needs for WMC
 - ✓ Administrative planning: Creation of solid waste management (SWM) and resource management wing within WMC with clear roles and responsibility
 - ✓ Technical planning: Micro route mapping and collection and transportation efficiency route synchronisation of RWAs, market associations, NGOs, SHGs, and other stakeholder should be held until the community fully adopts this practice. The ULB through the NGOs, Rotary clubs, CBOs, and other such organisations should conduct school-level awareness and education programmes focusing on source segregation; waste minimisation through reduce, reuse, and recycle; and the importance of proper management of waste. Students should be made aware of the menace posed by increasing waste quantities and environmental impacts of unscientific disposal. School authorities should educate and encourage students to practise segregation of waste in schools as per specifications given above in Table 2.1. Building community awareness and consensus is essential for ensuring community participation in storage of segregated waste

TECHNICAL ASPECTS: SEGREGATION, COLLECTION AND TRANSPORTATION

Procurement of infrastructure like:

- Pushcarts with tools for segregation, bins, weighing scales, dry resource bags, and personal protective equipment
- Tractors, sirens, and audio systems
- Vermi-compost sheds and windrow compost pads and dump site
- Dry resource centres with bailing units
- Biogas plant

Transportation plan and rationalisation of vehicles, including servicing and deployment of compactors for secondary transportation

- Route and loading plans (373 pushcart-wise maps for 53 wards) prepared by field-level functionaries for the entire city on geographic information system maps provided by WMC, thus ensuring ownership of WMC
- Tie-ups with:
 - ✓ Private weighbridge close to dump site for continuous measurement of waste quantities
 - ✓ Recycling units to sustain the activity through revenue generation and creation of market for the material Cement plants for dry combustibles that could not be recycled
- Stakeholder involvement:
 - ✓ Women SHGs were involved in door-to-door collection of waste in 60,000 households, which they already served. This was to demonstrate waste collection to other households in the area.
 - ✓ Mass awareness campaigns regarding segregation of waste were organised through different means like media, cycle rallies, etc. Focus group discussions among religious groups, resident welfare associations (RWAs), schools, colleges, self-help groups (SHGs), etc. were also conducted.
 - ✓ The WMC staff and municipal staff from other cities were divided into teams and received hands-on training during the championship. There were 240 teams from WMC and 130 teams from other cities.
- Training and Capacity Building:
 - ✓ Teams for carrying out the segregation and collection of waste were organised.
 - ✓ Training on the segregation and collection of waste was provided to the municipal staff and workers

The Championship:

- Championship was spread over 7 days.
- Different coloured contest cards were introduced for the municipal staff, SHGs, and households during the championship. Signatures on the cards by the route monitors (National Cadet Corps) earned eligibility to be part of the target group draw for prizes.
- Intensive micro and macro level management and continuous dynamic SMS updates were made on the official website of WMC for verification.

Manual on Municipal Solid Waste Management

Each participating team (WMC and other cities) was assessed for performance, and the winning team was awarded.

Outcome:

- SWM wing was established to oversee the task carried out on a timely basis and to address the problems as and when generated.
- Segregated waste was collected and weighed daily per route, and the data bank was updated through internet on real-time basis. Accurate measurements were documented for the total waste generated in Warangal City and of recycled, combustible, and compostable waste.
- Segregated waste was further transported to sorting centres, recycling units, and cement plants.
- WMC was able to reduce 30% to 40% of waste going to the dump site.
- Improved collection efficiency through constant training, monitoring, and efforts from the team to build the capacities of the workers.

Success Factors:

- A strong political and administrative will was required, and the Commissioner led the championship.
- Strategic planning and correct pre-assessment of the existing situation were initiated.
- Minimal financial inputs were needed to improve or adopt the locally appropriate technologies for the required capacity of MSW in the city.
- Training of municipal staff and SHGs was implemented and so was the ownership of the ground level workers in the system.
- Training and capacity building of the urban local body (ULB) staff was promoted as well as awareness and involvement of the citizen to ensure continued practice of the system.
- Intensive campaigning and interaction of officials with citizens was initiated regarding the proposed door-to-door collection and segregation of waste.
- Intensive monitoring of activities by the ULB was carried out with support of different group like citizen groups, National Cadet Corps, online systems, etc.

Sustainability:

There has been a reduction in operation and maintenance (O&M) costs by 30%. This initiative can be sustained through the regular municipal budget of the ULB as well as the revenue generated from the sale of recyclables and compost. However, for centralised infrastructure and rehabilitation of the dump site, financial aid would be required.

This model of championship has been replicated in Guntur and Visakhapatnam in Andhra Pradesh, and many other municipalities have showed interest in doing the same to set up an efficient system of awareness raising and of segregation, recycling, and transportation of waste.

Source: WMC

Case study 3: Surat

Effective Collection and Transportation System to Manage Municipal Solid Waste in Surat

Year of Start: 1995 and scaled up in 2007

Main players: Surat Municipal Corporation (SMC), PPP contractor, Resident welfare associations.

Approach: Surat, the industrial hub and trade capital of Gujarat is one of the fastest growing cities in the state. Owing to its economic importance, the population of Surat continued to grow over the years and increased eight fold in the last four decades.

However, the city infrastructure could not keep pace with its population increase leading to inadequate service provision, poor sanitation conditions, and unhygienic surroundings thereby impacting public health. This sporadic development and lack of basic services and infrastructure led to an outbreak of plague in the year 1994 claiming many lives.

The major cause of the plague was considered to be ineffective management of waste, which led to the blockage of storm water drains resulting in flooding of the fringe areas of the city.

As plague was considered to be a manifestation of the service inabilities related to solid waste and drainage management, the Surat Municipal Corporation assessed the issues and challenges of city administration and carried out major administrative as well as technical reforms for improving the overall system. The following approach was adopted for bringing about significant improvements in the solid waste management system:

- Administrative and financial reforms were carried out along with the rearrangement of the six zones of waste management into 52 sanitary wards for better control of waste collection
- Introduction of centralised complaint redressal system in order to create a responsive waste management system.
- Slum improvement operations were undertaken with the assistance of NGOs.
- Introduction of daily monitoring system for enhancing waste collection and its efficiency.
- Ensuring cleanliness and street sweeping round the clock at nuisance spots.
- Engaging private contractors for collection and transportation of waste to the disposal site, as well as sweeping and scrapping all major streets during the night time.
- Identification and selection of vehicle based on the width of the road and route provided.
- Introduction of Time Place Movement for the collection and transportation system wherein collection vehicles have to move in accordance with the provided time schedule, areas of coverage and number of units.

- Establishment of bulk garbage collection systems for hotels, commercial establishments, slaughterhouses that will collect waste in separate shifts suiting their requirement and timings. Massive community meetings were organised by SMC to disseminate the details of the collection system and its functioning.

Manual on Municipal Solid Waste Management

Outcome:

- More than 90% of coverage of SWM services in Surat and collection of waste from the households.
- Timely collection of waste from every household/ shops on daily basis.
- Effective and timely redressal of complaints by the ward supervisors for non-delivery of service.
- Installation of GPS systems on all the vehicles in order to track and improve the collection and transportation efficiency of the vehicles.
- Overall environmental improvement and aesthetic value of the city.
- Skill development and capacity building of the ground staff and contractors engaged in collection of solid waste was undertaken when the system was introduced.

Success factor:

- Strategic planning and revisiting/ assessing the existing situation.
- Proactive role of SMC to streamline and monitor the collection and transportation system.
- Capacity building of SMC staff, contractors, vehicle drivers and workers prior to the installation of the system.
- Collection of waste at a stipulated time by the contractors.
- The real time tracking of the vehicles through time place movement chart and GPS systems.
- Intensive campaigning and interaction of officials with citizens regarding the proposed door to door collection system.

Overall sustainability:

Collection of user charges has resulted in the financial sustainability of the project. Surat Municipal Corporation has started collecting user charges towards various services like water, sewerage, solid waste and street lighting. It is being collected once in a year along with the property tax bill. The user charges collected through these services meet the O&M cost of the services. The efficiency of tax collection is also more than 90%. Apart from this, there is a well-defined system of collection of administration charges towards various offences like littering garbage, absence of garbage collection bins, open burning etc.

Source: SMC

Case Study 4: Pune, Pimpri Chinchwad, Maharashtra

Organizing the Unorganised: Toward Formalisation and Social Inclusion of Informal Waste Pickers and Recyclers

Location: Pune, Pimpri Chinchwad, Maharashtra

Main Players: Kagad Kach Patra Kashtakari Panchayat (KKPKP), Solid Waste Collection and Handling (SWaCH), Pune Municipal Corporation (PMC), and Pimpri Chinchwad Municipal Corporation

Year of Start: KKPKP 1993, SWaCH-2007

Approach: KKPKP is a registered trade union of waste pickers, scrap collectors, and itinerant buyers working in the cities of Pune and Pimpri Chinchwad (Maharashtra). It was founded in 1993 with 800 members to secure their livelihood and restore their dignity and rights as workers and as citizens. It was formed on the basic premise that scrap collection is “work” and scrap collectors are “workers.” In 2013, KKPKP has around 9,000 members, most of whom are Dalit women. In 1998, KKPKP promoted Kagad Kach Patra Nagari Sahakari Pat Sanstha (KKPNSPS), a savings-linked credit cooperative of waste pickers.

In 2007, KKPKP promoted SWaCH, a waste pickers cooperative. SWaCH is the institutionalised outcome of a pilot project jointly undertaken by KKPKP, SNDT Women's University, and the PMC. The autonomous social enterprise provides front-end waste management services that include door-to-door waste collection, composting, and biogas plant operation and maintenance through an agreement with the PMC. For the Pimpri Chinchwad Municipal Corporation, 350 members of KKPKP also work as contract workers in door-to-door collection.

In PMC, 2,300 SWaCH members service 400,000 households, offices, shops, and small commercial enterprises. The workers of SWaCH are not municipal employees but have been authorised to recover user fees for the services that they provide. Each worker provides door-to-door waste collection services to about 100–150 households and is paid Rs20–Rs30 per household per month by the service user. The worker also has rights over the recyclable materials. Together, the workers earn minimum or higher than minimum wages with flexible hours of work. Collection is carried out using pushcarts and motorised waste collection vehicles. Collection and safety equipment and space for material recovery are provided by the PMC. Between 2012 and 2013, SWaCH has cost the PMC a total of Rs. 3.63 crore, which amounts to Rs. 2 per household per month, the lowest spent by any municipality in the country. A proposal for provision of social security and welfare benefits to waste pickers is under consideration.

Institutional Structure:

KKPKP is a democratic membership organisation. Its office bearers include the President, General Secretary, Joint Secretary, and Treasurer. The main decision-making body is the Representatives Council of 80 members, largely women. The Council meets once a month for deliberating and

resolving issues. The education level of the members varies from illiterate to class 12 who take care of the functions of the union. The union also has a few hired staff, quite a few of whom are members' children. All members pay an annual membership fee.

Manual on Municipal Solid Waste Management

Approaches for Economic, Social and Political Inclusion:

Waste pickers are an economically marginalised, socially excluded, and politically disempowered occupational community. The KKPKP therefore relies on the twin strategies of struggle and agitation for rights and social justice as well as reconstruction through institutional alternatives. Institutionally, SWaCH and KKPNSPS deal more with economic and financial inclusion, while the KKPKP focuses more on social and political inclusion and addressing injustice and inequality.

The following are the approaches for economic, social, and political inclusion:

- Seeking state recognition of scrap collectors as “workers” and scrap collection as “work”
Organizing and mobilizing scrap collectors into a trade union so that they are recognised as workers
- Visibility and voice for waste pickers as workers, dalits, women, and citizens
- Seeking municipal recognition and legitimacy through issue of photo identity cards for contribution to waste management and recycling Rights to access recyclables
- Claims on government resources such as space for material recovery centers, collection and safety equipment, children's scholarships, medical and life insurance, and welfare benefits
- Market interventions for fair trade and labour practices in the scrap trade
- Revision and restructuring of solid waste management to include labour,overnance and environmental concerns
- Engagement in citizenship rights and governance

Outcome:

- Waste pickers recognition as workers and scrap collection as work in Maharashtra and some other states through provision of identity cards in various government documents, such as the Bajaj Commission Report, Second National Labour Commission Report, and Plastic Waste (Management and Handling) Rules.
- Entitlements to collection equipment, medical and life insurance, educational benefits for children
- Inclusion as an occupational category under the Socio-economic Caste Census and Antyodaya beneficiaries under the Food Security Act, 2013
- PMC provided identity cards to KKPKP workers in 1995–1996 and later provided medical insurance and educational scheme benefits to all registered waste pickers.
- Pimpri Chinchwad provided dedicated space for sorting and segregation of waste in 1998.
- Organised door-to-door collection and transportation services for the citizens through SWaCH and KKPKP since 2006
- SWaCH and KKPKP have organised drop-off points for collection of

municipal waste, e-waste and old clothes, environmental awareness campaigns, and other outreach programmes for the citizens.

TECHNICAL ASPECTS: SEGREGATION, COLLECTION AN TRANSPORTATION

Contribution to Outcomes:

- Strong political influence through intensive mass campaigning and rallies
- Participatory institutional structures and processes in the union and cooperatives
- Use of research to inform advocacy
- Participatory and inclusive approaches
- Support of academic and other institutions

Overall Sustainability:

•

KKPKP is supported through membership fees and its member-based economic activities. KKPNSPS is a financial institution that sustains through savings and lending operations. SWaCH sustains through member contributions from the services that they provide through the cooperative. SWaCH also receives some infrastructure and equipment assistance from the PMC.
Source: KKPKP

Adoption of the Nisargruna Biogas Technology: An Approach toward Decentralised Waste Management Operated by Waste Pickers

Location: Mumbai

Year of start: 1998

Main Players: Municipal Corporation of Greater Mumbai (MCGM), Stree Mukti Sanghatana (SMS), Bhabha Atomic Research Centre (BARC), waste pickers cooperatives, institutions, Navi Mumbai Municipal Corporation (NMMC)

Approach: Mumbai, the capital city of Maharashtra, has witnessed rapid urbanisation, economic growth, and rising standard of living which has led to increase in the quantity of waste generated coupled with inefficient waste management and disposal practices.

Technical Aspects of Processing and Treatment of municipal solid waste

The problems are multi-fold and cover issues that relate to the socio-political, economic, and environmental sustainability. Several initiatives have been taken to address these issues like adoption of technology, new management approaches, imposition of regulation, etc. However, all these initiatives remained largely unsatisfactory. In order to address the ever-increasing problems related to waste management, the Advanced Locality Management (ALM) scheme was started in 1997 by MCGM with the main objective of mobilising citizens in a participative approach to set up a system for solid waste management in an environmental friendly manner. Local non-government organisations (NGOs) along with the MCGM have taken up new initiatives through ALM scheme to improve on existing practices, striking the appropriate partnership between MCGM and SMS.

SMS is a woman's liberation organisation established in 1975. SMS has directed its efforts toward uplifting women, primarily by creating awareness in the society about women's issues with the help of songs and theatre, family counselling centres, day care centres, adolescent sensitisation programme, publication of books, etc. About 85% of the waste pickers are women. To uplift this sector, the Parisar Vikas Programme (PVP) was one of the initiatives implemented by SMS in 1998. SMS has imparted training on segregation, handling of waste, composting, and maintaining and operationalising the bio gas plant through interactive sessions with the women waste pickers, who are commonly addressed as “parisar bhaginis” (neighbourhood sisters).

Institutional approach:

- SMS facilitated the formation of federation of self-help groups (SHGs) and cooperatives of several women waste pickers and guided them for signing a formal contract with municipality or individual apartments, institutions, and public and private sector companies.

- SMS trained the waste pickers on the principles of zero waste, segregation concept, pre-sorting and handling waste from multi-family dwellings, operationalising composting and biogas plants.
- A team structure was organised for waste pickers for operating the collection, segregation, and on-site processing unit: one supervisor at one site for every four bhaginis.
- Innovative, locally viable technology for generation of biogas at the site itself (Nisargruna biogas technology) was institutionalised and adopted; and the workers were trained about the operation and maintenance of the plant.
- New training centre for biogas, composting, rain water harvesting, and garbage gallery at Kopar Khairane, Navi Mumbai was developed.
- New training manual for composting and biogas maintenance was developed.

Technological approach:

- The Nisargruna technology developed by BARC was used to generate biogas and manure. The technology has basically three stages of operation.
 - ✓ Mixing stage. Proper segregation of waste must be done before entering the plant as some material may detrimentally affect the efficiency of the plant. On-site sorting is a prerequisite. Waste is mixed with equal amount of hot water to breakdown fibres, converting it into homogeneous slurry.
 - ✓ Pre-treatment stage. Slurry is kept in a thermophilic aerobic pre-digester, converting it into organic acids (acetic acid, butyric acid). Every time the digester is fed, an equal amount of reactor content will leave the pre-digester and is fed to the methane reactor.
 - ✓ Anaerobic digestion stage. Acidic slurry is transferred to an anaerobic tank (methane reactor) to produce methane. Prior digestion helps in improving the purity of methane gas up to 85%, thereby increasing the fuel efficiency.
- The system is based on a floating dome design, a proven technology for manure digestion in India and China. It is a two-stage continuous wet system. The waste gets hydrolyzed in first stage; and in second stage, methane is produced. The reactor is constructed underground, reducing the building costs, and the reactor contents flow under gravity by volume displacement
- Slurry from the methane reactor is then sent to sand pits, and high quality manure is recovered and water is recycled in the plant again, resulting in a zero effluent system.
- Simplified plant operation process was designed to be used by non-skilled workers
- Training for operation and maintenance (O&M) on site was provided to the workers or bhaginis

Outcome:

300 groups, with 10 Parisar Bhaginis each, have been established. 200 groups are working as saving groups and a federation of these groups has been registered as an independent organisation called Parisar Bhagini Vikas Sangha (PBVS) along with six working cooperatives.

100% segregation of waste was achieved at the plant to produce biogas. Recycling efficiency was improved through market exploration and tie-ups with recycling units by SMS. There was income from the sale of recyclables (Rs100–Rs150 per day) apart from the service fee for collecting, sorting, and managing biogas plant. Only 50 m² (less space) was required for a plant processing 100 kg per day. Utilisation of the end product as cooking gas fuel for both domestic and industrial purpose.

- ✓ Mixer Solar heater
- ✓ Anaerobic
- ✓ digester
- ✓ Thermophilic
- ✓ aerobic
- ✓ digester
- ✓ Methane utilisation
- ✓ Platform
- ✓ Manure pits
- ✓ Recycle water tank
- ✓ Methane holder
- ✓ Nisargruna Biogas Plant

Technical Aspects of Processing and Treatment of municipal solid waste

Success factors:

- Strategic partnership is required among SMS, BARC, MCGM, and waste pickers cooperative. Stakeholders should be motivated to take forward the decentralised waste management system.
- On behalf of cooperatives, SMS negotiates, markets, signs, and manages contracts with the apartments and institutions.
- The approach is modular and adaptable to the demands of customer and has simple components.

Overall sustainability:

The overall model should have collection, segregation, and on-site processing that is modular and opportunistic, providing services to complement its customers' needs. The simple components and integrated decentralised system has allowed Parisar Vikas to bid for a variety of contracts. The model is self-sustaining and has successfully demonstrated the viability of decentralised waste management as income is generated from the sale of recyclables and at many sites a service fee for collection and managing the biogas plants is charged. The initiative has helped to mainstream the marginalised population of waste pickers giving them a recognised role in the formal waste management system.

Source: SMS

PART-IV

Type of vehicles and equipment to be used

Type of vehicles and equipment to be used for different level of cities& yard stick for the use of the same & technologies recommended for processing of waste

City population	1	2	3	4	5	6	7	8	9
Up to 20000	1 handcart per 500 RMT street to be swept	1 tricycle per 200HH in 20% of inaccessible areas	1 LCV or covered tractor per 6000 population or 1200HH in the city including those covered in column-3	Nil	1 container per market or commercial streets	1 dumper placer per 10 containers thereof	Nil	1.Vermi composting & or biogas from biodegradable waste 2. recyclables to waste pickers/kabadiwallas/recyclers 3. non recyclable combustible waste stored& given as feed stock for waste to energy plants	
20001-50000	Do	Do	Do	Nil	1 container per market or commercial streets	1 dumper placer per 10 containers thereof	Nil	Do	

50001-75000	Do	Do	Do	4 containers per sq.km area	Nil	Nil	1 compactor per 60 bins or part thereof	1.Composting/ vermi composting/bio methanation from bio degradable waste 2. recyclables to waste pickers/kabadiwalas/recyclers 3. non recyclable combustible waste stored & given as feed stock for waste to energy plants
75001-100000	Do	Do	Do	4 containers per sq.km area	Nil	Nil	1 compactor per 60 bins or part thereof	Do
100000 to 500000	1 handcart per 350 RMT in high density areas, 1 per 500RMT in medium density areas & 1 handcart per 750 RMT in low density areas	Do	1 LCV per 1500HH or 7500 population in the city including those covered in column-3	4 containers per sq.km area	Nil	Nil	1 compactor per 60 bins or part thereof	1.Composting/bio methanation from bio degradable waste 2. recyclables to waste pickers/kabadiwalas/recyclers 3. non recyclable combustible waste stored & given as feed stock for waste to energy plants/RDF

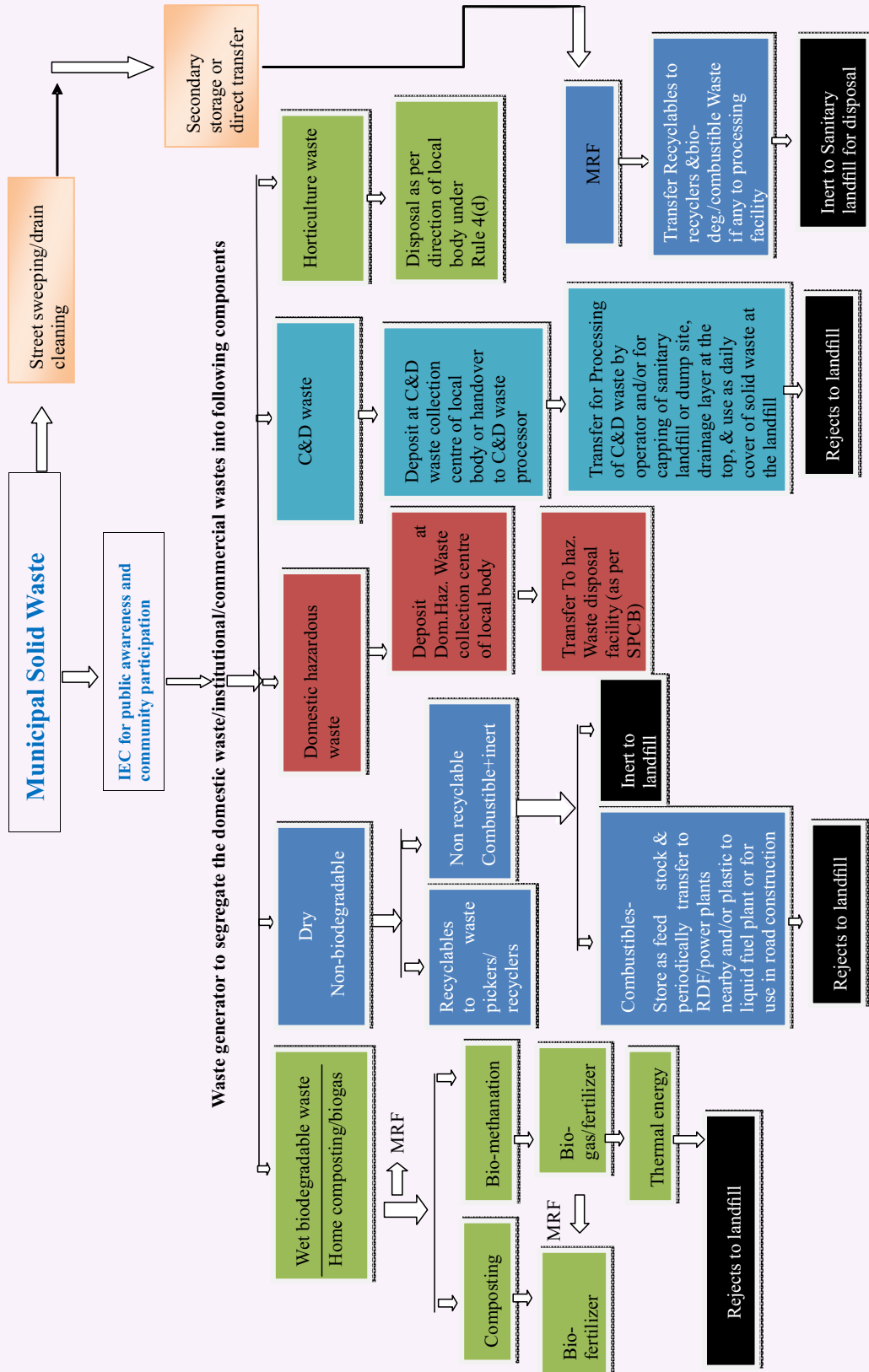
500000 to 2000000	1 handcart per 350 RMT in high density areas, 1 per 500RMT in medium density areas & 1 handcart per 750 RMT in low density areas	Do	Do	4 large or 8 small containers/ sq.km	1 or more containers of larger volume depending on the quantities of waste generation	Container lifting device matching with type of large containers placed	1 compactor per 60 bins of 1.1 cu.m capacity or part thereof	4. C&D waste to be processed
							2. Integrated Material recovery facility	
							Note: setup transfer station if distance between collection and processing area exceed 15km	
								3. recyclables to waste pickers/kabadiwalas/recyclers

Above 2 million	1 handcart per 350 RMT in high density areas, 1 per 500RMT in medium density areas & 1 handcart per 750 RMT in low density areas	Do	Do	Do	4 large or 8 small containers/ sq.km	Do	Do	Do	1 compactor per 60 bins of 1.1 cu.m capacity or part thereof	4. Non recyclable combustible waste to RDF for Waste feed based boilers or for Co -processing in cement Klin/ Waste to Energy plants (based on Grates / Plasma or pyrolysis gasification / etc.)
										5. C&D waste to be processed
										1.Composting/bio methanation from bio degradable waste
										2.Integarted Material recovery facility
										3. recyclables to waste pickers/kabadiwalas/recyclers

<p>4. Non recyclable combustible waste to RDF for Waste feed based boilers or for Co -processing in cement Kiln / Waste to Energy plants (based on Grates /Plasma or pyrolysis/ gasification / etc.)</p>	<p>5. C&D waste to be processed</p>
	<p>Note: setup transfer station if distance between collection and processing area exceed 15km</p>

Flow chart for solid waste management and processing & disposal of waste.
For towns under 1 lacs population

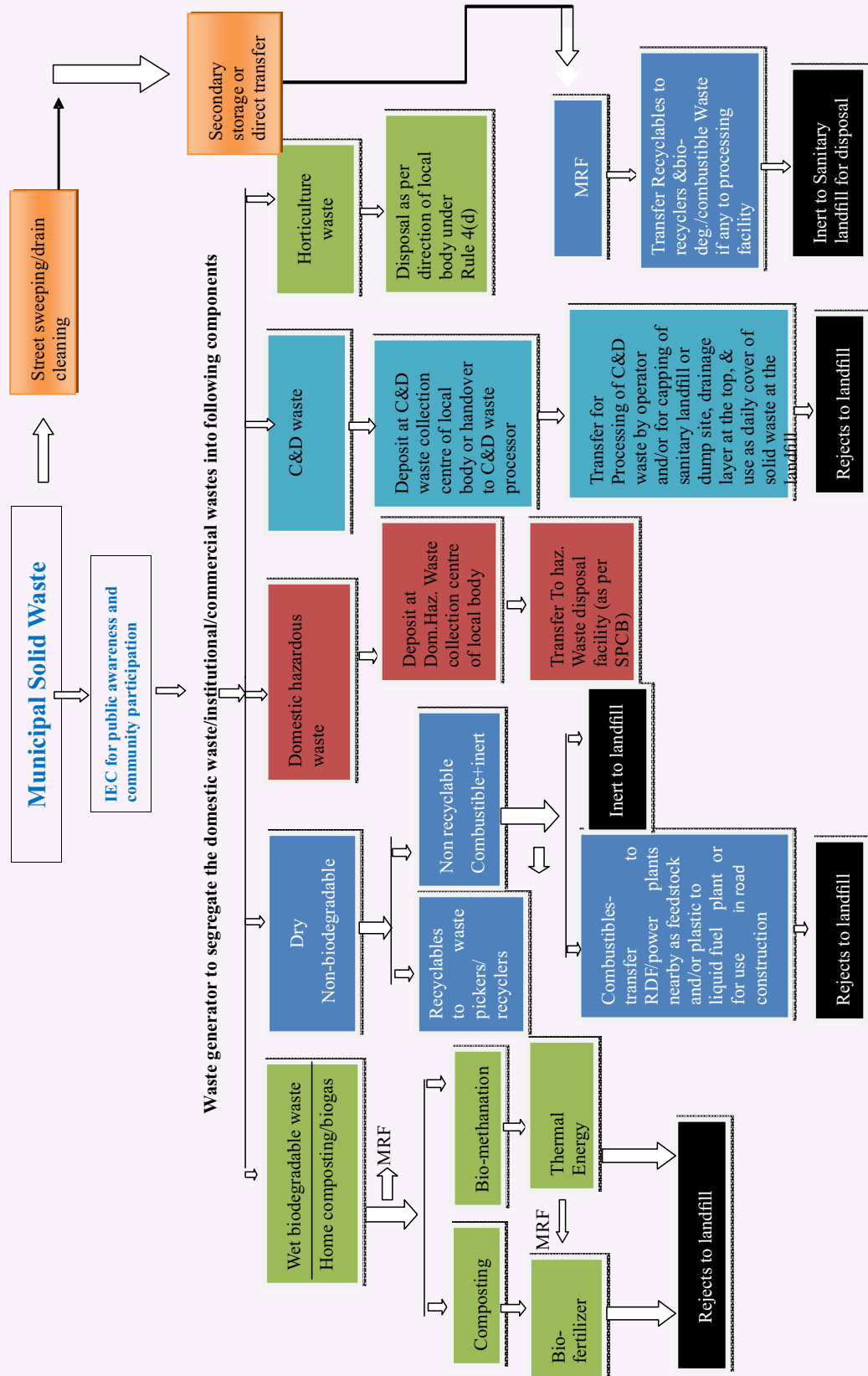
**Flow chart for solid waste management and processing & disposal of waste.
For towns under 1 lacs population**



Following 0 landfill concept, rejects to landfills should be minimized by exploring reuse and recycling opportunities for the rejects

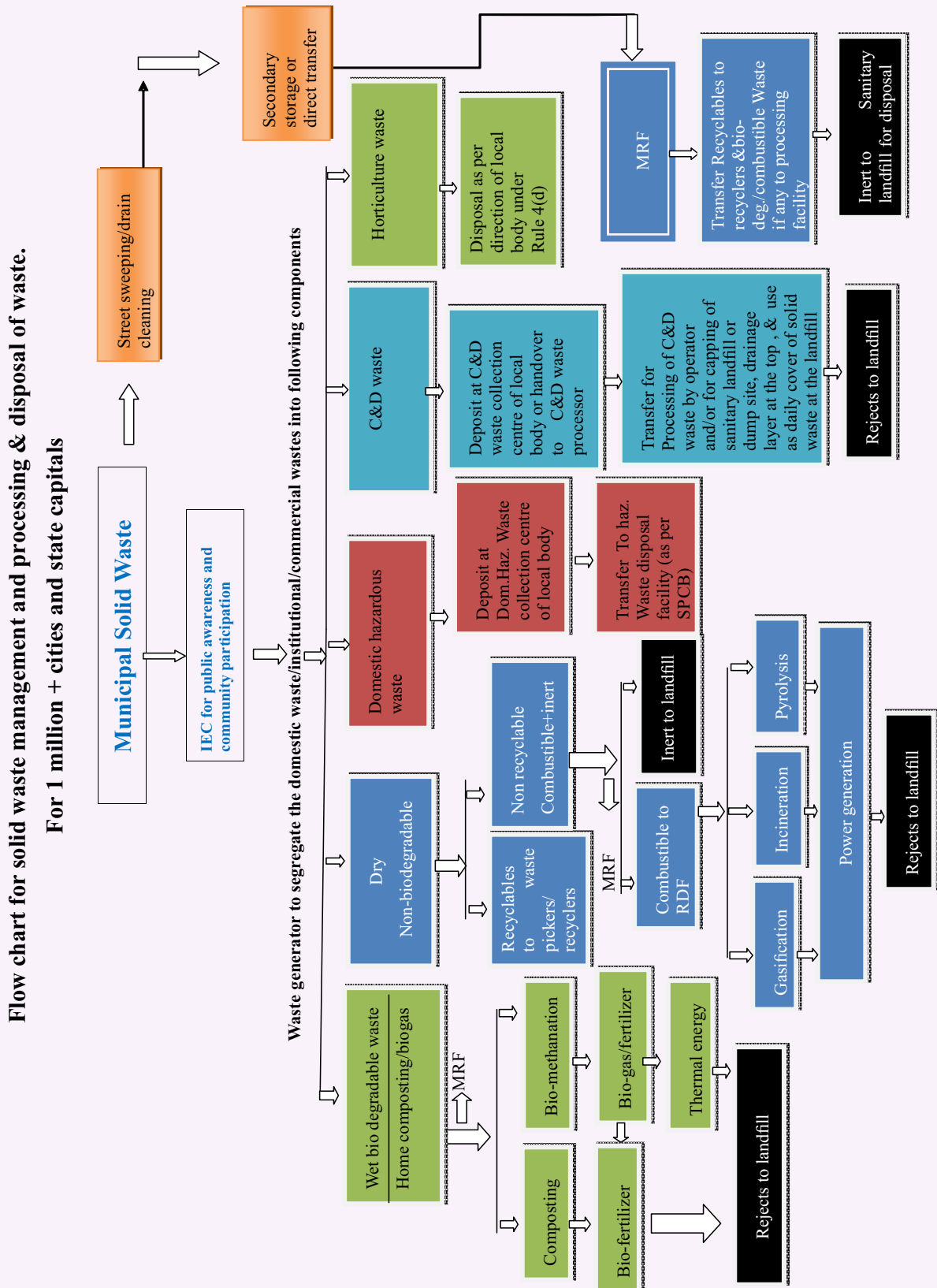
Flow chart for solid waste management and processing & disposal of waste. For cities between 1&10 lacs

Flow chart for solid waste management and processing & disposal of waste. For cities between 1&10 lacs



Following 0 landfill concept, rejects to landfills should be minimized by exploring reuse and recycling opportunities for the rejects

Flow chart for solid waste management and processing & disposal of waste. For 1 million + cities and state capitals



Following 0 landfill concept, rejects to landfills should be minimized by exploring reuse and recycling opportunities for the rejects

PART-V

Sample Request for Proposal for Door to door collection, Secondary storage & transportation of waste (C&T) in ----- on DBOOT basis



Contents

Acronyms	94
Notice for Invitation of Bids	95
Disclaimer	97
Definitions	99
Interpretation	103
1. Introduction & Invitation of Bids	104
1.1 Background of the Project	104
1.2 Invitation of Bids & Minimum eligibility criteria	104
1.2.1 Volumes of the Bid document	105
1.2.2 Contents of Volume I	105
1.2.3 Careful study of RFP	106
1.2.4 Clarifications	106
1.2.5 Pre Bid Meeting	107
1.2.6 Amendment of Bid Document	107
1.2.7 Validity of the Bid	107
1.2.8 Bid Security	107
1.2.9 Bid due date	108
1.3 Brief description of Bid Process	108
1.3.1 Technical, Financial and other important Capabilities assessment:	108
1.3.2 Opening of Financial Bid	108
1.3.3 Selection of Most Preferred Bidder	108
1.3.4 Negotiation with Preferred Bidder	108
1.3.5 Award of Concession	108
1.3.6 Signing of Concession Agreement	109
1.4 Key date/Schedule of Bid Process	109
1.5 Detailed Scope of work	109
1.5.1 Door to door collection, IEC and transportation of waste	109
1.5.2 Internal Performance Monitoring	110
1.5.3 Minimum numbers of vehicles, equipment, manpower to be deployed	110
1.5.4 Municipal Council to carry out certain services	110
1.6 Concession Period	111
1.7 Special Purpose Vehicle (SPV)	111
1.8 Signing of Concession Agreement	111
1.9 Permits & Clearances	112
2. Instructions to the Bidder	112
2.1 General Instructions	112
2.1.1 General terms of Bidding	112
2.1.2 Composition of Consortium	114
2.1.3 Change in composition of the Consortium	114
2.1.4 Cost of the Bidding	115
2.1.5 Site Visit and Verification of Information	115
2.1.6 Assumption on submission of the Bid	115

2.1.7	Verification and Disqualification	116
2.2	Preparation and Submission of Bids	117
2.2.1	Format and Signing of Bid	117
2.2.2	Cost of document & Processing Fee	117
2.2.3	Bid Due Date	117
2.2.4	Late Bids	117
2.2.5	Contents of Bid	117
2.2.6	Modification of Bids	118
2.2.7	Rejection of Bids	118
2.2.8	Validity of Bids	119
2.2.9	Confidentiality	119
2.2.10	Correspondence with the Bidder	119
2.3	Bid Security	119
2.3.1	EMD/Bid Security	119
2.3.2	Forfeiture of EMD/Bid Security Deposit	120
2.3.3	Performance Guarantee	120
2.3.4	Forfeiture of Performance Security	121
3	Evaluation of Bids	122
3.1	Evaluation of Bids	122
3.2	Bid Evaluation Criteria	122
3.3	Explanation of the Financial Bid	127
3.3.1	Annual Price Escalation	128
3.3.2	Increase in price an account of increase in diesel price & increase in minimum wages	128
3.4	Tests of Responsiveness	130
3.5	Contacting the (PUT NAME OF THE NODAL AGENCY)	131
4.	Fraud and Corrupt Practices	132
5.	Pre Bid Meeting	134
6.	Time Frame for execution of work	135
7.	Special conditions	136
7.1	Increase in the scope of work	136
7.2	Escrow Account / Dedicated Account	136
7.3	Preventing mixing of Bio-Medical Waste with Municipal Solid Waste	136
7.4	Use of Proven technology	136
7.5	Waste Calibration	137
7.6	Gradual Conversion of City into bin-less city	137
7.7	Monitoring Mechanism by the Authority	138
7.7.1	Monitoring by Sanitary Supervisors/Inspectors	139
7.7.2	Weekly review Meetings	139
7.7.3	Monitoring of weight of the Waste transferred through Private Weigh Bridge	140
7.8	Group Insurance	140
7.9	Medical Checkup	140
8.	Instructions to the Successful Bidder/ Concessionaire	141

Acronyms

DBOOT	Design Build Own Operate and Transfer
DLB	Directorate of Local Bodies
Gol	Government of India
ISWMS	Integrated Solid Waste Management System
ITB	Instructions to Bidders
LM	Lead Member
MSW	Municipal Solid Waste
RFP	Request for Proposal
SWM	Solid Waste Management
SPV	Special Purpose Vehicle
SLF	Engineered Sanitary Landfill Facility
TPD	Tonnes per Day
ULB	Urban Local Body

Notice for Invitation of Bids

Request for Proposal for Door to door collection, Secondary storage & transportation of waste (C&T)

Government of (Put name of the city/state) and --- propose to award long term concessions for a period of 15 years for aforesaid components of solid waste management on Design, Build, Own, Operate and Transfer (DBOOT) basis for Integrated Municipal Solid Waste Management Project for -- city, (Put name of the state). (Put name of the nodal agency) is the nodal agency to facilitate the selection of Concessionaire for the Project. Bids are being invited for each package of contract separately.

The concessionaire is required to deploy his own funds, manpower, machinery, vehicles and equipment and provide the services as detailed below on all days of the year including Sundays and all public holidays.

Brief scope of work is as follows:

- 1) Door to door collection of waste from all households, Shops and establishments in the city on a daily basis and direct transportation of waste so collected to MSW processing facility / land fill site as may be directed by the authority.
- 2) Transportation of municipal solid waste stored from the secondary waste storage depots to the processing and /or disposal facilities as may be directed by the authority.
- 3) Carrying out public awareness campaign to motivate citizens not to litter, segregate & store the waste at source and handover the waste to waste collector.

The detailed Scope of Work is given in 1.5 of this Vol-I (ITB) and also in Vol-II (Concession Agreement)

The minimum eligibility criteria for submission of bids for this package are as under:

Must have been registered and doing business in SWM sector for at least 3 years in India prior to.....

Must have an average annual financial turnover of not less than INR (insert amount) in past three financial years.

Must have a minimum net worth of INR (insert amount)

Must have experience of door to door collection of municipal solid waste and transportation of waste so collected directly to waste processing or disposal site or through secondary waste storage site to the processing or disposal facility during last 5 years and must have executed at least one Contract for one year or is currently executing a

contract for not less than 12 months covering not less than (insert population) population under such contract.

Must have experience in Transportation of MSW in last 5 years and must have executed at least one contract for a period of 12 months or is currently providing service of transporting municipal solid waste for a minimum period of not less than 12 months. Such contract must be for transportation of more than (insert figure) metric tonnes of waste per day.

(Put the name of the state agency) invites request for proposal (RFP) from interested company/consortium of companies/trust/ partnership firm/ organization who fulfill the aforesaid Minimum eligibility criteria.

The cost of the RFP document for this package is Rs. (insert amount) .Those who desire to submit their bid in response to this notice inviting bid, they may obtain RFP document personally from the following address on any working day between 11 am and 5 pm on payment of Rs. (insert amount) per package of contract in the form of Demand draft drawn in favor of (put the name of the state agency and location) and submit their bid as per the RFP document. Interested bidders may download the RFP document from website [http://eproc.\(Put name of the state\).gov.in](http://eproc.(Put name of the state).gov.in) and attach the Demand Draft of Rs (insert amount) along with EMD, from any Nationalized/ Scheduled Bank in favor of (put the name of the state agency and location) payable at (put name of the city)while submitting their bid.

The last date for submission of Bids on line electronically is ----- by 1500 hrs ("Bid Due Date").

The interested Bidders may submit their Bids giving full details as required in RFP Document
The Bids received after the Bid Due Date shall be summarily rejected.
Address for Procurement of RFP, Submission of tender fee and security deposit is as under:

**(Put name of the agency inviting the bid state)
(put name of the city)Disclaimer**

Disclaimer

- i. This RFP is not an agreement and is neither an offer by the Authority/(PUT NAME OF THE NODAL AGENCY) to the prospective Bidders or any other party. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their technical & financial offers pursuant to this RFP (the "Proposal"). This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority/(PUT NAME OF THE NODAL AGENCY) in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority/(PUT NAME OF THE NODAL AGENCY), its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.
- ii. Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. Authority/(PUT NAME OF THE NODAL AGENCY) accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.
- iii. Authority/(PUT NAME OF THE NODAL AGENCY), its employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Proposal Stage.
- iv. Authority/(PUT NAME OF THE NODAL AGENCY), its employees and advisors also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP.
- v. Authority/(PUT NAME OF THE NODAL AGENCY) may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

- vi. The issuance of this RFP does not imply that Authority/(PUT NAME OF THE NODAL AGENCY) is bound in any manner whatsoever to select a Bidder or to appoint the Selected Bidder for the Project and Authority/(PUT NAME OF THE NODAL AGENCY) reserves the right to reject all or any of the Bidders or Proposals without assigning any reason whatsoever.
- vii. The Selected Bidder may be required to acknowledge in the Concession Agreement that he has not relied on or been induced to enter into such agreement by any representation or warranty, save as expressly set out in such an agreement.
- viii. The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by Authority/(PUT NAME OF THE NODAL AGENCY) or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses shall be borne by the Bidder and Authority/(PUT NAME OF THE NODAL AGENCY) shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Proposal, regardless of the conduct or outcome of the Bidding Process.
- ix. Authority/(PUT NAME OF THE NODAL AGENCY), its employees and its advisors undertake no obligation to provide the Bidder(s) with any additional information or update this RFP and reserve the right, at any time and without notice, to change or modify the procedure for bidding, terminate or negotiate on any part of or the entire Bidding Process.
- x. This RFP has not been filed, registered or approved in any jurisdiction. Bidder(s) of this RFP, should inform themselves of, observe and comply with all applicable legal requirements.
- xi. Authority/(PUT NAME OF THE NODAL AGENCY), Put the name of the state and its representatives reserves the right to accept or reject any or all proposals without assigning any reasons whatsoever. The bidding process shall be governed by the laws on the subject of award of contract, arbitration and conciliation and other laws applicable in India. The matters related to this Project and incidental thereto shall be adjudicated in the courts of competent jurisdiction at --.

Definitions

"**Authority**" shall mean –

"**Authorization**" means the consent given by the (Put name of the state) Pollution Control Board to the "Operator of a Treatment/Disposal Facility".

"**Bid**" means the documents in their entirety comprised in the Bid submitted by the Bidder/Consortium, as the case may be in response to the tender notice & Request for Proposal in accordance with the provisions thereof.

"**Bid Security**" shall mean the Security furnished by the Bidder as mentioned in Clause 2.3 of this ITB.

"**City**" means the municipal area of --;

"**Collection**" means lifting and removal of Municipal Solid Wastes from residential and non residential premises, roads/streets/lanes/bye lanes or any collection point that may be prescribed by the Authority.

"**Composting**" means a controlled process of MSW involving microbial decomposition of organic matter.

"**Concessionaire**" shall mean the bidder or SPV which enters into the Concession Agreement with Authority pursuant to issuance the LOA.

"**Concession Agreement**" shall mean the agreement entered between the Authority and the Concessionaire pursuant to this RFP.

"**Concession Period**" is as defined in 1.6 of this RFP.

"**Consortium**" shall mean two or more parties coming together for submission of Bid in response to "**this RFP**" pursuant to Memorandum of Understanding signed between them.

"**Damages**" shall mean the damages payable by either Party to the other of them, as set forth in the Concession Agreement.

"**Disposal**" means final disposal of MSW at the SLF in terms of Solid Waste Management Rules, 2016 as amended from time to time and shall include the disposal of Waste at any other place as directed by municipal authority in case of non-availability of Engineered Sanitary Landfill or inaccessibility to Engineered Sanitary Landfill or any reason whatsoever.

"**Document**" or "**Documentation**" means documentation in printed or written form, or in tapes, discs, drawings, computer programmes, writings, reports, photographs, films, cassettes, or

expressed in any other written, electronic, audio or visual form in relation to this Project.

“Door to door collection” means collection of municipal solid waste individually from the entry point of households, shops and establishments .For the sake of clarity it is mentioned that waste collector will not be expected to enter the private premises for collection of waste

"Fee" or “Tipping Fee” means the amount payable by the Authority to the Concessionaire per metric tonne of MSW for providing services in terms of RFP in accordance with Article 10 of the Concession Agreement.

"Financial Bid" shall mean a document quoting Fee per metric tonne of Municipal Solid Waste by the Bidders in response to the RFP including clarifications and/or amendments, if any.

"Land Filling" means disposal of residual Municipal Solid Wastes at Landfill Facility designed & constructed adhering to the provisions of MSW Rules ensuring protective measures against pollution of land, air and water as well as wind-blown litter, bad odour, fire hazard, bird menace, pests or rodents, greenhouse gas emissions, slope instability and erosion.

"Letter of Award" or "LOA" means the letter issued by the Authority to the Selected Bidder/Consortium whose Bid has been accepted by the Authority pursuant to this RFP for undertaking and executing the Project in conformity with the terms and conditions as set forth in this RFP Vol I and the Concession Agreement (Vol II).

"Liquidated Damage" shall mean any loss/losses caused or sustained by (PUT NAME OF THE NODAL AGENCY), Authority or Put the name of the state due to non performance of any act as per the Scope of Work of this RFP or performance or carrying out of any act expressly or impliedly prohibited by the (PUT NAME OF THE NODAL AGENCY), Authority or Put the name of the state as per the terms and conditions of this RFP or otherwise in good faith by the Concessionaire. Such losses shall be recoverable from the Concessionaire to the extent of the default of the Concessionaire.

“Market Waste” means Waste generated at vegetable, fruit, meat and fish markets.

“Municipal Act” means the (put the name of the state municipal Act) as amended from time to time.

"Municipal Authority" means Municipal Corporation, Nagar Nigam, Municipality, Nagar Palika, Municipal Council, Nagar Panchayat, Notified Area Committee (NAC) or any other local body constituted under the State Laws or relevant Statutes.

“Municipal Solid Waste” or “MSW” shall have the meaning ascribed thereto in the Solid Waste Management Rules, 2016 and shall include "Garbage ", “Solid Waste” and vice versa.

"Operation & Maintenance" means the operation and maintenance of the Project and includes all

matters connected with or incidental to such operation and maintenance, provision of services and facilities in accordance with the provisions of this ITB and the Concession Agreement;

"Operation & Maintenance Period" means the period commencing from the date of signing of the Concession Agreement and ending on the last day of the Concession Period or Termination of the Concession Agreement, whichever is earlier;

"Operator of a Facility" means the Concessionaire or his authorized representative duly approved by the Authority, who owns or operates a processing facility or sanitary / engineered land fill facility or undertake the operations of Collection, Segregation, Storage and Transportation of MSW and also includes any other agency appointed by the Authority for the management and handling of MSW in the respective area.

"Parties" means the parties to the Concession Agreement collectively and "Party" shall mean any of the parties to the Concession Agreement individually;

"Performance Security" means the guarantee for performance of its obligations to be procured by the Concessionaire in accordance with Clause 2.3.3 of this ITB, Clause 6.1 of the Concession Agreement and in the format provided at Schedule III of the Concession Agreement.

"Project" means all the activities envisaged to be carried out under this RFP;

"Request for Proposal" or **"RFP"** means invitation of bids setting forth technical and commercial terms and conditions, of the bid & includes this document, the Concession Agreement and all the Annexures and appendices attached to RFP;

"Segregation" means separating various components of the MSW into Biodegradable, non-biodegradable and recyclable wastes;

"Specifications and Standards" means the specifications and standards relating to the quality, quantity, capacity and other requirements for the Project and any modifications thereof, or additions thereto expressly approved by the Authority;

"SPV" means a special purpose vehicle company, incorporated by Selected Bidder/Consortium, under the provisions of the Companies Act, 1956, pursuant to issuance of the LOA, with the sole purpose to execute the Project in terms of Concession Agreement.

"Storage" means the temporary containment of Municipal Solid Wastes in covered containers in a manner so as to prevent littering, attraction to vectors, stray animals and excessive foul odour.

"Selected Bidder" shall mean the Bidder/Consortium to whom the LOA has been issued.

"Taxes" means any Indian Taxes, Excise duties, Customs duties, Value added tax, Sales tax, Service tax, Local taxes, Cess and any impost or Surcharge of like nature (whether Central, State or local) on

the goods, materials, equipment and services incorporated in and forming part of the Project charged, levied or imposed by any Government Instrumentality, or Municipal Authority but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;

"Termination" means termination of this Concession Agreement pursuant to Termination Notice or otherwise in accordance with the provisions of the Concession Agreement but shall not, unless the context otherwise requires, include the expiry of the Concession Agreement due to efflux of time in the normal course;

"Transportation" means conveyance of MSW from place to place hygienically through especially designed/mandated covered transport system so as to prevent foul odour, littering, unsightly conditions and accessibility to vectors.

Interpretation

In the interpretation of this RFP, unless the context otherwise requires:

- i. The singular of any defined term includes the plural and vice versa, and any word or expression defined in the singular has the corresponding meaning used in the plural and vice versa;
- ii. A reference to any gender includes the other gender;
- iii. A reference to any agreement is a reference to that agreement and all annexes, attachments, exhibits, schedules, appendices and the like incorporated therein, as the same may be amended, modified, supplemented, waived, varied, added to, substituted, replaced, renewed or extended, from time to time, in accordance with the terms thereof;
- iv. The terms "include" and "including" shall be deemed to be followed by the words "without limitation", whether or not so followed;
- v. Any reference to a person shall include such person's successors and assignees;
- vi. A reference to a "writing" or "written" includes printing, typing, lithography, scanned and other means of reproducing words in a visible form;
- vii. Any date or period set forth in this RFP shall be such date or period as may be extended pursuant to the terms of this RFP;
- viii. The terms "hereof", "herein", "hereto", "hereunder" or similar expressions used in this RFP mean and refer to this RFP and not to any particular Article,
- ix. In case of any inconsistency between the terms mentioned in the RFP and the literary term, the meaning best construed in furtherance of the objectives of this RFP shall prevail.
- x. Where there is a discrepancy between amount in figures and in words, the latter shall prevail.

1. Introduction & Invitation of Bids

1.1 Background of the Project

Cities in India with growing population, changing life styles, migration of people from rural areas to cities and rapid growth of tourism, industrialization etc end up generating an enormous quantity of Municipal Solid Waste (MSW) every day. By and large, the Municipal Authorities collect the waste from the streets and the market places through street sweeping using traditional tools and equipment and make small heaps of the waste on the road swept or take the waste in traditional hand carts to temporary waste storage depots on the road side which are generally open of Masonry bins. This waste is transported irregularly in open tractors or trucks to the dump yards and disposed off at the open dumping grounds without any segregation or Processing of waste. The waste so deposited is neither spread nor covered and left in the open to decay. Open dump sites cause land, air and water pollution and pose a serious threat to public health and environment.

The State of (Put name of the state) has taken series of measures to improve SWM services in the State to comply with SWM Rules, 2016. (Put name of the state) (put name of the nodal agency) is designated as the nodal agency for undertaking the bidding process for selection of appropriate concessionaires to take up the task of providing MSWM services on DBOOT basis to the municipal authorities in the State.

(PUT NAME OF THE NODAL AGENCY) in consultation with the Municipal authority has planned for modernization of SWM Services encompassing Door to Door Collection of Waste, doing away with open Waste storage depots along the roadside, arranging day to day Transportation of Waste in covered vehicles, Processing of MSW and disposal of residual waste from the MSW Processing Facility and inerts collected from the city at the SLF.

1.2 Invitation of Bids & Minimum eligibility criteria

Government of (Put name of the state) and -- Municipal Council are keen to improve Solid Waste Management (SWM) in the aforesaid city in terms of SWM Rules, 2016, involving private sector to provide SWM services using his own money, tools, manpower, vehicles, equipment plants, machinery.

Contract duration: 10-15 years

Scope of work:

1. Door to door collection of waste from all households, Shops and establishments in the -- city and direct transportation of waste so collected to MSW processing facility / land fill site as may be directed by the authority on a day to day basis on all days of the year.
2. Day to day transportation of municipal solid waste stored from the secondary waste storage depots to the processing and/or disposal facilities as may be directed by the authority.
3. Carrying out public awareness campaign to motivate citizens not to litter, segregate & store the waste at source and handover the waste to waste collector.
4. Prepare and submit management plan for transportation of waste from C&D to processing like based on the city under consideration, like:
 - (i) No. of Vehicles

- (ii) Type of Vehicles
- (iii) No. of trips in a day
- (iv) No. of trips by handcarts etc.

Minimum eligibility criteria for submission of Bid

The bidder:

1. Must have been registered and doing business in SWM sector for at least 3 years in India prior to (Insert date).
2. Must have an average annual financial turnover of not less than INR (Insert amount) in past three financial years
3. Must have a minimum net worth of INR (Insert amount)
4. Must have experience of door to door collection of municipal solid waste and transportation of waste so collected directly to waste processing or disposal site or through secondary waste storage site to the processing or disposal facility during last 5 years and must have executed at least one Contract for one year or is currently executing a contract for not less than 12 months covering not less than 50000 population under such contract.
5. Must have experience in Transportation of MSW in last 5 years and must have executed at least one contract for a period of 12 months or is currently providing service of transporting municipal solid waste for a minimum period of not less than 12 months. Such contract must be for transportation of more than 10 metric tonnes of waste per day.

The interested party, who meets the minimum eligibility criteria as above, may submit request for proposal on line electronically in the format given in the RFP document, complete in all respect, together with EMD latest by 15 hours on -----.....Put address Pre bid meeting will be held at. ----- am on----- at (put address) (PUT NAME OF THE NODAL AGENCY) may at its discretion, cancel the bid process in part or full without assigning reasons.

Address for submission of bid security:

Put address

1.2.1 Volumes of the Bid document

1. Volume I: Instruction to Bidders
2. Volume II: Draft Concession Agreement
3. Any addenda issued subsequent to this RFP Document before the Bid Due Date will be deemed to form part of the Bid document

1.2.2 Contents of Volume I

This Volume I of RFP comprises the Disclaimer set forth herein above, the contents as listed below:

1. Notice for Invitation of Bids
2. Introduction & Invitation of Bids
3. Instructions to the Bidder
4. Evaluation of Bids

5. Fraud and Corrupt Practices
6. Pre Bid Meeting
7. Time frame for Execution of work
8. Special condition
9. Instructions to the Successful Bidder/ Concessionaire
10. Annexure

1.2.3 Careful study of RFP

The Bidders are advised to examine and study the RFP in great detail, and to carry out, at their own cost, such studies as may be required for submitting their respective Bids for the Project.

1.2.4 Clarifications

- a) Bidders requiring any clarification on the RFP may notify the (PUT NAME OF THE NODAL AGENCY) in writing at the following address:

Put address

- b) The Bidder should send in their queries at least 3 days before the date mentioned in the Pre-Bid meeting in the following format:

Sl. No.	RFP Document Page No.	Existing Provision	Clarification required	Suggested change	Rationale

- c) Copies of (PUT NAME OF THE NODAL AGENCY)'s response, including a description of the clarification sought, will be forwarded to all the Bidders without naming the party which has sought clarification. No verbal response by (PUT NAME OF THE NODAL AGENCY)/Authority will in any way be binding to (PUT NAME OF THE NODAL AGENCY)/Authority with respect to this RFP.
- d) No liability whatsoever will be admitted by (PUT NAME OF THE NODAL AGENCY), nor will any claim be entertained, with respect to errors or ambiguities contained in the RFP, which the Bidder may request (PUT NAME OF THE NODAL AGENCY)/Authority to rectify.
- e) The (PUT NAME OF THE NODAL AGENCY) may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by the (PUT NAME OF THE NODAL AGENCY) shall be deemed to be part of the RFP and shall be complied with by the Bidders. Verbal clarifications and information given by (PUT NAME OF THE NODAL

AGENCY)/Authority or its employees or representatives shall not in any way or manner be binding on the (PUT NAME OF THE NODAL AGENCY)/Authority.

1.2.5

Pre Bid Meeting

A pre bid meeting will be convened by (PUT NAME OF THE NODAL AGENCY) to clarify issues with respect to the Project and the terms and conditions of the RFP. (PUT NAME OF THE NODAL AGENCY), Put the name of the state may hold the pre bid meeting(s) as per the schedule shown in Section 1.4, Volume I of this RFP. Prior to the pre bid meeting, the Bidders are requested to submit a list of queries and suggested deviations, if any from the terms and conditions set out in the RFP document. (PUT NAME OF THE NODAL AGENCY), Put the name of the state to its sole discretion, and based on the inputs provided by the Bidders or at its own motion may consider amendment to the terms and conditions of the RFP.

The proposal submitted by the Bidder shall have to be in conformity with the terms and conditions of the RFP. And it would be presumed that the Bidder accepts all the terms of the RFP notwithstanding any suggestion made by the Bidders in the pre bid meeting if the suggestion is not considered by (PUT NAME OF THE NODAL AGENCY) (Put the name of the state).

Attendance of the Bidders in the pre bid meeting is not mandatory. Put address All queries, correspondence related to the pre bid meeting or otherwise related to this RFP shall be submitted to:

Put Address

1.2.6 **Amendment of Bid Document**

- a. At any time prior to the deadline for submission of Bid, (PUT NAME OF THE NODAL AGENCY) may, for any reason, whether at its own initiative or in response to clarifications requested by any Bidder, modify the RFP Document by the issuance of an Addendum.
- b. Any Addendum thus issued will be sent in writing to all Bidders who have purchased the Bid Documents or attended the pre bid meeting and shall form part of this RFP.

1.2.7 **Validity of the Bid**

The interested Bidder should submit the Bid which shall be valid for a period of 180 (one hundred and eighty) days from the 'Bid Due Date' (as specified in the Schedule of Bidding Process).

1.2.8 **Bid Security**

Bidders are required to deposit, along with its Bid Documents a bid Security of Rupees Rs. Insert amount in the form of Demand Draft from any scheduled commercial bank in favor of " (put name of the nodal agency)" payable at (name of the city) in order to bid for the Project. The Bid shall be summarily rejected if it is not accompanied by the Bid Security deposit.

The Bid Security shall be returned to the rest of the Bidders after the Selection of the Successful Bidder/Consortium. The Authority shall not be liable to pay any interest

on the Bid Security and the same shall be interest free.

1.2.9 Bid due date

Bids must be submitted on line at the website [http://eproc.\(Put name of the state\).gov.in](http://eproc.(Put name of the state).gov.in) and attach the Demand Draft of Rs 10,000 along with EMD, from any Nationalized/ Scheduled Bank in favor of (put the name of the state agency and location) payable at (put name of the city) not later than 1500 Hrs on -----.
(PUT NAME OF THE NODAL AGENCY) shall not be responsible for any delay in receiving the Bids and reserves the right to accept/reject any or all Bids without assigning any reason thereof.

Put address

The key dates and other particulars relating to the RFP are given at Section 1.4, Volume I of this RFP document. (PUT NAME OF THE NODAL AGENCY) may at its discretion alter the schedule anytime during the process by giving due notice to all concerned.

1.3 Brief description of Bid Process

(PUT NAME OF THE NODAL AGENCY) intends to follow a two-stage process of selection of most Preferred Bidder for the Project as under:

Stage 1:-

1.3.1 Technical, Financial and other important Capabilities assessment:

The Bidders will be evaluated against total score of 300 applying the criteria shown in the Clause 3.2 of Volume I of this RFP. The Financial Bid of only those Bidders shall be opened who obtain a minimum aggregate score of 210 subjects also to scoring minimum marks in each section as shown in column 4 of the composite marks matrix and qualifying standards given in Section E of the Bid Evaluation Criteria. If no bidder obtains aggregate score of 210, the qualifying standard shall be lowered as described in Clause 3.2 of Volume I of this RFP.

Stage 2:-

1.3.2 Opening of Financial Bid

The Financial Bids of only those Bidders shall be opened and evaluated who qualify at the Technical & Financial capacity assessment in Stage 1.

1.3.3 Selection of Most Preferred Bidder

The qualified Bidder as per 1.3.1 above and whose Financial Bid has been found to be the lowest will be adjudged the Most Preferred Bidder.

1.3.4 Negotiation with Preferred Bidder

The Selected Bidder/Consortium may, if necessary, be invited for negotiations. The negotiations generally will not be for reducing the price of the proposal but will be for reconfirming the obligations of the Selected Bidder/Consortium.

1.3.5 Award of Concession

If (PUT NAME OF THE NODAL AGENCY) is satisfied with the negotiations, the

Authority shall issue the LOA to the Most Preferred Bidder (hereinafter called the “Selected Bidder”) and 15 years' Concession would be awarded to the Selected Bidder

1.3.6 Signing of Concession Agreement

Concession Agreement shall be signed between Authority and the SPV. The Concession Agreement shall contain the detailed terms and conditions of the RFP and additional conditions as may be considered necessary for smooth and efficient execution of the Concession granted.

1.4 Key date/Schedule of Bid Process

The Authority shall endeavor to adhere to the following schedule:

Sl. No.	Event Description	Date (dd-mm-yyyy)	Time (IST)
1	Sale of RFP document		0930 hrs to 17.00 hours
2	Last date for receiving queries		1800 hrs
3	Pre Bid Meeting		1130 hrs
4	Issue of Addendum (if required)		--
5	Date of submission of the proposal/Bid Due Date		1500 hrs
6	Date of opening of the Technical Bids		1600 hrs
7	Technical Capability Presentation of Assessment of Bidders		1200 hrs onwards
8	Intimation to Technically Qualified Bidders for opening Financial Bid		--
9	Date of opening of Financial Bids		1500 hrs

1.5 Detailed Scope of work

The proposed RFP for Integrated Solid Waste Management Services (ISWMS) for the City..... envisages the following type of work to be carried out by the Concessionaire entirely on his own cost using his own man power, machinery, tools/equipment, etc.

1.5.1 Door to door collection, IEC and transportation of waste

a. Door to door collection of waste from all households, Shops and

establishments in the -- city and directly transportation of waste so collected to MSW processing facility/ land fill site as may be directed by the authority on a day to day basis on all days of the year

- b. Day to day transportation of municipal solid waste stored from the waste storage depots established in the cities.
- c. Carrying out public awareness campaign to motivate citizens not to litter, segregate & store the waste at source and handover the waste to waste collector. The concessionaire shall be responsible for carrying out public awareness campaign to motivate waste generators not to litter, to segregate bio-degradable and non bio-degradable waste at source and handover the waste to waste collector and pay user fees as prescribed from time to time. The concessionaire shall spend 5% of the anticipated annual tipping fee towards IEC campaign in the 1st year, 3% in the second year, 2% in 3rd, 4th and 5th year and 1% thereafter till the conclusion of the contract. This amount shall be spent by the concessionaire in consultation with an approval of CEO/MC of the municipal authority. The activities may be carried out as per Annexure 4-A.

1.5.2 **Internal Performance Monitoring**

The Concessionaire shall propose Internal Performance Monitoring mechanism for effectiveness in project implementation covering all areas of service delivery including efficient redressal of complaints, and monitoring the performance of workforce etc as per Annexure 2-H and shall implement the same as finally agreed between the parties.

1.5.3 **Minimum numbers of vehicles, equipment, manpower to be deployed**

The bidder shall submit along with his bid (RFP) clear norms of deployment of Bins/containers, vehicle, equipment, tools and manpower, keeping in view his own assessment of the quantity of waste generated in the cities at the household and shops and establishment level as well as from the city as a whole. The proposed deployment shall not be lower than the norms already mentioned in the RFP, for the discharge of the obligations mentioned in the RFP document. However some details of the same can be seen from the project report prepared for the cities. Copy of the same is annexed to this RFP for the information of the bidder. (PUT NAME OF THE NODAL AGENCY) or the authority does not guarantee the accuracy of the data contained in the report. Bidder is therefore advised to carry out his own assessment prior to submitting the bid. The bidder shall abide by the proposed minimum deployment of manpower, vehicles, equipment etc and deploy the same adequately to meet the service obligation as per the RFP.

Note:

If the concessionaire desires to transport the waste in two shifts of 8 hours each, he may reduce his fleet of vehicles by giving an undertaking to that effect. .

Please refer to Annexure 1-K for Minimum Manpower requirement.

1.5.4 **Municipal Council to carry out certain services**

The municipal council shall carry out the following sanitation services during the concession period:

1. Sweeping of streets, cleaning of surface drains, establishment of secondary storage depots and collection of street sweepings and silt removed from the surface drains in suitable hand carts / tricycles and deposition of such waste at the secondary waste storage depots that may be established by the concessionaire on a day to day basis.
2. Collection, Transportation and Disposal of Construction and demolition waste (debris/mulba) from entire city.

Exclusions

The concessionaire shall not be responsible for handling (collection, transportation and disposal) of:-

- Bio Medical Waste
- Carcass removal and handling
- Hazardous Waste
- Radioactive Waste

In case the bio medical/hazards waste is found to be mixed with MSW, the concessionaire shall segregate the same and intimate the municipal authority for its safe disposal. This being an incidental work no extra payment for this will be payable to the concessionaire.

Situation may arise where any of the above waste is found mixed with the municipal solid waste and dispute may arise between the concessionaire and the Authority or its representative about its handling; the Authority in such case shall appoint an officer to adjudicate the matters/dispute pertaining to the nature of waste mentioned above. The decision of such officer shall at all times be binding on the Concessionaire.

1.6 Concession Period

The Concession Period for Integrated Solid Waste Management shall be 15 years from the Date of Signing of the Concession Agreement.

1.7 Special Purpose Vehicle (SPV)

The Selected Bidder/Consortium may be required to form an appropriate Special Purpose Vehicle, incorporated under the Indian Companies Act, 1956 (the "SPV"), with the sole purpose to execute the Project in terms of the Concession Agreement within a period of 30 days from the date of issue of LoA.

1.8 Signing of Concession Agreement

Concession Agreement shall be signed within 30 days from the date of formation of SPV between the Authority and the SPV incorporated by the Successful Bidder/Consortium. The Concession Agreement shall contain the detailed terms and conditions of the RFP. In case where the Selected Bidder/Consortium, as the case may be, require additional time for signing of the Concession Agreement, such request should be conveyed to the Authority in writing with reasons for such

request for extension of time. The Authority shall grant extension of time for signing of the Concession Agreement if the Authority considers the request made by the Selected Bidder/Consortium reasonable.

In case the Selected Bidder/Consortium fails to perform its obligation with respect to signing of the Concession Agreement with the Authority within the time specified or any extension granted herein after the issuance of LOA, the LOA shall be cancelled, Bid Security/Performance Security, as the case may be, shall be forfeited and blacklisting proceedings shall be started against such Selected Bidder/Consortium.

1.9 Permits & Clearances

Permits and clearance shall be obtained, wherever required, as per but not limited to SWM Rules, 2016, Plastic Waste Management Rules 2016, The Environment Protection Act 1986, The Air (Prevention and Control) Pollution 1981 and Water (Prevention and Control) Pollution 1974 as amended from time to time.

The concessionaire/ SPV shall apply for various statutory and non-statutory clearances for the Project from all concerned authorities at his own cost. The concessionaire/ SPV shall endeavor to obtain all the clearances required expeditiously and the responsibility of obtaining the clearances will be solely on them concessionaire /SPV. Although the Authority shall reasonably assist the concessionaire /SPV in procuring the clearances required for the Project.

2. Instructions to the Bidder

2.1 General Instructions

2.1.1 General terms of Bidding

- a. Bidder shall carefully study the RFP document and fully acquaint himself of all the terms and conditions. If the Bidder finds discrepancies or omissions in the documents or has any doubt, he may seek clarification by submission of his observations at least three days prior to Pre-bid meeting.
- b. The Bidder is advised to carefully study the City specific information i.e. growth of City, climatic conditions, geographical terrains and other limitations likely to impact in execution of the Concession Agreement.
- c. Bidder is expected to study carefully the RFP. Failure to furnish any information as required in the tender document or submission of incomplete Bid may result in rejection of the bid
- d. At any time prior to the deadline for submission of Bids, the (PUT NAME OF THE NODAL AGENCY) may for any reason, whether at his own initiative or in response to clarification requested by prospective bidder modify the RFP.
- e. In order to give prospective bidders' reasonable time for preparing their Bids after the issue of addenda if any, the (PUT NAME OF THE NODAL AGENCY) may at his discretion extend the deadline for the submission of Bids.

- f. The RFP shall be submitted in English language only and all the correspondence and documents relating to the Bid shall be written in English language. Supporting documents and printed literature may be furnished by the Bidder with his Bid in another language provided an appropriate translation of the same into English language kept with the Bid document. The failure to comply with this condition may cause rejection of the Bid. For the purpose of interpretation of the bid, the text in the English language shall prevail.
- g. No conditional Bid shall be accepted.
- h. The rates/prices for the performance of the Concession Agreement shall be quoted by the Bidder only in Indian Rupees. All payments to the Concessionaire shall be made only in Indian Rupees (Rs.).
- i. In exceptional circumstances, prior to expiry of the original Bid validity period, the (PUT NAME OF THE NODAL AGENCY) may request the Bidders for extension in the period of Bid validity. The request and the response thereto shall be made in writing. The Bidders agreeing to the request will not be permitted to modify their Bids. The provision regarding discharge and forfeiture of Bid Security shall remain valid during the extended period of Bid validity.
- j. If the Bid is to be submitted by a Public or Private Ltd company or Trust, Society or Partnership Firms or any other entity, it shall be signed by a duly authorized person holding the authorization letter/Power of Attorney for signing the Bid. A certified copy of the Power of Attorney/Authorization letter shall accompany the Bid.
- k. All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be stated below their signatures.
- l. To facilitate the evaluation on Bid, the (PUT NAME OF THE NODAL AGENCY) may ask Bidders individually for clarification of their Bids including breakdown of unit rates/prices. The request for clarification and the response to the same shall be in writing. No change in the Bid prices or their sub component shall be sought, offered or permitted.
- m. (PUT NAME OF THE NODAL AGENCY) reserves the right to reject any or all of the Bids, without assigning any reason whatsoever and their decision shall be final and binding. No Bidder shall stake any claim arising out of such rejection.
- n. Bids determined to be substantially responsive will be checked for any arithmetical errors in computation and submission. Error will be corrected by the authorized representative of the (PUT NAME OF THE NODAL AGENCY). Where there is a discrepancy between amount in figures and in words, the latter shall be taken into consideration.
- o. The Bid shall be accompanied by a letter of association/MOU/JV with the associates of the Lead Member expressing their willingness to undertake the work entrusted to them and to stand guarantee for the same.
- p. Incomplete Bids or Bids not fulfilling any of the conditions specified above are liable to be rejected without assigning any reason whatsoever.

- q. Bidder is advised to read carefully all chapters and give complete information regarding his proposals, substantiating the same with calculations, drawings literature, with clear reference to any standards adopted (which are not mentioned in the Bid documents), in such manner that there is no ambiguity or nothing is left to chance. All relevant information, so as to make the proposal understandable shall be given. Vague remarks and remarks like "will be given later" are not acceptable. If in the opinion of the (PUT NAME OF THE NODAL AGENCY), the proposal is grossly incomplete, this will form sufficient reason for complete rejection of the Bid on technical grounds.

2.1.1.1 Payment of development fee

The Concessionaire shall pay Rs (insert amount) in the form of Demand Draft in favor of "(Put name of the state) (put name of the nodal agency)" payable at (put name of the city), to the (PUT NAME OF THE NODAL AGENCY) at the time of signing of the Concession Agreement towards the cost of development of the Project.

2.1.2 Composition of Consortium

- a. Looking at the variety of activities involved in the Project design and execution requiring expertise and experience in different subjects a Joint venture/ Consortium of maximum 2 members is allowed. All partners shall be jointly and severally liable and their roles and responsibilities shall be clearly spelt out in the document.
- b. For the purpose of evaluation of Technical Bid, experience and financial standing of members having committed minimum 26% stake in the Consortium shall only be considered. The Lead Member of the Consortium shall have minimum 51% stake in the Consortium.
- c. The bidder who intends to be the sole bidder or lead bidders only shall purchase the RFP document in his own name. The submission of a bid/RFP document by a Firm / Company other than the sole bidder/lead bidder shall not be considered.

2.1.3 Change in composition of the Consortium

By submitting the Bid, the Bidder shall be deemed to have acknowledged and agreed that:

1. There shall be no change in the members of the Consortium after submission of the Bids except with the prior written approval of the (PUT NAME OF THE NODAL AGENCY)/Authority;
2. The Bidder who shall be the Lead Member of the Consortium shall hold not less than 51% of the total paid up equity share capital of the Concessionaire and other member of the Consortium shall hold not less than 26% of the issued and paid up equity share capital of the Concessionaire throughout the entire Concession Period as per the terms of this RFP and the Concession Agreement. The Bidder further acknowledges and agrees that the aforesaid obligation shall be the

minimum, and shall be in addition to such other obligations as may be contained in the Concession Agreement, and a breach hereof shall, notwithstanding anything to the contrary contained in the Concession Agreement, be deemed to be a breach of the Concession Agreement and dealt with as such there under.

2.1.4 Cost of the Bidding

The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bidding Process. The (PUT NAME OF THE NODAL AGENCY) will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

2.1.5 Site Visit and Verification of Information

- a. It is desirable that each Bidder submits its Application after inspecting the sites; and ascertaining the location, surroundings, access, transport, right of way or any other matter considered relevant by it.
- b. Site visit may be facilitated by the Authority. The Authority will intimate the days on which site visits can be facilitated to the prospective Bidders. The Authority may facilitate the site visit depending upon the availability of the concerned officials.
- c. The Bidders shall carefully study the city specific information i.e. growth of city, climatic conditions, geographical terrains and other limitations anticipated in execution of the Concession Agreement. The information may be accessed from sources like data available from the Authority, Metrological Department, and Department of Statistics etc. In case of any query, the same shall be clarified from the Authority. The Authority, Metrological Department, Department of Statistics etc. shall not be held liable for the authenticity or accuracy of any such information provided.

2.1.6 Assumption on submission of the Bid

It would be deemed that by submitting the Bid, Bidder has:

- a. Made a complete and careful examination/study of RFP document,
- b. Satisfied himself about all matters, things and information in relation to this RFP necessary and required for submitting an informed Bid, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations there under;
- c. Acknowledged and accepted the risk of inadequacy, error or mistake in the information provided in the RFP Documents or furnished by or on behalf of the (PUT NAME OF THE NODAL AGENCY)/ Authority in relation to the RFP;
- d. Acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in this RFP herein above shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the (PUT NAME OF THE NODAL AGENCY)/ Authority, or a ground for Termination

- of the Concession Agreement; and
- e. Agreed to be bound by the undertakings given by him under and in terms hereof.
 - f. Acknowledged that and agreed that (PUT NAME OF THE NODAL AGENCY)/ Authority shall not be liable for any omission, mistake or error on the part of the Bidder in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to RFP, the Bidding Documents or the Bidding Process, including any error or mistake therein or in any information or data given by the (PUT NAME OF THE NODAL AGENCY)/ Authority.

2.1.7 Verification and Disqualification

(PUT NAME OF THE NODAL AGENCY) reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFQ, the RFP or the Bidding Documents and the Bidder shall, when so required by (PUT NAME OF THE NODAL AGENCY), make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the (PUT NAME OF THE NODAL AGENCY) shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the (PUT NAME OF THE NODAL AGENCY) there under.

(PUT NAME OF THE NODAL AGENCY) reserves the right to reject any Bid and appropriate the Bid Security if:

At any time, a material misrepresentation is made by a Bidder or uncovered by the Authority, or

The Bidder does not provide, within the time specified by the (PUT NAME OF THE NODAL AGENCY), the supplemental information sought by the Authority for evaluation of the Bid. Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If the Bidder is a Consortium, then the entire Consortium and each Member may be disqualified/ rejected. If such disqualification / rejection occurs after the Financial Bids have been opened and the lowest Bidder gets disqualified / rejected, then the (PUT NAME OF THE NODAL AGENCY) reserves the right to:

- a. Consider the second lowest Bidder and call for negotiation and award the LOA if the rates offered are reasonable and acceptable to (PUT NAME OF THE NODAL AGENCY).
- b. Take any such measure as may be deemed fit in the sole discretion of the (PUT NAME OF THE NODAL AGENCY), including annulment of the Bidding Process.

In case it is found during the evaluation or at any time before signing of the Concession Agreement or after its execution and during the period of subsistence thereof, including the Concession thereby granted by the Authority, that one or more of the pre-qualification conditions have not been met by the Bidder, or the

Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the Concessionaire either by issue of the LOA or entering into of the Concession Agreement, and if the Selected Bidder has already been issued the LOA or has entered into the Concession Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Authority to the Selected Bidder or the Concessionaire, as the case may be, without the Authority being liable in any manner whatsoever to the Selected Bidder or Concessionaire. In such an event, the Authority shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to (PUT NAME OF THE NODAL AGENCY) or the Authority under the Bidding Documents and/or the Concession Agreement, or otherwise.

2.2 Preparation and Submission of Bids

2.2.1 Format and Signing of Bid

The Bidder shall provide all the information in the format given in this RFP. (PUT NAME OF THE NODAL AGENCY) would evaluate only those Bids that are received in time and in the required format, complete in all respects in accordance with this RFP.

2.2.2 Cost of document & Processing Fee

The Bidder shall enclose an attested photo copy of demand draft for Rs(insert amount), which must have been submitted by him to (PUT NAME OF THE NODAL AGENCY) towards cost of the Bid Document and processing fee. Bid not accompanied by copy of the demand draft shall make the bid liable to rejection. The said copy of demand draft shall be submitted along with Technical Bid". (Please refer to 2.2.5 below)

2.2.3 Bid Due Date

- a. Bids should be submitted online before 1500 hours on ----- (the Bid Due Date) at the address.....
- b. (PUT NAME OF THE NODAL AGENCY) may, in its sole discretion, extend the Bid Due Date by issuing an Addendum uniformly for all Bidders.

2.2.4 Late Bids

Bids received by (PUT NAME OF THE NODAL AGENCY) after the specified time on the Bid Due Date shall not be eligible for consideration and shall be summarily rejected.

2.2.5 Contents of Bid

The Bid shall be submitted online as under:

Technical Bid

The Technical Proposal shall comprise of the following:

- a. Letter of Bid submission duly signed by the authorized representative of the Bidder

- (Annexure 3-A)
- b. Attested copy of demand draft of Rs. (insert amount) given to (PUT NAME OF THE NODAL AGENCY) at the time of purchase of RFP document or DD or Rs, (insert amount) if RFP is downloaded from The Website.
 - c. Bid Security (EMD) of Rs.(insert amount)
 - d. Bidder Details as per the format specified in Annexure 2-A
 - e. Technical Capacity details as per the formats specified in 2-B to 2-D and 2-I
 - f. Financial Capacity Details are per the format specified in Annexure 2-E
 - g. Key Personal to be deployed as per Annexure 2-F
 - h. Vehicles available for deployment as per Annexure 2-G
 - i. Approach, Methodology and Monitoring Mechanism as per as per Annexure 2-H
 - j. Power of Attorney for signing of Bid in the prescribed format (Annexure 3-B)
 - k. If applicable, the Power of Attorney for Lead Member of Consortium in the prescribed format (Annexure 3-C)
 - l. Memorandum of Understanding (MOU) between the Consortium Members(Annexure 3-D);
 - m. Anti-Collusion Certificate (Annexure 3-E);
- Bids submitted by fax, telex, telegram or email shall not be entertained and shall be rejected.

2.2.6 Modification of Bids

- a. The Bidder may, with prior approval of (PUT NAME OF THE NODAL AGENCY) but before the Bid Due Date, modify, substitute or withdraw its Bids after submission, provided that written notice of the modification, substitution or withdrawal is received by (PUT NAME OF THE NODAL AGENCY), 24 hours before the Bid Due Date and time. No Bid shall be modified or substituted or withdrawn by the Bidder after the Bid Due Date.
- b. Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid Due Date, unless the same has been expressly sought for by the (PUT NAME OF THE NODAL AGENCY), shall be rejected.
- c. Any correspondence after the Bid Due Date conveying any modifications of Bid or stipulating any conditions for acceptance of the Bids by Bidder shall be summarily rejected. In such a case, the Bidders original Bid will be considered ignoring any such correspondence or modification.

2.2.7 Rejection of Bids

- a. Notwithstanding anything contained in this RFP, the (PUT NAME OF THE NODAL AGENCY) reserves the right to accept or reject any Proposal and to annul the Bidding Process and reject all Proposals, at any time without any liability or any obligation for such acceptance, rejection or annulment, without assigning any reasons whatsoever.
- b. The (PUT NAME OF THE NODAL AGENCY) reserves the right to reject any Proposal if:
At any time, a material misrepresentation is made or uncovered, or
Such misrepresentation/improper response would lead to the disqualification of the Bidder. If the Bidder is a Consortium, then the entire Consortium would be

disqualified or rejected.

The Bidder does not respond promptly and thoroughly to requests for supplemental information required for the evaluation of the Proposal.

2.2.8 Validity of Bids

- a. The Bid submitted by a Bidder shall be valid for minimum period of 180 (one hundred eighty) days from the Bid Due Date. No conditional validity in whatsoever form shall be accepted by the (PUT NAME OF THE NODAL AGENCY).
- b. No Bidder shall submit more than one Bid for the Project. A Bidder bidding individually or as a Member of a Consortium shall not be entitled to submit another Bid either individually or as a Member of any other Consortium, as the case may be.
- c. In exceptional circumstances, prior to expiry of the original Bid validity period, the (PUT NAME OF THE NODAL AGENCY) may request the Bidder(s) for a specified extension in the period of validity of the Bid. The request and the response there-to shall be made in writing. A Bidder agreeing to the request will not be permitted to modify his Bid on his own but will be required to extend the validity of his Bid and Bid Security correspondingly. All the provision of RFP including provisions, discharge and forfeiture of Bid Security shall continuously apply during the extended period of Bid validity.

2.2.9 Confidentiality

Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the (PUT NAME OF THE NODAL AGENCY) in relation to or matters arising out of, or concerning the Bidding Process. The (PUT NAME OF THE NODAL AGENCY) will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. The (PUT NAME OF THE NODAL AGENCY) may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the (PUT NAME OF THE NODAL AGENCY) or as may be required by law or in connection with any legal process.

2.2.10 Correspondence with the Bidder

Save and except as provided in this RFP, the (PUT NAME OF THE NODAL AGENCY) shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any Bid.

2.3 Bid Security

2.3.1 EMD/Bid Security

- a. Proposal submitted in response to the RFP Document shall be accompanied with Bid Security of (insert amount) in the form to Demand Draft in favor of "(Put name of the state) (put name of the nodal agency)" payable at (put name of the city), from a Nationalized Bank/Scheduled Bank.
- b. The EMD/ Bid Security must be submitted on line at the website..... and attach the Demand Draft of Rs (insert amount) along with EMD, from any

Nationalized/ Scheduled Bank in favor of (put the name of the state agency and location) payable at (put name of the city) while submitting their bid.

- c. The EMD/Bid Security furnished by the Selected Bidder shall be refunded without any interest after the acceptance of Performance Security.
- d. The EMD/Bid Security shall be returned without interest to the Bidders whose bids have not been accepted by the (PUT NAME OF THE NODAL AGENCY).

2.3.2 Forfeiture of EMD/Bid Security Deposit:

- a. The EMD/Bid Security shall be forfeited if the Selected Bidder does not deposit Performance Security within the stipulated time period.
- b. If the Selected Bidder fails to execute the Concession Agreement within 30 days from time period specified in the LoA or by the (PUT NAME OF THE NODAL AGENCY), Put the name of the state . In this case, EMD/Bid Security deposit will be forfeited and LoA will be cancelled. Notwithstanding any such action will not limit the right of the Authority to seek further remedy or to take further action against the Selected Bidder/Consortium.
- c. When Selected Bidder withdraws its Bid before signing of the Concession Agreement.
- d. If the Bidder/Consortium has concealed material facts about the Bid.
- e. If the Bidder/Consortium withdraws its Bid during the period of its validity as specified in this RFP;
- f. If the Bidder/Consortium is found to have a Conflict of Interest as specified in the RFP; and
- g. If the Selected Bidder/Consortium is found to be in contravention of any of the provisions of this RFP document.

2.3.3 Performance Guarantee

- a. The Concessionaire shall, for ensuring performance of its obligations in terms of the Concession Agreement, deliver to the authority Performance Security as mentioned in the RFP and simultaneously execute the Concession Agreement.
- b. The Performance Security of Rs. (insert amount)) each shall be given by the concessionaire in favor of Municipal commissioner, -- Municipal Council in the form of Bank Guarantee from any Nationalized/Scheduled Bank.
- c. The Performance Security shall be subject to escalation at the rate of 2% (two percent) annually. Performance security shall be raised by 10% at the interval of 5 years considering increase of 2% in the base rate. As an example, in the year 2015 the performance security is Rs. (insert amount), then in 2020 it shall be Rs. (insert amount) and in 2025, it shall be Rs. (insert amount) and so on. The Concessionaire shall keep the bank guarantee valid for a period of 15 (fifteen) years and any extension thereto, from the date of signing of this Agreement by renewing the bank guarantee each year at least one month prior to its expiry.
- d. The Performance Security shall be kept valid for entire Concession Period and 90 days after the expiry of the Concession Agreement, by its renewal every year.
- e. The Performance Security shall not bear any interest and the Concessionaire shall not have any claim on the interest on Performance Security.
- f. If the Concession Agreement is Terminated due to any reason other than

Concessionaire's Default, the Performance Security shall, subject to Authority/(PUT NAME OF THE NODAL AGENCY), Put the name of the state 's right to receive amounts, if any, due from Concessionaire under the Concession Agreement, be duly discharged and released to the Concessionaire.

- g. In the event of the encashment of the Performance Security by Authority pursuant to Encashment Notice issued, the Concessionaire shall within 10 (ten) days of the Encashment Notice, furnish fresh Performance Security to the Authority, failing which the Authority shall be entitled to Terminate the Concession Agreement in accordance with the provisions mentioned herein and in the Concession Agreement.
- h. The Authority shall be entitled to encash the Performance Security fully or partially as the case may be after giving notice of 30 (thirty) days if any Event of Default not being remedied by the Concessionaire despite notice from the Authority.
- i. Whenever any claim against the Concessionaire for payment of sum of money arises out of or under the Concession Agreement, the Authority shall be entitled to recover such sums or any sum then due or which at any time there may become due from the Concessionaire under the Concession Agreement from Performance Security furnished with the Authority.
- j. In case the Performance Security is not sufficient to cover the recoverable amount, the Concessionaire shall pay to the Authority on demand the balance remaining due.

2.3.4 **Forfeiture of Performance Security**

Forfeiture of Performance Security in full or in part will be done at the discretion of the Authority:

- a. If the Concessionaire is found guilty of not following any of terms and conditions contained in the Concession Agreement in spite of giving notice to do so.
- b. If the Concessionaire fails to pay the damages, compensation if any, imposed upon him for breach of performance and compliance of standards as specified in the Concession Agreement.
- c. If the Concession Agreement is terminated on account of default of the Concessionaire.
- d. If the Concessionaire withdraws or terminates the Concession Agreement.
- e. If the Concessionaire conceals material facts or inducing undue influence or indulges in corrupt practices.

3. Evaluation of Bids

3.1 Evaluation of Bids

The Technical Bid submitted by the Bidder shall form the base for evaluation of the capability of the firm. The evaluation committee shall lay emphasis on the following points:

- a. Bidders' experience in door to door collection in last 5 years.
- b. Bidders' experience of Transportation of Waste in last 5 years.
- c. Availability of machinery, equipment, vehicles etc with the Bidder.
- d. The financial turnover and net worth of the Bidder in last 3 years.
- e. Qualification and experience of key manpower proposed to be deployed.
- f. The approach and methodology and monitoring mechanism suggested by the Bidder.

International Experience to be counted while evaluating the Bids

International experience of the Bidder or any Consortium Member in the matter of door to door collection, secondary storage and transportation of waste shall count only if the company registered in India has rendered services abroad for the purpose of evaluation of Bids. The Annual turnover and Net worth of only those companies who are bidding and their JV partner/Consortium Member shall be considered for determining the financial capability of the Bidder.

The financial turnover or net worth of the parent company or other company which is not a Consortium Member or a JV partner shall not be considered.

3.2 Bid Evaluation Criteria

The Bidders will be evaluated against total score of 300 applying the criteria shown in the Sections A, B, C, D & E below. The Financial Bid of only those Bidders shall be opened who obtain a minimum aggregate score of 210 subjects also to scoring minimum marks in each section as shown in the column 4 of the composite marks matrix and qualifying standards as shown in Section-E of the evaluation criteria below. In a situation where no Bidder scores an aggregate of 210 marks or above the qualifying standard shall be lowered to 65% i.e. 195 marks subject also to scoring minimum marks in each section as shown in the column 4 of the composite marks matrix and qualifying standards as shown in Section-E of the evaluation criteria, provided further in the event of no Bidder even scoring 195 marks or above the qualifying mark shall be further lowered to 60% i.e. 180 marks in aggregate subject to scoring minimum marks in each section as show in the column 4 of the composite marks matrix and qualifying standards as shown in Section-E.

Section - A. Technical Capabilities and Experience

SI. No	Details of Technical Capability	Unit of Measure	Marks Allotted per Contract	No. of Contracts	Maximum Marks	Marks obtained by Bidder(s)
1	Door to door collection (insert population) population	Population covered in door to door system (insert population range)	25		50	
		(insert population range)	35			
		(insert population range)	40			
		(insert population range)	45			
		(insert population range)	50			

Note: If the contract is given in terms of population covered then the weight will be estimated assuming the (insert waste generation rate) mt, per one lac population

3	Experience in Transportation of MSW in last 5 years with each contract of not less than of (insert figure) MT/Year	Metric Tonnes per day			Maximum marks 50	Marks obtained by the bidder
		Insert range	25			
		Insert range	30			
		Insert range	35			
		Insert range	40			
		Insert range	45			
		Insert range	50			

Note: If the contract is given in terms of population covered then 20 MT per 1 lakh population will be considered as yard stick for towns under 1 lakh population, 25 MT per 1 lakh population for towns with 1 lakh to 5 lakh population, 30 MT per 1 lakh population for cities with 5 lakh to 10 lakh population, 35 MT per 1 lakh population for cities with 10 lakh to 30 lakh population, 40 MT per 1 lakh population for cities with 30 lakh to 50 lakh population and 50 MT per 1 lakh population for cities above 50 lakh population.

Section - B. Financial Capabilities				
Details of Financial Capability	In Crore Rupees	Marks Allotted	Maximum Marks	Marks obtained by Bidder(s)
Average Annual Financial Turnover of last 3 years	Give range	25	50	
	Give range	35		
	Give range	50		
Average Net worth of last 3 years	Give range	20	50	
	Give range	35		
	Give range	50		

Section - C. Human resource and Equipment

Sl. No	Details of Resource	Expertise	Evaluation Criteria	Marks Allotted	Maximum Marks	Marks obtained by Bidder(s)
			Qualification	---		
1	Professional Manpower availability (submit detailed resume of each key person)	Team Leader	Graduate in Environmental /Civil /mechanical / Public Health Engineering	5	40	
			Experience in SWM field	--		
			Experience in Relevant Field	---		
			Up to 3 years	0		
			3 to 5 years	5		
			Above 5 years	10		
			Qualification	---		
		Expert in primary door to door collection & Transportation	A sanitary inspector diploma holder	5		
			Experience in Relevant Field	---		
			Up to 5 years	0		
			5 to 10 years	5		
			Above 10 years	10		
			Qualification	---		
		Deputy Team Leader	A sanitary inspector diploma holder	5		
			Experience in Relevant Field	--		
			Up to 3 years	0		
			3 to 5 years	3		

			3 to 5 years	3		
			Above 5 years	5		
2	Availability of Vehicles, equipment, machinery etc with the bidder	Adequacy & Suitability *	Out of 20	20		

* The specifications of the vehicles to be used for various activities are listed out in detail in Annexure 1-E, 1-I and 1-K. The Bidder shall be given 1 mark for showing availability of every 3.33% of the total vehicles, machinery and equipment proposed to be deployed during the implementation of this project.

Section - D. Other Important Capabilities					
SI. No	Details of Approach	Evaluation Criteria	Marks Allotted	Maximum Marks	Marks obtained by Bidder(s)
1	Approach & Methodology suggested by the Bidder	Appropriateness *	Out of 20	20	
2	Internal Performance Monitoring (efficient redressal of complaints, GPS monitoring of vehicles and monitoring the performance of workforce etc.)	Effectiveness of the monitoring mechanism	Out of 20	20	

* The Bidder shall be expected to make a detail presentation on his approach and methodology towards successful implementation of the project and monitoring mechanism proposed to be adopted.

Section - E. Composite Marks Matrix & Qualification Standard					
Sl. No (1)	Details of the Evaluation (2)	Maximum Marks (3)	Minimum marks required in each Section (4)	Minimum aggregate marks required to qualify subject to getting minimum marks in each section as per Column 4 (5)	Marks obtained by Bidder(s) (6)
1	Section A - Technical Capabilities and Experience	100	33		
2	Section B - Financial Capabilities	100	33		
3	Section C - Human resource and Equipment	60	20		
4	Section D - Other Important Capabilities	40	14		
	Grand Total of Marks	300	---	210	

Important Notes:

- a. A maximum of 2 members in a Consortium is allowed. For the purpose of evaluation of Technical Bid experience and financial standing of members having committed minimum 26% stake in the Consortium shall only be considered. The Bidder having 51% stake in the Consortium shall be the Lead Member of the Consortium.
- b. The Bidders shall attach the documentary evidence in support of availing scores on the above counts.
- c. Certificate must be obtained from the competent authority.
- d. The Bidders shall attach the certificate with client details and the contact numbers. (PUT NAME OF THE NODAL AGENCY)/ Authority reserve the right to verify the facts.
- e. The (PUT NAME OF THE NODAL AGENCY) reserves the right to negotiate the rate with the Preferred Bidder and reject the Bids all together if it so feels that the rates quoted are high and not acceptable.
- f. No reason shall be given for the cancellation of a Bid.
- g. At the time of evaluation the Bids the experience of a foreign parent company for the work done outside India shall be excluded and shall not be taken into consideration at the time of evaluation.

3.3 Explanation of the Financial Bid

Bidder to note the following while filling-up the Financial Bid:

- I. The Bidders shall only quote base fee/rate per metric tonne of Waste in place of 'X' in Column 3 of Sl. No. 1 of the Financial Bid format given in Annexure 5-A. Nothing shall be

written or corrected in item numbers 2.

- ii. The fee quoted in column 3 at Sl.No. 1 shall be called “Base Rate”. This rate will be decrease per metric tonne of waste on account of type of service rendered as shown in column 3.

3.3.1 Annual Price Escalation

1. The Concessionaire shall be given annual price escalation in the base rate given by him and accepted by (PUT NAME OF THE NODAL AGENCY) at the time of award of contract (called 'X' below) during the Concession and any increase in diesel and minimum wages period as under:

2. 2 % increase in the base rate 'X' will be given annually to cover the general increase in costs and will also be given increase in (i) cost of diesel and (ii) the minimum wages payable to the workmen covered under the Minimum Wages Act applicable to the State as and when the diesel price is increased or increase in minimum wages is given by the State Government. The increase shall be calculated as per the examples given here under:

After 1 year X plus 2% of X

After 2 years X plus 4% of X

After 3 years X plus 6% of X

After 10 years X plus 20% of X

After 14 years X plus 28% of X

Where 'X' is the “base rate” accepted by (PUT NAME OF THE NODAL AGENCY) at the time of award of contract as against rate per metric tons quoted by the Selected Bidder.

3.3.2 Increase in price an account of increase in diesel price & increase in minimum wages

Besides, the above annual increase, the concessionaire shall be given increase or decrease in the diesel component as well as minimum wages component as and when the rates are increased or decreased.

For the purpose of calculations, the cost component of Diesel shall be taken as 25% of base rate “X” and the cost component of minimum wages of workmen shall be taken as 45% of base rate "X". Any increase in price of diesel or minimum wages will be compensated by giving a proportionate increase in the aforesaid percentage component of diesel and minimum wages.

In a situation where for any reason the price of diesel or alternate fuel in use for the vehicle and equipment utilized for providing SWM services reduces, the Authority (UNP) shall suo moto order review of the diesel/fuel price & minimum wages and reduce the increase in the base rate already given subject to the condition that the final Base Rate 'X' shall not be reduced below the original rate accepted/granted by (PUT NAME OF THE NODAL AGENCY).

This cost difference shall be calculated as per formula given below:

Change in diesel cost component

$$E(Rs) = A \times B \left\{ \frac{C}{D} - 1 \right\}$$

New Rate payable on account of price increase = A ± E

Where;

A = base rate at the time of signing the Concession Agreement

B = % of diesel component in 'base rate' fixed at the time of signing the Concession Agreement i.e. 25%

C = actual rate of diesel at the time of price increase

D = Rate of diesel at the time of award of Concession or previous revision whichever is later

E = Increase/decrease in diesel component

Example:

A=Base rate on the date of signing of the Concession Agreement	= 800
B= % of diesel part in the base rate	= 25%
C= Rate of diesel at the time of price increase	= 60.00
D= Rate of diesel at the time of grant of Concession	= 55.00

$$= 800 \times 0.25 \times (1.09 - 1)$$

$$= 800 \times 0.25 \times 0.09$$

$$= 800 \times 0.0227$$

$$= 18.16$$

Therefore, the base rate to be further increased after review of diesel component cost
= Rs. 18.16

Minimum Wage Component Cost

Minimum Wage increase adjustment shall be as per formula given below:

Change in Minimum Wage component

$$E(Rs) = A \times B \left\{ \frac{C}{D} - 1 \right\}$$

Where;

A = base rate at the time of signing of the Concession Agreement

B = % age of Minimum Wage component in 'base rate' fixed at the time of signing of the Concession Agreement i.e. 45 %

C = minimum wages as increased now by Govt.

D = Minimum wages at the time of award of the Concession or previous review

E = Increase/decrease in Minimum Wage component

Example:

A=Base rate on the date of signing of the Concession Agreement	= 800
B= % age minimum wage component in the base rate	= 45%
C= Minimum wage of unskilled labor now increased	= 180.00
D= Minimum wage at the time of grant of the Concession	= 160.00

$$\begin{aligned}
 &\text{Change in Minimum wage component} \\
 &= 800 \times 0.45 \times 0.125 \\
 &= 800 * 0.45 * 0.125 \\
 &= 45
 \end{aligned}$$

The base rate to be increased after review of minimum wage component will be = Rs. 45/-

Therefore, further increase in the base rate at the time of review will be Rs. 18.16 as Diesel component + Rs. 45/- as minimum wage component =Rs. 63.16

The Base Rate of 800 /- will now is 863.16 from the date of such increase.

The Concessionaire shall prepare a monthly invoice duly certified by the authorized representative of the Authority responsible for verifying the weighment of MSW and Independent Engineer and submit the monthly invoice by the 7th day of next month. The monthly invoice shall be supported by the original copy of the daily weighment statement duly signed by the authorized representative of the Authority responsible for verifying the weighment of Incoming Waste and Independent Engineer along with the monthly summary statement giving the details of work done. The invoice shall mention the amount, payable under each head of account and the total amount payable.

Liquidated Damages recoverable from the tipping fees shall be deducted from the amount payable to the Concessionaire by the authority

3.4 **Tests of Responsiveness**

Prior to evaluation of Bids, the (PUT NAME OF THE NODAL AGENCY) shall determine whether each Bid is responsive to the requirements of this RFP. A Bid shall be considered responsive only if:

- It is received as per the format mentioned in the RFP

- It is received by the Bid Due Date

- It is signed, sealed, bound together in hard cover and marked as prescribed.

- It is accompanied by the Bid Security as specified in the RFP.

- It is accompanied by the Power(s) of Attorney

- it contains all the information (complete in all respects) as requested in this RFP and/or Bidding Documents (in formats same as those specified);

- It does not contain any condition or qualification; and

- It is not non-responsive in terms hereof.

The (PUT NAME OF THE NODAL AGENCY) reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the (PUT NAME OF THE NODAL AGENCY) in respect of such Bid.

Any Bidder/ Consortium Members or their Associates which have been barred by the Central Government or State Government or Statutory Authority or a Public Sector Undertaking, as the case may be from participating in any project and the bar subsists as on the date of proposal, the bids of such entity will not be eligible to submit a proposal either by itself or through its Associates. Bid submitted by any such entity will be held non-responsive and the Bid Security shall be forfeited.

Any Bidder or its Associate should have, during the last three years neither failed to perform on any agreement, as evidence by imposition of a penalty by an arbitral or Judicial Authority or a Judicial pronouncement or arbitration award, nor been expelled from any project or contract by any public authority nor have had any contract Terminated by any public authority for breach on its part.

3.5 **Contacting the (PUT NAME OF THE NODAL AGENCY) during Bid Evaluation**

Bids shall be deemed to be under consideration immediately after they are opened and until such time the (PUT NAME OF THE NODAL AGENCY) makes official intimation of award/rejection to the Bidders. While the Bids are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save and except as required under the Bidding Documents, from contacting by any means, the (PUT NAME OF THE NODAL AGENCY) and/ or their employees/representatives on matters related to the Bids under consideration.

4. Fraud and Corrupt Practices

The Bidders and their officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Concession Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Concession Agreement, the Authority may reject a Bid, withdraw the LOA, or Terminate the Concession Agreement, as the case may be, without being liable in any manner whatsoever to the Bidders or the Selected Bidder or the Concessionaire, as the case may be, if it determines that the Bidders or the Selected Bidder or the Concessionaire, as the case may be, has directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as mentioned in this RFP in the Bidding Process. In such an event, the (PUT NAME OF THE NODAL AGENCY) shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the (PUT NAME OF THE NODAL AGENCY) under the Bidding Documents and/or the Concession Agreement, or otherwise.

Without prejudice to the rights and remedies which the (PUT NAME OF THE NODAL AGENCY) may have under the LOA or the Concession Agreement, or otherwise if Bidder(s) or Selected Bidder or Concessionaire, as the case may be, is found by the (PUT NAME OF THE NODAL AGENCY) to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as mentioned in this RFP during the Bidding Process, or after the issue of the LOA or the execution of the Concession Agreement, such Bidder(s) or Selected Bidder or Concessionaire, as the case may be, shall not be eligible to participate in any tender or RFP issued by the (PUT NAME OF THE NODAL AGENCY) during a period of 2 (two) years from the date such Bidder or Selected Bidder or Concessionaire, as the case may be, is found by the (PUT NAME OF THE NODAL AGENCY) to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

For the purposes of this Section, the following terms shall have the meaning as assigned to them:

"Corrupt practice" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the (PUT NAME OF THE NODAL AGENCY)/Put the name of the state /Authority who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the Concessionaire Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the (PUT NAME OF THE NODAL AGENCY)/Put the name of the state /Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process; or (ii) engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA

or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Agreement, who at any time has been or is a legal, financial or technical adviser of the Authority in relation to any matter concerning the Project in the past but its assignment expired or was terminated 6 (six) months prior to the date of issue of RFP for the Project. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from the date of signing of the Concession Agreement;

"Fraudulent practice" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

"Coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process;

"Undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by the (PUT NAME OF THE NODAL AGENCY)/Put the name of the state /Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and

"Restrictive practice" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

5. Pre Bid Meeting

1. A pre bid meeting will be convened by (PUT NAME OF THE NODAL AGENCY) to clarify issues with respect to the Project and the terms and conditions of the RFP. (PUT NAME OF THE NODAL AGENCY), Put the name of the state may hold the pre bid meeting (s) as per the schedule communicated to the Prospective Bidder.
2. Prior to the pre bid meeting, the Bidders are requested to submit a list of queries and suggested deviations, if any from the terms and conditions set out in the RFP document.
3. (PUT NAME OF THE NODAL AGENCY), Put the name of the state to its sole discretion, and based on the inputs provided by the Bidders or at its own motion may consider amendment to the terms and conditions of the RFP.
4. The proposal submitted by the Bidder shall have to be in conformity with the terms and conditions of the RFP. And it would be presumed that the Bidder accepts all the terms of the RFP notwithstanding any suggestion made by the Bidders in the pre bid meeting if the suggestion is not considered by (PUT NAME OF THE NODAL AGENCY). (Put the name of the state).
5. Attendance of the Bidders in the pre bid meeting is not mandatory.
6. All queries , correspondence related to the pre bid meeting or otherwise related to this RFP shall be submitted to :

Put address

6. Time Frame for execution of work

The Concessionaire shall adhere to the time frame to start and complete the work in phases as under:

The Concessionaire shall mobilize man power, financial resources, vehicles, equipment for the execution of the project from the date of signing the concession agreement in phases as under.

Phase I – 3 months

Commence door to door collection and transportation in 20% of the wards

Phase II - 4 months

Provide door to door collection and transportation service in 20% additional wards

Phase III – 6 Months

Provide door to door collection and transportation service in all the remaining wards.

Program Schedule

The bidder/consortium of bidders found L-1 at the time of opening of the financial bid shall submit within 15 days from the date of opening of financial bid to the Authority, the Preliminary Operational plan that will be rolled out by them for the implementation of the project together with the PERT chart and modify the same to the satisfaction of the Authority within the overall framework of the RFP document. The LOA shall be issued to the selected bidder only after the approval of the operational plan. After the issue of LOA and signing of concession agreement, the concessionaire shall submit a detailed development plan in terms of Clause 6.4 of the concession agreement. The progress & planning of works shall be reviewed from time to time and authority may modify the same depending upon the exigencies of the work and stage of the works.

Extension of time may be granted by the Authority on genuine grounds only if delay is for the reasons beyond the control of the Concessionaire.

7. Special conditions

7.1 Increase in the scope of work.

Looking to the trend of increase in the City population over a decade, the Concessionaire should plan to handle 5% additional Waste each year suitably during the Concession Period.

The Concessionaire shall also be required to take up additional work of SWM which is presently not covered in his scope so far if the Authority decides to entrust the work on the prevailing terms and conditions applicable during the Concession Period. This additional work shall be entrusted with sufficient advance intimation to enable the Concessionaire to make suitable arrangements.

7.2 Escrow Account / Dedicated Account

- a. The municipal Authority shall maintain a separate Escrow Account/Dedicated Account in which the user fee/ other taxes collected by the Authority shall be deposited and the Concessionaire providing SWM services shall be paid from this account towards payment of fees/charges payable to him for rendering services to the Authority. Any surplus amount left after paying the charges to the Authorities shall be appropriated by the Authorities for meeting its own expenses on Solid Waste Management and towards improving the said service.
- b. All the transactions related to the Concession Agreement shall be effected through an Escrow Account/Dedicated Account maintained by the Authority. All the payments to the Concessionaire for his services shall be made from this Escrow Account/Dedicated Account. The Authorities shall dedicate the collection of user fee and other source of income considered adequate to meet the obligation of payments to the Concessionaire on time and deposit the same in Escrow Account/Dedicated Account to ensure timely payment to the Concessionaire.
- c. Municipal authority will have the principal rights to operate respective escrow accounts/Dedicated Account. Maximum three consecutive withdrawals shall be permitted at a time. The bidder shall ensure settlement of previous bills to avail the facility of next withdrawal from the escrow account/Dedicated Account.

7.3 Preventing mixing of Bio-Medical Waste with Municipal Solid Waste

Collection of Bio-medical waste is not within the purview of this Project and it is supposed to be handled as per Bio-medical waste Management Rules 2016. The Bidder is therefore under no obligation to collect, transport, treat, or dispose of Bio-medical waste. However, in the event of finding Bio-medical waste disposed off unscientifically alongside MSW or mixed with MSW in any of the wards, the Concessionaire shall notify the same to the Authority who shall arrange to pick up such waste in the manner as deemed appropriate. The Concessionaire shall not take such waste to the MSW Processing Facility /Landfill Facility as it may contaminate compost or any other product derived from the Waste.

7.4 Use of Proven technology

The Concessionaire shall have the liberty to upscale the technology, type of vehicles and. Equipment during the Concession Period with the prior approval for deriving larger benefits

without causing any harm to the neighborhood, health and environment of the City and without putting any additional burden on the Authority.

The Concessionaire shall have to observe all the directions contained in the SWM Rules, 2016 as well as State Laws and Rules as amended from time to time. In the event of any major change in the legal frame work in the Country or the State, he shall, on being asked by the Authority, comply with the new laws and the Rules at his cost and may ask for reasonable compensation which shall be determined by a technical committee that may be appointed by Government/ Authority.

The Concessionaire shall use vehicles; equipment and machinery which meet the standard emission norms prescribed the competent authority from time to time.

7.5 **Waste Calibration**

The Municipal Solid Waste has a normal density between 400 & 500 Kg/M³ without compaction and higher density not exceeding 0.80 Kg/M³ if good quality of compactor is used.

While considering the weight of Waste Transported by the Bidder for the purpose of making payment per tonne, the volume of the vehicle and density of Waste shall be taken into consideration to ensure that no malpractice takes place.

The following method of calibration shall be adopted:

All the vehicles shall be weighted at the weigh bridge designated by the authority from time to time. The volume of vehicles used shall be recorded in cubic meters. If the net weight of Waste comes out to be more than 500 Kg/M³ in case of uncompacted Waste, the weight shall be reduced and brought down to the level of 500 Kg/M³. Similarly the Waste collected in large howling vehicles at the Transfer Station shall be calibrated and if the tonnage of Waste recorded is higher than the calibrated weight, the calibrated weight shall be taken into consideration for payment.

The reduction in weight shall be communicated to the Independent Engineer /officer in charge on a daily basis for reduction from the total Waste recorded at the final destination for payment to the Concessionaire.

Recording the weight of the MSW transported to processing/disposal facility

The concessionaire shall ensure weighing of all the waste transported in the presence of authorized representative of the authority and maintain record duly countersigned by the Authority's representative.

7.6 **Gradual Conversion of City into bin-less city**

Establishment of Secondary Waste Storage Depots in the City are essential for intermediate transfer of Waste from primary collection tools such as handcarts, tricycles etc into large close body containers to facilitate bulk transfer of Waste from Secondary Waste Storage Depots to the Transfer Station or MSW Processing Facility/Landfill Facility. These Secondary Waste Storage Depots however, give rise to serious objection from the households, shops and establishments where such Secondary Waste Storage Depots are

placed in front of their premises (NIMBY SYNDROME). These Secondary Waste Storage Depots can be eliminated gradually by Secondary Waste Storage Depots converted into waste pick up stations by direct transfer of Waste into large vehicles.

As it is unaffordable to park a designated vehicle at each such Secondary Waste Storage Depots; an appropriate option is to designate a large vehicle to pick up Waste from a circular route covering 5 to 10 existing Secondary Waste Storage Depots. The large vehicle so designated shall go round and report at the same place at an interval of every 30 minutes. The sanitation workers need to be asked to go to the same Secondary Waste Storage Depot and wait for on an average 15 minutes at the Secondary Waste Storage Depots to deposit the Waste directly into the designated vehicle when the said vehicle arrives at the Secondary Waste Storage Depots.

By adopting this system the level of service will improve considerably and the sight of the Secondary Waste Storage Depots will become a matter of past.

Direct transfer of Waste collected during street sweeping and drain cleaning into the large vehicle will require proper routing of the vehicle and its optimum use to keep the cost under control. This system may therefore be introduced in a phased manner over a period of years beginning with congested areas in the city within 6 months and gradually cover remaining parts of the city in a phased manner over a period of 3 years in consultation with authority to make the City gradually bin-less.

7.7 **Monitoring Mechanism by the Authority**

The Concessionaire shall co-operate in the monitoring mechanism adopted by the Authority as he is expected to perform several tasks shown in the RFP and the payment is to be made for providing the services on the basis per tonne of Waste handled each day. For ensuring fairness to both sides a monitoring mechanism is devised as under to keep a day to day record and ensure that Concessionaire is performing his duties as per the Concession Agreement and paid accordingly.

The concessionaire shall use an online waste truck monitoring system using radio frequency identification, which is linked with the weighbridges commissioned at the waste transfer stations as well as at the waste processing and disposal facility.

The tracking devices shall be mounted in the door to door collection vehicles to collect location information in real time via the GPS. This information shall be transferred continuously through GPRS to a central database to enable the municipal authority to view the current location of each vehicle in the collection stage via a web-based application. The position of trucks/vehicles that collect waste from the street bins and street bin information shall also be displayed on a digital map, which should be made available by a map server to enable monitoring of street bins clearance and transportation of waste.

The following Monitoring Mechanism shall therefore be adopted by the Authority besides the internal monitoring to be done by the Concessionaire, he shall extend full support to

the authority in this regard.

7.7.1 Monitoring by Sanitary Supervisors/Inspectors

a. Door to Door collection

Sanitary Supervisor/ Inspector of concerned ward shall inspect the door to door collection work on a day to day basis & certify whether the work is carried out as per the contract and report in the prescribed Performa to his next superior officer.

b. Verification fleet of Vehicles and Manpower:

Sanitary Inspector/ Ward office shall verify whether the required fleet of vehicles and man power are deployed by the concessionaire or there is a shortfall due to any reason.

c. Transportation of Waste:

The concerned ward inspector has to invariably take a round before the close of day to find out whether all the Secondary Waste Storage Depots sites are attended to and are cleaned and record his observation in the prescribed form. He should also take at random feedback by rotation in different areas to find out from the citizens whether bins are being lifted each day before they overflow and submit his report to his next superior.

d. Recording of weight of Waste Transported:

Municipal Commissioner may designate one person on a monthly rotation basis to monitor and record the Transportation of Waste at the weigh bridge constructed by the Concessionaire or authorized Weigh Bridge on a day to day basis. The weigh bridge in-charge shall issue receipt in triplicate in the Performa designed by Authority. One copy shall be retained by weigh bridge in-charge, and other two copies shall be given to the driver of the vehicle with a direction to hand over one copy to the person in charge of MSW Processing Facility/ SLF and keep third copy duly signed by supervisor at MSW Processing Facility/ SLF with him to be given to the Concessionaire.

Weighment figures will be compiled on a daily basis both by weigh bridge in-charge and person in-charge of MSW Processing Facility/ SLF separately and reported to Health Officer/ Engineer in-charge as may be designated by the Authority on day to day basis in the prescribed Performa.

7.7.2 Weekly review Meetings

Weekly review meeting will be conducted by the Commissioner/Addl. or Deputy Commissioner in-charge of SWM with the Concessionaire or his authorized representative and concerned sanitation officials. He will review the complaints received and their timely disposal and deficiencies noticed during field visits during the week and take stock of situation and give suitable directions for improving performance of the Concessionaire, if found deficient. Minutes of meeting shall be recorded and shared with the Concessionaire or his representative and his acknowledgement shall be obtained. Penalty due, if any, shall be communicated to the Concessionaire.

The Authority shall monitor the performance of the Concessionaire in terms of the Concession Agreement and ensure the proper records are maintained for the work done and being done on a day to day basis so that the Concessionaire's performance is objectively assessed for payment and penalties. This will be done to avoid undue harassment to the Concessionaire while making monthly payments or showing leniency in levy of penalty for performance.

7.7.3 Monitoring of weight of the Waste transferred through Private Weigh Bridge

The Concessionaire shall take all the waste collected and transported to the Weigh Bridge that may be designated by the authority time to time and collect the record of the same from the weigh bridge operator.

The Municipal Authority may authorize some private reliable computerized weigh bridge operator to weigh and record the weight in the appropriate Performa in presence of Authority's and Concessionaire's representative. The record of such weigh bridge may be taken into account for payment to the Concessionaire. The officer designated by the authority shall keep vigil to ensure that Weighment records are not tempered with.

7.8 Group Insurance

The concessionaire shall take group insurance of the work force deployed on the project against any accident, disability or death while on duty.

7.9 Medical Check up

The concessionaire shall arrange medical checkup of the work force at least once in a year and shall arrange for their treatment if associated with the nature of work allotted in the project.

8. Instructions to the Successful Bidder/ Concessionaire

General Instructions

1. Obtaining Clearances

Concessionaire shall obtain all necessary permissions and clearances from regulatory bodies required under national/state Laws, Rules, and Regulations for the work. All the expenses on getting such clearances and permissions shall be borne by the Concessionaire. The Authority shall give required recommendatory letter to get NOCs/Clearances.

2. Mode of Payment

The mode of payment shall be governed as per the payment clause of this RFP.

3. Presence of Concessionaire or his representative at the site.

On getting the work order, the Concessionaire shall deploy the team of key personnel shown in Annexure 2-F to meet the authority and to receive instructions from the Authority or his authorized representative and ensures prompt compliance of the instructions given.

4. Joint and Several Liabilities

In case of a Joint Venture/Consortium, the Lead Member shall sign the Concession Agreement, receive all payment, take responsibility of executing work as per the Concession Agreement and offer all guarantees etc. All members of partnership/ joint venture/ Consortium shall be jointly and severally responsible for performance of the work in terms of RFP Concessionaire Agreement. The constituents of partnership/ joint venture/ Consortium of the Concessionaire shall not be changed without the express written permission of the Authority.

Annexure 1-A

Population of the city and population projections

Population	1991	2001	2011
Decadal growth			

Projected Population

City	
Year	Population
2015	
2021	
2031	
2041	

Annexure 1-B

Details of approximate waste generators in the city

Type of waste generators (Municipal Waste)	No. of Units
Households	
Shops , Workshops	
Offices and institutions	
Industries	
Vegetable and fruit Markets	
Meat and Fish Markets	
Number of Hospitals	
Number of Nursing Homes	
Number of Laboratories	
Number of Beds	
Number of Hotels	
Number of Restaurants	
Others	
Total	
Floating population	

Annexure 1-C

Estimated House hold waste generation rates

Average waste quantity (Kg/day)

Income Group	Average waste in Kg/Day	
High Income Group		
Middle Income Group		
Low Income Group		
Average waste		

Annexure 1-D

Estimated composition of waste

Contents	City
	Percentage (%)
Organic	
Paper	
Plastic	
Metal	
Glass	
Rubber	
Sand	
Others	
Total	100

Annexure 1-E

Future projections of generation of waste

Year	Population	Per capita waste generation (Kg)	Waste generation based on population MT/Day
2015			
2021			
2031			
2041			

Annexure 1-F

Current no of secondary waste storage depots in the city

Location of open waste storage depots

Sr. No	Ward No.	Place	Remarks
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Annexure 1-G

Current level of compliance of service level benchmarks for SWM

Overall Compliance Status

Steps	MSW Rules Requirement	Present Status	Shortcomings	Compliance Percentage
STEP 1	Prohibit Littering			
	Storage at Source			
	Segregation at Source			
STEP 2	Primary Collection			
STEP 3	Street Sweeping on all days throughout the year.			
STEP 4	Secondary Storage			
STEP 5	Transportation in covered vehicles			
STEP 6	Waste Processing			
STEP 7	Disposal in a sanitary landfill			

Level of achieving Service Level Benchmarks prescribed by MoUD, Govt. of India

No.	Indicator	Benchmark	Achievement
1	Household level coverage of SWM services	100%	
2	Efficiency of collection of MSW	100%	
3	Extent of Segregation of MSW	100%	
4	Extent of MSW Recovery	80%	
5	Extent of Scientific Disposal of MSW	100%	
6	Extent of Redressal of Customer Complaints	80%	
7	Extent of Cost Recovery in SWM Services	100%	
8	efficiency in Collection of SWM Charges	90%	

Annexure 1-H

Standard of door to door collection expected

The -- city Council may be divided into units of -- households, shops, establishments each and allot 1 LCV for door to door collection of waste per 1500 units. 2 sanitation workers per unit may be assigned the work of door to door collection of waste every day in the morning between 7 and 11 am or any other time that may be convenient to the households and 9 and 1pm in commercial areas. For collecting waste from 25% of inaccessible areas, the Council may use containerized tricycles. The Council may divide 200 and allocate work of door to door collection to one sanitation worker per 200 households.

1. Standard of services in the areas accessible through motorized vehicles:

- a. The Concessionaire shall deploy at least one covered motorized tipping LC vehicle per 1500 households for Door to Door Collection of Waste, from residential and non-residential premises. The vehicles shall have non-conventional horn so as to alert the citizens about the arrival of waste collection vehicle. If capacity of vehicle is smaller than 1 ton MSW number of vehicles shall be increased proportionately.
- b. Motorized vehicles shall ply on roads, streets, lanes & bye-lanes and each vehicle shall be accompanied by at least 2 sanitary workers. The driver shall blow the horn and the sanitary workers shall blow the whistle intermittently and collect the Waste from all the households, shops & establishments situated on both sides of the road / street in the wards allotted under the contract for Door to Door Collection. The waste collectors shall collect the domestic / trade bins from the member or representative of the households, shops or establishments who may come forward to hand over the Waste to the waste collector on hearing the horn or the whistle.
- c. Waste collectors shall in a routine course, educate citizens to segregate Bio-degradable and Non bio-degradable waste and keep ready in two bins and handover as soon as they hear the sound of the horn or whistle.
- d. The waste collector shall transfer the contents of the domestic / trade bin into the waste collection vehicle and return back the container to the person who had handed over the waste.
- e. The waste collector shall also pick up the Waste from the entrance of the premises if kept in a lift able container not exceeding 60 liters capacity by the Waste generator. Waste collector, after emptying the container into waste collection vehicle, shall keep back the container to its original place.
- f. In case of multi storied buildings or large commercial complexes/malls the waste collector will not be required to approach each unit in the premises. The waste collector shall report in front of the premises near the entrance at the ground floor, announce his arrival and give reasonable time to the residents/traders/occupiers/ management of the premises to deliver their Waste to the waste collector.
- g. The Concessionaire may enter into a working arrangement with large commercial /

- institutional establishment/malls etc to pick up their Waste from a fixed point in their premises easily accessible to the waste collection vehicle.
- h. The waste collectors shall move from house to house to collect the Waste from the entrance and shall not insist on the households to come to the vehicle and deposit the Waste inside the vehicle.
 - i. The waste collectors shall not enter inside the household premises for collection of Waste to save time and avoid any allegations of theft.
 - j. The waste collection vehicle shall move slowly in the residential & commercial areas during the collection process and intermittently stop for a while to enable the waste collectors to deposit the Waste collected from the Door to Door Collection into the vehicle
 - k. The waste collection staff shall wear the uniform and behave decently with the citizens they serve.
 - l. The waste collectors shall not demand any charges from the citizens for rendering service unless specifically permitted by the Authority.
 - m. The Concessionaire shall maintain the fleet of covered vehicles in a good working condition with minimum 20 % spare vehicles to maintain the adequacy of the fleet on the road.

a. Door to Door collection through tricycles in inaccessible areas

Concessionaire may divide each inaccessible area into the units of 150 to 250 houses each depending on density of houses and access to roads and lanes. In difficult terrain, average 200 households per private waste collector worker is suggested. One part time worker per unit may be assigned the work of door to door collection of waste every day in the morning between 7 and 11 am or any other time that may be convenient to the households. Containerized tricycle may be used as shown below:-

- a. Part time workers may deploy in wards by the Concessionaire through RWAs, NGOs or private sector preferably by upgrading the rag pickers or engaging the existing private sweepers working in several colonies and housing areas.
- b. Waste collector should have a bell attached to the tricycle or given a whistle. He should ring the bell or blow the whistle announcing his arrival at the place of his work and start collecting the waste from the doorstep. The people may be directed that on hearing the bell, they should come out and hand over their domestic bin/bins to the waste collector or deposit their domestic biodegradable waste as well as recyclable waste into the separate compartment of the handcart of the waste collector.

Annexure 1-J

MSW pick up points in lieu of containers for direct transfer of Waste in covered mobile vans

1. Establishment of Secondary Waste Storage Depots in the City are essential for intermediate transfer of Waste from primary collection tools such as handcarts, tricycles etc into large close body containers to facilitate bulk transfer of Waste from Secondary Waste Storage Depots to the MSW Processing Facility/Landfill Facility. These Secondary Waste Storage Depots however, give rise to serious objection from the households, shops and establishments where such Secondary Waste Storage Depots are created in front of their premises (NIMBY SYNDROME). These Secondary Waste Storage Depots can be eliminated gradually by converting waste storage container sites into waste pick up stations by direct transfer of Waste into motorized vehicles.
2. In cases where Waste is required to be collected through Door to Door Collection in handcarts/tricycles from narrow lanes or where Waste is collected through street sweeping and drain cleaning in handcart or tricycles, and usually taken to the Secondary Waste Storage Depots, such sites can be made bin less and instead of using containers for Secondary Storage, Waste can be directly transferred in pick up vans which may move on a circular route to pick up Waste from the waste collectors from designated locations.
3. As it is unaffordable to park a designated vehicle at each Secondary Waste Storage Depot; an appropriate option is to designate a large vehicle to pick up Waste from a circular route covering 5 to 10 existing Secondary Waste Storage Depots. The large vehicle so designated should go round and report at the same place at an interval of every 30 minutes. The sanitation workers need to be asked to go to the same Secondary Waste Storage Depot and wait for on an average 15 minutes at the Secondary Waste Storage Depot to deposit the Waste directly into the designated vehicle when the said vehicle arrives at the Secondary Waste Storage Depots.
4. A street sweeper generally makes 3 trips in 8 hours to the Secondary Waste Storage Depots however; he or she will have 12 to 16 opportunities of depositing the Waste into the vehicle in 8 hours. This will make the operation sustainable.
5. By adopting this system the level of service will improve considerably and the sight of the Secondary Waste Storage Depots will become a matter of past.
6. Direct transfer of Waste collected during street sweeping and drain cleaning into the large vehicle will require proper routing of the vehicle and its optimum use to keep the cost under control. This system may therefore be introduced in a phased manner beginning with congested city areas within 2 months and gradually cover remaining wards in a phased manner over a period of 5 years to make the City gradually bin-less.
7. The concessionaire shall deploy covered tipping LCV for direct transfer of street sweepings and silt from drains from the pre designated points and ensure that as soon as a vehicle gets full the replacement shall be provided to avoid any gap in the service. To begin with, minimum 10 such vehicles shall be deployed by the concessionaire to transfer sweepings and silt from drains from the walled city area. The number of vehicles may be increased as required to meet the future requirement
8. This arrangement is to be made by the Concessionaire using his financial resources, manpower, machinery, vehicles as may be necessary.

Annexure 1-K

Minimum Manpower Requirement

Minimum Manpower Requirement							
Sl. No.	Type of Work	Scope of Work		Yard Stick Proposed	Man Power Requirement		
		Quantity	Units		Drivers	Labor	Admn.
1	Door to door collection (LCV)		Households. / Estbs. (including slums & narrow lanes)	1 LCV per 1500 HHs with 1driver & 2 labor			
2	Door to door collection from congested areas		Households. / Estbs.	1 labor per 200 HHs			
	Control Room Staff						
	Total Man Power						
<p><i>Note: The concessionaire shall deploy Key Personnel as per the RFP document and adequate supervisory staff to monitor the provision of services effectively.</i></p>							

Annexure 2-A

Basic Information about Bidder

1	Name and address of the applicant submitting RFP	
2	Status of the applicant: Whether a private or public ltd. company/ trust/ partnership firm/ organization	
3	Name/Names of directors//Partners/ office bearers	
4	Date of Registration/Incorporation of Firm/Company/ trust /organization	
5	Name of the authorized person signing the RFP and his/her designation	
6	Contact Details: Telephone Number: Fax Number: Mobile Number: E-mail ID:	
7	Location and address of Registered office: Address: Telephone Number: Fax Number: E-Mail ID: Mobile No.:	
8	Core business of the company/ partnership firm/ trust/organization	
9	Is there any other firm or Company involved as Consortium Member - if, yes give full details of Consortium Members, their addresses, contact details, with their share, roles/responsibilities	
10	Nature of core business of the Consortium Members	
11	Name & address of Lead Member	
12	Is the applicant firm an SPV (special purpose vehicle)? If yes, Give details of holding company/firm with percentage of equity	
13	Amount of Solvency of the Bidder (attach the copy issued by the bank during last 6 months)	
14	Name of the Bankers and their full address	
15	Whether enlisted/registered with any Govt. or Semi Govt. department,	

16	Has the Bidder, or any partner or Directors of the firm/company been involved in litigation during last 10 years for non performance of contractual obligations with ULBs concerning with any component of Municipal Solid Waste Management.	
17	Has the bidder firm or any of Consortium Members have abandoned any work in India or any contract awarded to them for SWM has been rescinded by any ULB in India during last five years prior to the date of application	
18	Whether the bidder firm or any of the consortium member have been blacklisted for non performance of contractual obligations by any urban local body or state agency in last five years	

Annexure 2-B

**Contracts of Door to Door Collection of MSW undertaken in last 5 years
(INSERT DATE) covering at least (insert figure) households or (insert figure) population in
each contract**

	Name and address of employer/client	Date of award of contract	Number of households, shops, establishments covered in D2D Collection contract	Start Date & Completion Date
<u>1</u>				
<u>2</u>				
<u>3</u>				
<u>4</u>				
<u>5</u>				

Annexure 2-D

Contracts for Transportation of MSW in last 5 years
Contracts for Transportation of MSW in last 5 years with contracts of not less than (insert figure) TPD or (insert figure) MT/Year undertaken in last 5 years (insert dates)

Add separate sheet if necessary

Sl. No	Name and address of employer/client	Date of award of contract	Metric tonnes of Waste to be transported per annum	Start Date & Completion Date
1				
2				
3				
4				

Important Note:

The data provided above must be supported by respective completion certificate only, issued by the competent authority in ULB clearly stating the amount of MSW transported in the city.

- 1. The bidder should also give his own undertaking in clear terms in respect to the quantity of MSW transported by them under each contract.*
- 2. The certificates mentioned above should be attached immediately after this annexure in the order same as that of the details mentioned in the table above.*

Annexure 2-E

Annual financial turnover & net worth of the Bidder in last 3 financial years

Financial Year	Annual Turnover (Rs. In Crores)	Net worth

Important Note:

- a. *The data provided above must to be supported by audited financial reports.*
- b. *The audited reports mentioned above should be attached immediately after this annexure in the order same as that of the details mentioned in the table above.*

Annexure 2-F

List of Key Personnel to be engaged for the Project

Sr. No.	Name	Qualification	Experience	Description of specific job to be allotted	Minimum Period of Engagement on the Project
1				Team Leader	
2				Deputy Team Leader	
3				Expert in Collection and Transportation	

Important Note:

1. The data provided above must to be supported by respective detail CVs clearly stating the personnel's experience in SWM sector.
2. The bidder should also enclose the Letter of Association of each expert with their company/firm.
3. The CVs mentioned above should be attached immediately after this annexure in the order same as that of the details mentioned in the table above.

Annexure 2-G

Part – A: Minimum Expected Vehicles required in the Initial 6 month stage:

Sl. No.	Type of Work	Type of Vehicle/Container	No. of Vehicles/Containers	Spare Vehicles/Containers (10%)	Total No. of Vehicles/Containers
1	Door to door to collection of waste	LCV			
		Tricycles			
2	Secondary Storage Depots	(a)1.1 cu.m bins for storage of street sweepings, silt from drain cleaning etc			
3	Container Lifting	Container Lifting Vehicle for 1 (a)			

Note:

If the concessionaire undertakes to provide transportation services in two shifts of eight hours each, he will be allowed to reduce the requirement of such vehicles by 50%.

Part – B: Availability of vehicles, equipment, machinery etc with the Bidder

(Add separate sheet if necessary)

Sl. No	Type of Vehicles, equipment, machinery available with the Bidder which can be deployed for the Project immediately	The No. of such vehicles, equipment and machinery	The age of vehicles, equipment, machinery etc (1) under 5 years, (2) 5 to 10 years and (3) above 10 years	Availability of drivers, operators for operation of the Vehicles, Equipment & Machinery
1				
2				
3				
4				
5				

Important Note:

- 1. The data provided above must to be supported by a document clearly stating the ownership, specifications and age of the vehicles/equipment.*
- 2. The bidder should also give his own undertaking in clear terms in respect to the availability of vehicles with him.*
- 3. The vehicles/equipment related document mentioned above should be attached immediately after this annexure in the order same as that of the details mentioned in the table above.*

Annexure 2-H

Proposed Approach & Methodology for the execution of the Project and Internal Monitoring of the Project implementation

This may include:

1. The Bidder understands of the Project.
2. Proposed approach & methodology for implementing the Project covering all component of project such as Door to door collection, transportation of MSW.
3. Type of vehicles and equipment to be deployed, their benefits and superiority
4. Protection of health & environment
5. Schedule of implementation of the Project
6. IEC for public awareness and community participation
7. Detailed Organogram of manpower proposed to be deployed at all levels including the key Professionals to be deployed by the Concessionaire.
8. Mechanism of supervision & control, monitoring the delivery of service, resolution of public complaints etc. including vehicles deployed for monitoring and conveyance.

Note: The Concessionaire may add any other aspect as deemed appropriate.

Annexure 2-I

Information regarding Litigations of each Member of the Consortium during last Five Years (Mention the years)

Sr. No.	Name of the project owner/ULB	Year of litigation	Nature of Litigation	Outcome

Important Note:

1. *The bidder should also give his own undertaking in clear terms in respect to the litigations they are involved, if any.*
2. *The support documents for the litigation history mentioned above should be attached immediately after this annexure in the order same as that of the details mentioned in the table above.*

Annexure 2-J

Declaration of the Bidder

Name of work: Integrated Solid Waste Management of ----- City on DBOOT basis

I/we hereby declare that I/We have made myself/ourselves thoroughly conversant with the situation of work, conditions of the Concession Agreement and local conditions regarding availability of materials and labor on which I/we have based my / our rates for _____ of the task. I/we undertake to use only the standard materials approved by the Authority or his duly authorized representative for the execution of the works.

Signature of Bidder

Annexure 2-K

Affidavit

(To be executed on non judicial stamp paper of appropriate value)

I, the undersigned, do hereby certify that all the statements made in the required attachments are correct.

The undersigned hereby certifies that neither our firm M/s _____ nor any of our Consortium Members have abandoned any work in India nor have we been black listed by any Govt. agency or by any ULB in India during last three years prior to the date of application

The undersigned further certifies that incase any information in the Bid submitted by me is found to be false or untrue at the later stage, the Bid may be cancelled and the Bid Security forfeited.

Name of the firm:

Authorized signatory of the firm
(With designation and title of the officer)

Annexure 3-A

Letter of Bid submission

Dated: dd-mm-yyyy

Managing Director,
(Put name of the state) (Put name of the nodal agency),
(Put name of the city)

Sub: Bid for Integrated Solid Waste Management Project, for Package-1 (C&T) for ----- city .

Dear Sir,

With reference to your RFP document dated dd-mm-yyyy, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our Bid for the aforesaid Project.

The Bid is unconditional and unqualified.

I/ We acknowledge that the Authority will be relying on the information provided in the Bid and the documents accompanying the Bid for selection of the Concessionaire for the aforesaid Project, and we certify that all information provided therein is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the Bid are true copies of their respective originals.

This statement is made for the express purpose of our selection as Concessionaire for the [design, construction, operation and maintenance] of the aforesaid Project.

I/ We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the Bid.

I/ We acknowledge the right of the (PUT NAME OF THE NODAL AGENCY) to reject our Bid without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

We hereby certify that neither our firm M/s _____ nor any of our Consortium Members have abandoned any work in India nor have we been black listed by any Govt agency or by any ULB in India during last three years prior to the date of application

We declare that:

- a. I/ We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the (PUT NAME OF THE NODAL AGENCY); and
- b. I/ We do not have any conflict of interest in accordance with provisions in the RFP document; and

- c. I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in the RFP document, in respect of any tender or request for proposal issued by or any agreement entered into with the ULB or any other public sector enterprise or any government, Central or State; and
- d. I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of the RFP, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice; and
- e. the undertakings given by us along with the Application in response to the tender notice for the Project were true and correct as on the date of making the Application and are also true and correct as on the Bid Due Date and I/we shall continue to abide by them.

I/ We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Bid that you may receive nor to invite the Bidders to

Bid for the Project, without incurring any liability to the Bidders, in accordance with the RFP document.

I/ We believe that we/ our Consortium satisfy(s) the Net Worth criteria and meet(s) the requirements as specified in the RFP document.

I/ We declare that we/ any Member of the Consortium, or our/ its Associates are not a Member of a/ any other Consortium submitting a Bid for the Project.

I/ We certify that we/ any Member of the Consortium or any of our/ their Associates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offense that outrages the moral sense of the community.

I/ We further certify that in regard to matters relating to security and integrity of the country, we/ any Member of the Consortium or any of our/ their Associates have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.

I/ We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our directors/ managers/ employees.

I/ We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the guidelines referred to above, we shall intimate the Authority of the same immediately.

I/ We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of the Bidder, or in connection with the Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.

In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a Concession Agreement in accordance with the draft that has been provided to me/ us prior to the Bid Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.

I/ We have studied all the Bidding Documents carefully and also surveyed the project area. We understand that except to the extent as expressly set forth in the Concession Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding Process including the award of Concession.

I/ We offer a Bid Security of Rs(insert amount) in accordance with the RFP Document.

The Bid Security in the form of a Demand Draft is attached.

I/ We agree and understand that the Bid is subject to the provisions of the Bidding Documents. In no case, I/we shall have any claim or right of whatsoever nature if the Project/ Concession is not awarded to me/us or our Bid is not opened or rejected.

I/ We agree and undertake to abide by all the terms and conditions of the RFP document.

{We, the Consortium Members agree and undertake to be jointly and severally liable for all the obligations of the Concessionaire under the Concession Agreement till occurrence of Financial Close in accordance with the Concession Agreement.}

I/ We shall keep this offer valid for 180 (one hundred and twenty) days from the Bid Due Date specified in the RFP.

I/ We hereby submit our Bid for undertaking the aforesaid Project in accordance with the RFP Documents and the Concession Agreement. In witness thereof, I/we submit this Bid under and in accordance with the terms of the RFP document.

Yours faithfully,
of the Authorized signatory)
Date:

(Signature, name and designation

Place:
Member

Name and seal of Bidder/Lead

Annexure 3-B

Power of Attorney for signing of Bid

Know all men by these presents, We, _____ (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms (Name), son/daughter/wife of and presently residing at, who is presently employed with us/ the Lead Member of our Consortium and holding the position of, as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our bid for the ***** Project in responsible response to the RFP issued by Directorate of Local Bodies ((PUT NAME OF THE NODAL AGENCY)), Government of (Put name of the state) the***** (the "Authority") including but not limited to signing and submission of all applications, bids and other documents and writings, participate in bidders' and other conferences and providing information / responses to the (PUT NAME OF THE NODAL AGENCY), representing us in all matters before the (PUT NAME OF THE NODAL AGENCY), signing and execution of all contracts including the Concession Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the (PUT NAME OF THE NODAL AGENCY)/NNK in all matters in connection with or relating to or arising out of our bid for the said Project and/or upon award thereof to us and/or till the entering into of the Concession Agreement with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE,, THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF....., 20.....
For.....

(Signature, name, designation and address of person authorized by Board Resolution (in case of Firm/Company)/ Partner in case of Partnership Firm

Person identified by me/personally appeared before me/Signed before me/Attested/Authenticated *

(*Notary to specify as applicable)

(Signature, Name and Address of the Notary)

Date :

Seal of the Notary

Registration Number of the Notary

Annexure 3-C

Power of Attorney for Lead Member of Consortium

Whereas the ***** (the "Authority") has invited bids from pre-qualified and short-listed parties for the ***** Project (the "Project").

Whereas,,and (collectively the "Consortium") being Members of the Consortium are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal and other connected documents in respect of the Project, and Whereas, it is necessary for the Members of the Consortium to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium's bid for the Project and its execution.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS

We, having our registered office at, M/s., having our registered office at, and M/s., having our registered office at, (hereinafter collectively referred to as the "Principals") do hereby irrevocably designate, nominate, constitute, appoint and authorize M/s, having its registered office at, being one of the Members of the Consortium, as the Lead Member and true and lawful attorney of the Consortium (hereinafter referred to as the "Attorney") and hereby irrevocably authorize the Attorney (with power to sub delegate) to conduct all business for and on behalf of the Consortium and any one of us during the bidding process and, in the event the Consortium is awarded the Concession/ Contract, during the execution of the Project, and in this regard, to do on our behalf and on behalf of the Consortium, all or any of such acts, deeds or things as are necessary or required or incidental to the submission of its bid for the Project, including but not limited to signing and submission of all applications, bids and other documents and writings, accept the Letter of Award, participate in bidders' and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the bid of the Consortium and generally to represent the Consortium in all its dealings with the Authority, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Consortium's bid for the Project and/ or upon award thereof till the Concession Agreement is entered into with the Authority.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/ Consortium.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF, 20....

For
(Signature, Name & Title)

For
(Signature, Name & Title)

For
(Signature, Name & Title)

(Executants)
(To be executed by all the Members of the Consortium)
Witnesses:

- 1.
- 2.

Notes:

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.

Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders resolution/ power of attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.

For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention, 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.

Annexure 3-D

Memorandum of Understanding (MoU)

(On Non – judicial stamp paper of Rs 100/- or such appropriate document duly attested by notary public)

This Memorandum of Understanding (MOU) entered into this [] day of [] 20__ at [] Between [] (hereinafter referred as "[]") and having office at [], India Party of the First Part

And

[] (hereinafter referred as "[]") and having office at [], India **Party of the Second Part**

The parties are individually referred to as **Party** and collectively as **Parties**.

WHEREAS (Put name of the state) (put name of the nodal agency), Government of (Put name of the state) has invited Request for Proposal (RFP) from entities interested in Integrated Solid Waste Management Project in the state of (Put name of the state) ("**Project**").

AND WHEREAS the Parties have had discussions for formation of a Consortium for bidding for the said Project and have reached an understanding on the following points with respect to the Parties' rights and obligations towards each other and their working relationship.

IT IS HEREBY AS MUTUAL UNDERSTANDING OF THE PARTIES AGREED AND DECLARED AS FOLLOWS:

- a. That the Parties will form a Special Purpose Vehicle (SPV) with the shareholding commitments expressly stated. The said SPV shall not undertake any other business during the Concession Period, to domicile the Project prior to the start of implementation of the Project.
- b. That the equity share holding of the Parties in the issued and paid up capital of the SPV shall not be less than as Specified under Evaluation Criteria Mentioned in RFP Document during the Concession Period.
- c. That M/s_____, and M/s_____, who are Members of the Consortium commit to hold the following equity stake in the SPV which are in line with the requirements of Clause 3 of Evaluation criteria of the RFP Document at all times during the Lease Period

Name of Member	Type of Member	% of shareholding
a. M/s.		
M/s.		

- d. That any dilution in the equity holding by the Parties in the SPV shall be as per the provisions of the Concession Agreement that will be executed on award of the Project to us.
- e. However the Parties undertake that there shall be no changes in respect of the Lead Member in case of a Consortium till the execution of the Concession Agreement.
- f. That the Parties shall carry out all responsibilities as Concessionaire in terms of the Concession Agreement.
- g. That the roles and

Name of Member	Type of Member	Role & Responsibility
a. M/s.		
M/s.		

- h. That the Parties shall be jointly and severally liable for the execution of the Project in accordance with the terms of the Concession Agreement to be executed on award of the Project.
- i. That the Parties affirm that they shall implement the Project in good faith and shall take all necessary steps to see the Project through expeditiously. They shall not negotiate with any other party for this Project.
- j. That this MOU shall be governed in accordance with the laws of India and Courts in -- city shall have exclusive jurisdiction to adjudicate disputes arising from the terms herein.

In witness whereof the Parties affirm that the information provided is accurate and true and have caused this MOU to be duly executed on the date and year above mentioned.

Witness:

- 1. First Party
- 2. Second Party

Company seal & stamp

the responsibilities of each Party at each stage of the Bidding shall be as follows:

Annexure 3-E

Anti-Collusion Certificate

[To be submitted on the letter heads of the Bidders separately]

Date: []

To,
Put address

Sub: Integrated Solid Waste Management Project in the state of (Put name of the state) ("Project")

Sir,

We hereby certify and confirm that in the preparation and submission of this Bid, we have not acted in concert or in collusion with any other Bidder or other person(s) and also not done any act, deed or thing which is or could be regarded as anti-competitive, restrictive or monopolistic trade practice.

We further confirm that we have not offered nor will offer any illegal gratification in cash or kind to any person or agency in connection with the instant Bid.

Dated this [] Day of [], 20____

Name of the Bidder
Signature of the Authorized Person

Note:

To be submitted by each Member in case of Consortium.

Annexure 4-A

The Scope of Work for IEC Campaign

The Scope of Work for IEC campaign would be classified into the following 3 components:

Activity 1: DESIGN AND CONTENT DEVELOPMENT FOR MASS COMMUNICATION AND MANAGEMENT OF IEC

Scope of Work under this component would be as follows:

1. Preparation of documentary/ advertisement in two languages (Hindi and English) for screening in TV, theatres, local cable network, schools and colleges and through publicity vans quarterly.
2. Set of two voice-over slides in two languages each (Hindi and English) to be displayed at suitable time in each show in cinema theatres once every month.
3. 1/4th page of advertisement in two languages (Hindi and English) based on theme /key messages and with specially designed graphics for coverage in newspapers twice in a month.
4. Providing information to the public on Authority's roles, responsibilities and progress on SWM activities in at least four A4 size pages and original photographs (in two languages (Hindi and English) twice in a year.
5. Pamphlets with short description of activity and objectives through A5 size handouts on a variety of themes related to Solid Waste in two languages (Hindi and English) every month.
6. Development of training kits for awareness and education for various target groups (students/colleges/ Authority staff etc.) through power point Slides with voice over, printed reading material, CDs etc. in two languages (Hindi and English) circulated half yearly.
7. Development of the strategy for creating awareness on SWM in Public Events at the several places such as Skits/street plays, Exhibitions and Road shows etc

Activity - 2: MASS PRODUCTION OF IEC MATERIAL AND DISSEMINATION

Scope of Work under this component would be as follows:

1. Effective display/broadcasting and mass production of audio visuals in the allotted zones/wards/locations of City. Content shall change every quarter.

2. Effective display/broadcasting and mass production of theater slides one day in all shows every week in allotted zones/wards/locations of City. Content shall change every month.
3. News paper advertisement to be published in the prominent dailies in prescribed languages every fortnight. The advertisement shall be published as specified by Authority and the content shall change every fortnight.
4. SWM profile as prescribed in component 1 shall be printed and distributed at the prescribed locations by Authority and content shall change/updated on half yearly basis.
5. Pamphlets of prescribed sizes in two languages (Hindi and English) to be disseminated at prescribed number of locations. The contents/theme of pamphlets shall be changed once in every month.

Activity -3: TRAINING, EDUCATION AND PUBLIC EVENTS

Scope of work under this component would be as follows:

1. Production of training kit and training and education through display/ dissemination of demonstrative training kit with training and education material for various target groups (students/colleges/ Authority staff etc.) in two languages. (Hindi and English)
2. Conducting the public events at the prescribed number of locations in two languages (Hindi and English). Scope would include clarification and getting sample performance of the whole theme/content, stage/ setup design, content/scripts etc. as applicable with content being updated twice in a year.

Annexure 5-A

Financial Bid

Col 1 Sl. No	Col 2 Service to be rendered	Col 3 Bid Price
1.	Cost of door to door collection of municipal Solid waste and its transportation up to processing/ Disposal facility as may be directed by the authority from time to time	X.= Rs. _____ (Rupees _____ only) per metric tonne of Waste collected from door to door and transported up to treatment plant/disposal site

Signature of the Bidder

PART-VI

List of SWM Empanelled Agencies By GOI



File No. A-46020/3/2013-EA
Ministry of Urban Development
Government of India

**LIST OF AGENCIES EMPANELLED FOR PROVIDING SUPPORT TO THE
CITIES/TOWNS FOR SOLID WASTE MANAGEMENT**

Sr No	Name of Firm	Contact Details
1	AECOM India Pvt. Ltd., Gurgaon	9th Floor, infinity Tower C. DLF Cyber City, DLF Phase II, Gurgaon 122002 0124-4830138, Somnath.mukherjee@aecom.com
2	Agricultural Finance Corporation Ltd in association with M/s N H Consulting Pvt Ltd	B-1/9, III Floor, Community Centre, Janakpuri, New Delhi - 110058 T: 011-45791190-96, 25596976 F: 011-45791189 Email: afcdelhi@afcindia.org.in / nro.afc@gmail.com Web: www.afcindia.org.in
3	All India Institute of Local Self Government, New Delhi	Pinnac Memories, Phase II , L Building, Near Bhujbal Bag, Kothrud, Pune -411038 020-25461624/ 25460793, ailsg@bom3vsnl.net.in
4	ACPL Global Pvt Ltd	M-23 MIG, Indira Nagar, Kanpur - 208026 Telefax: 0512-2570473, Email: acpl.knp@gmail.com , www.acplglobal.in
5	Asian Consulting Engineers Pvt Ltd. In association with Innovative and Comprehensive solutions for Urban Climate	66, Hemkunt Colony, IInd Floor, New Delhi - 110048 T: 011-41635644, F: 011-41634926, Email: info@asianconsulting.org , Web: www.asianconsulting.org
6	CDM Smith Inc. , Bangalore	#8, 2nd Floor, 80 Feet Road, RT Nagar Banglore - 560032, Karnataka, India tel : 080-3918-7500 /7529 fax : 080 2363 4097
7	Central Agricultural and Allied Farmers Co-operative Limited (Central Agro Limited)	Door No 4/ 299, Selas Katry, PO, The Nilgiris, Tamil Nadu, 643213 0423-2284255, info@centralagro.in
8	Consulting Engineering Services (I) Pvt Ltd., New Delhi (A Jacobs Group Company)	57 (5th Floor) , Manjusha Building Nehru Placc, New Delhi - 110019 Tel : 011-4139 2300, 4139 2316 email milan.debb@cesinter.com

9	DeloitteTouche Tohmatsu India Pvt Ltd in association with M/s Foundation for Greentech Environmental Systems (FGES) and SAI Consulting Engineers Pvt Ltd	7th Floor, Building 10, Tower B, DLF Cyber City Complex, DLF City phase-II, Gurgaon - 122 002, Haryana, India. T: 0124-6792000, F: 0124-6792012, Web: deloitte.com
10	Eco Pro Environmental Services., Indore	302, Swastic Chamber 9, Manoramaganj, A B road, Indore -452001 0731-4065172, ecopro@rediffmail.com
11	Emergent Ventures India in association with M/s Ricardo-AEA	5th Floor, Universal Trade Tower, Sohna, Gurgaon Road, Sec 49, Gurgaon 0124-6653100, contact@emergent-ventures.com
12	Ernst & Young Pvt Ltd., in association with M/s Paradigm Environmental Strategies Pvt Ltd.	Golf View Corporate Tower 'B' Sector 42, Gurgaon -122002 0124-4644000
13	Facile Maven Pvt Ltd. Ahemdabad	A-2, Sarita darshan, opp Jay Hind press, Nr Mithakali Underpass, Ashram Road, Ahmedabad 079-26580102, info@facilemaven.com
14	Feedback Infrastructure Services Pvt Ltd.	15th floor , Tower 9B, DLF Cyber City, Phase III, Gurgaon - 122002 Haryana tel : 0124- 4169100 Fax : 0124-4169175, 0124- 4629255 email : inquiries@feedbackinfra.com www.Feedbackinfra.com
15	GHK Development Consultants Pvt. Ltd. In association with Athena Infonomics & Excel Industries	304-305, Lotus Chambers, 207/38, Nalwa Street, Karol Bagh, New Delhi -110005 011-64721312, delhi@ghkint.com
16	Grant Thornton India, LLP (Formely Grant Thornton India), Gurgaon	21st Floor floor, DLF Square Jacaranda Marg, DLF Phase II Gurgaon 122002 India Phone : 0124-4628000 Fax 0124 - 4628001 www.grantthornton.in
17	HUDCO , New Delhi	Core 7 A, HUDCO Bhawan, India Habitat Centre, Lodhi Road, New Delhi -110003 011-24616209, prs@hudco.org

18	ICRA Management Consulting Services Ltd.	1105, Kailash Building , 11th Floor, 26, Kasturba Gandhi Marg, New Delhi -110001 011-23357940-50, raghuttama.rao@imacs.in
19	IL&FS Environment, Mumbai	B 303, Citypoint, Andheri Kurla Road, Andheri (East), Mumbai - 400059 , T: 022-40298568 / 21 / 13, F: 022-40298512, Web: www.ilfsenv.com, Email: chetan.zaveri@ilfsenv.com
20	IPE Global , New Delhi	IPE Towers, B 84, Defence Colony, Bhisham Pitamah Marg, New Delhi 011-40755904, ipe@ipeglobal.com
21	IRG Systems South Asia Pvt. Ltd, New Delhi	LGF, AADI Building, 2 Balbir Saxena Marg, Hauz Khas, New Delhi - 110016 011-45974597, irgssa@irgssa.com
22	J. M. EnviroNet Pvt Ltd., Gurgaon	SCO 16, Sector 10A, Gurgaon, 122001 0124-3206559, jmenviron@hotmail.com/ jmpkdeepa@hotmail.com
23	JPS Associates Pvt Ltd., New Delhi	R-16, Hauz Khas Enclave, New Delhi - 110016 011-26862487, 26862193, jpsdelhi@del3.vsnl.net.in, info@jpsconsultantsindia.com
24	M/s Kadam Environment Consultants in association with M/s COWI A/S, Denmark.	871/B/3, GIDC Makarpura, Vadodara - 3900100265-3001000, kadamenviro@kadamenviro.com
25	MaRS Planning & Engineering Services Pvt Ltd., Ahemdabad	601, Sur Mount Building, Opp. Iscon Maga mall, On S.G.Highway, Ahmedabad PIN 380015 Phone 0179- 26860890 Fax : 26860130 email : info@marsconsultancy.com
26	Mott Mc Donald India Pvt Ltd	501, Sakar _II, Ellis Bridge, Ahmedabad 079-26575550, pankaj.trivedi@mottmac.com
27	MSV International Inc.(USA) in association with MSV International, (India) Ltd. Gurgaon.	D-7 , South City - I Gurgaon- 122002 Haryana, India email - 1nfo@msvgroup.com Tel : 0124 - 4002603,4671200 Fax 0124 - 4002605

28	Mukesh & Associates, Tamil Nadu	Division - 2', 2/6 Ranganathar Avenue Perumal Malai Main Road Narasothipatty SALEM - 636004 Tamil Nadu, India Phone : 0427-2333563/2330568 Fax : 0427- 2333564 email : info@mukeshassociates.com, mukeshassociates@vsnl.com www.mukeshassociates.com
29	National Institute of Urban Affairs (NIUA) in association with The Energy and Resources Institute (TERI) and Centre for Environment Education (CEE).	I & II Floor, Core 4 B, India Habitat Center, Lodhi Road, New Delhi -110003 011-24643576, niua@niua.org
30	NCPE Infrastructure India Pvt. Ltd. , Hyderabad	12-2-826/A/12, LIC Colony, Mehdiapatnam Hyderabad - 500028 tel : 040 - 2351 7558 Fax : 040 - 23514379 email : info@ncpe.org.in www.ncpe.org
31	NK Buildcon Pvt Ltd., Jaipur	B-62, 'UGANTA" University Marg, Bapu Nagar, Jaipur (Raj) 01412710841 -44, bussiness@nkbuildcon.com
32	Operations Research Group Pvt Ltd. ,New Delhi	Beetal House, Ground Floor, 99 Madangir, B/H LSC, New Delhi - 110062, India Tel No : 011- 29964445/29964446/29964448 Facsimile : 011- 29964450 email : orgpl@orgplindia.com Web : www.orgplindia.com
33	PBS Consultancy Services Pvt Ltd. , Hyderabad	H No 6-2-966/5/1/2, Hill Colony, Opp lane of Hindi Prachara Sabha, Khairabad, Hyderabad -500004 040-23316336, pbsconsultancy@rediffmail.com, pbsconsultancy9@gmail.com
34	Ramky Enviro Engineers Ltd., Hyderabad	Door No 6-3-1090, 4th Floor, TSR Towers, above standard chartered bank, Rajbhavan Road, Somajiguda, Hyderabad 040-44422147/148, consultancy@ramky.com
35	Socio Economic and Educational Development	No .1, lind Floor, 54th Street, 9th Avenue, Ashok Nagar, Chennai - 600083, Tamilnadu.

	(SEED) Trust, Chennai.	T: 044-42318467, Web: www.hihindia.org
36	Senes Consultants India Pvt Ltd., Noida	1st Floor , Tower B, Logix Techno Park Plot No 5, Sector 127, Noida, U.P. India Tel (EPBX) - 0120 - 4368400 Fax : 0120 - 4368401 email : senes@senesindia.com website : www.senesindia.com
37	Shah Technical Consultant Pvt Ltd. Mumbai	407, Raheja Centre, Nariman Point, Mumbai - 400021 T: 022- 22871061, 22820018, 22820121 Email: stcmumbai@vsnl.com, stc@stc.co.in, Web: www.stc.co.in
38	SMEC India Pvt Ltd. In association with M/s SMEC International Pty Ltd and M/s Brisbane City Enterprises	5th Floor, Tower C, DLF Building No 8, DLF Cyber city Ph II, Gurgaon 122002 0124-4552800, 4501100, india@smec.com
39	SREI Infrastructure Finance Ltd., New Delhi	D 2, 5th Floor, Southern park, Saket Place, Saket, New Delhi -110017 033-22850112, nro@seri.com
40	Sriram Institute for Industrial Resources	19, University Road, Delhi -110007 Phone : 011 - 27667267, 27667860, 27667436 Fax 011- 27667676, 27667207 email : sridhi@vsnl.com www.shriraminstitute.org
41	Stantec Consulting Pvt Ltd. , Ahmedabad	71/72, Titanium Corporate Road, Nr Prahladnagar Auda garden, Satellite, Ahmedabad 079-66128870/71/72, manish.shah@stantec.com
42	Sycom Projects Consultant Pvt Ltd.	H 22, Jungpura extension, New Delhi - 110014 011-24329452, sycomprojects@gmail.com, pdadlani01@gmail.com
43	TATA Consulting Engineers Ltd. , New Delhi.	17-18, Zamurdpur Commercial Complex, Kailash Colony Extension, New Delhi-110048. T: 011-66169180, F: 011-66169100 Email: mail@tce.co.in Web: www.tce.co.in
44	Tide Technocrats Pvt Ltd., Bangalore	768, 14th cross, 33rd main, J P Nagar, Phase I, Bangalore 91-8026656191, sampath@tidetechnocrats.in
45	Urban Management Centre(UMC), Ahmedabad	III Floor, AUDA Building, Usmanpura, Ashram Road, Ahmedabad 079-27546403/5303, manvita@umcasia.org

46	Urban Management Consultant (UMC Global), Ahmedabad	403, 4th Floor, Gala Argos, Gujarat College Road, Ellis Bridge, Ahmedabad, Gujarat 380006 Phone : 079 - 26423487 Fax : 079 - 26466652 info@urbanmanagementconsultants.com www.urbanmanagementconsultants.com
47	Wapcos Ltd, Gurgaon	76-C, Sector 18, Gurgaon -122015 0124-2397396, environment@wapcos.gov.in

Contribution by:

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Central Pollution Control Board (CPCB) Team

Mr. Vinod Babu, Scientist 'E'; Dr. S. K. Nigam, Scientist 'E'

National Productivity Council (NPC) Team

Mr. K. D. Bhardwaj, Director (Environment); Mr. D. Sreenivasulu, Deputy Director; Dr. Shukla Pal Maitra, Deputy Director; Ms. Nikita, Assistant Director; Ms. Preeti P., Assistant Director



NATIONAL PRODUCTIVITY COUNCIL

NPC is a national level organization to promote productivity culture in India. Established as a registered society in 1958 by Government of India, it is an autonomous, tripartite, not for profit organization with equal representation from the Government, Employers and Employees' organizations, apart from technical & professional institution on its governing council. Besides providing training, consultancy and undertaking research in the area of productivity, NPC also implements the productivity promotion plans and programmes of the Tokyo based Asian Productivity Organization (APO), an inter-governmental body of which the Government of India is a founder member.

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