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1. BACKGROUND

Solid Waste Management (SWM) is an important obligatory function of the urban local bodies in India. Over the years, the quantum of waste generated by different category of waste generators (Households, Commercial centers, Institutions, Industries etc) has been increasing keeping pace with the increase in urbanization, population growth, change in life style, consumption pattern and associated activities. The characteristics of the waste generated have also been varying with the level of urbanization. There are 664 urban local bodies in Tamil Nadu, consisting of 12 Corporations, 124 Municipalities and 528 Town Panchayats. The daily generation is about 15273 tons i.e., about 55.74 Lakhs Metric tons per year. The Municipal solid waste being generated per day by Chennai Corporation, other Corporations and Municipalities, and Town Panchayats are 5000 T, 7579 T and 2676 T respectively. *= avg 5000, 56 tpd + 5 tpd*

2. MANAGEMENT PRINCIPLES FOR MSWM IN TAMILNADU

The Tamilnadu Municipal Solid Waste Plan is based on following principles and these are adopted during the implementation of Tamilnadu MSW:

- Effective segregation at source as well as during processing, collection and transportation.
- Maximum resources recovery
- Effective treatment
- Safe disposal
- Polluters to pay

3. SWM POLICY OF TAMILNADU

i. Inclusive Services

Solid Waste Management service shall be provided to every citizen and special attention will be given to ensure that people living in slums and informal settlements are included within the ambit of the services.

ii. Shared Responsibility

Solid waste management shall be a shared responsibility between all sectors of government, industry, research institutions, and the general community.

iii. Zero Waste Target

Zero waste shall be the ultimate target to be achieved through practicing the concept of Reduce, Reuse, Recycle and Recover in a concerted manner. A mechanism of negative incentives will also be introduced to discharge ULBs from falling short of their waste reduction targets.

iv. Polluter pays Principle

Whoever is responsible for damaging the environment should bear the costs associated with it.

v. Creation of SWM Fund to ensure sustainability

The Government had created a dedicated Solid Waste Management fund. The Fund augmentation shall be on a regular basis through allocation from regular schemes, special budgeted grant, if any, or through any other source admissible or advised by the Government.

vi. Effective Service Delivery

It shall be the duty of the ULB, O/O DMA and the Government to ensure that the benchmarked and mandated SWM services are provided to its citizens. Service delivery system will be decided on case to case basis either through public, private, or a mix of public-private as per the value for money analysis. However, to attract the private sector partnership, adequate mechanism to ensure fair interests of PPP partners including their payments and risk allocation shall be made. Terms of engagement of a PPP players shall be as per Tamil Nadu Infrastructure Development Act, 2012; its Rules; its Regulations and also as per the Tamil Nadu Transparency in Tenders (Public Private Partnership Procurement) Rules, 2012 framed under the Transparency in Tender Act, 1998

vii. Land for SWM projects

With a view to bring uniformity in facilitating private sector participation and attracting private investors in providing SWM services on long term basis, the minimum land required for setting up waste processing/disposal facility will be allotted by the local body to the selected bidder on a Nominal lease rent with permission of the Government for the limited purpose of SWM.

4. OBJECTIVES OF MSW MANAGEMENT

The State of Tamil Nadu endeavors to:

- i. Protect public health and environment by improving Urban solid waste management systems and practices;
- ii. Make the local bodies as well as citizens responsible and accountable in their respective spheres of SWM;

- iii. Minimize generation of Solid Waste by motivating industries, commercial establishments and households to reduce waste generation in the first place, and make serious efforts to reuse and promote recycling of the waste generated by them through effective Information, Education and Communication (IEC) methods;
- iv. Promote formation of community groups, resident welfare associations (RWAs), community based organizations (CBOs) and other citizen's institutions to ensure community participation in managing and minimizing solid waste locally;
- v. Build In-house capabilities of local bodies and State level institutions through training & capacity building and induction of professionals;
- vi. Introduce innovative, sustainable waste disposal and treatment technologies that are appropriate for use in local conditions;
- vii. Promote concept of scientific processing and landfill Management on a decentralized / ULB level / regional level to accommodate cluster of cities & towns areas in one common landfill relieving the need for each city, and other local bodies to find a suitable land for itself and manage it independently.
- viii. Make SWM services self-sustaining by motivating local bodies to levy user charges to cover Operation and Maintenance (O & M) cost of the services and levy taxes to meet cost of capital investments.

5. SALIENT FEATURES OF THE TAMILNADU MSW MANAGEMENT PLAN THROUGH PPP:

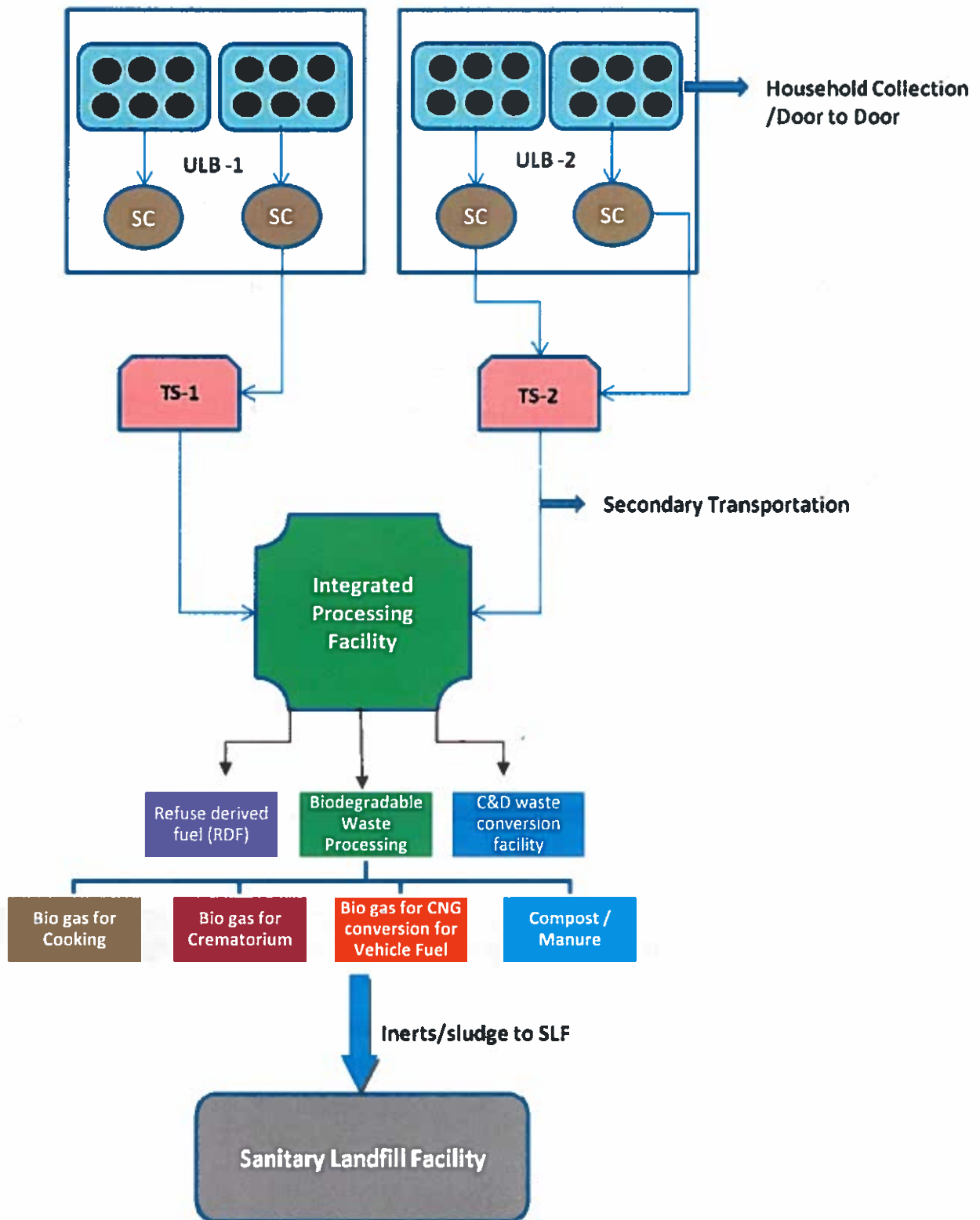
- Daily Door to Door Collection of waste.
- Segregation at source into Bio-degradable and Non-Biodegradable waste through two bin system to be preferred.
- Street Bin Free system to be adopted wherever feasible.
- Latest technology involving Incineration, Waste To Energy, Refuse Derived Fuel (RDF), composting, Bio methantion etc. would be employed.
- All efforts would be taken to reduce waste to be disposed off in the Engineered Sanitary Land Fill (SLF).
- Adopting polluters to pay principle, each and every household / waste generator would have to pay for MSW services and violators would be fined. A special fund would be created at State level for implementation of the project.
- Multi tier management system: Monitoring committees and implementation cells at State, cluster and local level; an independent expert agency and an independent engineer to monitor the projects.

6. THE TAMILNADU MSW ACTION PLAN:



Broadly, the Tamilnadu MSW Action Plan involves:

- Door to door collection and segregation of MSW at Source;
- Transportation;
- Segregation and Processing;
- Scientific Disposal in Sanitary Landfill Facility.

The schematic diagram for the Comprehensive MSW Action Plan is as under:



6.1 SOURCE SEGREGATION & DOOR TO DOOR COLLECTION

- The households (HH) and other generators will be insisted to store MSW in two separate bins/containers, one each for biodegradable waste /wet waste and non-biodegradable/dry waste.
- Sanitary waste shall be wrapped in paper / suitable bio-degradable material
- Primary Segregation has to be done by waste generator at source.
- C&D waste shall be stored separately in its own premises by the generator and shall be disposed off as per SWM rules.
- Horticulture / Garden waste shall be stored separately and disposed as prescribed by ULB.
- Citizens shall not throw any solid waste in their neighbourhood, on the street, open spaces and vacant plots or into drains.
- Citizens shall keep (a) bio-degradable waste in any type of domestic waste container, with a cover, and (b) dry / recyclables wastes in bags or sacks.
- Wet waste shall not be disposed of in plastic carry bags. 
- The waste from HH will be collected through tricycle rickshaws, auto-rickshaws, and vehicles like LCV etc. having compartmentalized containers.
- The entire city would be divided into zones and the zones should be further divided into beats.
- The door to door collection will be done from 6.30 AM to 11.30 A.M. However, the exact timings will be decided based on local conditions.
- Depending upon the population of the city and no. of commercial/ institutional establishments, adequate number of litter bins of suitable will also be placed at designated locations for keeping the waste generated from street sweepings. 

- Depending upon the population of the city, the required number of workers will be deployed by following the prevailing norms (3 workers for 250 HHs) for primary collection, sweeping and cleaning.
- The fleet of vehicles covering tricycles or auto rickshaw equipped with 4 to 6 bins of about 30 to 40 litre capacities would be covering approx. 250 houses. Light Commercial Vehicle with 700 to 800 Litre capacities would cover approx. 1200 houses depending on the workload.
- Max 10% Community bins/; secondary collection points would be installed, if no door to door collection is possible in certain areas like congested narrow lanes or slums residents would be made aware of putting their wastes into the bins in segregated manner as specified.
- Wherever it is feasible Container Free / Bin-less system will be adopted by eliminating the secondary collection points and transporting collected MSW to efficient MSW vehicles like Refuse Compactor.

6.2 IMPROVING MSW TRANSPORT

- Segregated transportation of segregated MSW would be ensured.
- Based on the requirement and availability of space, transfer stations would be planned and provided.
- Transportation of the waste at waste storage depots/ secondary collection points (which would be maximum 10%) is essential through covered vehicles to ensure that no garbage bin/container overflows and waste is not seen littered on streets.
- Waste would be transported in covered vehicles like Refuse compactor /dumper placer etc. The waste collected by Primary Collection vehicles would be directly transported to these covered vehicles at Waste Shifting Points

- A route Plan for Primary Collection and Secondary transportation System would be made
- Daily Transportation of Litter bins, before they start overflowing; if required twice or thrice a day.
- No. of vehicles and number of trips would depend on the quantity, type of waste, number of containers, type of vehicle etc. The approximate vehicle requirement for transportation of MSW for a city having one lakh population is illustrated in table below:
- One Tricycle per every 300 houses or 1200 population for narrow streets and slum pockets (70 to 80 Numbers per 1 lakh population) with bins for collecting segregated waste
- These waste collected will be transferred to compactor containers of 1100 liters capacity will be kept at an interval of 300 meter distance.
- 200 liter capacity plastic bins will be provided initially in small lanes and streets to prevent street throwing
- One compactor of 9 CuM capacity will be provided to cover 60 compactor bins in a day in three trips to transport 15 to 18 MT of waste to cover 30 km length of roads
- One Auto per every 2500 houses or 10000 population in wider street areas and for collecting street swept waste
- One tipper Lorry of 4ton capacity per every 20000 population for loading street swept waste and desilted earth
- For Market areas Hook loader of larger capacity and one Bob cart vehicle to transfer the waste and to avoid manual handling

6.3 BIOMETHANATION OF WASTE FROM BULK GENERATORS

- Action will be taken to promote bio-methanation of waste generated from hotels, restaurants, marriage halls, community halls, slaughter houses etc.
- Suitable containers with lids which may match with the primary collection or transportation system of Private Party would be provided by these establishments at their cost and would be directly transported to a finalized place by Private party till the processing facility is not operational. Collection of Waste from marriage halls, community halls, etc. would be made on a daily basis on a full-cost recovery basis. The cost of such collection would be built into the charges for utilizing such halls/ collected by Private Party from such halls on the charges fixed by Urban Local Body.
- ✓ • However On-site bio-digesters for food waste/ processing of food wastes by Bio-Methanation would be insisted for generators generating more than 200 kg / day of food waste.
- **Bio-methanation Plant:** The green waste will be treated by Bio-methanation plant (more commonly called Anaerobic Digestion). In this method, the waste is treated in closed vessels where, in the absence of oxygen, microorganisms break down the organic matter into a stable residue, and generate a methane- rich biogas in the process. This biogas can then be used as a source of renewable energy to produce electricity to illuminate street lights, the gas thus obtained can also be used for common community kitchen, fuel for gasifier crematorium, and the gas can be pressurized, bottled and utilized for SWM vehicle transportation. The solid residue, which remains after

Bio-methanation, comprises solid/fibrous material and liquid represents an effective organic material, which can be used as 'manure' or blended into organic compost. The aqueous liquor is a nutrient-rich fertilizer, which can be used to recycle nutrients back to agricultural land.

6.4 IMPLEMENTATION OF WASTE PROCESSING AND SANITARY LANDFILL FACILITIES

i. The Waste would be processed and landfilled of as per the characteristics and quantity of waste in the part of ULB / ULB / cluster of ULBs.

- Suitable technology or combination of such technologies to make use of wastes so as to minimize the burden on landfills would be adopted. Maximum 20% of the total Waste reaching to the Processing Site would be land filled.
- The biodegradable wastes shall be processed by composting, vermi-composting, bio-methanation or any appropriate biological processing for stabilization of wastes as per the standards.
- Land filling would be restricted to non-biodegradable, inert waste and other waste that are not suitable either for recycling or for biological processing or rejects or residue from processing operations.

ii. MSW PROCESSING TECHNIQUES


The Processing technology for each cluster varies as per the quantification of waste and waste characterization in each cluster. For selection of suitable processing technology several parameters are considered namely Indian experience, quantity and quality of waste, capital investments, scale of operation, Recurring expenditure, environmental impact etc.

Recommended Integrated Waste Processing Technology :

Based on the above criteria, Integrated MSW processing facility will comprise of:

- a) Compost plant
- b) RDF Plant
- c) Waste to Energy facility (WTE)
- d) Construction & Demolition waste conversion facility

(a) Compost Plant

 It is envisaged that processing rejects would be generated from the RDF plant which would further comprise of organic rejects which will be used for composting by Windrow method.

(b) Refuse Derived Fuel (RDF)

The raw MSW is processed for concentrating the combustible fraction of it by segregating the non-combustible portion. The complete process involves drying. Removal of non-combustibles by air separation, density separation, grinding or shredding of combustible fraction usually by a hammer mill, mixing and production of pellets under high pressure. The pellets can be transported easily and stored for many months without any disintegration. These pellets could be used for heating in the boilers and the generated steam, in turn, is used to produce power. Pellets also, can be used along with conventional fuels for industrial operations.

(c) Waste to Energy Plant

MSW will be processed for energy recovery before disposal into the landfill. Only inert or processing rejects are to be landfilled upto a maximum of 20 % of total waste transported to the plant. The processing would comprise of the following:

- Pre-Processing
- Waste to Energy plant
- Ash handling plant
- Flue gas treatment plant

i. Incineration

- It is a controlled combustion process for burning solid waste in presence of excess air (oxygen) at high temperature of about 1000°C and above to produce gases and residue containing non-combustible material.
- One of the most attractive features of the incineration process is that it can be used to reduce the original volume of combustible MSW by 80-90%. X
- In some of the newer incinerators designed to operate at temperatures high enough to produce a molten material before cooling it may be possible to reduce the volume to about 5% or less.
- MSW can also be co-fired as an additional source in coal-based power plants. ✓
cement kilns

ii. Incineration with Heat recovery

The incineration process which is used for volume reduction, may also lead to heat recovery.

(d) Construction & Demolition waste conversion facility

- Construction & Demolition Waste would be collected separately from MSW.
- The Charges/ rates per ton for C&D collection waste would be fixed and would be levied from the C&D waste generators ✓
- C&D waste from small quantity generators (<2 Ton) arising from repair/minor renovation/small construction work may be transported to designated locations in the city and the charges may be collected at a volumetric rates fixed by ULB. Large quantity generators or their demolition/construction contractors can transport the waste at their own cost

and pay per ton charges at the rates fixed by Local Body.

- A separate site would be designated for collection of C&D Waste.
- Looking at the generation of C&D waste in all the ULBs of Tamilnadu, a separate agency (s) for collection & management of C&D waste will be selected and accordingly Processing Plants for C&D Waste will be planned initially for larger cities, and in all the Regional Clusters.

6.5 SANITARY LANDFILL SITE

i. **Common sanitary landfill facility** would be planned for the safe disposal of processing rejects and non-biodegradable components of solid waste and it is envisaged that common sanitary landfill site would receive/accommodate about 25% of processing rejects and inerts per day from the total MSW processed at processing plant.

ii. **Sanitary Land Fill Facility:**

Development of landfill site should be subjected to rigorous planning. Key elements in developing a common scientific landfill site for a cluster would comprise:

- Site Clearance
- Sub-division into major operational phases
- Progressive excavation for landfill
- Ordered development of operational phases in working land filling cells
- Advance preparation of the lining system on the landfill base
- Sequential disposal in cells and operational phases and early and timely capping of landfilled cells.

The following sections explain the broad specifications of developing each of the landfill components:

iii. Green Belt & Buffer Zones:

A vegetative cover comprising of trees and shrubs will have to be provided as buffer zone between landfill site and the nearby localities. In addition to the buffer zone a compound wall/rigid fencing all round the land fill site to a height of 3m or as suitable, shall also to be constructed, to totally seclude the site from outside activities.

iv. Bottom & side liner system: Containment measures such as composite liners at the bottom and lateral sides of the landfill, and surface capping after the land filling is completed, are required to control the pollutants and mitigate subsequent impacts on environment.

v. Cover Liner System: To minimize the ingress of water into the cell after completion, it is proposed to form an engineered capping layer. This will comprise of a multi layer system.

vi. Leachate Collection, Removal & Treatment

a. Gravity drainage and grading of the floor of the landfill cell to enable flow of leachate into a sump, located at the lowest point of the cell. The gradients shall be 2 % for main leachate drain and 1 % for lateral drains.

b. Installation of leachate drainage blanket above the basal mineral liner over the floor of each cell and partially up the side walls, constructed of free drainage coarse granular fill comprising of graded 50mm crushed rock laid to a depth of 400mm with a permeability of 1×10^{-4} cm/sec.

c. Provision of perforated HDPE pipes in the drainage blanket to facilitated leachate flow with pipes laid on a typical spacing of 50m.

d. Overlaying granular drainage blanket with 100m thick free draining fine granular fills of medium to coarse sand to act as a filter and protective layer.

e. Removal of leachate is effected by leachate collection

chambers built up with successive lifts of waste and side slope risers located on the site perimeter.

- Review,*
- f. The submersible pumps or adductor pumps should be used to remove leachate from the sumps and the collection chambers should be linked by permanent pipe work to the treatment plant.
 - g. The actual methods and degree of treatment shall accommodate the fluctuations in leachate quantity and quality.

vii. Landfill Gas and Management

The primary measures to restrict the uncontrolled migration of landfill gas from the site will comprise,

- Low permeability containment layers and systems installed on the base and side walls
- Permeable gas drainage blanket of 0.3m thickness laid beneath the capping layer and
- Vertical gas vents and extraction wells.

viii. Cover Lining System & Surface Restoration

The landfill will be brought up to its pre-settlement level in stages and capped off in a program of progressive restoration, to limit the ingress of water into the site and to facilitate the control of landfill gas. The capping will be a composite structure comprising of four layers of an engineered seal designed to prevent water ingress and egress of landfill gas and an agricultural cap comprising of subsoil drainage layer.

A suitable vegetative cover will have to be established on the closed site to ensure slow surface runoff, promote evapo-transpiration of rainfall, retain moisture in the cap and enhance the formation of a soil structure in the agriculture soil.

ix. Other Measures

Specific attention shall be paid to mitigate the following undesirable and potentially deleterious effects of:

- a) Litter blown from the disposal / tipping area
- b) Scavenging animals and insects attracted to the sites
- c) Flies and Bird attraction
- d) Odour arising out of waste deposition and degradation
- e) Dust from landfill operations
- f) Mud generated from waste, cover, capping materials and site excavation works
- g) Fire and smoke control and
- h) Noise of operating plant.

These effects can be minimized by providing local litter, arrestor, fencing, strategically placed in relation to the discharge point, erecting site security fencing for excluding scavenging animals, bird scaring techniques for avoiding bird nuisance, etc.

6.6 DUMPSITE CAPPING / RECLAMATION

Preparation of DPR for capping 11 MSW dumpsites in Tamilnadu has been awarded to a consultant. After this work is completed, dump site capping / reclamation would be carried out in 11 MSW dumpsites in Phase I. Subsequently other dumpsites would be taken up for detailed study and implementation.

6.7 MSWM GUIDELINES FOR OTHER WASTE GENERATORS

i. Vegetable/Fruit Market Waste/ Fish market waste

- Containers with lid / cover or skips would be used for storage of waste in vegetable/fruit market.
- This Waste would be cleared on a daily basis during night time or non-peak hours.
- Waste from meat and fish markets would also be collected in closed containers

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ii. Hospital/Nursing Homes/Pathological laboratories/Health Care Centres

These establishments produce bio-medical as-well-as ordinary waste. The management of Bio-medical waste is handled by the TAMILNADU Pollution Control Board (PPCB) as per 'Biomedical Waste (Management and Handling) Rules 1999' (with subsequent amendments as the case may be). The PPCB has directed:

- These establishments shall refrain from throwing any bio-medical waste on the streets or open spaces as well as into municipal dust bins or domestic waste collection sites.
- They shall refrain from throwing any ordinary solid waste of footpaths, streets or open spaces.
- They are required to store waste in colour -coded bins or bags as per the directions of the Govt. of India. Ministry of Environment Bio-medical Waste (Management & Handling) Rules 2006, (with subsequent amendments as the case may be) and follow the directions of Central Pollution Control Boards and State Control Boards from time to time for the handling, transportation, treatment and disposal of biomedical waste.

iii. Garden Waste

- Horticulture waste would be collected in separate vehicles
- Wherever the waste quantity is high, separate charges for Horticulture waste would be fixed and charged from the private gardens/lawn plots.
- Private party would collect the horticulture waste and would be allowed to run a compost plant.
- In case of private parks, gardens and lawn plot etc., it would be stored in the premises and kept ready for handing over to the MSW-PPP party and the waste be processed accordingly.

On Site X

iv. Dairy and Cattle-Shed Waste

- The dairies and cattle breeders having sheds within the city limits are already being moved outside the city limits through formulation of Dairy Schemes.
- Cities will be directed to notify zones or areas for rearing animals with stipulations for managing such animal waste

6.8 MEASURES TO PREVENT LITTERING

- With a view to ensure that streets and public places are not littered with waste materials such as used cans, cartons of soft drinks, used bus tickets, wrappers of chocolates or empty cigarette cases and the like generated while on a move. Litter bins would be provided on important streets, markets, public places, tourist spots, bus and railway stations, large commercial complexes etc. at a distance ranging from 100 meters to 250 meters depending on the local condition.
- Similar bin for disposal of animal droppings would be placed in posh areas.
- Removal of waste from these litterbins would be done by MSW-C&T PPP partner.
- Advertisement rights on the bins for a specified period or by allowing them to put their names on the bins as a sponsor may be given to the Private Partner.
- Litterbins would be put in posh as well as poor area in the proportion decided by allocation plan of Private Partner and Urban Local Bodies.

6.9 MANAGEMENT OF STORAGE POINTS IN THE CITY

- All the wastes collected through Primary Collection System from the households shops and establishments would be taken to the processing or disposal site either directly necessitating a large fleet of vehicles and manpower or

through cost effective systems which are designed to ensure that all the waste collected from the sources of waste generation is transported within reasonable time.

- Out of 100 %, maximum of 10% of Storage Depots/Secondary Collection Points in a city would be allowed, where direct transferring of door to door waste to the larger fleet is not feasible. The storage facilities/secondary collection point must not create unhygienic and unsanitary conditions around the waste bins. This means that it would be:
 - Out of reach of stray animals.
 - Would not obstruct the traffic of spread on road.
 - Easily accessible in terms of distance for the user.
 - Fully covered and not exposed.
 - Able to hold the expected waste generated, depending on the size and population of the area.
 - Concrete / pucca structure with roofing, to prevent Vector and bird menace, under and adjoining areas of dustbins at Secondary Collection Points
 - Aesthetically acceptable.
 - Designed to be easy to operate, handle, transfer and transport.
 - Would be provided with adequate green belt

6.10 Norms for vehicle, bins and manpower requirement for primary collection and secondary transportation for each 1 lakh population

1. 40 to 50 MT waste will be handled
2. 70 to 80 Push Carts one each covering 350 to 400 households
to handle 0.5 MT waste per tricycle per day in 3 to 4 trips and 30 to 40 MT
3. 200 Litre plastic barrels will be provided initially to all the narrow streets and streets not covered with Compactor

containers to prevent street throwing till such time people are motivated for source segregation

4. 125 numbers of Compactor bins of each with 1100 liter capacity to store 400 to 500 kg weight of waste and to transfer 40 to 50 MT waste
5. Two compactors of each 9cum capacity to handle 18 to 20 compactor bins in a trip and to transfer 15 to 18 Tonnes waste in 3 to 4 trips.
6. The remaining waste will be handled by 4 numbers of auto rikshas
7. One Tipper lorry to handle the transfer of street swepts and desilted earth
8. Hook loaders bins will be placed in large public gathering places and markets at 4 each per 1 lakh population
9. One Hook loader vehicle per every 5 lakh population to handle bulk waste storing locations or transfer stations
10. One bob cart type mini loader to transfer waste in the market areas
11. Seperate vehicles and bins will be provided to collect, store and transfer the the segregated non degradable waste to the dry resource centers
12. One dry resource center will be established for each 50000 population
13. Seperate timings and collection agency would be involved for the collection of dry resources

7. MANAGEMENT ASPECTS

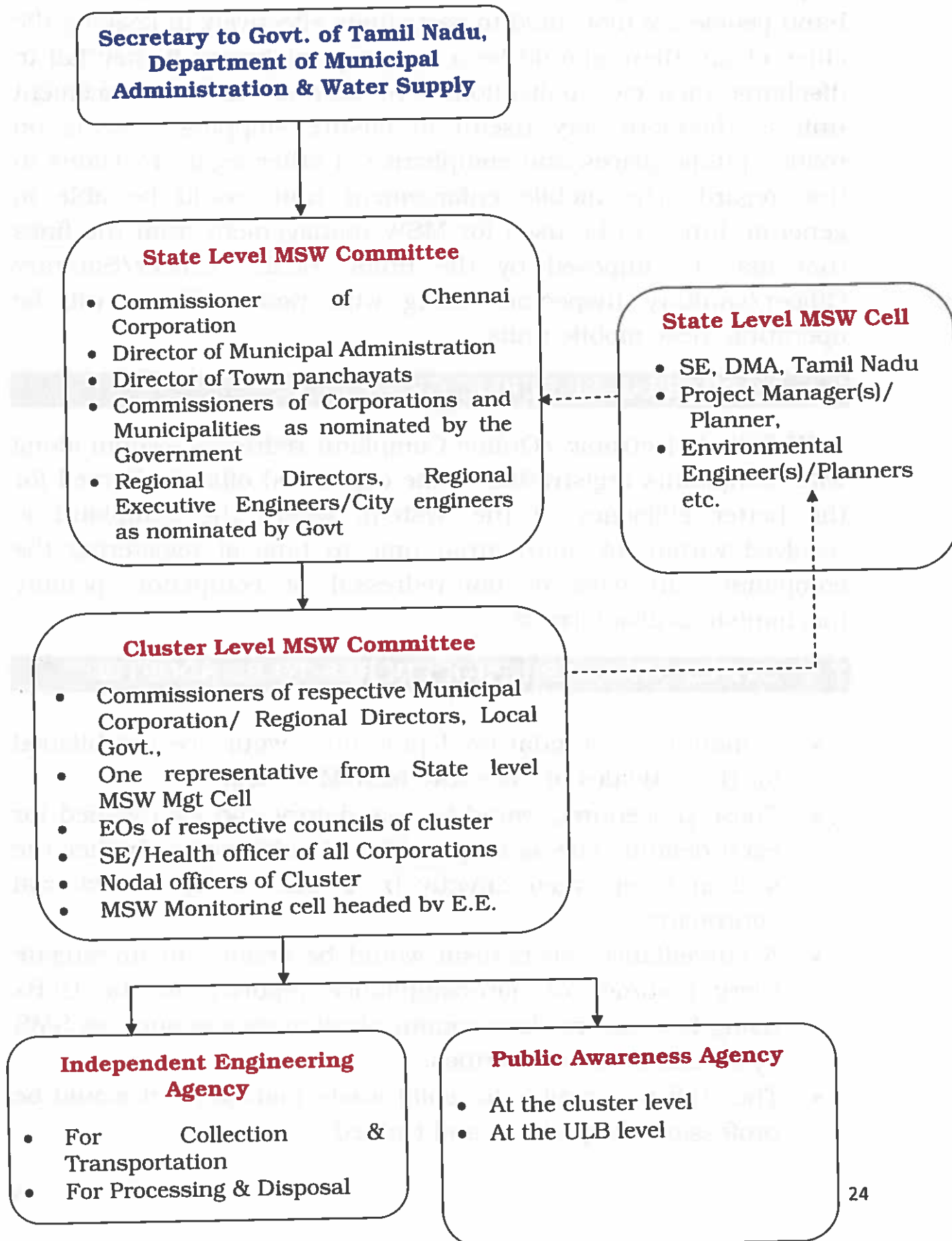
A Private partner in relation to collection, transportation, processing and disposal of all waste, including workshop facilities, would be selected by competitive bidding process. The private Partner would be responsible for collection of solid waste and debris and vehicle deployment and maintenance. The agency would work as per SWM Rules, 2015 and the latest rules amended time to time. Advanced work schedule would be prepared and followed every month.

7.1 SOURCES OF FUNDING FOR SWM

- 1) ULB general fund
 - 2) A portion of the property tax is apportioned for SWM activities.
 - 3) User charges
 - 4) State government grant
 - 5) Central government grant
 - 6) Repayable long term loan
 - 7) Special Solid Waste Management fund of Tamilnadu (Rs.100 crores / year)
- All the ULBs will prepare project report as per the guidelines issued by the CPCB & SWM Rules 2015 in order to meet the gaps in the SWM infrastructure.

7.2 INSTITUTIONAL FRAMEWORK

The following Institutional set up would be created to implement and monitor the efficient MSW management.



7.3 MOBILE ENFORCEMENT UNIT

It is the tendency of the public to take their civic responsibilities lightly. It is therefore necessary that while on one hand people are motivated to participate effectively in keeping the cities clean, there should be a fear of punishment if they fail to discharge their civic obligations. Provision of Mobile enforcement unit is therefore very useful to ensure stopping littering on roads/ public places and compliance of other legal provisions in this regard. The mobile enforcement unit would be able to generate funds to be used for MSW management from the fines that may be imposed by the units. Health Officer/Sanitary Officer/sanitary Inspectors along with nodal officers will be operating these mobile units.

7.4 REDRESSAL OF PUBLIC GRIEVANCES

Website/ electronic /Online Complaint redressal system along with complaints registration to the concerned office is formed for the better efficiency of the system, where the complaint is resolved within 24 hours from time to time of registering the complaints. In case of non-redressal of complaint, penalty mechanism is also formed.

7.5 OTHER STANDARD PROCEDURES TO BE ADOPTED

- A manual of standardized procedure would be established for the activities of the entire MSWM system.
- These procedures would be mandatory and established for each default. The same penalties should apply whether the system is operated directly by a ULB or by an external contractor.
- A surveillance mechanism would be created to investigate every instance of non-compliance reported to the ULBs using fast and modern communication means such as SMS by mobile to the authorities.
- The staff responsible for solid waste management would be professionally qualified and trained.

- The operation manual would be available to each staff.
- Each staff member would be given responsibility in terms of specific activity along with date time in writing.
- The duty assignment records would be maintained in a Master File which would be checked by officers of Nodal office on regular basis.
- Training of the MSWM staff would be planned and implement properly.
- Penalty would be levied in case of default.
- Project Engineer and nodal officer would submit a monthly report including duty performed by him and how it is matching with the assignment given to him.
- In case of deviation, sufficient reason would be recorded.
- Every ward would be monitored for its cleanliness and satisfaction of the citizen.
- The monitoring results would be complied on monthly basis and submitted to the Nodal office in the form of a monthly report. *Upload low website*
- The report would be reviewed by the Commissioner. In case of any problem in SWM system, the Project Engineer would discuss it with Commissioner of the Municipal Corporation and suggest remedial measures.
- There would be a quarterly meeting of the Private Partner and Municipal Corporation to discuss the problem and remedial measures.
- The outcome of the meeting would be recorded in form of minutes and communicated to State Level Committee within 15 days of the meeting.
- There would be a separate cell at State Level for Monitoring management of MSWM System in the State.
- This cell would constantly interact with the Project Engineer/ Nodal Officer on performance of MSWM System and other related issues.
- In case of unsatisfactory observations, the cell should issue notice to the Private Partner under the relevant provision of the contract.

- An annual report on the performance of city wise MSW System record would be prepared city-wise and submitted to the State Boards highlighting all the important points including deficiencies and annual expenditure.
- It may be useful to involve local communities in monitoring the functioning of the entire MSWM System.
- It is necessary to have a cadre of professional staff in municipalities headed by technically qualified chief executives for planning and implementation of MSWM System

To further strengthen the institutional arrangements for the purpose of management of Municipal Solid Waste, a dedicated MSW Cell at state level as well as local level would be constituted. This cell shall be involved in activities related to, inter alia, program development support, program monitoring at state level as well as cluster level, coordination with ULBs, monitoring of MSW activities as per the Solid Waste Management Rules, 2015, provide guidance to all ULBs, creating public awareness through Non-Government Organizations, etc. Such cells will be operated through the designated officers from engineering and public health streams with suitable responsibility.