

-BEFORE THE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH,
NEW DELHI

O.A. NO. 82/13

IN THE MATTER OF :

Almitra H. Patel & Anr.

.....Applicant

v.

Union Of India & Ors.

.....Respondents

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FILED BY:

GUNTUR PRABHAKAR & GUNTUR
PRAMOD KUMAR
STATE OF ANDHRA PRADESH
312, C.K. DAPHTARY CHAMBERS,
SUPREME COURT OF INDIA,
NEW DELHI-110001
M - 9873914009, 981157117.
E mail: Gunturpramodkumar@gmail.com

NEW DELHI
DATED : 28/2/15

BEFORE THE NATIONAL GREEN TRIBUNAL AT NEW DELHI

ORIGINAL APPLICATION No.199 OF 2014

IN THE MATTER OF:

Almitra H. Patel & Anr. Vs Union of India & Ors.

..... PETITIONER

VERSUS

The Principal Secretary to Government
Municipal Administration & Urban
Development Department
Government of Andhra Pradesh
Hyderabad & Others.

..... Respondents

AFFIDAVIT

I, Giridhar Aramane S/o ARLN Sarma, aged about 52 years, occupation: Principal Secretary to Government, Municipal Administration & Urban Development Department, Government of Andhra Pradesh, Hyderabad, R/o Hyderabad do hereby state on solemn affirmation as under:

1. That I am one of the Respondents in the aforesaid case and as such I am fully conversant with the facts and proceedings of the case.
2. That the annexures filed along with the Affidavit are true and correct copies of the respective originals.
3. That I have not filed any other Review petition in this Hon'ble Court against the impugned judgement.
4. In pursuance of the Orders given by Hon'ble National Green Tribunal, New Delhi dated 05.02.2015 on implementation of MSW (M&H) Rules 2000 and specific initiations that are taken up in the Urban Local Bodies of the State of Andhra Pradesh, this report is submitted.

5. **Status of Urban Local Bodies in the State**

The total urban population of the State of Andhra Pradesh as per 2011 census is 1.46 crores. The number of households is about 32.40 lakhs in 110 Urban Local Bodies located in 13 districts. The Categories of the Urban Local Bodies are as follows:

Category	No.
Municipal Corporations	13
Selection Grade Municipalities	04
Special Grade Municipalities	07
First Grade Municipalities	13
Second Grade Municipalities	25
Third Grade Municipalities	23
Nagara Panchayats	25

5.1 With reference to the observation of the Hon'ble National Green Tribunal, New Delhi as to whether there is even a single district or village in the entire state where the MSW is collected in its entirety segregated and disposed of in accordance with MSW Rules, 2000 it is submitted that several innovative actions were taken up in the state of Andhra Pradesh and 100% door to door garbage collection with source segregation is achieved in ULBs viz., Bobbili, Saluru and Palamaneru Vermi Compost Plants were also established in these ULBs. Tie ups are also made for sale of recyclables in these ULBs. Thus, except scientific land filling with inert, the Municipal Solid Waste collected is being utilised/used.

At present there are Vermicomposting plants in the following (18) Urban Local Bodies :

Palasa Kasibugga, Vizianagaram, Bobbili, Salur, Kakinada, Eluru, Vijayawada, Guntur, Tenali, Piduguralla, Ongole, Chirala, Guntakal, Kurnool, Kadapa, Proddatur, Tirupathi and Palamaneru.

It is further proposed to establish vermin compost / Windrow compost plants of 1 to 5 MT per day capacity in the following ULBs, by end of 2015, in a phased manner.

Srikakulam, Ichapuram, Rajam, Parvathipuram, Parvathipuram, Narsipatnam, Yelamanchili, Visakhapatnam, Amalapuram, Rajahmundry, Samalkot, Tuni, Pithapuram, Ramachandrapuram, Mandapet, Peddapuram, Bhimavaram, Tadepalligudem, Tanuku, Palacole, Narsapur, Nidadavole, Kovvur, Jangareddygudem, Vuyyur, Machilipatnam, Gudivada, Nandigama, Jaggaiahpet, Nuzivid, Narasaraopet, Chilakaluripet, Bapatla, Ponnur, Repalle, Macherla, Mangalagiri, Sattenapalle, Vinukonda, Tadepalli, Markapur, Kandukur, Kanigiri, Nellore, Kavali, Gudur, Venkatagiri, Sullurpet, Naiduper, Anantapur, Hindupur, Tadipatri, Dharmavaram, Kadiri, Nandyal, Yemmiganur, Adoni, Pulivendula, Rajampet, Rayachoti, Jammalamadugu, Chittoor, Srikalahasti, Madanapalle.

- **Bio-methanisation / Bio-gas Plants**

At present the following ULBs have established Bio-gas Plants and they are functioning.

Bobbili, Salur, Palacole, Eluru, Narsapur, Vijayawada, Guntur and Tenali.

- **Recycling units**

Tie-up is made in the following ULBs to sale the Recyclables :

Vizianagaram, Bobbili, Parvathipuram, Salur, Tenali, Proddatur, Guntakal, Kandukur and Markapur.

- Non-recyclables tie up with cement kilns.
- Debris and constructions waste to the low lying areas and formation of new roads etc.

Therefore, the requirement of land fill facility will be minimal. However, the land fill facility requirement is also taken into consideration as per the ULB requirements.

5.2 In all Urban Local Bodies of Andhra Pradesh a strategy has been designed to provide regular and prompt service to the households, commercial establishments, schools and colleges, slaughter houses, markets, function halls, Government / private offices etc., separate action plan has been prepared and implemented in a befitted manner in most of the Urban Local Bodies. The same initiative is being replicated in all other ULBs. The Action Plan designed for implementation in the ULBs is as follows:

STEP 1: Study & Assess the current scenario

STEP 2: Resource Requirements and Implementation Strategy Preparation

STEP 3: IEC Campaign Blitz / Rainfall Models

STEP 4: Training 70:20:10 method

Competency Building: Addressing Attitude, Skill & Knowledge gaps

STEP 1: Study & Assess the current scenario

STEPS/ ACTIVITY	ULB ROLE SUPPORT	SWM SPECIALIST ROLE	OUTPUT
CONSULTATIVE SESSION – 1	All Concerned Officials of PH & Engineering Wing to participate under Commissioners leadership	Presentation and Interaction	Vision Consolidation Planning Alignment

STEPS/ ACTIVITY	ULB ROLE SUPPORT	SWM SPECIALIST ROLE	OUTPUT
DATA COLLECTION Ward-Wise Division-Wise	Information Dissemination 1. Ward Maps 2. Households & Population 3. VMC All Wings HR Data & SHG List 4. Primary Collection Vehicles 5. Transportation Vehicles 6. Veg / Non-veg Markets 7. Processing Facilities 8. Waste Generation Statistics 9. Vacant Lands suitable for decentralized processing	Compilation: Inputs for Survey and Strategic Planning	Base-Data Compilation
WARD SCAN & MAPPING	Ward Sanitary Inspectors / Supervisors to assist survey team by: a. Familiarize with ward & boundaries. b. Waste Generators enumeration: HH / Bulk / Commercial Trade- wise & Waste Category wise enlisting like Markets, Function Halls, Banks, Tailors, Barbers etc. c. Point scope for decentralized processing	Present Scenario Mapping Study Primary Collection System & Work Force Distribution & Competency Pre- Assessment. Photo Documentation Compile & Categorize all Waste Generators Enlist Informal Waste collectors and Recycling Vendors.	Map Collection & Processing for <ul style="list-style-type: none"> • D-2-D Collection • Bin Optimization • Category wise Generators enlisting • De-cent. Process facilities shortlist

Depending on the size of the ULB this step can be completed anywhere between 10 to 30 Days as most of the secondary data is already available and just needs to be validated and made up-to-date.

STEP 2: Resource Requirements and Implementation Strategy Preparation

STEPS ACTIVITY	ULB ROLE / SUPPORT	SWM SPECIALIST ROLE	OUTPUT
RESOURCE PLANNING EXPLORE RESOURCE TIE-UPS	HR Allocation & Procurements Planning 1. D2D Collection & Sweeping/ Drain 2. Fairs, Festivals, VIP Visits etc. 3. Green Hounds: Litter & Open Defecation Prevention 4. Vector Team – Daytime Fogging / Larvae control 5. Preventive & Break down Maintenance reserve force 6. Enforcement Flying Squad Team	Ward-Wise Resource Planning <ul style="list-style-type: none"> • Primary Collection Micro-pockets • Transportation Strategy • De-Centralized Processing Strategy • Facilitate Market Tie-ups 	SWRM System Planning
STRATEGIC CONSULTATIVE SESSION – 2	Commissioner & Concerned Officials Strategic Decisions on Value Chain Management Decision on involving sponsorships & partners	Presentation of Task-1 Findings to VMC Proposed Intervention Strategies Requirements List Submission	SWM & Campaign Mode Finalization
TRAINING DESIGN	Inputs from Managerial & Field staff Training Facilities & Resources by ULB	Design 70:20:10 Model Training Plan Training Modules on <ul style="list-style-type: none"> • Primary Collection • Resource Handling & Processing • Transportation 	Training Modules Design & Orientation to Master Trainers
COMMUNITY ENGAGEMENT STRATEGY	Conduct a City Level Competition for Campaign Theme – Name, Logo, Tag-line etc& Finalize Choice PR & Media Communication Webpage & Social Media tools (FB, Twitter etc) Volunteer Mobilization & Awareness Material	Design Campaign Strategy & Awards Visuals, Audio and Participative Publicity Tools & Techniques Orientation Design for Campaign ULB Teams & Volunteers Enlist HH	Campaign Theme Campaign Team IEC Design Participative Format

This the most important phase to get the operational plan in place along with managing procurements (Consider Procurement Delays) and resource tie-ups.

STEP 3: IEC Campaign Blitz / Rainfall Models

STEPS ACTIVITY	ULB ROLE / SUPPORT	SWM SPECIALIST ROLE	OUTPUT
IEC COMMUNITY AWARENESS BLITZ	Campaign Material Campaign Curtain Raiser	<ul style="list-style-type: none"> ULB & Volunteer Teams Orientation 	Curtain Raiser & Awareness Blitz
CONTINUOUS COMMUNITY ENGAGEMENT	Involving VIP & Community Stakeholders Ward Wise Awareness Programs	<ul style="list-style-type: none"> Ward wise Awareness Schedule & Coverage Monitoring 	Participative IEC Campaign
RAINFALL DRIZZLING MODEL	conduction by ULB Awareness Teams Multi-stakeholder multiple repetitive engagement throughout the year	<ul style="list-style-type: none"> Design Rainfall Model activities 	Year Long Sustained Engagement

The IEC activities need to be conducted in two modes for best effect;

- Blitz is a short-term 15 to 30 days high impact awareness programs
- Year-long sustained multi-stakeholder involvement IEC programs

STEP 4: Training 70:20:10 method

Competency Building: Addressing Attitude, Skill & Knowledge gaps

5.3 Another Action Plan was also designed and communicated to all the ULBs for strict compliance. This Action Plan is prepared for step by step procedure to be followed to achieve 100% door to door garbage collection with source segregation in all the ULBs of the State. The Action Plan is enclosed as Annexure-A.

With the above Action Plans the collection of door to door garbage collection is increased and region wise status is submitted.

Status of ward wise door to door garbage collection

Sl. No.	Name of the Region	No. of Wards	No. of House Holds	No. of wards in which door to door garbage collection started					Date by which in all wards door to door garbage collection will be started		
				Status by end Nov, 2014	Status by Dec, 2014	By end Jan, 2015	By end Apr, 2015	By end June, 2015			
1	2	3	4	5	6	7	8	9			
1	VISAKHAPATNAM (14 ULBs)	422	7.13	164	165	178	243	422			
2	RAJAHMUNDRY (30 ULBs)	932	9.2	479	555	575	601	932			
3	GUNTUR (28 ULBs)	871	7.89	570	605	612	620	871			
4	ANANTHPUR (38 ULBs)	1168	9.97	448	521	541	547	1168			
Total		3393	34.19	1661	1846	1901	2011	3393			

6.0 Financial aspect:

With the available infrastructure and Funds released under 13th Finance Commission (Rs. 489.14 Crores had been released to the ULBs) the Municipal Commissioners concerned are directed to take action to segregate the waste at source, collect the garbage through push carts, transport & use it for compost etc.

Thus, by the end of May, 2015 the status of availability of equipment for door to door garbage collection would as follows;

S.No.	Name of the Region	Push Carts	Plastic Bins and Baskets	Bags, Masks, Hand Gloves etc. in pairs	Pulverizers	Pellet making machines	Bailers	Vermi compost sheds
1	2	3	4	5	6	7	8	9
1	VISAKHAPATNAM (14 ULBs)	1457	8698	7588	10	0	7	9
2	RAJAHMUNDRY (30 ULBs)	933	12151	12214	18	1	4	4
3	GUNTUR (28 ULBs)	1337	8747	10626	10	5	4	5
4	ANANTHPUR (38 ULBs)	903	140762	15451	21	94	5	15
STATE TOTAL		4630	170358	45879	59	100	20	33

7.0 Further a Detailed Project Report (DPR) to tap funds from Government of India, under Swachha Bharat Mission, was already submitted to Government of India with an estimated cost of Rs.1964.00 crores. This report includes proposals for machinery/equipment/Vehicles for SWM activities and for construction of individual toilets/community toilets etc.

Financial Proposals submitted under Swachh Bharat Mission

S.No	COMPONENTS	AMOUNT (Rs. in Crores)
1	Solid Waste Management (Collection, Transportation, Processing & Treatment and Safe disposal)	879.75
2	Individual and Community toilets (including conversion of pit latrines and Insanitary latrines)	1084.2
3	Capacity Building & IEC Activities	8.4
Grand Total		1972.35

**Proposals submitted by AP State under Swachh Bharat Mission to
GoI exclusively for SWM**

S.No	COMPONENTS	COST (Rs. In crores)
1	Equipment Vehicles (Primary and Secondary transportation)	112.05
2	Public Awareness Information Education and Communication	5.04
3	Processing (Composting/Vermin/ RDF/ Bio-methanization)	421.34
	Civil works, Building and Machinery	
4	Scientific disposal – Land filling and Capping of Old dumpsites	221.32
5	Waste to Energy Plants in 5 cities for Power generation	120
Grand Total		879.75

The DPR mainly focused on the following components;

1. Strengthening of infrastructure for 100% door to door collection, segregation and safe transportation of waste
2. Upgradation of the existing Defunct/Partially Functional Processing Plants and setting up processing facilities (i.e., Composting, RDF etc.,) on both stand alone and cluster based approach
3. Modernization/ mechanization of the transport system with vehicle tracking systems
4. Construction of scientific landfill at regional level for disposal of inerts and rejects from waste to energy plants and other processing including landfill gas recovery
5. Material Recovery Facilities and dry waste collection centres
6. Rehabilitation Closure of the existing dumpsites scientifically to reduce environment pollution
7. Decentralized solutions of waste processing at community level
8. Capacity building and Awareness building activities and
9. Construction of individual and community toilets

Some of the details submitted for information:

Category of ULB	Nos.	Technology options (incl.Civil works & Machinery)	Mechanical & Vermi Composting
Corporations	13	Integrated Waste Processing with Composting, C&D facility	Rs.5.00 Cr. Per 100 TPD of MSW
Selection Grade	4	Composting and Bio-methanation	Rs.3.00 cr. Per 50 TPD
Special Grade	7	Composting and Bio-methanation	Rs.3.00 Cr. Per 50 TPD
First Grade	13	Composting and RDF (Pellets)	Rs.3.00 cr. Per 50 TPD
Second Grade	25	Composting and RDF (Pellets)	Rs.6.00 lakhs per TPD
Third Grade	23	Composting (Windrow/Vermin)	Rs.6.00 lakhs per TPD
Nagar Panchayat	25	Composting (Windrow/Vermin)	Rs.5.00 lakhs per TPD

8.0 Redressal system for public grievances:

“Citizen online Grievance Monitoring System” is in implementation. Citizens can register their complaints on insanitation in their areas and they can upload the photograph in the C&DMA website (cdma.ap.gov.in), and the complaint will be redressed by the concerned ULB authorities within 48 hrs and information will be sent the complainant.

Initially the m-bin monitoring system (OSRT System) is implemented in 34 ULBs covering 2874 bins / garbage collection points. Instructions were issued to Municipal Commissioners of the remaining ULBs (50 ULBs) to register the Bins / Garbage collection points. Now 60 ULBs got registered in this system and the garbage bin clearance can be watched/viewed at <http://www.OSRT.in>.

Online Sanitation Grievance Monitoring System

Citizens can register their complaints on insanitation in their surrounding areas by uploading the photographs. After redressing the complaint within 48 hrs an SMS will be sent to complainant and cleaned photograph is placed in the web page. This programme is monitored online. (as on date status)

➤ Total No. of Complaints registered online	1723
➤ Total No. of Complaints redressed	1487
➤ Total No. of Complaints Pending	141
➤ Total No. of Complaints not under Jurisdiction	95
➤ Percentage of Redressed	91%

m Bin

Registration of Location of Bins with Mobile Phone Number and Photograph of the Bin with Mobile App.

Daily Photograph and online uploading using mBin Mobile App... after cleaning the bin.

If cleaning is not reported as per the time schedule the bin will appear in RED Colour.

The next Superior Officer will receive sms to take action to clean the BIN.

(as on date status)

Total Number of ULBs already registered in this system 79 nos

Total Number of locations registered in this system 2941 nos out of 2991

Total Number of ULBs yet to Register in this system 31 nos

The number of bins and open places to be registered 215 nos

9.0 Cluster for Approach:

The erstwhile Government of Andhra Pradesh have issued Government Order Rt.No.1464. MA&UD (J2) Department, dated 24.10.2005 constituting 19 clusters to set up regional land fill facilities / clusters. (A copy of the said GO is enclosed as Annexure). Thus, after bifurcation of the State, in 110 ULBs 12 clusters are existing in the State of Andhra Pradesh.

ULBs proposed to establish WtE Project with cluster approach

S.No.	Name of the Cluster(with group of ULBs)	Population (in lakhs)	Garbage generated (in Metric Tons/day)
1	Vizianagaram Municipality	4.84	244
2	Greater Vishakhapatnam Municipal Corporation	19.8	933
3	Rajahmundry Corporation	4.47	251
4	Kakinada Corporation	4.51	257
5	Eluru Corporation	4.5	242
6	Vijayawada Corporation	13.22	606
7	Guntur Corporation	9.65	430
8	Nellore Corporation	7.52	297
9	Anantapur Corporation	5.38	240
10	Kurnool Corporation	7.19	280
11	Kadapa Corporation	5.97	308
12	Tirupathi Corporation	7.07	287
TOTAL		94.17	4375

10.0 However, best practices implemented in some of the ULBs and Plan of Action for management of solid waste is again submitted.

These case studies of both success and failures have provided rich learning opportunities for the City Managers in Andhra Pradesh and few are listed below.

'Bobbili' an ULB in Andhra Pradesh is the first to develop a **Solid Waste Resource Management Park** in the country, envisioned on the lines of a technology park or an apparel park, scientific processes were established for handling municipal waste at this SWRM park and make it a '**No-Dump**' ULB.

- **First ULB to initiate Push-Carts in AP for D-2-D Collection to prevent mixing of major waste streams & promote separation at source.**
- **1st 'Regional Review Meeting' by Commissioner & Director of Municipal Administration, Andhra Pradesh in Dump-Yard turned SWRM Park!**
- **Achieved & Sustaining No-Dump status from 2011 and for the past 3 years under 3 different commissioners.**

'Salur' another ULB in AP made the first attempt of the idea of "**NO DUMPING**" by **reclaiming the existing dumping** site and establishing scientific waste management systems. This also led to thinking of improving ways of waste collection, segregation and processing.

- *Over 7 acres was reclaimed within 40 days at a cost of 3.5 Lakhs*
- *Water body restored and park with children play area set-up*
- *Installing idols of Shiv & Parvathi donated by Lions club at the park, created a huge civic change of heart! A place people never used to venture became a sought after family picnic spot overnight!*
- *Another first in the country or perhaps the world – The commissioner solemnized the wedding of his eldest daughter in May '12 at the dump-yard turned park. In Feb '13 the Commissioners' second daughter insisted that by then it was the best place in town to share her wedding vows as well!*
- *Limca Book of Records registers record under development category in 2013*

'Tenali' is another model focused on resource recovery where the entire city is divided into micro-pockets and primary collection carts are monitored by SHG woman called 'Nagara Deepika'. The collection of Dry resources is properly recorded by the SHG women and the proceeds are shared with the ULB from which they get their salaries. Similarly the organic resource is composted and auctioned. This ensures daily monitoring and system sustainability.

CSR Model - Guntur Municipal Corporation and Greater Visakhapatnam Municipal Corporation (Zone 4) were two ULBs which worked on a CSR donor model to implement MSW Rules compliant Push Cart system within a month. In Guntur, people made individual contributions & Banks and educational institutions pitched in to raise over Rs.60.00 Lakhs for the Campaign. In Greater Visakhapatnam Municipal Corporation (Zone 4) HUDCO, New Delhi sponsored close to Rs.80.00 Lakhs for campaign and implementation of door-to-door garbage collection in Zone 4 of the Corporation.

'100 Days clean city challenge' for the entire state of Andhra Pradesh, in the run up to the ICON SWM Conference which was held in January 2014 at Hyderabad the Commissioner & Director of Municipal Administration (C&DMA) of AP issued a 100 days Sanitation & SWM Challenge to all the ULBs to copy the best practices and present their own unique achievements.

Many more Urban Local Bodies like **Palamneru, Guntakal, Nandyala, Venkatagiri** etc., in Andhra Pradesh have achieved considerable progress in solid waste management.

11.0 Door-to-door garbage collection:

Each ULB to organize 100% door-to-door collection of waste houses, commercial establishments, Industrial area and Institutional area including slums, on city wide scale with separate collection of wet and dry streams

Each pushcarts/tricycles with 60lts containers -- 4 n's with bag for dry waste, to cover 300-350 in narrower and densely populated areas and each auto covering 1000 HH and 2000 HH for Tractors in areas with less dense housing patterns, where the collectors will need to cover longer distances

Each designated vehicle shall be provided with the route number on the vehicle and the contact numbers of the route supervisor shall be displayed on the vehicle

11.1 Segregation:

Each ULB to launch a mass awareness programs for segregation of waste on residential and commercial areas

Encourage School Children and women households and Self Help Groups and Resident Welfare Associations on segregation through intensive IEC and drives

Provide incentive to the staff for segregation of waste during collection

Establish dry waste collection centres (Material Recovery Facilities) across the town at key locations operated through self help groups and recycling firms with market linkages

Encourage individual households/ apartment complexes for setting 'source composting options' like vermin composting/ composting at households level, portable new age small scale bio gas units for kitchen waste.

Implementation of plastic Waste (Management and Handling) Rules 2011

Promotion of the concept of zero waste

IEC activities through print and new media and outdoor advertising

11.2 Management Plans :

- Effective segregation and door-to-door collection
- Effective and synchronised transportation
- Maximum resource recovery
- Effective treatment
- Making the town bin-free town
- Ensuring dump-free towns

It is the responsibility of all the Urban Local Bodies in the state to follow certain parameters and compliance criteria for management of Municipal solid Waste i.e., collection of solid waste, segregation, storage, transportation, processing and disposal.

Therefore, the State Government decided to organise state level conferences, workshops, training programs for the ULB staff in the Institutions like Dr.Marri Chenna Reddy Human Resources Development Institute, Hyderabad, Regional Centre for Urban and Environment Studies, Osmania University, Hyderabad, Administrative Staff College of India, Hyderabad, Engineering Staff College of India, Hyderabad, Environmental Protection Training & Research Institute, Hyderabad. Also conducted training programmes to the field level staff like Public Health workers, Sanitary Jawans, Sanitary Inspectors, Sanitary Supervisors. Detailed guidelines were also issued to all the Urban Local Bodies in the State on door to door collection Municipal Solid Waste, Segregation, Storage, Transport and Processing. Further, the Urban Local Bodies were asked to utilize the Municipal Funds for procurement of Machinery and Material for this purpose.

As a result, a good number of Municipalities in the State have showed considerable progress with the active support of NGOs, Local Women Groups, Public Organisations etc.

An amount of Rs.374.00 Crores towards grant under 12th Finance Commission Funds to the combined state of Andhra Pradesh (now bifurcated as States of Andhra Pradesh and Telangana) were received. The then State Government recognising the importance to implement the MSW (M&H) Rules 2000 allocated the entire Rs. 374.00 Crores to the Urban

vehicles like tricycles, three and four wheel autos, wheel borrows, tractor engines with trailers, mini trucks, Tippers, Heavy trucks, dumper bins, dumper placers, hook loaders, compactor bins, compactors, JCBs, Excavators, Septage cleaners, Sewage cleaners, Fogging machines, Pulverizers etc., and to be spent on the construction of compound walls to the compost yard, vermin compost sheds, repairs to the slaughter houses. Certain municipalities has also spent amount for acquiring compost yard.

11.3 Effective segregation and collection (at each city level):

The Jawaharlal Nehru National Urban Mission which has a component of capacity building program in Urban Local Bodies has sanctioned 10 Comprehensive Capacity Building Programs in various Urban Local Bodies in the state of Andhra Pradesh (after bifurcation). Accordingly 10 Reform Performance Monitoring Centres were setup and they are already in function. The centres are provided with experts in the field of Municipal Solid Waste Management, Urban Planning, Capacity Building Experts, Financial Experts, Social Development Experts and Information Technology Specialist. The main objective of this expert group to transfer subject knowledge among the Urban Local Bodies staff so that they start performing and understanding the need of reforms in the field of Urban Governance including Management of Municipal Solid Waste. Present data collection, Analysis, conducting regular training programs is the regular activities of these teams.

In view of the aggressive steps taken by the Government to implement MSW (M&H) Rules 2000 with committed work the door to door garbage collection has increased to a level of 75% except in the newly constituted Urban Local Bodies. The source segregation and source separation has increased from 10% to 55%. Owing to procurement of transport vehicles using 12th and 13th Finance Commission Grants the storage and transport is also increased to 90%. Some of the Urban Local Bodies are practicing NO DUST BIN in community areas.

For implementation of the above strategies, the following key initiatives have been designed and taken up as follows:

The key initiatives

- 'Parichayam' program to Know your sanitary workers
- Clean city championship program
- 100 days clean city challenge in all the urban local bodies
- Transformation of dump yards into resource parks
- Introduction of green caller tunes in mobile phones for creating awareness
- Special sanitation drives at regular intervals

- Comprehensive insurance coverage to all Ph workers in the State
- Capacity building program on MSW
- Involvement of the women groups in creating awareness
- Model City Program
- Online customer Grievance Monitoring System
- Municipal Solid Waste Management Strategy G.O.Rt.No.64 dt:13/2/2014.

In all Urban Local Bodies of Andhra Pradesh a strategy has been designed to provide regular and prompt service to the households, commercial establishments, schools and colleges, slaughter houses, markets, function halls, Government / private offices etc., separate action plan has been prepared and implemented in a befitted manner in most of the Urban Local Bodies. The same initiative is being replicated in all other ULBs. The designing of collection strategy in the ULBs is as follows:

- **The beginning of pipe-line or generating point collection management;**
- 100% Door-to-Door coverage through micro-pocket management, community participation and trained manpower with Push-Carts for source separated collection and stream separated transportation. (In ULBs like Bobbili, Palamner, Guntur, Visakhapatnam Zone 4 etc.)
- **The end of pipe-line or resource processing of organics, strengthening of recycle value chain and scientific disposal of hazards and inerts;**
- **Reclaiming Existing Dumping yards / Establish Solid Waste Resource Management Parks**, where only scientific waste processing and management activities take place (In ULBs like Salur, Bobbili, Guntakal, etc.)
- **APUFIDC would take the lead in focusing on old dumps` reclamation and conversion to Solid Waste Resource Management Parks**

11.4 Regulatory measures:

Residents

- The Households have been covered by dividing the houses into micro pockets of **350 TO 400 HOUSES** to each pocket and entrusted to two workers.
- The responsibility of these two workers is to collect source separated resource from the allotted houses (micro packet) in the morning session and they should take up road sweeping and drain cleaning activity in afternoon session within the allotted area of this micro packet.

- The collection activity was taken up by providing maintenance free tool ie., specially designed **PUSH CART** with **Unbreakable Plastic bins** and **BAGS** so as to enable them to store the separated collections such as **organic waste** into bins and **inorganic waste** into bags.
- In this system, the sustainability aspect was created as inbuilt system ie., the sale proceeds of inorganic should go to the workers so as to gain a monetary benefit of Rs.80 to 120 per head per day.
- The reasons for not attending the collection from households and other establishments, gaps of infrastructure, man-power related problems have been deeply studied and found a solution for effective implementation of MSWM Rules, 2000. The major gaps found are as follows:-

Gaps	Remedies
<ul style="list-style-type: none"> • The major problem is with the tools provided to the working staff 	Replaced the motorised vehicles with the maintenance-free push carts with suitable accessories
<ul style="list-style-type: none"> • Lacking proper planning in all aspects 	Designed micro packets, proper allocation of man-power with suitable tools and infrastructure
<ul style="list-style-type: none"> • No tie-ups with the recycling vendors for the inorganic resources 	Identified recycling units and tied up with proper documentation for lifting the recyclables by paying reasonable rates directly to the working force.
<ul style="list-style-type: none"> • Complex issues – no proper attention 	The welfare of the working force is also taken into account and proper attention was paid to fulfil their demands.
<ul style="list-style-type: none"> • No training to the working force 	All the working force including Supervisory Officers have been given proper training in implementation of Rules.
<ul style="list-style-type: none"> • Lack of knowledge in the processing facilities 	The sessions were conducted for the executive staff to impart knowledge on the establishment of bio-methanisation plants, stack composting, windrow composting etc.

- State Government to guide ULBs to draft model byelaws and legislations to facilitate levying user charges, penalties for violators and explore revenue options like revenues from sale of waste and by products, Clean Development Mechanism (CDMs), Solid Waste Management Cess, Processing fee etc., to achieve financial sustainability
- ULBs to Prohibit on Burning Of Garbage, Leaves and Other Litter
- Constitution of Vigilance squads to prevent littering on streets, regular lifting of waste, illegal dumping of waste in storm water drains

- Devising and implementing disincentives and penalty for violation of the rules on the violators
- Abolition of Open Waste Storage Sites and Other Un-hygienic Street Bins

11.5 Vegetable / Fruit / Fish / Mutton markets & Slaughter Houses:

- Vegetable / Fruit markets : The towns, which have *Cattle Farms*, all the vegetable and fruit waste is planned to transport directly from the markets to the Cattle farms.
- The waste generated in the slaughter houses will be fed into the bio-methanisation plant in the premises of the slaughterhouses itself. It is being practiced in certain ULBs and it will be extended to all ULBs of AP.

11.6 Marriage Halls / Kalyana Mandapams / Community halls:

- A separate action plan is conceived to put into practice by providing a separate collection teams.
- All the owners of the function halls in the towns were also sensitised to inform the dates of functions taking place in their halls so as to enable to arrange for collection of food waste etc.
- In certain Urban Local Bodies pig rearing community is allowed to collect the food waste from the function halls and major hotels.

11.7 Hospitals / Nursing Homes / Laboratories / Health Care Centres:

- In Andhra Pradesh, there are 13 districts and 12 clusters existing. The State Pollution Control Board has permitted the entrepreneurs to establish Hazardous Waste Treatment Plants in all the districts.
- The regular waste generated in Medical Stores / Hospitals is incorporated in the regular collection along with domestic waste.

11.8 Construction and demolition Waste:

- The debris or construction waste is a good resource for filling up of low lying areas, formation of new roads, and filling up of foundations.
- This resource is recyclable for making bricks by using proper available simple technologies
- This practice is under implementation in most of the Urban Local Bodies and action plan is prepared to extend to other ULBs.
- Larger ULBs to have C&D waste processing facilities and the by products to use for road and embankment construction, finer grade for manufacture of into blocks and slabs with appropriate binder, the finer grade to be used as daily cover for SLF/ closure of SLF
- User charge to be levied based on the quantity of the waste collection, transportation and disposal
- Bye-laws for penalizing the violators for illegal C&D waste without the permission of the ULBs

- Training for all the building and construction companies/ contractors on handling of the C&D waste

11.9 Garden Waste:

- Garden Waste is being used for pit composting. Hence, there is no need to collect separately.

11.10 Dairy and Cattle Shed waste:

- In Andhra Pradesh, the dairy cattle shed waste is treated as gold, as the owners of sheds are of the habit of farming into heaps in their own places, so as to use it after six months as manure for their fields. Since this waste is having lot of demand, the Urban Local Body do not require collecting and disposing it separately.

11.11 Provision of Litterbins on streets and public places:

- Litter Bins to be limited to busy commercial areas and public places with regular collection and clearance.
- Each shop and establishments shall have appropriate bins disposal of the litter
- Regulation through bye- laws for littering on streets with penalties for violators

11.12 Storage Depots:

- The organic waste collected separately from the households is being formed into stack composting on a decentralised methodology. This means the decentralised processing units are designed by clustering 4 to 5 wards in an ULB into one cluster.
- Where there is no feasibility for clustering the wards that cluster related organic waste only be transported to the centralised processing unit.
- The day-to-day inorganic waste is sent to the recycling units directly by tying up with the recycling units.
- Storage bins to be limited to markets and commercial area with high quantities and to be cleared every 8hr schedule.
- ULBs to procure aesthetically designed appropriate size (depending on the quantum of waste generated) storage bins that are easy to operate and to be lifted mechanically
- Storage bins shall not be located in residential areas, near places of worship, schools, parks, play grounds and hospitals
- Bin less concept in residential and institutional area

11.13 Transportation of waste:

- In Andhra Pradesh, all ULBs are collecting the waste from the door steps in a source separated manner. Therefore, total waste does not require to transport at the central point.

- Wherever there is no feasibility for cluster of wards there only secondary transportation through motorised vehicles is in practice.
- These innovations are helping in synchronising the transportation thereby reduction of vehicles can be done so as to enable for savings.
- Primary collection of waste in a segregated manner through non-motorised tools is saving lot of recurring expenditure pollution etc. The number of motorised vehicles is also being reduced in almost all the ULBs with our innovative initiations.
- Devise appropriate transportation system with routing and loading plan through route maps for efficient collection
- Setting up of workshop and service facilities for operation and maintenance of vehicles on time
- ULBs to tie up with service centre on Annual Maintenance contracts for motorised vehicles
- ULBs to develop standard operating procedures for maintenance of vehicles
- ULBs shall contained system of transportation of waste without spillage during transportation

11.14 Disposal of Waste (at cluster level, as proposed) - Processing technologies:

- **Vermi Composting / Windrow composting /Stack Composting :**
- Incineration (non-recyclables are tied-up with cement kilns)
- Adopt Integrated mix of technologies for MSW processing based on the characteristics of MSW
- State to identify regional processing and landfill to achieve the economics of scale

11.15 MSW processing and treatment techniques:

- Constitution of state level body to assist ULBs in evaluation of tenders, selection of technologies and feasibility and conceptualization of Public\Private partnership models and options for common treatment facilities
- Adopt of combination of technologies (composting/ Bio methanization, WTE) for ULBs generating more than 100 Tonnes / day for treatment of organic and combustible fractions
- Tie- ups with Cement industries for Co-processing of dry fractions MSW in cement industries
- Establish Market linkages for sale of compost and recyclables

11.16 Incineration:

The Government is very keen in encouraging the entrepreneurs to establish Waste to Energy Plants by allocating clusters of Municipalities as per the feasibility and requirement of the entrepreneurs. This idea is under examination and wherever feasible, this will be taken up.

However, it is submitted that in view of **the formation of clusters of ULBs (as already submitted earlier)**, it is proposed to establish **Waste to Energy Plants** at Greater Visakhapatnam Municipal Corporation, Rajahmundry Municipal Corporation, Eluru Municipal Corporation, Vijayawada Municipal Corporation, Guntur Municipal Corporation, Nellore Municipal Corporation, Tirupathi Municipal Corporation, Kadapa Municipal Corporation, Kurnool Municipal Corporation, by grouping the nearby ULBs keeping in view the distances, garbage generated and transportation feasibility.

11.17 Palletisation:

Wherever a larger quantity of organic waste is generated and this technology is feasible, suitable encouragement will be given to the private entrepreneurs to establish their technologies for palletisation / RDF plants.

11.18 Recovery of Biological Conversion Products (Biological process)

This technology is also under examination for conversion of biological projects duly inviting private competitors.

11.19 Composting methods:

The different types of composting methods such as Aerobic composting, Biomethanation (anaerobic digestion) and Vermi composting are being followed in the ULBs where feasibility permits.

11.20 Ultimate disposal of MSW / sanitary landfills:

The Government of Andhra Pradesh is trying its best to comply with the Solid Waste Management Rules, 2000, in a phased manner, by establishing

- **Composting plants**

At present there are Vermi Composting plants in the following (18) Urban Local Bodies :

Palasa Kasibugga, Vizianagaram, Bobbili, Salur, Kakinada, Eluru, Vijayawada, Guntur, Tenali, Piduguralla, Ongole, Chirala, Guntakal, Kurnool, Kadapa, Proddatur, Tirupathi and Palamaneru.

It is further proposed to establish vermin compost / Windrow compost plants of 1 to 5 MT per day capacity in the following ULBs, by end of 2015, in a phased manner.

Srikakulam, Ichapuram, Rajam, Parvathipuram, Parvathipuram, Narsipatnam, Yelamanchili, Visakhapatnam, Amalapuram, Rajahmundry, Samalkot, Tuni, Pithapuram, Ramachandrapuram, Mandapet, Peddapuram, Bhimavaram, Tadepalligudem, Tanuku, Palacole, Narsapur, Nidadavole, Kovvur, Jangareddygudem, Vuyyur, Machilipatnam, Gudivada, Nandigama, Jaggaiahpet, Nuzivid, Narasaraopet, Chilakaluripet, Bapatla, Ponnur, Repalle, Macherla, Mangalagiri, Sattenapalle, Vinukonda, Tadepalli, Markapur, Kandukur, Kanigiri, Nellore, Kavali, Gudur, Venkatagiri, Sullurpet, Naiduper, Anantapur, Hindupur, Tadipatri, Dharmavaram, Kadiri, Nandyal, Yemmiganur, Adoni, Pulivendula, Rajampet, Rayachoti, Jammalamadugu, Chittoor, Srikalahasti, Madanapalle.

- **Bio-methanisation / Bio-gas Plants**

At present the following ULBs have established Bio-gas Plants and they are functioning.

Bobbili, Salur, Palcole, Eluru, Narsapur, Vijayawada, Guntur and Tenali.

In all the ULBs of Grade-II and above, it is proposed to establish Bio-gas Plants.

- **Recycling units**

Tie-up is made in the following ULBs to sale the Recyclables :

Vizianagaram, Bobbili, Parvathipuram, Salur, Tenali, Proddatur, Guntakal, Kandukur and Markapur.

- Non-recyclables tieup with cement kilns.
- Debris and constructions waste to the low lying areas and formation of new roads etc.

Therefore, the requirement of land fill facility will be minimal. However, the land fill facility requirement is also taken into consideration as per the ULB requirements.

- Establish Regional Municipal Solid Waste Project approach in case of smaller Urban Local Bodies.
- Metropolitan Level Approach for integrated treatment and disposal of MSW from WTE clusters and other ULBs comprehensively.
- Rehabilitation Closure of the existing dumpsites scientifically to reduce environment pollution and recovery of land
- Landfilling shall be limited 5% of municipal solid waste comprising to inert and rejects from processing .
- Abolition of dumping of mixed waste and recyclable waste
- State to Expedite allotment of Government land for treatment and disposal of waste free of cost or on nominal lease rental basis for setting up treatment plants and sanitary landfill sites in land use plans considering 30 years period

11.21 Mobile Sanitation Courts:

Suitable amendments will be made to the existing Laws, and byelaws will be formulated accordingly to establish mobile sanitation courts to enforce the Rules to comply with the MSWM Rules, 2000.

11.22 Management Aspects:

Urban Local Bodies to adapt mechanism for enforcement, supervision and monitoring the Pin Point System for optimum utilization of manpower resources through social audit mechanisms.

The Pin Point System implementation to involve the Resident Welfare Associations, Community Based Organization and other stakeholders in the process of monitoring of Solid Waste Management services for improved accountability.

Urban Local Bodies to disseminate relevant information on waste quantities and characteristics; waste treatment, recovery and disposal; the costs of providing the waste management services; the sources of funding used to finance the services in public domain, Publication of reports on Annual report of the Service Levels.

ULB shall establish Management Information System for MSWM including records

Urban Local Bodies to constitute City Sanitation Task Force involving the stakeholders in Planning, Implementation and Monitoring of the City Sanitation Plans.

11.23 Institutional Setting :

Technical unit at the state to guide ULBs on solid waste management

Strengthen the institutional capacities of the Urban Local Bodies ULBs as per the size of the Urban Local Body. The Urban Local Bodies to have dedicated technical staff within the Solid Waste Management department (Environmental Engineer) who should be responsible for the Solid Waste Management activities within the city.

Adequate Staff to carry out the operations or outsourcing based performance based contracts

Formulate and implement state and Urban Local Body level for capacity building programs to the field staff, supervisory staff, contract employees, officers, civil society organizations, Community Based Organizations, on Solid Waste Management topics based on the responsibilities including attitude and behaviour change and creation of platforms for field based interactive learning and exposure visits.

11.24 Management Plan:

Urban Local Bodies to adapt mechanism for enforcement, supervision and monitoring the Pin Point System for optimum utilization of manpower resources through social audit mechanisms.

The **Pin Point System** implementation to involve the Resident Welfare Associations, Community Based Organization and other stakeholders in the process of monitoring of Solid Waste Management services for improved accountability.

Urban Local Bodies to disseminate relevant information on waste quantities and characteristics; waste treatment, recovery and disposal; the costs of providing the waste management services; the sources of funding used to finance the services in public domain, Publication of reports on Annual report of the Service Levels.

ULB shall establish Management Information System for MSWM including records

Urban Local Bodies to constitute City Sanitation Task Force involving the stakeholders in Planning, Implementation and Monitoring of the City Sanitation Plans.

Required number of Environmental Engineers will be engaged for this purpose. Out of 3393 wards in 110 ULBs, in 1800 wards Door to Door Garbage collection is in implementation as on date, and it will be extended to all wards by end June, 2015.

Therefore, it is submitted that with the aforesaid initiatives, interventions and action plans, the goal to ensure 100% compliance to the MSW (M&H) Rules, 2000 and related legislations with reference to Municipal Solid Waste in all Urban Local Bodies in the State of Andhra Pradesh will be achieved by end of 2016.

12.0 SHORT & MEDIUM TERM PLANS :

- Strengthening of SWM infrastructure - orders placed for push carts, plastic bins and other SWM equipment.
- Intensive IEC activities for SHGs, RWAs, Commercial Establishments, Market Associations, Hoteliers, Hospitals and General Public.
- Training and Capacity Building at all levels - Training Modules and Schedules prepared.
- Arrangement for Sale of Municipal Compost through Dept. of Agriculture and Dry Recyclables to whole sale dealers.
- Ban on Plastic Carry Bags with less than 40 microns thickness in all ULBs.
- Levy of User Charges on bulk waste producers and provisions for penalty.

- Identification and acquisition of Land for Processing and Landfill Facilities – 23 ULBs.
- Reclamation of old dump sites.

12.1 LONG TERM ACTION PLANS:

- Setting up of New processing facilities at CITY LEVEL and Regional processing facilities (Establishing Clusters) on PPP mode.
- Setting up of SCIENTIFIC LANDFILL facilities (stand alone / regional) disposal of inert.
- Explore opportunities for resource recovery from Municipal Solid Waste Management through WASTE TO ENERGY and co processing at District or Regional Level.

13.0 PREPARATION OF MASTER PLANS FOR SWM

A team of consultants headed by Mr.Loh Ah Tuan, Strategic Adviser, Centre for Liveable Cities, Singapore had consultations on SWM with Municipal Commissioners, PCB Officials on 2nd Feb, 2015.

The team visited Kurnool Municipal Corporation on 3rd Feb, 2015.

Two Master Plans for management of Solid Waste will be finalized by 31st March, 2015.

- (i) For ULBs below 3 lakh population.
- (ii) For ULBs above 3 lakh population.

Therefore, it is submitted that with the aforesaid initiatives, interventions and action plans, the goal to ensure 100% compliance to the MSW (M&H) Rules, 2000 and related legislations with reference to Municipal Solid Waste in all Urban Local Bodies in the State of Andhra Pradesh will be achieved by end of 2016.

In view of the above facts and circumstances, it is prayed that this Hon'ble Tribunal may consider this Affidavit and pass such other order / orders at this Hon'ble Tribunal may deem fit and proper in the interest of Justice.

Abdul

DEPONENT

**Principal Secretary to Government
Municipal Administration &
Urban Development Department
Secretariat, Hyderabad, A.P.**

ACTION PLAN FOR IMPLEMENTATION OF EFFECTIVE MUNICIPAL SOLID WASTE MANAGEMENT	
Components	Activity
Planning	All types of repairs to the sanitation vehicles
	All types of estimations and procurement procedure for the push carts only
	Calculate and form the door to door collection domestic team
	Push Cart / Tricycle with 8 or 12 nos of 60 Lts bins 2 PH workers 300-350 House Holds
	OR Push Cart / Tricycle with 8 or 12 nos of 60 Lts bins 3 PH workers 450-500 House Holds
	OR 800-900 Households 4 workers including the driver for an Auto (3 wheeler) with Jumbo bags for dry waste collection.
	Prepare the Pin Point Program for Men & Vehicles (including Reserve) for D2D, Collection, Sweeping, Drain Cleaning, for Residential and Commercial etc.as mentioned above for D2D collection, road sweeping and drain cleaning. Main Roads sweeping as per the norms fixed in Annexure-II for PH worker. He has to carry sweeping & lifting of sweeping waste. Small Commercial collection shall be done using pushcarts, bulk garbage collection using auto or tractors with service charges.
Preparation of Route Maps for every Vehicle i.e., Pushcart/Tricycle/auto and transport plan for auto/tractor. Also timings for each collection point and Identification of vehicles and material gaps (own or hired) and highlight the routes on the map	
Allocate vehicles and PH workers for each route and each vehicle shall be provided a route number.	

ACTION PLAN FOR IMPLEMENTATION OF EFFECTIVE MUNICIPAL SOLID WASTE MANAGEMENT

Components	Activity
Awareness and IEC	Identify temporary transfer points across the town for secondary transportation of waste collected for direct transfer from push cart / tricycle into tractor or truck without spillage or unloading and also depict them on the town map. Also identify temporary sorting centres for dry waste in an area of 200 to 500 sq. y belonging to ULB.
	Provide Aprons & personal protective equipment for all the workers including the outsourced and contract workers
	Orientation and training from field level worker to Supervisor on the SWM Action Plan
	Exposure visit to the S.I's, Maistries and PH worker union representatives to the nearest best practicing ULBs
	Conduct Bi-Monthly Health checkups to the PH workers.
	Orientation to the all stakeholders including elected representatives. Training programme on SWM and sanitation for the newly elected representatives as listed in Annexure-IV
	Carry out Awareness and IEC activities with participation of various stakeholders including schools, colleges and media. Conduct door to door visits, rallies, meetings on a citywide scale with special focus on segregation of Solid Waste Management and Plastic usage and ban on carry bags (< 40 microns)
Carry out the Parichayam program in all the localities and ward to introduce the PH workers to the community for better monitoring and service delivery	
Wall writings/ sign boards on the Parichayam program in each pocket with names of the worker, allocated to the locality along with the names and cell numbers of the maistry, sanitary inspector and their contact nos	
Best performing teams for door to door collection and segregation shall be selected every month and felicitated through philanthropists. The names shall be displayed in the ULB premises along with photo as 'BEST WORKER / TEAM OF THE MONTH'	

ACTION PLAN FOR IMPLEMENTATION OF EFFECTIVE MUNICIPAL SOLID WASTE MANAGEMENT	
Components	Activity
Enforcement	Implementation of the Plastic Waste (Management & Handling) Rules 2011 and introduce restrictions as per the provisions of the Rules and ban on usage of carry bags less than 40 microns.
	Formulate byelaws for levying penalties on violators for not segregating the waste, littering, prohibiting burning, disposal in drains etc, as per the MSW Rules and collection of SWM user charges.
	Council Approval of the Bye laws of on Solid Waste Management
	Setting up of public compliant cell and compliant redressal system with proper record of complaints
Door to Door Collection and Segregation	Allocation of men and material for 100% coverage (including 10% reserve staff)
	Involve CRP's/ Nagara Deepikas/SHGs/TLFs in sensitizing the public and supervision of door to door collection and segregation.
	Fixing of Transit point, synchronization of first level collection and second level collection.
	All the existing vehicles (non-functional) shall be repaired and to be made operational for the SWM operations
Transportation of Garbage	Establish Vehicle maintenance system - Annual Maintenance Contract with service centers (Garage).
	Setting up garage for minor repairs and vulcanizing
	Transportation of the waste by covering the vehicles to avoid spillage and nuisance
	Municipal Waste collected from different sources shall be weighed for a period of 15 days through a weigh bridge (tear weight and load weight) and the same shall recorded in a log book on daily basis. Drain silt and constructed debris and horticulture waste shall be excluded from the weighing.

ACTION PLAN FOR IMPLEMENTATION OF EFFECTIVE MUNICIPAL SOLID WASTE MANAGEMENT	
Components	Activity
Processing (wet & dry waste)- Development of Resource parks	Establishment of dry waste collection centre for sorting, storage and sale of dry waste through appropriate market linkages with recyclers. Also rag pickers are identified and i.d. cards also to be issued them to pickup recyclables from compost yard.
	Note: ULBs shall maintain the records of the dry waste collected and sold.
	Provide exclusive own team at the compost yard for processing of waste of the wet waste into compost through windrow composting or vermin composting/ or Outsourcing to NGO's/ Self Groups and Private Entrepreneurs for the Operation
	Development of compost yard with proper approach roads, platform for windrow/ vermi composting, upgrading and construction of sheds, leachate collection tanks, yard lighting, odour control, water supply, watch n ward, green belt and other infrastructure
	Provide market linkages with farmers for the sale of the finished compost and vermi compost.
	Note: ULBs shall maintain the records of the compost produced and sold
	Encourage the decentralized composting units at homes, parks, open spaces and institutions
	Formation of heaps/windrows in organized manner of the haphazardly dumped waste in the dump yard.
	Reclamation of old Dump sites. Extracting filler material from old dumpsites through Bio-mining
	Development of Green belt along the boundary of the dumpsite

Guidelines for Implementation of effective Municipal Solid Waste Management in ULBs**1. Planning Phase**

- a. Entire town shall be divided into 4 to 8 convenient Zones (Each Zone shall have 8 to 10 Wards/Divisions depend on the size of the Town)
- b. Each Zone shall be entrusted to a Nodal Officer (The existing staff, i.e., M.E/D.E/A.E, TPO/TPS/TPBO, RO/BC, Manager/Sr.Asst/Asst, PRP/C.Os etc. may be nominated as Nodal Officer) for monitoring and implementation of Door to Door collection and Segregation.
- c. Each Door to Door collection vehicle shall be allotted 300-350 Household Pocket in case of Pushcarts/Tricycles, 800-900 HH Pocket for Auto (three wheeler or four wheeler).
- d. Prepare a Route Map for all Pockets, Wards, and for entire town depending on the vehicles available in the town i.e., Pushcart/Tricycle (300-350 HH), Autos (800-900 HH).
- e. Asses the existing infrastructure and manpower based on the above norms and identify the gaps. If required, prepare an additional procurement plan and process accordingly.
- f. Each Route shall be colored and highlighted on the map using different colours for each type of vehicle. The town planning staff shall be involved in this regard.
- g. Each designated vehicle shall be provided with the route number and shall be displayed on the vehicle i.e., Ward 1 and second pushcart as 1.2 if there is zone then it will be 1.1.2.
- h. Priority shall be given to slums and commercial areas where littering and open dumping of the waste in very high. In the commercial areas separate collection timings are to be practiced like day time after 8.30 am and in evening hours. The bulk producers like tiffin centres, hotels shall be concentrated between 10 am to 5 pm.
- i. Push carts / tricycles shall be parked in the concerned wards where they operate to avoid loss of time to move from central location.
- j. Each Public Health workers (regular and contract) shall be provided with complete protective gear (two sets), i.e., Mask, Gloves, Apron, Whistle and caps and Gum boots for drain cleaners etc. (information enclosed in annexure-III).
- k. Provide audio system for the motorized vehicle for announcements and sensitizing on segregation. (Model audio voice is sent to concerned area rdma mail id).
- l. ULBs shall initiate procurement pushcarts/tricycles/ aprons for door to door collection of waste from their municipal general fund where it is required.
- m. Push carts/ Tricycles shall be used in slums, narrower and dense streets (wherever houses are denser located) of the town.
- n. Motorized vehicles like Autos and Tractors shall be used in broader streets, commercial areas and wherever the houses are scattered.

- o. Drain silts, street sweeping and construction debris shall not be mixed with the regular waste and needs to be handled separately. Preference shall be given for drain cleaning in gang works in the evening shift i.e., 2.30 pm to 5.30 pm. The drain silt should be lifted immediately.
- p. Bio medical and hazardous waste shall not be mixed with the municipal solid waste. Notices may be issued to the clinics and hospital that are dumping the bio medical waste into the municipal bins/ collection system and same may be informed to the District office of the APPCB for further course of action.
- q. Slaughter house waste shall be collected from chicken/mutton/fish vendors/ shops shall be collected separately. Bins with lid shall be used in this activity.

2. Segregation at Source

- a. Encourage households and owners of the commercial establishments, vendors to segregate the waste at source of generation. Food waste may be sent for the purpose of feeding or to the Bio gas plants for processing.
- b. Municipal Solid Waste to be segregated at source into groups of organic, inorganic, recyclables and hazardous waste. MSWM constituents like metal, plastics, glass and paper wastes are to be segregated and recycled.
- c. Each ULB to identify land to establish Dry Waste Sorting facilities (Material Recovery Facilities) wherever possible through social entrepreneurs, common interest groups of informal sector like rag pickers associations and cooperatives CBOs like Women Self Help Groups (SHGs), Slum Level Federations (SLFs), Apartment Societies, Resident Welfare Associations (RWA) and NGOs
- d. Encourage individual households/ apartment complexes for setting 'source composting options' like vermin composting/ composting at households level, portable new age small scale bio gas units for kitchen waste.
- e. Encourage setting up small scale decentralized units compost plants, bio gas plants for treating of organic waste fraction at community level, large hotels, marriage halls, hostels, organized colonies and slums having strong RWAs and SLFs respectively.
- f. ULBs to set up community-based composting yards on suitable road-side locations, institutional campuses and public parks for horticulture waste or leaf litter and encourage interested sweeper groups, apartment societies, resident welfare associations or CBOs to maintain them and use the proceeds from the sale of manure produced by them.

3. IEC and Awareness generation

- a. Each PH worker allocated to the locality shall be introduced to the community and the assigned work shall be disclosed by conducting the 'Parichayam' Karyakramam in each locality or ward.

- b. Names and Mobile No. of the allocated workers, Sanitary Maistry/S.I/SS and Nodal officer responsible for the pocket, starting point name, names of the localities/ and number of households covered including shall be written on a wall/ sign boards at prominent place of the pocket or route
- c. Conduct meetings with resident welfare associations, trader associations, street vendors, market associations religious institutions slum level federation to seek support for door to door collection.
- d. Orientation programs for the elected representatives, NGO's and SLFs on importance of solid waste management especially door to door collection and segregation.
- e. Undertake refresher programs to train the workers on segregation of waste and proposed plan of action for door to door collection.
- f. Educate citizens about the duties and responsibilities of both individuals and the community in cooperating with the ULB and advantage of cleanliness in maintaining health. Pamphlets explaining the importance of managing MSW among public through newspapers, schools, colleges and market places.
- g. Install sign boards/ hoardings across the town and in important junctions on segregation of the wet and dry waste.
- h. Carry out rallies, road shows, house visits involving school children, college students, NCC and NSS and SLF members to spread awareness on segregation of waste and ban on usage of plastic carry bags < 40 microns.
- i. Best performing teams for door to door collection and segregation shall be selected every month and felicitated through philanthropists. The name shall be displayed in the ULB premises along with photo as 'BEST WORKER / TEAM OF THE MONTH'.
- j. **A facebook facility shall be maintained at ULB level all the activities photographed and uploaded.**

4. Door to Door Collection in Residential Areas

- a. D2D collection through Pushcart/Tricycle: Two persons with a Pushcart/Tricycle with 8 Nos of 60 lts bins to cover 300 to 350 Households OR three persons with a Pushcart/Tricycle with 8 to 12 Nos. of 60 lts bins to cover 450 to 500 Households area. Dry waste bags 4 to 6 Nos. shall be arranged to collect and store dry waste.
- b. D2D through Auto: 3 Persons including driver shall be allocated to cover (800-900) along with a sack for dry waste Households/pockets.
- c. D2D through Tractor: 5 Persons including driver are responsible shall be for allocated (1800-2000) Households/pockets along with a two sacks/ jumbo bags for dry waste.
- d. The waste collected from HH shall keep at designated place for onward transportation to processing site. (meanwhile ULB shall procure 60 Ltr Bins to avoid multiple manual handling of waste to be placed in pushcart/tricycle).
- e. Two PH workers along with pushcart/tricycle shall be made responsible for each pocket (300-350HH) which include Door To Door Collection/ Sweeping And Drain Cleaning:
 - a. Following attendance from 5.30 AM to 7.00 AM the two workers shall take up sweeping of roads From 7.00 AM to 10.00 AM door to door collection of waste along with segregation.
 - b. At 10.00AM cleaning of Bins/Pushcart/Tricycle and hand over at Muster office

- c. In afternoon 2.00 PM to 5.00 PM cleaning of drains, berms and bushes in the allocated pocket.
- d. While doing cleaning activity the allocated workers shall monitor littering on roads and drains in their pocket
- f. Where door to door collection of waste is being done through Tractors/Autos: The following are the norms for street sweeping and drain cleaning
 - i. Average road width : 80 ft- one worker / 350 mtrs length
 - ii. Average road width : 60 ft.- one worker / 500 mtrs length
 - iii. Average road width: \leq 40 ft.-one worker / 750 mtrs length

Sweeping and lifting is to be carried by one PH worker.

5. Door to door collection from Commercial Area:

- a. Waste to be collected from 10.00 AM to 1.00 PM and 6.00 PM to 10.00 PM (depends on commercial activity of the town). The collection shall be two timings depending on the quantum of waste generated.
- b. Commercial establishments shall store the waste in their premises till the municipal vehicle collects the waste from the door step and shall not litter in vicinity.
- c. Separate vehicle shall be allocated for collection of waste from commercial areas in a segregated manner.
- d. All road side vendors and other carts where eatables are sold shall possess bins in their premises for disposal of waste.
- e. Motorized vehicles (Tractor or Autos) shall only be used for collection of waste from commercial areas and bulk waste generators like hotels, Marriage Halls, market and slaughter houses.
- f. User charges shall be collected from bulk waste generators (as per the guidelines enclosed) and maintain the record.

6. Transportation:

- a. Transfer points shall be identified across the town to synchronize the primary collection from push carts / tricycles with secondary transportation vehicles like tractors and trucks.
- b. The collected waste (wet & dry) shall be transferred from the push carts/ tricycles into the larger vehicles without any spillage before being transported to the processing site.
- c. Vehicles shall be covered while transportation of waste to ensure no spillage, while transportation.
- d. Vehicle log book shall be maintained at processing site to record the number of trips and quantity of waste carried by each vehicle.
- e. In house arrangements shall be made to attend minor repairs of the push carts/ tricycles and vulcanizing facilities.

- g. Vehicles shall be maintained properly. D.E/A.E shall be made responsible for maintenance of vehicle.
- h. Annual Maintenance Contracts (AMC) shall be established for all the motorized vehicles for timely repairs from the authorized dealers.

7. Processing and recycling:

- a. Establish Dry waste collection centers in each ULBs for collection, sorting and storage of dry waste with appropriate market linkages with recyclers for sale of dry waste.
- b. Adopt aerobic composting or vermin composting methods for processing the organic fractions of waste from households, markets and hotels.
- c. Mechanized compost processes shall be adopted in the ULBs generating more than 50 TPD of organic waste
- d. The process of compost plant operations consist of five basic steps: (1) Pre composting (2) sorting of recovery material and preparation of windrow compost, (3) decomposition of the organic portion of the MSW, (4) maturation, and (5) sieving, packing and storage of produced compost. The organic waste (biodegradable) waste shall be formed into windrows for composting (MSWM Guidelines).
- e. Prepare platforms for pre composting of the organic waste in form of windrows before transferring it to aerobic composting windrows or vermin composting tanks for 14 day period.
- f. The pre-composted waste shall be piled in the form of windrows with approximately a height of 3 m, width of 1.5 m and varying lengths. The waste is left for 60 days for decomposition with weekly turnings to aerate the heaps. After which, it can be sieved and the compost is obtained.
- g. In case of vermin composting, the pre composted waste shall be transferred into the vermin compost tanks and cow dung slurry may be sprinkled. Maintain appropriate moisture and temperature 50- 60^oc. The composting cycle would be around 45-60 days. The ULBs shall seek the assistance of the agriculture departments officials in the district to obtain the standard operating procedure of composting/ vermin-composting.
- h. Undertake odour control measures in the compost yards to avoid fly menace.

8. Disposal

- a. Inert waste and rejects from processing are to be disposed off into scientifically designed landfills as per the norms, till such arrangements are made the waste shall be disposed off in the dump yard in an organized manner without haphazardly dumping it.
- b. Haphazardly dumped waste shall be formed into heap in the form of windrow and drainage shall be made for free flow of leachate into collection tank.
- c. Develop plantations along the border of the dumpsite and undertake fencing of the dump yard to prevent entry of cattle and pigs

9. Monitoring Mechanism

- a. SI/ SM in charge of particular area shall monitor the pockets under their jurisdiction. They also should take care of mBIN system and Web Based Grievance Mechanism and should follow the guide lines issued from time to time.
- b. Each worker shall be provided with pocket note book to randomly collect feedback/signatures with mobile numbers from 5 – 10 households without repetition on daily basis from each locality and the same shall be reviewed by the sanitary inspector.
- c. Commissioners/ Officers shall monitor the activities on daily basis by selecting an area through a lottery based system and inspect the solid waste activities and also interact closely with the community for collecting the feedback.
- d. Vehicle logs books shall be maintained and the number of trips made by each vehicle, distance travelled shall be noted and countersigned by the concerned authority
- e. Municipal Waste collected from different sources shall be weighed for a period of 15 days through a weigh bridge and the same per day collection shall recorded in a log book. Drain silt and constructed debris and horticulture waste shall be excluded from the weighing.
- f. Data on the charges collected and revenues from sale of compost and dry waste including the quantities shall be recorded and maintained.