
Waste is Gold
A change management campaign for transforming Gurugram

Wet Waste Segregation & Management

Submitted by ‘Making Model Gurugram Environment Team’

Wet Waste Segregation & Management - High Rises; Phase 1

Proposed Approach to Scale Implementation Zone-wise,

in 500 High–rise Societies
(BULK WASTE GENERATORS)

SWM 2016 Rules Implementation

Wet Waste Segregation & Management - Plotted Colonies, Industrial, Commercial, Institutions, Villages - Phase 2

Post Phase 1 to cover balance High Rises and all the above

Why Waste Management?

Environmental Protection	Public Health	Resource Conservation	Urban Aesthetics	Climate Change Mitigation:	Legal Compliance	Economic Benefits
prevent pollution of air, soil, and water bodies	Rise in health hazards	Efficient uses of resources	Clean City – streets, parks and public spaces	Reducing Green House Gasses	Ensures efficient waste manage ment to avoid potential fines	Creating jobs and cost saving from reduced waste disposal

With support from the BWGs and MCG's vision to make Gurugram a Clean City, MMG is a partner that will enable ground level backup to make it happen

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Section 1

- Objectives of this project
  - Phase 1 – High Rises
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- Overview of the problem
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- Beyond SWM 2016
- MMG Waste Survey April 2024
- Case Studies

Purpose and Objectives

To significantly reduce the wet waste sent to the land fill

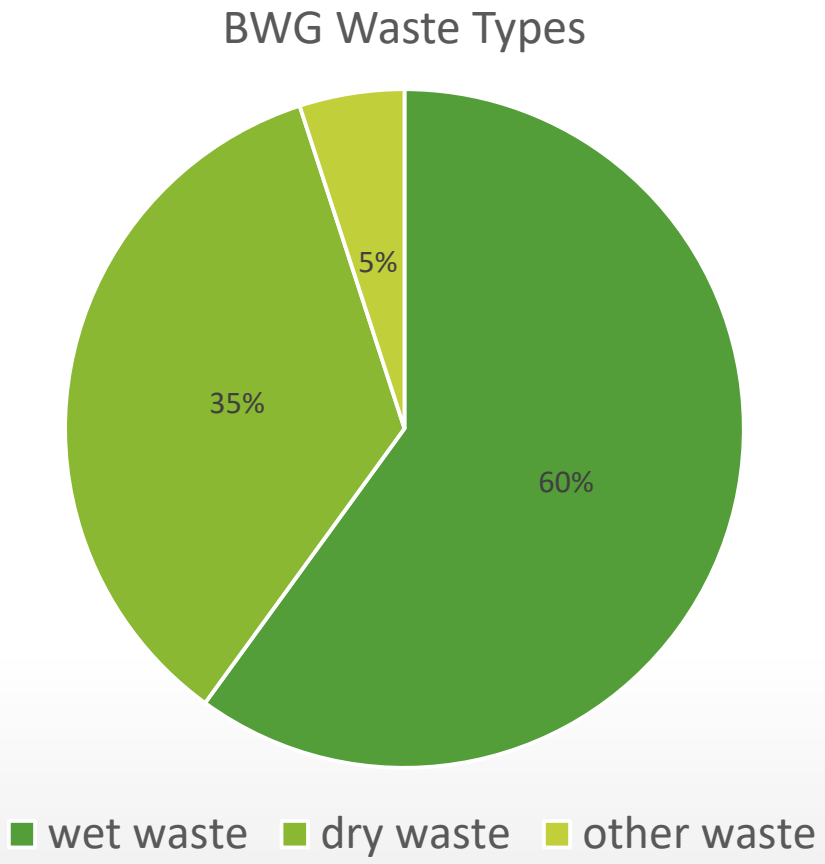
Objectives

- **Phase 1 –** Implement an efficient and comprehensive wet waste segregation and management plan tailored for 500 high-rise apartment dwellers as per the MMG model– AEAE; Awareness, Education, Action and Enforcement(Monitoring, Incentives, Penalties with support from MCG)
- **Phase 2 –** Propose to implement the same in other high rises and with different strategies in other areas viz. Plotted Colonies, Commercial Establishments, Industrial Units, Institutions and Village Pockets
- Best -in-class Zonal waste processing units on MCG land in the 4 zones (Bio CBG, composting and MRF Capacity) for further processing segregated waste for areas where insitu not possible

Solid Waste Management Rules (SWM Rules), 2016

The SWM Rules, 2016 mandates these BWGs to manage organic waste within their premises, either through composting or bio-methanation.

In Gurugram, the percentage of wet waste generated typically ranges from **50% to 60%** of the total municipal solid waste. Wet waste, also known as biodegradable waste, includes food scraps, garden clippings, and other organic materials.



Beyond SWM 2016 – a citizens initiative

- Gurugram is the only city where in the last 20 plus years large number of colonies have undertaken initiatives to segregate waste at source and planned insitu composting
  - *Came to Gurugram 20 year ago and this was already in process… Gauri Sarin*
- City of most educated people(87% literarcy rate*), a vibrant migrant mix of population with a high level of awareness and education wanting to improve life
- Waste surveys are indicative of how and why the citizens have been doing it and also views of RWAs and waste warriors in the city ready to implement and take it forward. What they need as support by MCG wrt monitoring and enforcement and the need to align with other stakeholders such as wastepreneurs and serious vendors.
- The best wastepreneurs in Gurugram are capable of providing solutions, hand holding and disseminating knowledge to any RWA today to help in practicing segregation and composting; infact colonies can do it without vendors too

* *As per census 2011*

Why is it still not a success?

SUNRISE 6.00 AM (TUE) SUNSET 5.42 PM (MON) MOONRISE 5.30 AM (MON) MOONSET 6.29 PM (MON) 50 across country of ₹3

Only 15% of city's waste sorted at source now, MCG tells NGT

Will Achieve 100% Segregation By 2025, Says Civic Body, Seeks Help From People

Vishakha.Chaman
@timesofindia.com

Gurgaon: Only 15% of the total waste generated in the city every day is segregated at source, MCG has informed the National Green Tribunal (NGT).

The civic corporation has also told the green panel it would need time till Dec next year to achieve 100% segregation at source. In an affidavit to NGT — which is hearing a case related to clearing of legacy waste at Bandhwari — the corporation said it plans

#WEMAKEGURGAON
An initiative by TOI to identify and recognise the best waste management initiatives adopted by RWAs in Gurgaon.
If you are one such RWA, scan the QR code to submit your entry.

ned to increase the segregation level to 30% this year.

MCG told the NGT that over the next few months, it planned to focus on bulk waste generators to ensure segregation at source. It said eight officials had been assigned the task of monitoring bulk generators and ensuring the waste they generate is sorted at source.

"We have informed NGT that we intend to attain complete waste segregation by the end of 2025," said municipal commissioner Narhari Singh Banger.

He sought the cooperation of residents to ensure waste was already sorted by the time it was handed to pick-up workers. "The success of this waste management plan relies heavily on the active participation of the community. Residents must take responsibility for segregating waste at home. In return, MCG will develop necessary infrastructure to efficiently collect and process the segregated waste. By working together, the residents and MCG can achieve the target of 100% waste segregation within the stipulated timeline," Banger added.

Atin Biswas, programme director (municipal solid waste) at Centre for Science and Environment, said even if trash was segregated at source, it was crucial for MCG to have the required infrastructure to collect it.

"To encourage segregation, it is essential to invest in behavioural change campaigns — similar to those implemented in Indore, Odisha, and other states and cities. Even if residents respond positively to segregation initiatives, a fleet of vehicles specifically designed for waste collection must be available. But just having these vehicles is not enough. There must be facilities to treat different waste streams — such as composting facilities, bio-methanation plants, and material recovery units. Currently Gurgaon appears to lack the necessary infrastructure to handle these waste streams effectively. There must be a sustained behavioural change campaign so that people start segregating waste. The authorities can then use bylaws to intensify segregation," he added.

The corporation has reiterated its plans to clear the legacy waste at Bandhwari by the end of this year. The civic body officials said, intends to process 12 lakh tonne of waste by reaching a daily processing capacity of 10,986 tonne. According to the affidavit, 2.5 lakh tonne of solid waste is expected to be dumped between Aug 30 and Dec this year. The landfill already has 9.6 lakh tonne of waste lying there.

"The answer to achieving waste segregation at source is capacity building. Agencies must ensure that the workforce engaged in waste handling are trained so that only segregated trash is collected and it's not mixed with other piles of garbage. Capacity building is the first and foremost step to achieving this target of segregation," said Saurav Bardhan, a resident of Sector 65.

MULTIPLE MISSED DEADLINES

Photo: Indranil Das

Sept 2022 | NGT asks Haryana to pay ₹100 cr for damage around Bandhwari

Oct 25, 2022 | NGT panel asks MCG to complete legacy waste processing by March 2023

Nov 16, 2022 | Committee decides fresh waste dumping to stop at Bandhwari from Feb 1, 2023

Dec 30, 2022 | Sept 30, 2023 deadline set for legacy waste processing

March 31, 2023 | MCG fails to stop fresh waste dumping

May 27, 2023 | Nov 30, 2023 deadline set again

Dec 18, 2023 | MCG submits action plan for clearing 23.5 tonne of trash by June, 2024

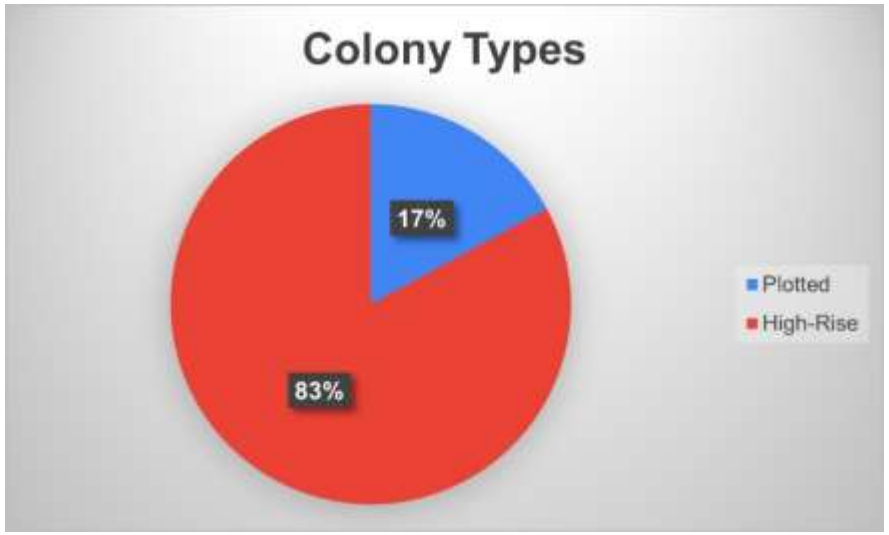
May 17, 2024 | NGT asks MCG & MCF to provide a specific date

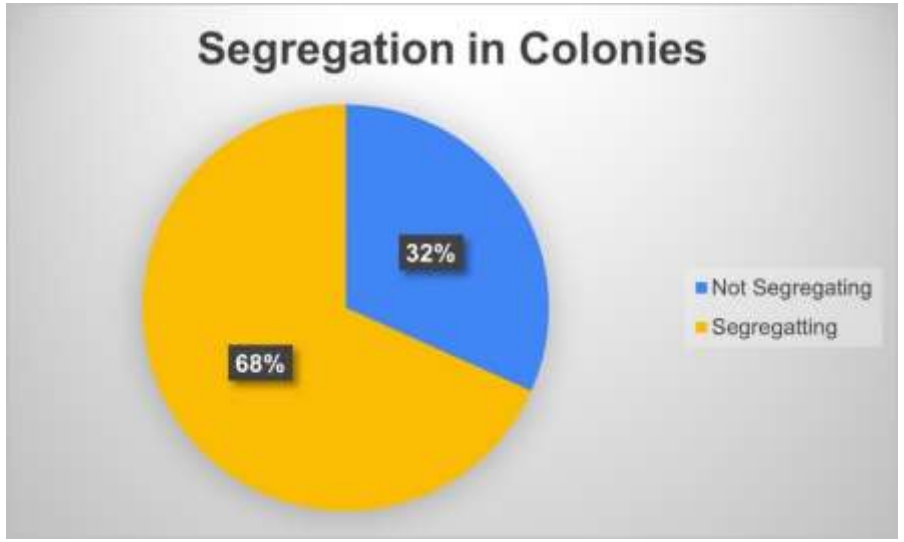
Current level of waste segregation | 15%

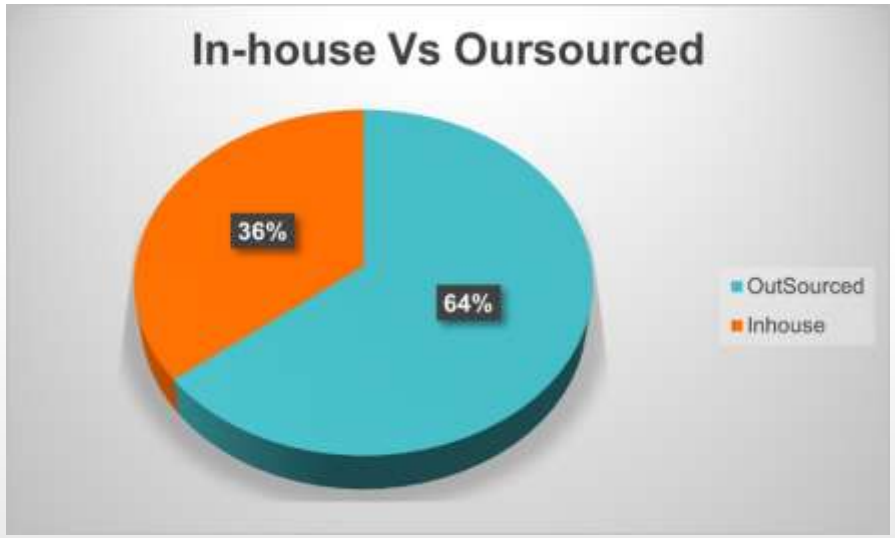
HOW MCG WILL ACHIEVE 100% SEGREGATION:	
Dec 31, 2024	30%
March 31, 2025	50%
June 30	75%
Sept 30	90%
Dec 31	100%

- Several initiatives by Government and other stake holders were taken in the last 10 years but the efforts have been inconsistent
- Genuine wastepreneurs are not feeling supported
- Vendors who use shortcuts are entering the fray and this is ruining the long term process
- Monitoring and enforcement along with sustained communication and support is the need of the hour

MMG Waste Segregation survey – March 2024





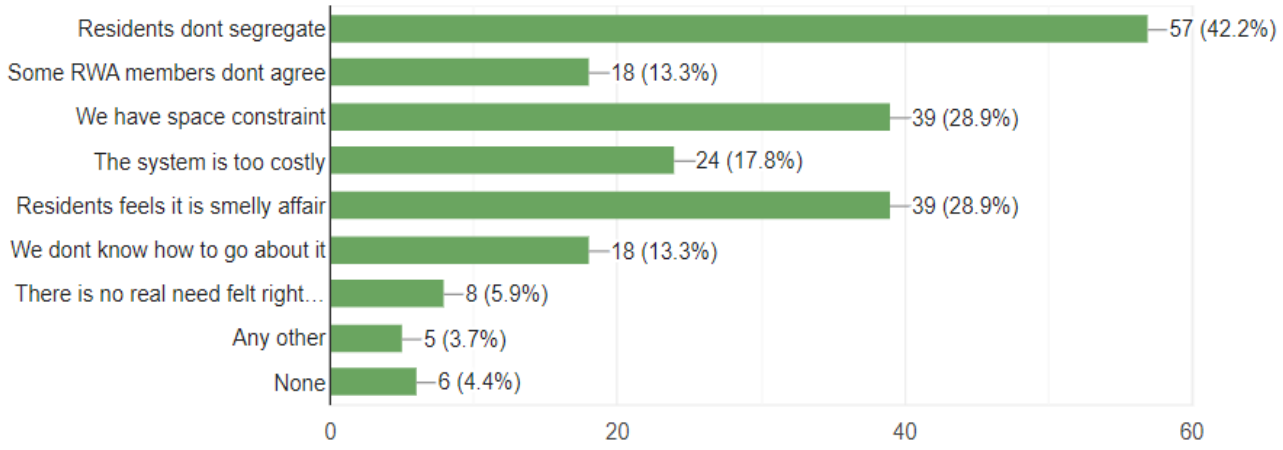


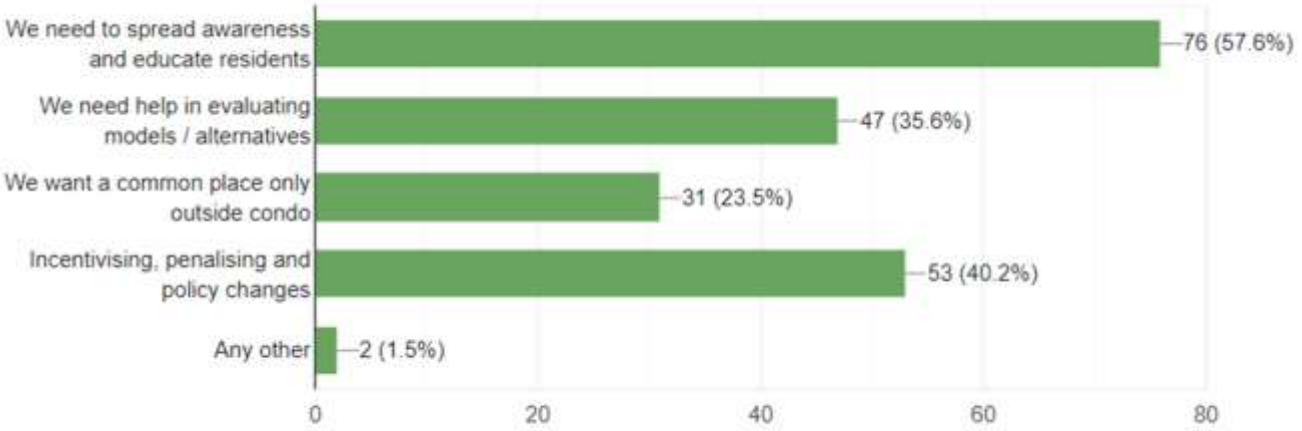
A majority of those segregating prefer to outsource the wet waste leading to

a. Adding transport miles through transport
b. Not knowing what happens to that waste
c. Pushing for more land for composting
d. Not getting access to compost
e. Getting access at a cost

Hence, Insitu composting is a more viable and eco-friendly alternative

Challenges faced by colonies





Suggestions: from the survey

- **Education and Awareness:**
  - Implementation of regular awareness programs as a crucial solution.
  - Emphasizing citizen and society responsibility in handling wet and dry waste segregation.
  - Encouraging home composting practices.
  - Promotion of reuse initiatives whenever possible.
- **Government and Funding:**
  - Utilization of SBM funds to establish bio composting plants in a Public-Private Partnership (PPP) model.
  - Establishment of efficient recycling programs for paper, plastic, glass, and metals.
  - Revision of garbage collection fees to allocate funds for infrastructure for segregation and composting.

Suggestions: from the survey

- **Technology Support:**
  - Establishment of large-scale compost plants in every sector to reduce waste flow to landfill areas.
  - Introduction of Leakage Detection Systems to prevent material leaks during storage.
  - Implementing a separate mechanism for the collection and disposal of hazardous waste
- **Implementation Support**
  - Mandating on-site composting.
  - Strict implementation of existing rules and penalties for non-compliance.
  - Granting Resident Welfare Associations (RWAs) authority to report offenders, with Municipal Corporation of Gurugram (MCG) taking necessary actions.
  - Facilitating the segregation and disposal of plastic waste and e-waste through separate vendors.
  - Addressing waste management violations in commercial spaces through streamlined processes and enforcement.

Vendors used by Surveyed Colonies in the City

- Impression Services
- Eco Green
- E Swatch
- Go Green
- Maxx Change
- Gurugram Waste Management Services
- Aerobin Technology
- AARVEE Ventures
- Greenbandhu
- Green Hands
- Balancing Bits
- Enviro – common waste plant
- Bintix
- Productivity India Foundation
- Outsourced , In-house, Not aware

We do not need empanelled vendors, we need evaluated Vendors especially those supporting insitu composting.
Vendor evaluation should be as per a criterion fixed by MCG - MMG

Cleanest Cities Best Practices on Waste Management – Case Study Indore

- Indore, India has become a model for sustainable waste management practices. Here are some of the best practices that Indore uses:
- Source segregation: Waste is segregated at the source into six categories.
- Door-to-door collection: Waste is collected from households using partitioned vehicles with separate bins for wet, dry, and hazardous waste. The vehicles are tracked by GPS and monitored by a cell, which penalizes drivers who deviate from their routes.
- Waste processing and disposal: The city has partnered with private entities to build waste processing plants and other facilities.
- Public awareness and participation: The city uses local NGOs to help change citizen behavior and builds a sense of ownership in the project.
- Strict monitoring and enforcement: Citizens comply when enforcement is strict.
- Revenue generation: The city sells compost and other waste by-products to help offset the costs of waste management.

OUR INNOVATION

A Hybrid Model Door – to – Door Collection of Segregated Waste and

City Level Processing of Organic Waste to Energy

Processing Capacity: up to 50 – 250 TPD

Smart Mobile Waste Processing Service

Decentralised Organic Waste Collection and Processing Service for Bulk Waste Generators and Transportation to Compressed Biogas Plant

Compressed Biogas Plant

Segregated Organic Waste to Fuel (Bio-CNG)

Revenue Streams

4-folds multi-stream

- SMWP Service Subscription
- Bio-CNG Sales
- Compost Sales
- Carbon Credits

POTENTIAL CITIES

Bhopal, Gandhinagar, Vadodara, Jammu, Srinagar, Agra, Pune, Warangal, Coimbatore

Subscription based service
Pay only for the quantity of waste produced

Cater multiple clients spread across the entire city

Cleanest Cities Best Practices on Waste Management – Case Study Vijayawada overview of their waste management model

Vijayawada has implemented several effective waste management practices that have made it one of India's cleanest cities. Key strategies include:

- **Source Segregation:** Waste is segregated at the source into wet and dry categories, facilitated by public awareness campaigns.
- **Door-to-Door Collection:** Daily door-to-door collection services ensure waste is picked up and properly disposed of, supported by GPS-enabled vehicles for route optimization.
- **Recycling and Composting:** The city has established recycling centers and composting units to process dry and wet waste, respectively, promoting recycling and sustainable agriculture.
- **Waste-to-Energy Projects:** Vijayawada has invested in biogas plants and waste-to-energy facilities that convert waste into renewable energy, reducing landfill use.
- **Public Participation:** The city encourages community involvement and offers incentives for proper waste management practices, fostering a collective effort towards cleanliness.
- **Smart Technology and Enforcement:** The use of smart bins, mobile apps for reporting issues, and strict enforcement with fines for non-compliance help maintain the city's cleanliness.

These integrated waste management practices contribute significantly to Vijayawada's reputation as a clean and sustainable city.

Cleanest Cities Best Practices on Waste Management
Case Study Chennai - overview of their waste management model

- Segregation at Source:
  - The GCC emphasizes waste segregation at the household level.
  - Residents are encouraged to separate waste into biodegradable, non-biodegradable, and domestic hazardous waste.
- Door-to-Door Collection:
  - The corporation has implemented a system of door-to-door waste collection.
  - This ensures that waste is collected regularly and efficiently from households.
- Composting:
  - Biodegradable waste is often processed through composting.
  - The city has set up decentralized composting units in various locations.
- Recycling Initiatives:
  - Non-biodegradable waste is sent for recycling where possible.
  - The city has partnered with various recycling units and NGOs to manage recyclable waste.
- Waste-to-Energy Plants:
  - Chennai has explored the use of waste-to-energy plants to convert non-recyclable waste into electricity.
- Plastic Ban:
  - The city has implemented a ban on single-use plastics to reduce plastic waste.
- Public Awareness Campaigns:
  - Regular campaigns are conducted to educate citizens about proper waste management practices.
- Smart Bin System:
  - In some areas, smart bins with sensors have been installed to optimize waste collection routes.
- Collaboration with NGOs and Private Sector:
  - The GCC often collaborates with NGOs and private companies to improve waste management efficiency.

It's worth noting that while Chennai has made significant strides in waste management, like many large cities, it still faces challenges in fully implementing and maintaining these systems across the entire metropolitan area.

Cleanest Cities Best Practices on Waste Management
Case Study Kerala - overview of their waste management model

The Kerala government has implemented several initiatives to improve waste management, including:

Clean Kerala Mission

- This initiative aims to create a zero-waste state by segregating waste at the source and treating it using sustainable methods.

Plastic waste management

- The government has banned single-use plastic bags and promoted the use of eco-friendly alternatives.

Waste management at the source

- The state planning board encourages local governments to manage waste at the source, which reduces the need for a centralized system.

Thiruvananthapuram model

- This city has implemented a number of initiatives to improve waste management, including a waste disposal calendar app, Thumboormuzhy bins, and material recovery centers.

Kerala Solid Waste Management Project (KSWMP)

- This project aims to strengthen the waste management system by improving institutional capacity and adding a toll-free number for complaints. The project also aims to improve the response mechanism for complaints related to the environment, labor, and gender-based violence.

Best Practices on Waste Management Case Study Goa - overview of their waste management model

From garbage to electricity: Goa reaches new waste management milestone

State-of-the-art facility at Cacora adopts an integrated approach to tackle South Goa's waste challenges

- The Goa Waste Management Corporation (GWMC) has reached a significant milestone with the establishment of a 100 tonnes per day (TPD) Integrated Solid Waste Management Plant in Cacora, South Goa.
- The facility is designed to manage municipal solid waste from both municipalities and panchayats in the region.
- The facility adheres to the Solid Waste Management Rules, 2016 and employs a comprehensive approach, including recycling and sorting lines, segregation, biomethanation and composting

At decentralised zonal level this is the model we are proposing over and above insitu composting

What we plan to achieve with support from MCG and RWAs for Gurugram

By 2026 end we can make this the cleanest city

- with 100% waste segregation
- 60-70% insitu and the remaining
- thru Zonal decentralised processing units
- **No Waste to Energy (WTE) plants**

Section 2

- Current scenario in Gurugram
- Waste Survey, Findings, Suggestions
- MCG and MMG Together

From High Rises to Landfill – Let's send no more

Wet waste comprises 50%-60% of the total household waste

The Math of Wet Waste

0.5Kg x 30 days=15Kg/month/house
15Kg x300 houses=4500 Kg/month
4500Kg x 12 months=54000 Kg/year (34.56 tons CO2 saving)
20 High –rises=10,80,000 Kg/year (691 tons CO2 saving)

Approx 1080 tonnes per annum for 20 high rises

The net CO_2 emissions from food scraps processed at a well-run composting facility would be 0.48 tons CO_2 savings for each ton diverted.

Annually sent to landfill if we fail to compost

54 Tonnes by ONE SINGLE high rise per annum!!

27,000 Tonnes by 500 high rises (with average of 300 apts) per annum!!

Results

Leachate

Fires

Methane

CO2

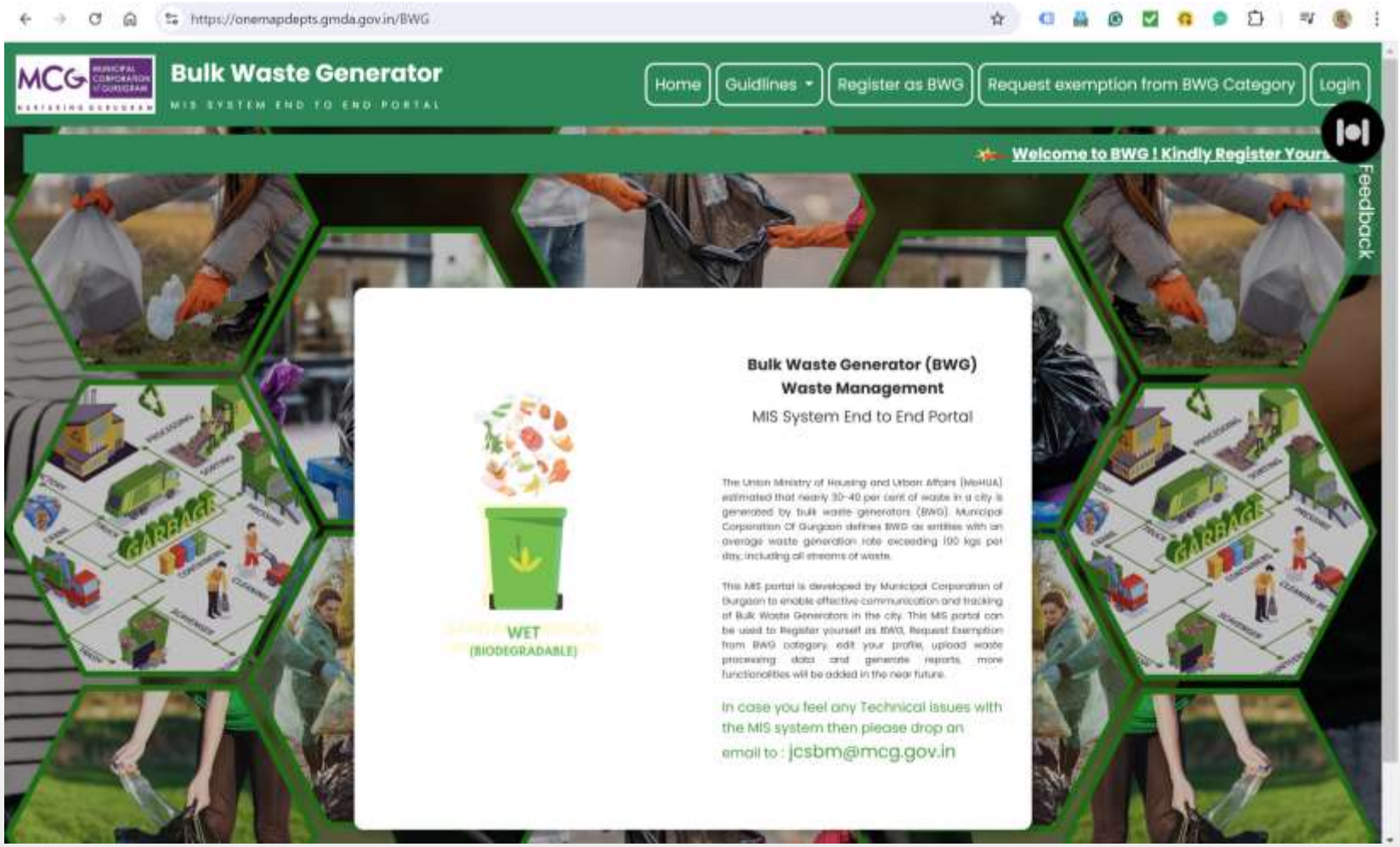
Dioxins

POLLUTION

Ground level situation

- Bandhwari landfill - daily / annual –
  - 1600 tonnes per day to about 3000 tonnes per day now
- Methane / leachate / fires / pollution
  - the decomposition of biodegradable waste plays a pivotal role, as the breakdown of organic matter releases heat, consequently raising temperatures within the dumpsite causing fires
  - Puddles of leachate flowing through the adjacent area and reaching the water table
  - Long-term issues of greenhouse gas emissions
  - Surface water and groundwater pollution
- Legacy waste / biomining /
  - Biomining option for taking care of legacy waste is still a process that needs to be undertaken

Government Actions – Some Positive



1. Fines by NGT
2. Bye laws newly made as per SWM 2016
3. BWG portal - good step
4. Communication strategy – mixed and non - aligned

Government Inactions

CONTRARY TO CLEANUP FIRM'S CLAIMS, TWO CEMENT COMPANIES SAY NO RDF RECEIVED BY THEM, MCG PROBE FINDS

Where did fuel go? At Bandhwari, a fresh question

13L MT OF LEGACY WASTE LYING AT BANDHWARI

WHAT IS RDF?

HOW IS IT MADE?

What norms say on RDF disposal

Dec 31 deadline to clear all waste at landfill

16.3 lakh MT

12.8 lakh MT

MCG OFFICIAL SAYS...

We received confirmation from some companies that they have neither received any RDF nor issued any certificates to the firm. So, we have withheld part of the payment since we received directions that the entire funds will be released only after verification of RDF disposal

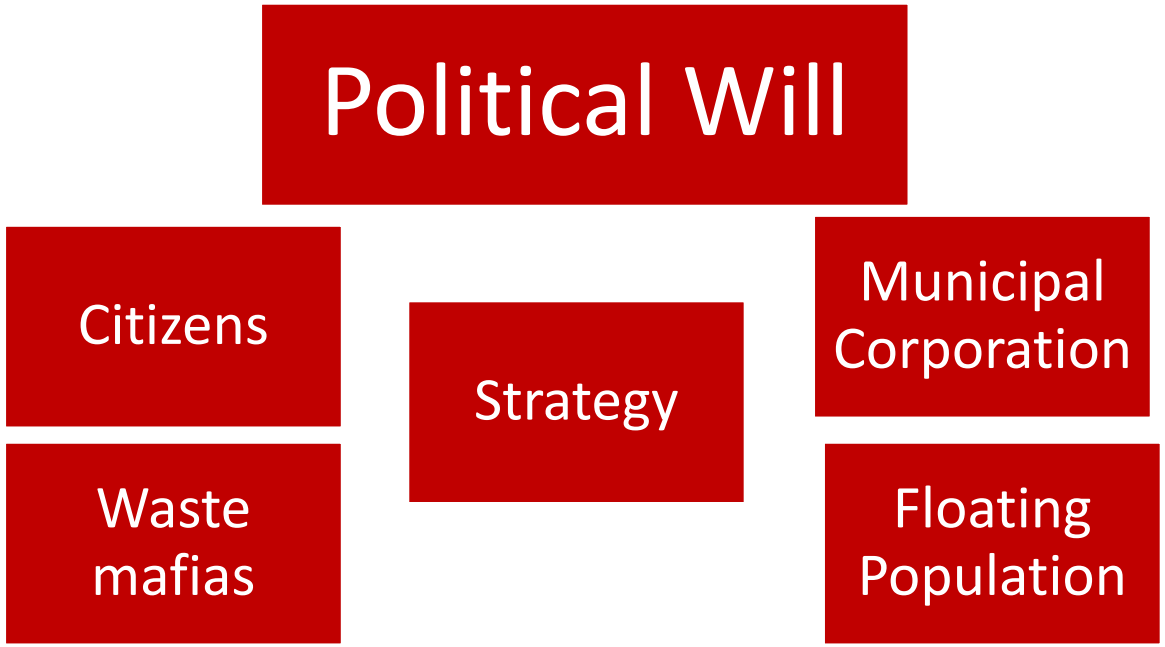
Waste still going to Bandhwari major non-compliance: CPCB

MCG Must Take Immediate Steps To Boost Processing, It Tells NGT

Around 2,200 tonnes of waste is dumped daily at the landfill

1. Challenges of WTE, new WTE
    1. Understanding the reasons for the failure and what can be done differently
2. Breakdown of system after Ecogreen
3. 23 Transfer stations - attempt for 2-3 Waste Units
    1. Only 3 transfer stations were set up
4. Ward composting
5. Penalties inconsistent

Challenges of waste management in Gurugram can be attributed to



Need of the Hour

Motivated Citizens ;
Responsible Ground Force;
Documented monitoring

What we have

1. Motivated Citizens and citizen groups
2. Available successful Waste to compost models
3. Best Wastepreneus

What we need

1. To strengthen sustainable institutionalised system supported by the government
2. Non conflicting , consistent messaging over time
3. Monitoring and Enforcement

What we are putting in place is what we need

MCG and MMG Together

MCG Role:

- **Support for Initiatives:** includes regulatory backing, and infrastructure needed to manage waste effectively(specially the zonal plan)
- **Implementation of Programs:** MCG is responsible for the implementation of waste management programs in collaboration with MMG, ensuring that guidelines are followed, and goals are met.
- **Incentive and Penalty Programs:** MCG can establish incentive programs to reward compliance and implement penalties for non-compliance to encourage proper waste management practices among residents.

MMG Role: facilitating Waste Segregation at your doorstep

- **Community Mobilization:** RWAs in High Rises, Institutions – schools, Commercial Complexes, Industrial Units
- **Engagement and Education:** MMG will engage with RWAs (Resident Welfare Associations), and other stakeholders to educate them about the importance of waste segregation and management practices.
- **Awareness Campaigns:** conduct awareness campaigns to inform and educate the public about waste segregation, composting, and the environmental benefits of reducing waste.
- **Coordination with MCG:** to ensure smooth execution of waste management plans, providing feedback and support to enhance the effectiveness of these programs.
- **Monitoring and Reporting:** MMG is responsible for monitoring the progress of waste management initiatives and reporting back to MCG to ensure transparency and accountability.

Role of Civil Society and Activists

- Reduce, reuse, and recycle
  - Citizens can reduce food waste, avoid products that harm the environment, and recycle.
- improper waste disposal in urban areas can only be handled with the contribution and attention of citizens.

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Section 3

- Solution for Gurugram – SWOT based
- Current Waste Management Challenges
- Case Studies – High Rises Success Stories
- 7 Steps of Roll Out in High Rises
- Proposed 4-Step Approach for In-situ Composting of Wet Waste

Solution for Gurugram – SWOT based

- **High rises - all those with min space to process must go for insitu - many pluses - 75 percent can adopt this model**
- Plotted with space and MCG support- insitu
- High rises and plotted - lacking space and support - Zonal processing
- Institutions - with space and support- insitu otherwise Zonal
- Markets - Zonal
- Villages - Zonal (few can do insitu especially those with farms and goshala)

https://www.youtube.com/watch?v=LCuULPnVhy8&feature=share

Current Waste Management Challenges - High Rises

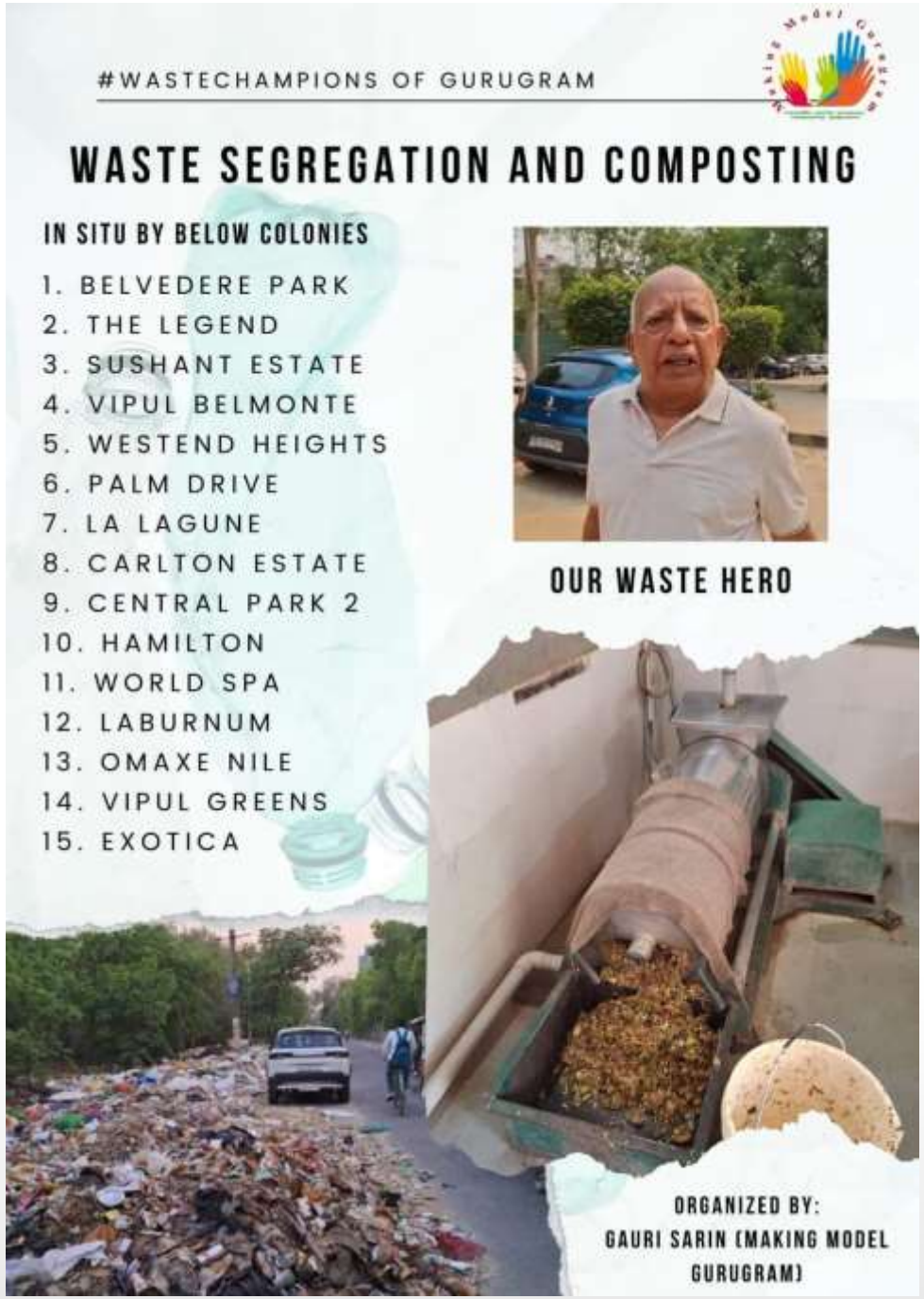
- The challenges faced by RWAs are generally
  - space constraints,
  - lack of technical and operational understanding,
  - non-cooperation of residents for source segregation
  - and in some case, shortage of funds.

But what we have with us are some RWAs who have been pioneers in managing this challenge

"Where there is a will there is a way"

#wastechampionsof gurugram

https://www.youtube.com/watch?v=LCuULPnVhy8&feature=share



Role of MCG – for RWA engagement

- Provide support in demarcating zones
- Provide funds for creating and delivering communication around the city
- Providing incentives to the RWAs
- Providing a platform for Rewards and Recognition
- Creating a system of monitoring and fines if applicable

Why Should Every Citizen Care About Wet Waste Segregation & Composting?

For a Healthier You

For a sustainable Future for your kids

For a new way of living

For your role as a Citizen in building a community for the future

Insitu vs Sending segregated waste to the landfill or out of your complex

- **Why Insitu**
  - Transport carbon miles are reduced significantly
  - Benefit from using your own compost
- **And Why Not to send segregated wet waste out of the complex to a composter; if there is a choice**
  - Land required to work on compost from many places is a burden for the composter
  - Direct benefit does not come to you, and you end up generating more carbon miles if you try and get your own compost also back

Only condition to send out is if there is no possibility of finding a 600-700 sq feet area in your colony in any corner. In that case it will be useful to send it to a waste processing unit that is professionally run by an accredited vendor

7 Steps of Roll Out Plan – October 2024– April 2025

STEP 1 identification of Colonies – segregation but out sourced/ segregation not done

STEP 2 Pilot event with 20; improve the process

STEP 3 Main event with 100 colonies and felicitation of Waste Champions

STEP 4 Identify waste warriors / To identify training partners; establish help desk ; mentoring role of waste champions thru MMG Coordinator

STEP 5 Weekly schedule of awareness cum education for all colonies with training material for 3 months

STEP 6 4 week roll out in 100 colonies over 4 months – implementation support over 2 months; Plus monitoring and enforcement

STEP 7 Measurement of Impact and Review

Followed by the 2nd Phase Roll Out in May 2025

MMG Model for Waste Management Process

Requirements for Waste Champions Meet of 100 RWAs - phase 1 ; Launch Event

- Pilot - 20 RWAs
- Day – Saturday
- Identification of 20 RWAs (min 2 members plus Estate mgmr from each plus any Waste Warrior
- Email from MCG with follow up calls by MMG
- Venue - MCG office
- Duration - 2.5 hours - 10 am to 12.30 or 3 pm to 5.30 pm

- Sequence during Event :
  - Opening by MCG and MMG
  - Nukkad Natak
  - Presentation - MMG
  - Video presentation - Waste champions - 2 will present for 10 mins
  - Rollout plan in colonies
  - QnA Scheduling
  - Nominate Waste warriors process

Follow up : Take initial inputs and plug into next meet and continue with 20 RWAs for next Saturday / Sunday.. 4 sessions with 20 each - same format

All costs to be borne by MCG

Roll–out of Zone Wise Plan for Gurugram High-rises – STEP 1 –AWARENESS

- Invite RWAs of 20 high- rise colonies for MCG-MMG Meet - this would be an ongoing exercise till all are covered
- We can also consider starting at 100 colonies over 5 days workshops
- Agenda:-
  - To discuss Why's and How's of SWM 2016 (inc Responsibility of BWGs) - Awareness, Education, Action, Enforcement
  - Showcase Methods and models of in- situ composting of 5 Waste Champions
  - Each RWA to nominate 3-5 Waste Warriors(WW) plus 1 RWA Member from their Colony, to form an Implementation Team
  - Share Communication Strategy for Residents
  - Timeline to identify WW and Workshops schedule will be about 2 weeks (letter from MCG to that effect)

Roll–out of Zone wise Plan for Gurugram High-rises - STEP 1- Awareness

- MMG- Waste Initiative to form Teams in each Colony (our zonal team plus colony team)
- Train the Trainer of the colony
- Communication rollout in the colony through all channels
- Invite the key stakeholders in 1st meet - children, adults
- Plan for Meet- This will include
  - Partner for training & DTD awareness
  - Awareness module, children's activity, plan for roll out with suggestions
- Next 3 weeks plan to include training of maids, housekeeping/ horticulture staff

Roll–out of Zone wise Plan for Gurugram High-rises – STEP 2- EDUCATION ..how do we do it with the models

What we need to set up an Insitu Process

- **Location – Not in Basements**
- **Shed and Pits Exhaust system**
- **Segregation Table**
- **Food Crusher/ de watering**
- **Shredder**
- **Manpower – inhouse or outsourced**
- **Or Aerobins/Gaia – 50,000 per piece**

Space and approximate cost
For a 750 unit apartment complex - 1200 sq ft area
Cost approx. Rs 10- 12 lakhs
For a 300 unit apartment complex – 600-750 sq ft area
Cost approx. Rs 5-6 lakhs

Wet waste in bags

Wet waste further sorted

Waste and water added to crusher

Crushed waste put in vats for drying

lime and dry leaves added

After 60-90 days compost ready

In-situ Process model

Roll–out of Zone wise Plan for Gurugram High-rises -STEP 2- EDUCATION ..how do we do it with the models

- **Education about wet waste models**
  - **4-5 videos with different waste treatment models**
  - **Model 1 waste plant - with vendor**
  - **Model 2 – in house entirely**
  - **Model 3 - vendor pick up (sub- optimal model)**
  - **Model 4- Aerobins/ Gaya in-house – (50,000 per piece)**
  - **Model 5- Composter sans heating**
  - **Model 6 – Rental model of food crusher/dewatering**

5 way segregation process as per the bylaws enabling reduction of waste going to landfill

Wet waste
Recyclable plastic
Dry waste
Medical
E waste

Roll–out of Zone wise Plan for Gurugram High-rises - STEP 3 : ACTION (Implementation)

- Waste warriors
- Identify space
- Access to water / electricity
- Purchases - machines, Bins for segregated Waste, Secondary segregation table, Shredder, pits/compost bins, shed, exhaust fans
- Vendor (if required) / Manpower
- Costing – approximately total does not exceed Rs 5-6 lakhs

AWARENESS AND EDUCATION

Launch a recruitment drive to identify enthusiastic individuals who are passionate about sustainability.

Organize trainings to equip Waste Warriors with knowledge and skills related to Wet waste segregation, composting etc

TRAINING

Engage Training Partners

Create training Material for dissemination to all the trainers.

Training session for trainers

Selection and recruitment of volunteers for becoming Waste Warriors

COMMUNICATION

3 pronged communication promotion for the drive

MCG – through their communication channels

MMG With communication partners

RWAs through their digital and offline routes

Promotion and Communication - Plan

3 pronged promotion for the drive

- MCG – through their Outdoor sites using Bill Boards etc
  - MCG Social Media
  - Through main stream media
- MMG – through partners
  - Through social media outlets
  - By engaging Vloggers
  - Through PR activity
  - Events
  - Website / Application
- RWA – through their digital/ physical notice boards
  - Thru members driven digital platforms such as mygate/Whatsapp groups/ Email groups etc

Website/Application

- Concept – Create a platform for RWA waste warriors to learn from and share best practices
- Structure (Site Map)of the website/ Application
  - About the movement;
  - Registration Page for RWAs – enrollment for joining/ follow ups/ sharing experiences etc
  - Knowledge Centre – Training Videos, Downloads- Communication Kit, Appraisal and Monitoring Kit
  - Visual Updates – Citizens corner
  - Success stories

Roll–out of Zone wise Plan for Gurugram High-rises - STEP 4: ENFORCEMENT

- Types of penalties - RWA and MCG
- Time for habit change (segregation of Waste & NO Bin liners) - 6 weeks from week 4 of roll out
- From 9th week NO pick up of unsegregated waste
- By Month 4- Waste plant to be set up ;Vendor to pick up wet waste in interim
- Fine of Rs 250/ day for defaulters after waste plant is operational
- Month 5- Monthly penalty of Rs 25000/- if no composting plant is in place

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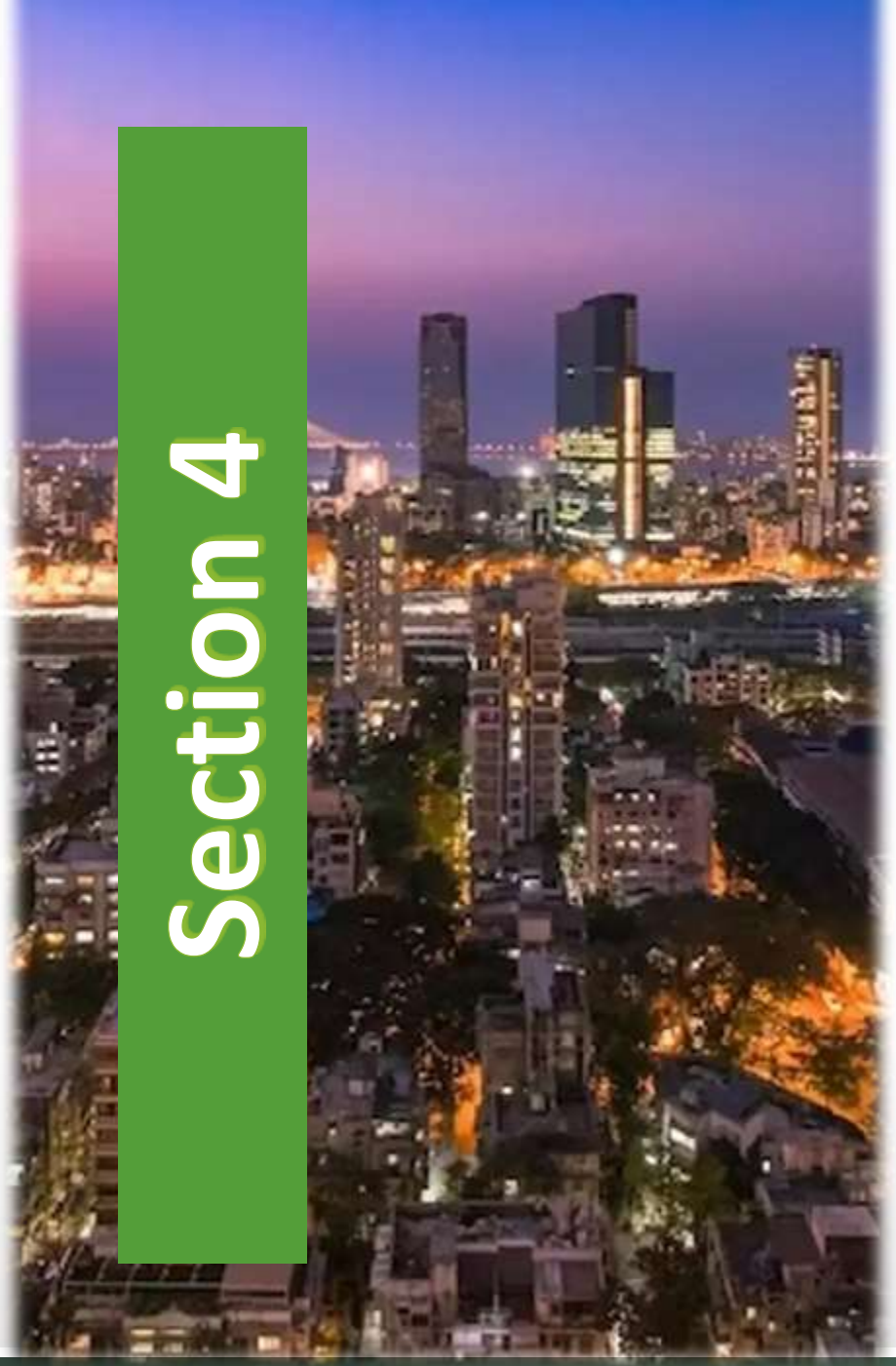


Section 4

- Institutionalisation and continuity
- Budgets
- Teams Required
- Roll Out of Launch Event
- Enhancing the power of the Citizenry

Why some cities are not able to sustain the mission

For any movement to be a success the processes need to be institutionalised

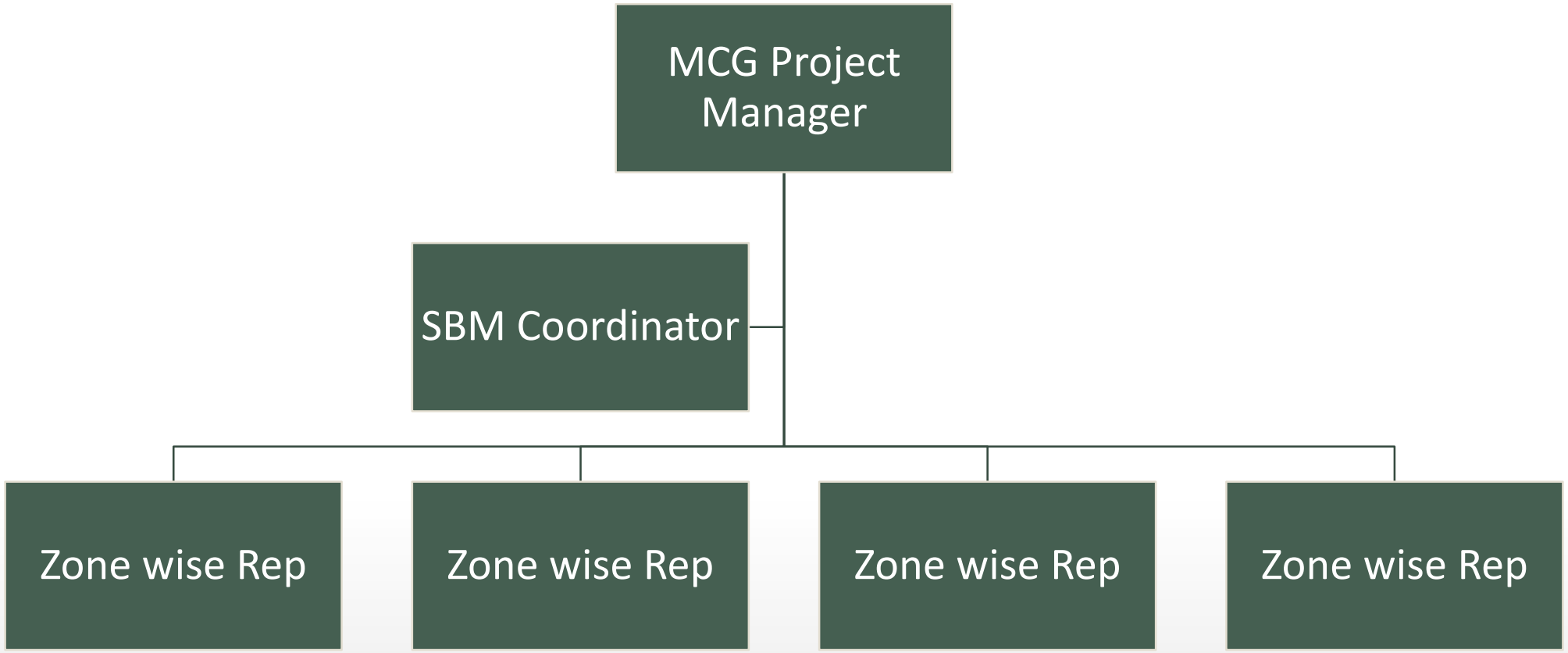
CLEAN CITY MISSION TAKES A BEATING

- The civic body has failed to maintain toilets properly
- Water system is dysfunctional in many of the public toilets
- Composting units arranged at Rythu Bazaars have become non-functional
- Vendors are dumping vegetable waste in canal bunds and discarded bins
- Waste gets piled up at Ajith Singh Nagar transfer station
- City bagged all-India third rank in Swachh Survekshan - 2021

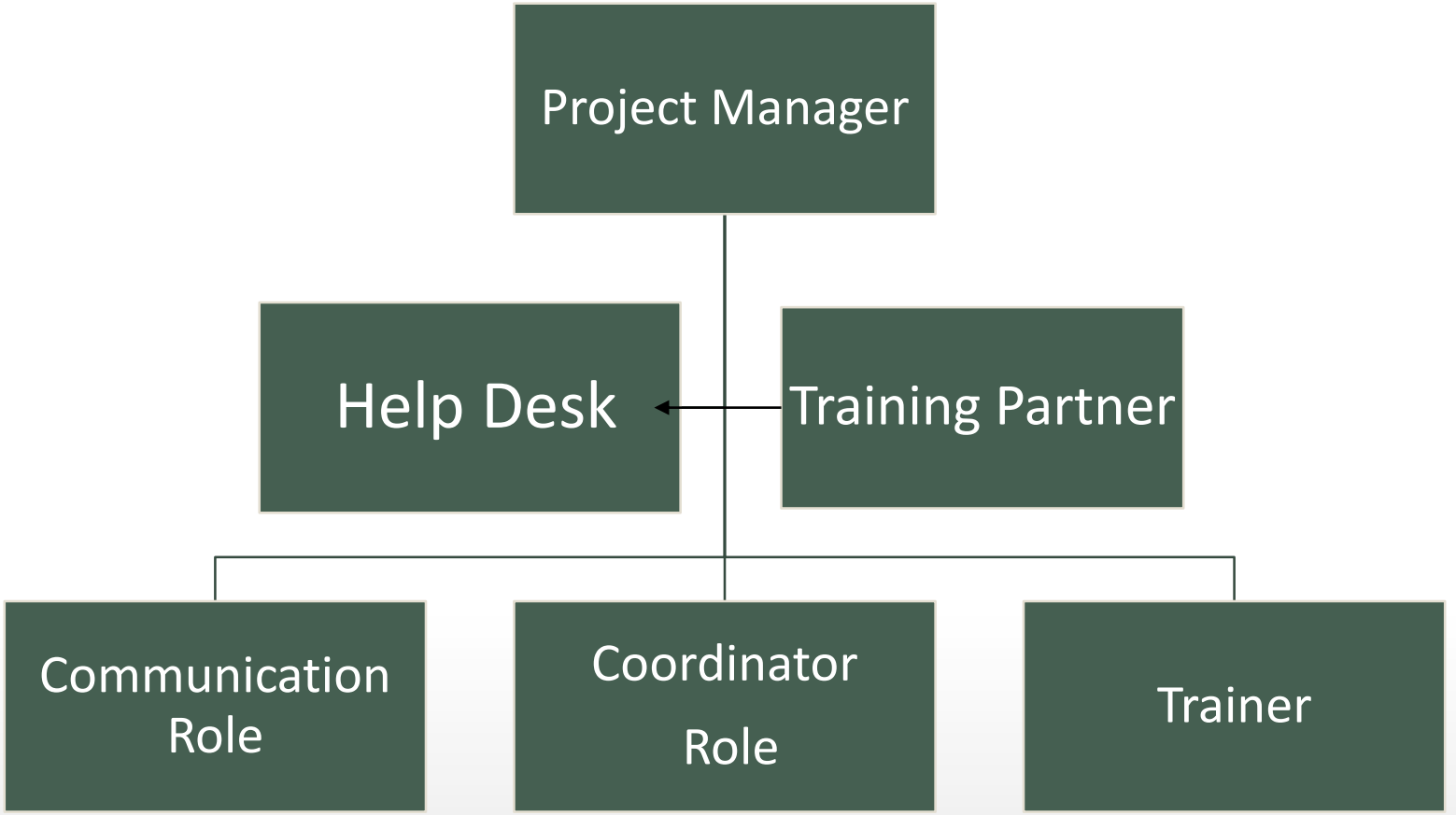
Need for Institutionalizing the process

- MOU for atleast 5 years
- Any new system should be integrated
- Communication should be aligned
- Enforcements should be standardised
- Rewards and recognition to be aligned
- Training has to be consistent

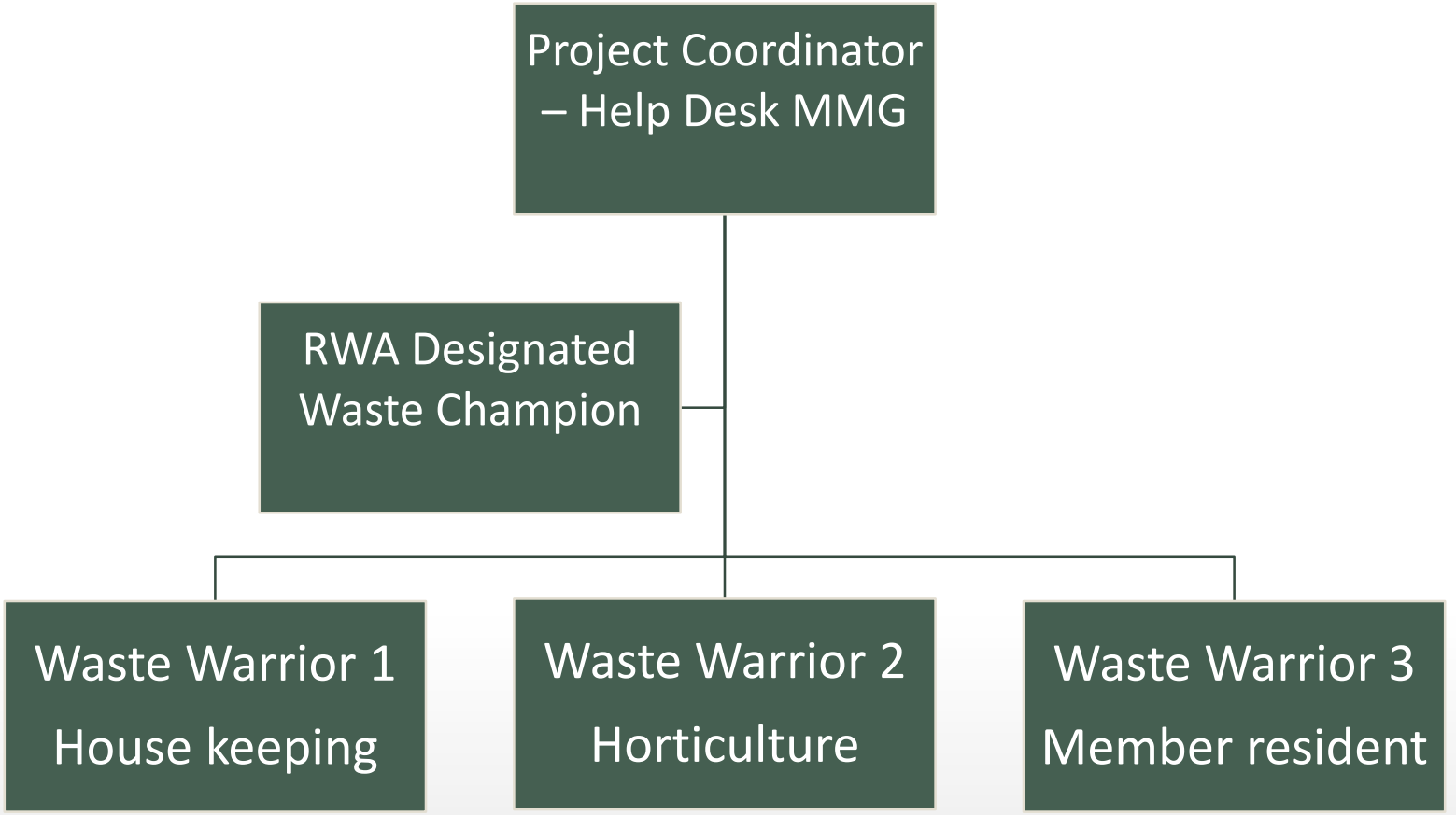
MCG Team Roles and Responsibilities



MMG Team Roles and Responsibilities



RWA Team Roles and Responsibilities



Standard Operating Procedures (SOPs) for MCG – Incentive Programs for Compliance

- **Objective:** Encourage adherence to waste management protocols through positive reinforcement.
- **Procedure:**
  - Design a tiered incentive system that rewards individuals and groups for compliance with waste management practices.
  - Incentives can include recognition awards, monetary rewards, or additional resources for communities demonstrating high compliance.
  - Establish criteria for eligibility and performance measurement to ensure transparency and fairness in the incentive program.
  - Communicate the details of the incentive program to all stakeholders to encourage participation.
  - Review the effectiveness of the incentive program annually and make adjustments based on feedback and results.

Standard Operating Procedures (SOPs) for MCG – Penalties for Non-Compliance

- **Objective:** Ensure compliance with waste management protocols through the enforcement of penalties.
- **Procedure:**
  - Develop a clear policy outlining penalties for non-compliance with waste management guidelines.
  - Penalties may include fines, mandatory training sessions, or temporary suspension of services.
  - Establish a process for identifying and documenting non-compliance, including the collection of evidence and witness statements if necessary.
  - Communicate the penalties and the process for enforcement to all stakeholders to ensure understanding and adherence.
  - Conduct regular audits to identify cases of non-compliance and apply penalties as outlined in the policy.
  - Review the penalty policy annually to ensure it remains fair, effective, and aligned with overall program goals.

Tentative Cost Heads

- Outreach Cost –
  - Design and development
  - Media print – for 6 months minimum
  - Media digital
  - Outdoor – Bill boards
  - Flyers
- Training
  - Content Development
  - Content dissemination
  - Training the trainers

- Help Desk
  - Training
  - Staff Cost
  - Miscellaneous
  - Website/app for RWA
- Events
  - Launch
  - Rewards and Recognition
- Volunteers
  - Stipend
  - Certification

Teams required during the project Phase 1

- Team MMG
  - Project Coordinators - 2
  - Help Desk – 3 per zone for 5 zones
- Creative/Digital Agency
  - Creative agency
  - Social Media
  - Outdoors
- Training Partners
- Vendor Partners – for setting up insitu process
- Media Partners
- PR Agency

Project Schedule and Milestones

		M1				M2				M3				M4			
	Activities | Month	**W1**	**W2**	**W3**	**W4**	**W5**	**W6**	**W7**	**W8**	**W9**	**W10**	**W11**	**W12**	**W13**	**W14**	**W15**	**W16**
Step 1	**Awareness**																
1.1	Discuss Why's and How's of SWM 2016																
1.2	Showcase Methods and models of in-situ composting																
1.3	Identification of waste warriors																
1.4	Identify Training partners																
1.5	Identify Communication Partners																
1.6	Create Comunication Kit																
Step 2	**Education**																
2.1	**Launch Event**																
2.2	Communication roll out in the colonies																
2.3	Training of trainers: Waste Warrior from each RWA																
2.4	Training Househelp, Housekeeping, Horticulture staff from each RWA																
2.5	Educating on Wet waste model																
2.6	Ongoing Engagement																
Step 3	**Action/Implementation**																
3.1	Identification of infrastructure: space, electricity,water																
3.2	Identification of vendor																
3.3	User fee collection																
Step 4	**Enforcement**																

Workshops and Awareness Sessions

Introducing 1.5-Hour modules in colonies scheduled throughout the week in collaboration with the Resident Welfare Association (RWA) and to be coordinated by Waste Warriors of the society

Proposed Agenda:

Section	Duration	Description
Introduction and Welcome	10 minutes	Welcome Address and Introduction of Speakers. Brief Overview of the Importance of Waste Management.
Understanding Waste Segregation *Special segment for house help included*	15 minutes	Definition and Significance of Waste Segregation. Types of Waste: Wet, Dry, and Hazardous. Practical activity to segregate for everyone included Stickers to be distributed post session to put on dustbins
Benefits and Basics of Composting	20 minutes	Introduction to Composting: What is it and Why it Matters. Environmental Benefits of Composting.
Options for Composting	15 minutes	Demonstration of Various Composting Options: Home Composting, Community Composting, Commercial Services.
Interactive Session: Choosing the Right Composting Method	20 minutes	Q&A Session: Addressing Participants' Queries and Concerns about Composting.
Practical Demonstration	20 minutes	Live Demonstration of Setting Up a Composting System. Tips for Maintaining and Troubleshooting.
Promoting Community Engagement	10 minutes	Importance of Community Participation in Waste Management Initiatives. Success Stories Highlighted. Showcase Videos from other colonies.
Pledge to Sustainable Waste Management	10 minutes	Participants Pledge to Adopt Waste Segregation and Composting Practices – Take a picture together with their pledges that will be printed and posted on each tower's notice board.
Fun Activity for Kids	15 minutes	Interactive Game or Craft Activity Teaching Kids about Recycling or Composting.
Conclusion and Call to Action	10 minutes	Summary of Key Learnings. Call to Action: Encouraging Participants to Commit to Waste Segregation.
Networking and Refreshments (Optional)	20 minutes	Informal Networking Session for Participants. Refreshments Served, Providing Opportunities for Discussion.

Enhancing the power of the Citizenry

- Ambassadors for Wet Waste Segregation and Composting:
  - Empower WW to serve as Ambassadors for Wet waste segregation and composting in their respective complexes
- Workshops and Awareness Sessions:
  - Collaborate with WW to organize workshops and awareness sessions within high-rise complexes.
  - Utilize various formats such as in-person sessions, webinars, and video tutorials to educate residents about the importance and process of Wet waste segregation and in-situ composting

Enhancing the power of the Citizenry..contd

- Social Media Campaign:
  - Encourage WW to record videos showcasing model condominiums where wet waste segregation and composting practices have been successfully implemented.
  - Launch a social media campaign featuring these videos, highlighting the achievements of WW and promoting sustainable waste management practices.
- Support and Resources:
  - Provide ongoing support and resources to WW to facilitate the implementation of composting systems in high-rise complexes.
  - Offer guidance on best practices, troubleshooting, common challenges, and accessing necessary equipment or materials for composting initiatives.

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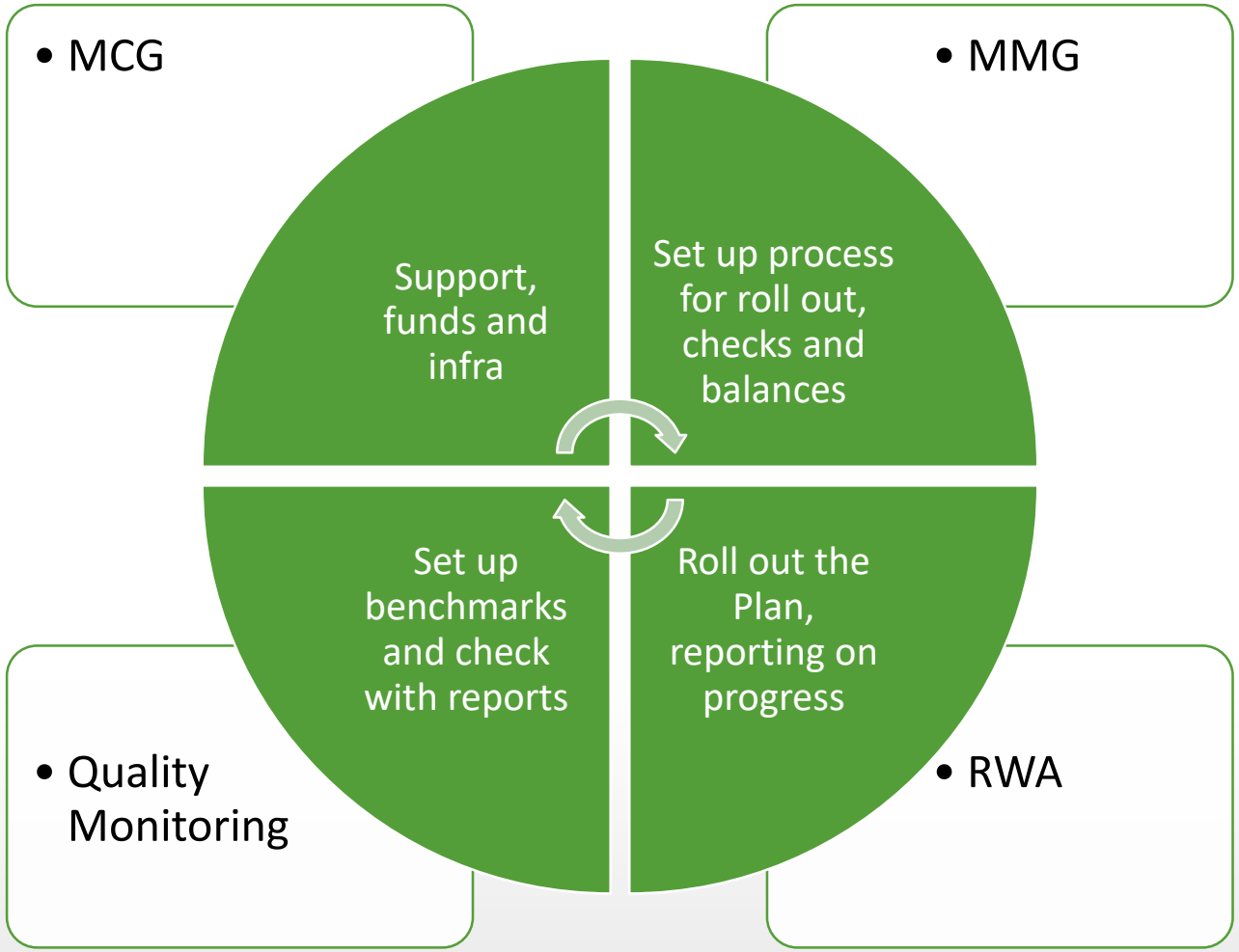
Quality Management and Performance Measures

- Define quality management plans
  - We will need to define success parameters – a Zero Waste Society
- How will you monitor and control costs?
  - Detailed Budget Planning
  - Vendor management/ Control process/ Risk Management
- How will you monitor and control schedule?
  - Schedule weekly or bi-weekly team meetings with key stake holders
  - Progress on project timelines – Gantt Chart
  - Establish measurable KPIs for schedule adherence – use dash boards
  - Include reasonable buffer time in the schedule for unexpected delays



Key Success Factors

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Phase 2 - Strategy starting mid 2025

Strategies for plotted colonies	• including criteria for identification and approval process of land (3 types of plotted colonies include HSVP, Private Builder and Private Handed Over to MCG
Horticulture waste	•on roadsides and parks. To have bins every 200 meters to be managed by horticulture staff by composting within parks or in the insitu compost units or zonal processing units(closest in carbon miles)
Institutions such as schools and colleges	• to mandate compositing insitu. Govt schools and colleges implementation thru CSR /Govt Funds
For Markets and malls	•mandate Large multiple segregation bins and monitoring
For Industry, Commercial units	• mandate segregation and cluster composting plus MRF center as part of EPR responsibility in every industrial or commercial zone. Along with waste management committee for monitoring and enforcement in each organisation
For mandis	• compost unit near the official mandi or zonal waste processing unit transport plan. Mandi to goshala plan to be implemented properly

Form for Plotted Colonies need assessment

Proposing the following format for the same :

Plotted colony Waste Plant Approval Form BY MCG

1. Colony name and location, acres :
2. Number of blocks :
3. Number of houses :
4. RWA Pres Name and No.
5. Waste incharge on behalf of RWA :
6. Current status : Segregated waste : yes / no / part
7. Current collection agency :
8. Willingness of residents to take up full segregation: yes / no / partly
9. Plant site proposed : (all land must be under maintainence by builder or MCG)
    - Option 1
    - Option 2
    - Option 3
10. Size of unit proposed :
11. Waste plant will include:
    - A. Food crusher
    - B. Shredder
    - C. Compost pits / Bins - nos
    - D. Manpower
    - E. Timings
    - F. Households expected to do in phase 1 :
    - G. Waste disposal in kgs / day :
    - H. Usage of compost
    - I. Covered shed
    - J. Agency deployed if any
    - K. Cost to be borne by :

Undertaking :
We assure that waste will not be made into dump, create nuisance or unbearable smell for any residents or establishment nearby. In case of dispute the arbitration authority will be xyz.

Signed by
President
Waste in charge
Approved by MCG in charge

Attached- location Map
Unit drawing
Signatures of majority RWA members
GBM notes approving same