Implementation of Operational Guidelines for Home Composting in Telangana

Training Manual for Municipal officials and Field functionaries

KNOWLEDGE PARTNER

URBAN MANAGEMENT CENTRE

Cover Page Image Source: https://waste4change.com/blog/home-composting-you-organic-waste-management-solution/

DISCLAIMER

This training material has been prepared by CDMA, MEPMA, Telangana with support of Urban Management Centre (UMC) for providing training to members of Self Help Groups / Slum Level Federations /Town Level Federations and Municipal officials for Implementation of Home Composting in Telangana. This training material has been prepared for the exclusive use and benefit of the SHGs and DAY-NULM functionaries. If any part of this training manual is reproduced or replicated, CDMA, MEPMA, Telangana and UMC shall be acknowledged.

About the Training Manual

THIS MANUAL HAS BEEN PREPARED FOR

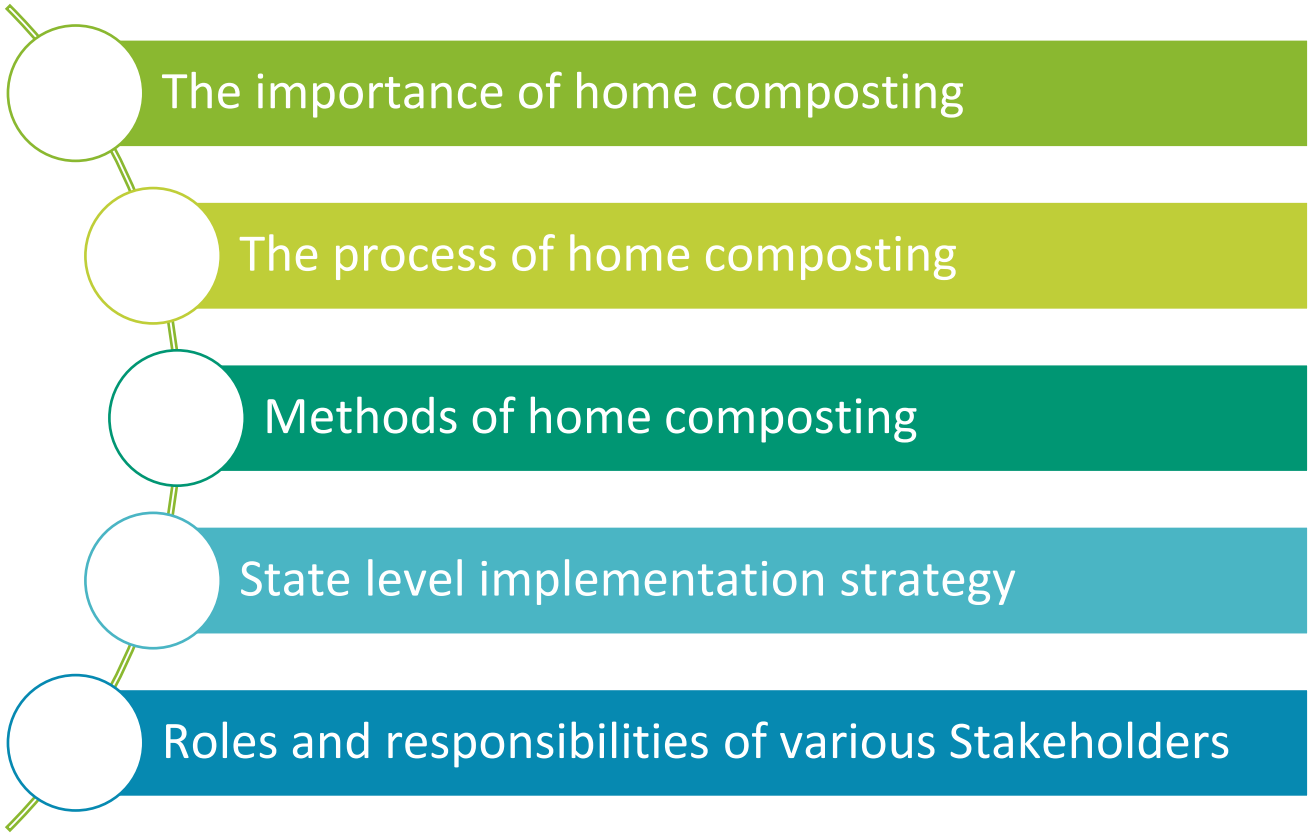
- **Primary Audience:** The Community Resource Persons, members of Self-Help Groups/Slum Level Federations/Town Level Federations, Municipal officials

- **Secondary Audience**: Households, Resident Welfare Associations, Institutions, Commercial establishments, etc.

DURATION

02:30 Hours

Objective of the Training Manual



Contents

- What is solid waste?
- Solid waste management value chain
- Current Status of Solid Waste Management - Telangana
- How to make solid waste management more sustainable?
- What is source segregation?
- Home Composting and its Benefits
- Methods of composting
- Do’s and Don’ts of Composting
- Frequently occurring Issues and their Solutions
- Implementation Strategy for the State
- Models for Implementation
- Roles and Responsibilities of various Stakeholders
- Reporting and Monitoring Structure

Let’s Understand what is solid waste?

What is waste?

- Any material that is discarded because it has served its purpose is called WASTE.
- It is understood as “unwanted” or “useless” material…

Where does waste come from?

Where does waste come from?









Yes… everyone generates waste !!

Used toothpaste

Fruit and vegetable peels

E-waste

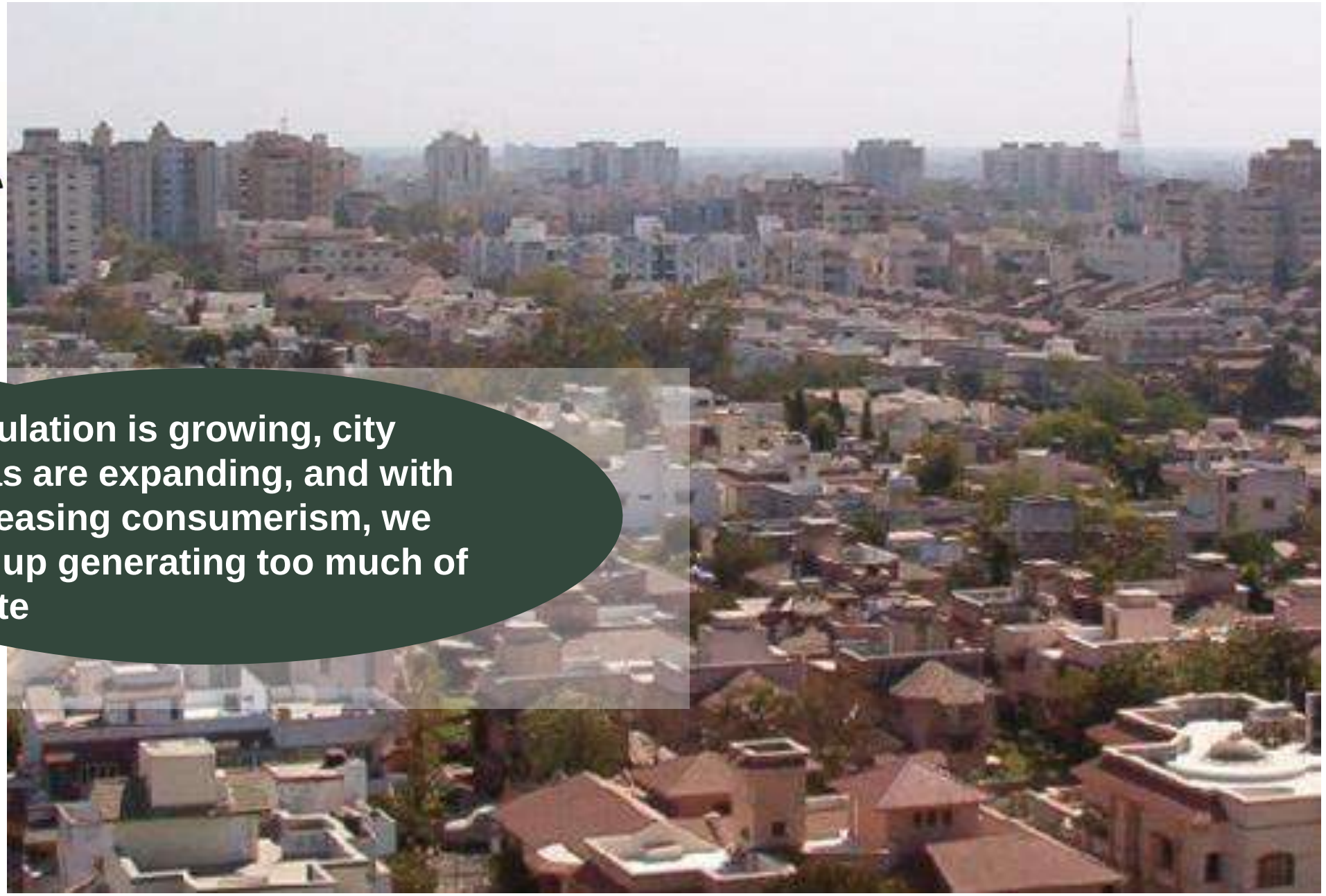
Used Paper

Milk Packets

News papers

How much waste do we generate?

An average person generates ½ kilo of waste every day..
A family of about 4 persons generates two kilos of waste every day or almost one tempo full of waste per year (one ton).



Population is growing, city areas are expanding, and with increasing consumerism, we end up generating too much of waste

How is waste managed in our cities?

Waste generation

Source segregation of waste

Collection of segregated waste

Transportation of waste to the processing facilities

Disposal of inert waste at dumpsite

Current scenario in Telangana

Total Waste generated in a day

4300 MT =1720 waste collection vehicles (approx.)

Percentage of waste collected through Door to Door Collection

92%

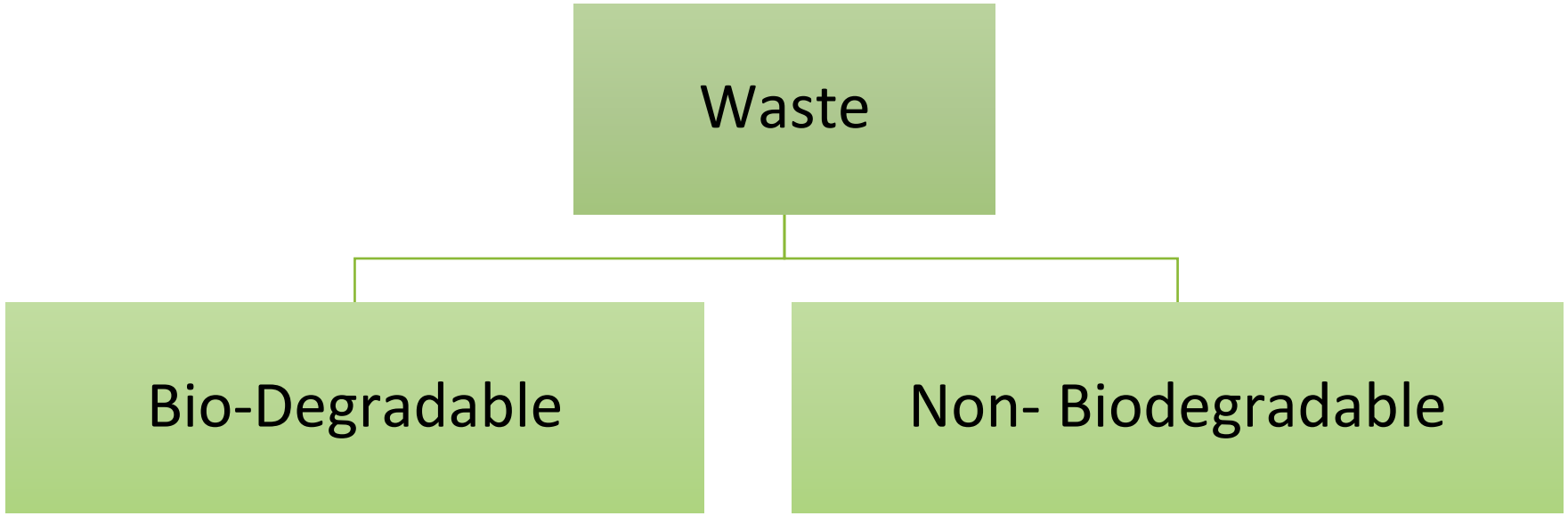
Percentage of Waste segregated

39%

Total **141** Cities in the State → **52** cities targeted for the first phase

Now lets see ..
What all is there in our waste dump?

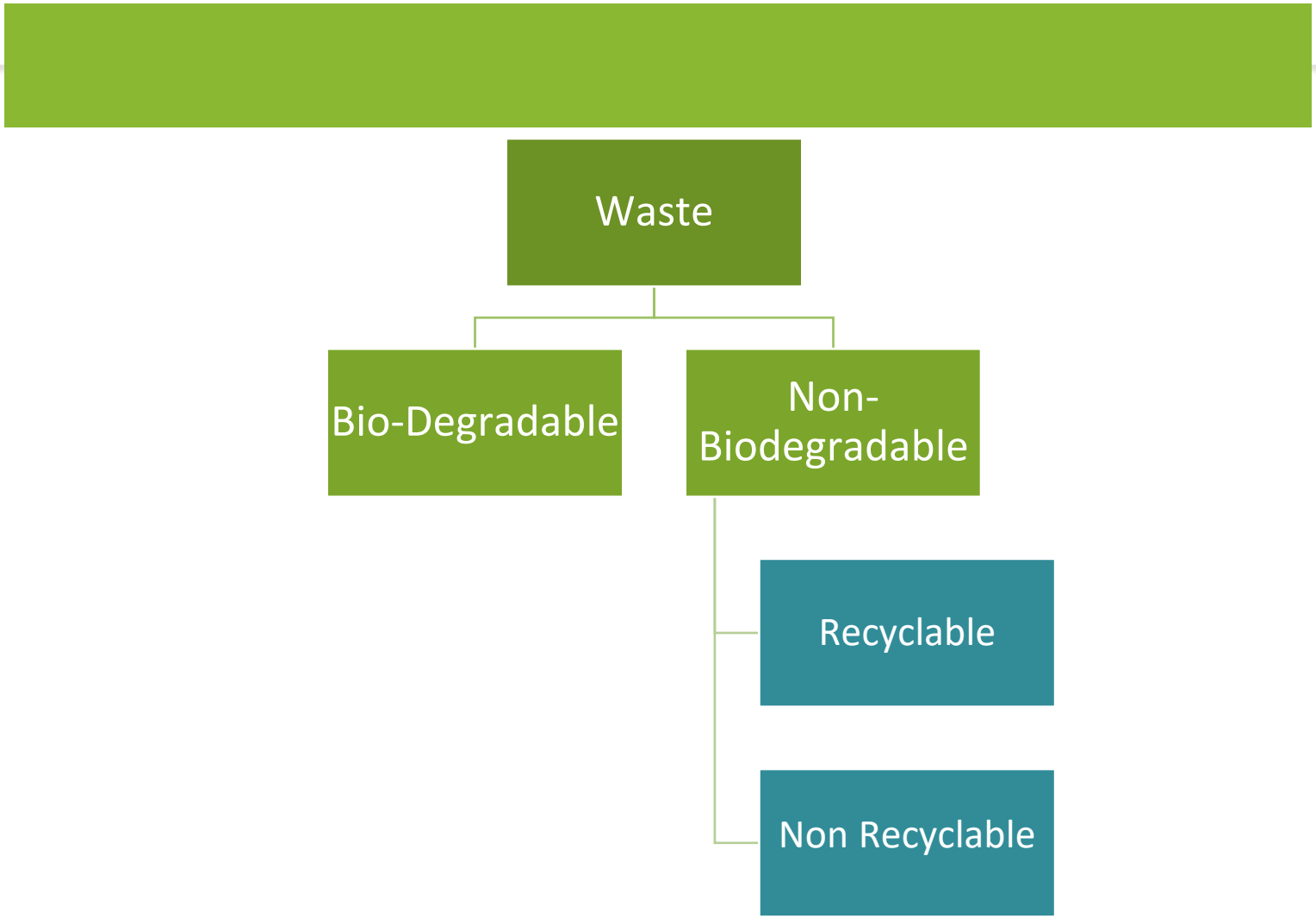
Types of Waste



Biodegradable/ wet waste?

Type of waste, typically originating from plant or animal sources which may be degraded by other living organisms…. like food and kitchen waste

Non- Biodegradable waste?



Recyclable Waste

Recycling is the process of making or manufacturing new products from a product that has originally served its purpose…like paper cans, metal, certain plastics more than 40 micron



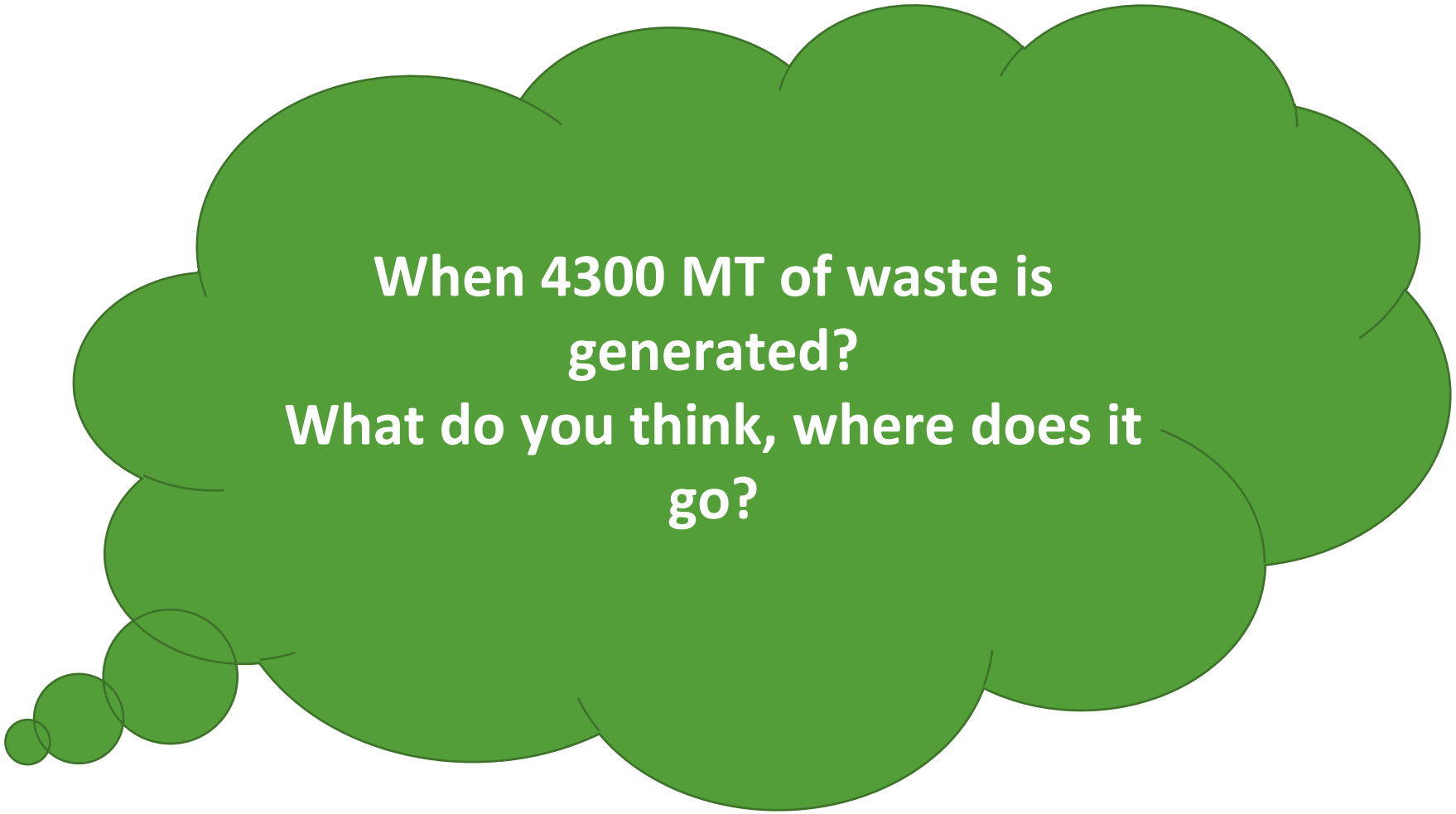






Non-Recyclable Waste

This is waste that is considered as trash once discarded…like certain plastics, thermocol cups, plastic cups, bags, diapers, sanitary napkins


When 4300 MT of waste is generated?
What do you think, where does it go?

Garbage thrown out of the city

Is their any solution to treat the waste?

Now lets see ..
How to treat the wet waste?

Wet waste can be treated at 3 levels

Household level

Community level

City level

The operational guidelines for Home Composting issued by CDMA, Government of Telangana

File No.CDMA-H2/ELPL/SWM/9/2018-H2 SEC-CDMA

GOVERNMENT OF TELANGANA
MUNICIPAL ADMINISTRATION DEPARTMENT

O/o. Commissioner and Director of
Municipal Administration,
Telangana, Hyderabad.

CIRCULAR

Roc.No. 28079/2020/H2. Dt. 03/02/2021

Sub: MA Department – Operational Guidelines for Home Composting – Certain instructions issued -Reg.
Ref: This office Cir.Roc.No. 28079/2020/H2, Dt: 14-08-2020 addressed to all the Municipal Commissioners.

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The attention of all the Municipal Commissioners is invited to the subject cited, wherein instructions were issued regarding the techniques on home composting and also the steps to be taken up for creating awareness among the public. It was also informed to involve the SHG women (Swachh Dhoot) through SLF/TLF for taking up home composting and that the trained SHGs shall be assigned atleast 500 households in their locality so that they can educate the households through simple home composting technics and ensure that home composting is done at household level. The SHG members can be paid at a rate as agreed per HH/ Bulky waste generator, after successfully continuing composting activity for a period of 3 months and shall be certified by the officer looking after sanitation in the Municipality.

2. In this connection, it is further informed that apart from composting at Household level, insitu composting has to be taken up at Apartments/Residential complexes and by Bulk waste Generators so that the pressure on dumpsite or processing plants is reduced.

3. In view of the above, it is decided to establish a home composting cell at ULB level involving the Town Mission Coordinator , Environmental Engineer, Sanitary Supervisor/ Sanitary Inspector, Community Organizer/ Community Resource Persons and RWAs for taking up the following activities.

1. All the Municipalities/Municipal Corporations are instructed to identify the Gated communities/Apartments and commercial establishment (Hotels/restaurants and etc) and any other Bulk Waste Generators (BWGs) where insitu composting can be taken up in the ULB.
2. In the first phase, a minimum of 10% of the total residential complexes/households and 50% of the BWGs of the Municipalities/Municipal Corporations shall be targeted for insitu composting.
3. The SMC, MEPMA shall conduct Training of Trainer (ToT) for CRPs and Municipalities/Municipal Corporation functionaries on insitu composting to create awareness among the citizens to practice home composting and monitor the home composting activities at the ground level.
4. The duty of the CRPs shall be to create awareness among the allotted residential complexes/households and BWGs and ensure that insitu composting is done by them and only dry waste is collected from the houses.
5. The nominated CRPs can be paid at a fixed rate of Rs.150/- per each dwelling unit/ flat (Gated communities/Apartments) and Rs.250/- per each commercial establishment (Hotels/restaurants and other BWGs etc) where insitu composting is being done. The record of evidence shall be

The operational guidelines for Home Composting issued by CDMA, Government of Telangana

File No.CDMA-H2/ELPL/SWM/9/2018-H2 SEC-CDMA

GOVERNMENT OF TELANGANA
MUNICIPAL ADMINISTRATION DEPARTMENT

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Telangana, Hyderabad.

CIRCULAR

Roc.No. 28079/2020/H2. Dt.18/03/2021

Sub: MA Department - Pattana Pragathi - Operational Guidelines for Home Composting in Telugu - Certain instructions issued -Reg.
Ref: 1. This office Cir.Roc.No. 28079/2020/H2, Dt: 14-08-2020.
2. This office Cir.Roc.No. 28079/2020/H2, Dt: 03-02-2021.

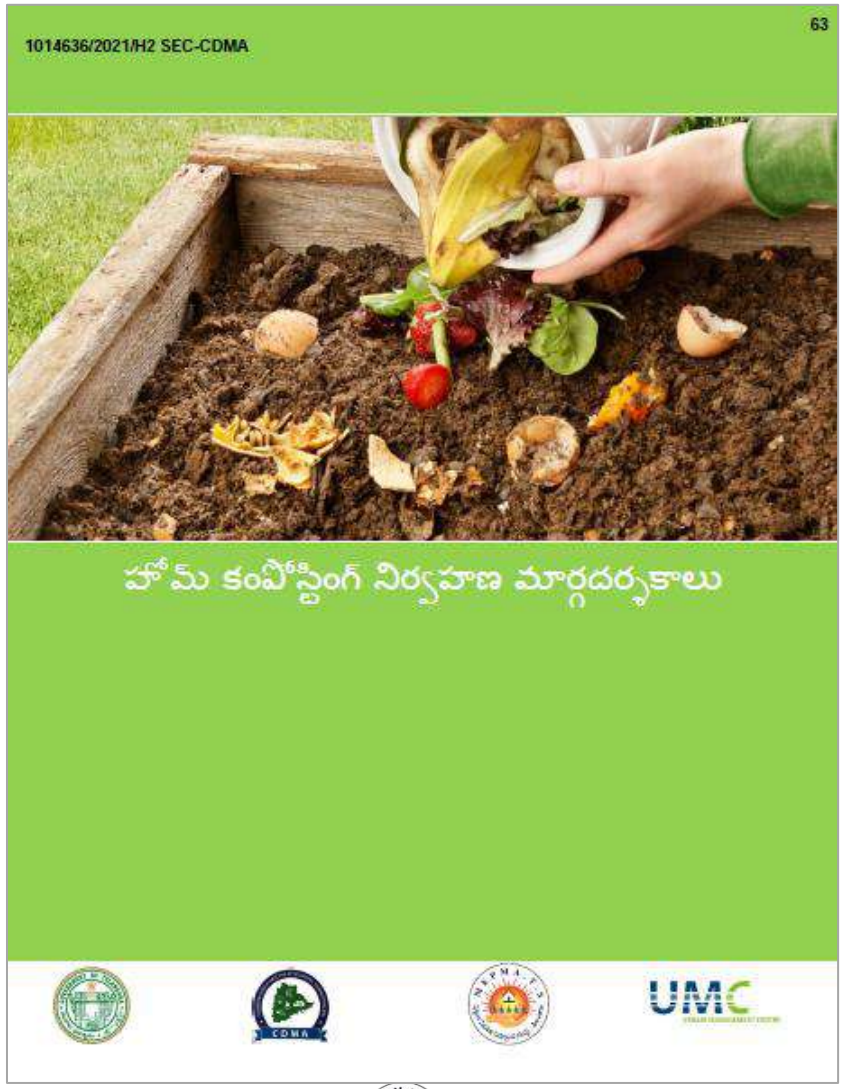
In continuation to this office circular vide reference 2nd cited, you are hereby informed that the Operational Guidelines for Home Composting in (English version) has already been communicated to all the Municipal Commissioners and were instructed to follow the guidelines scrupulously.

2. In continuation to the above, I hereby communicate the Operational Guidelines for Home Composting in Telugu version and all the Municipal Commissioners in the state are hereby instructed to take necessary action accordingly.

DR N SATYANARAYANA IAS
DIRECTOR OF MUNICIPAL ADMINISTRATION

Encl: as above
To
All the Municipal Commissioners in the State.
Copy to the RDMA, Hyderabad and Warangal with a request to communicate the same to all the Municipal Commissioners.
Copy to all the Addl. Collectors LBs for information.
Copy to all the Collectors & District Magistrate in the State for information.
Copy submitted to the Principal Secretary to Government, Municipal Administration & Urban Development Department, Telangana, Hyderabad for information.

Signature valid
Digitally signed by Dr N Satyanarayana IAS
Date: 2021.03.19 17:29:17 IST
Reason: Approved



What is Home Composting?

“Home composting is a simple technique for treatment of organic waste at household or institutional level to produce compost through natural processes”

What are the benefits of Composting?

- Treating the wet waste at source and minimizing the waste going to the landfill
- Reduces the collection and transportation costs
- Reduces the need for chemical fertilizers
- Eliminates uncontrolled leachate at landfills
- Reduces the emission of harmful gases
- Reduces bad smell/odour at waste collection points and roads/streets

How to make compost?

Image Source: https://swachhindia.ndtv.com/

Essential ingredients for composting

Four basic ingredients are required for composting:

Image Source: https://swachhindia.ndtv.com/

What are Browns and Greens?

Browns	Greens
• Corn stalks • Newspaper (Shredded) • Dry Leaves • Bark • Straw • Wood chips • Unprocessed cartons/ cardboards (should be shredded), etc	• Vegetable peelings • Rotten fruits • Coffee grounds • Tea leaves • Manure from herbivorous pets/animals • Egg shells • Tea bags • Paper towels and napkins • Yard/Grass trimmings, etc

Ideal ratio to be maintained = **3** Parts of browns : **1** Part of greens

Methods of home composting

- **At household level**
- **At Community level**

Methods of Composting – Household level

Pit Composting
Pot Composting
Khamba/Matka/Three vessel composting
Kitchen bin Composting
Mose Pit Composting

Pit composting

Suitability

- For a family of 5-6 members,
- Pit size: 100cm X 60 cm X 100 cm
  (3.5 ft X 2ft X 3.5ft)

Infrastructural requirements

- Shovel
- Tarpaulin/plastic sheet
- Cow dung/decomposed waste and soil

Compost will be ready in 120-180 days

Steps – Pit Composting

Identify a spot in your plot where water doesn't get logged, and where two pits can be dug.

Make a small bund around the pit.

→ In rainy season, cover the pits with the plastic sheet

→ At the base, spread a 6-inch layer of decomposed waste or cow dung slurry.

1 - - → 2 - - → 3 - - → 4

Add 6 inch layer of decomposed waste or cow dung slurry

Add shredded waste. The waste should be moist

After every layer of waste, sprinkle a layer of soil

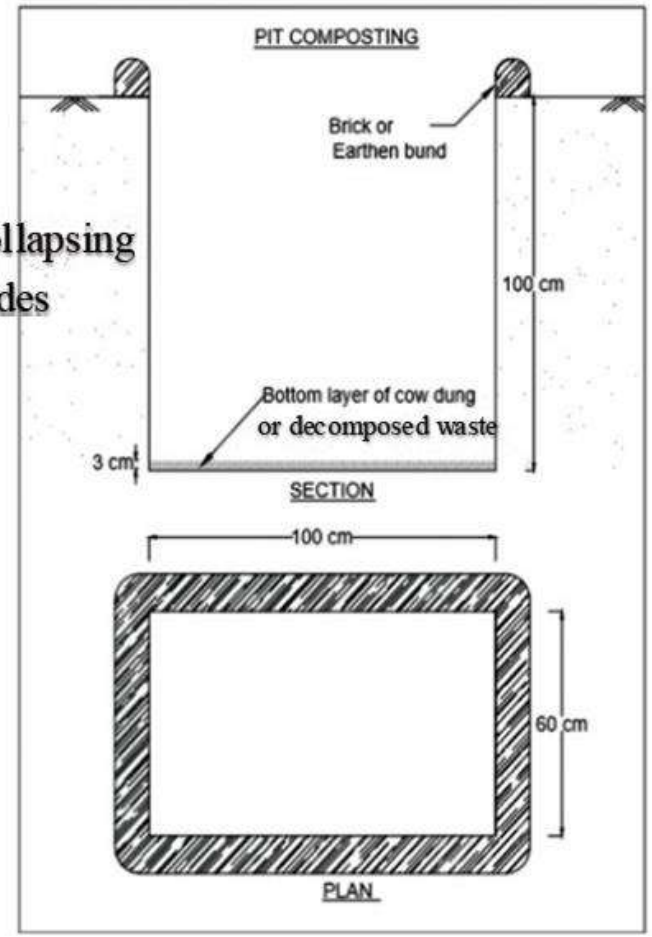
Continue doing this until there is about 15 cm of space in the pit.

↓

Fill this space with soil. Leave the pit for a minimum period of 4 months.

→ Once the first pit is closed, use the second pit in a similar manner.

→ To use the compost, just dig the pit, and unearth the compost. It can be directly used for soil enrichment.



https://www.youtube.com/watch?v=lSHHGlQYdA0&feature=youtu.be&ab_channel=GrowVeg

Steps – Pit Composting

- Identify a place where water doesn't get logged, and two pits can be dug
- Make a small bund around the pit
- Add shredded waste. The waste should be moist
- After every layer of waste, sprinkle a layer of soil
- Once the first pit is closed, use the second pit in a similar manner
- To use the compost, just dig the pit, and unearth the compost

Pot Composting

Suitability

- Works for units which produce 1 to 2 kg of biodegradable waste daily

Infrastructural requirements

- Two mud pots (50 cm high and having a diameter of 35 cm) (1.64 ft high with diameter of 1.14 ft)
- 50 cm (1.64 ft) tall stands for holding each pot.
- A plastic vessel of half liter capacity to collect the leachate
- A small trowel
- One painting brush
- 1 brick cut in 2 pieces

Compost will be ready in 60 to 75 days

Steps – Pot Composting

Make a hole in the bottom of the pot and place it at a convenient place on the top of the stand. Put the plastic container below the hole to capture the leachate.

Start putting in shredded biodegradable waste into the pot. Close the pot with the lid. And make sure to not put in more than 2 kg of waste a day.

Cover every layer of waste with compost or soil.

The waste needs to be turned thoroughly once in two days.

One week later, worms can be seen in the pot. These worms help in the composting process and will die in the next three weeks themselves. Do not try and kill them yourself.

Once the first pot is full, start using the second pot in similar fashion. By the time the second pot is filled with waste, the waste in the first one will have turned into compost.

The moisture content in the pot should be maintained. In case the quantity of water inside the pot is more, saw dust can be added to absorb the excess water.

During monsoons, cover the pots with the plastic cover and put two pieces of brick on it to prevent rainwater from entering the pot.

Sour curd or buttermilk will speed up the composting process.

Tips about leachate

a. Put some salt in the container collecting leachate. This will prevent the flies from hovering around.

b. The leachate can be diluted with water and used as compost for plants

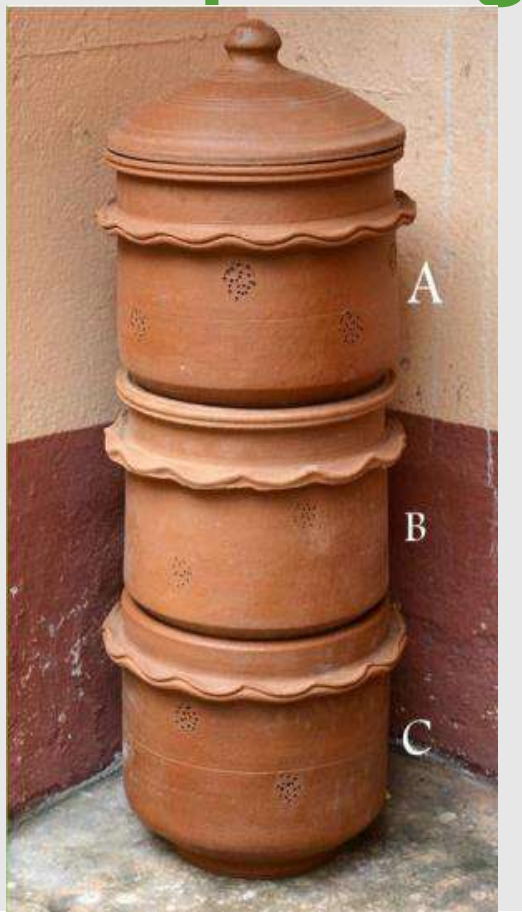
c. If the flies persist, two camphor tablets should be diluted in 25 ml of oil and this oil should be applied on the pot with a brush

https://www.youtube.com/watch?v=1o4y8tCaw0A

Steps – Pot Composting

- Add 2kgs of waste to the pot
- Sprinkle a layer of soil/ already prepared compost on it
- Mix the waste properly for every two days
- worms can be seen in the pot. Do not try and kill them
- start using the second pot in similar process
- The moisture content in the pot should be maintained
- cover the pots with the plastic cover to prevent rainwater from entering the pot
- Sour curd or buttermilk will speed up the composting process
- Within 60-75 the compost will be ready

Khambha Composting



Suitability

- Works for units which produce upto 2 kg of biodegradable waste daily

Infrastructural requirements

- 3 terracotta pots, having a height and diameter of 30 cm (0.98 ft) with lid for one pot.
  - *Pots number 1 and 2 are open from the top as well as bottom. The open part in the bottom is weaved with plastic wires.*
  - *Pot number 3 is open at the top, and closed at the bottom.*
- Old newspapers
- Hand pump/sprayer
- Compost/Saw dust
- Steel fork

Compost will be ready in around 90 days

Steps – Khambha Composting

Place newspaper sheets at the bottom of the pot 1 and 2 to cover the mesh wiring. This is done so that no other material other than water would seep in the pot below.

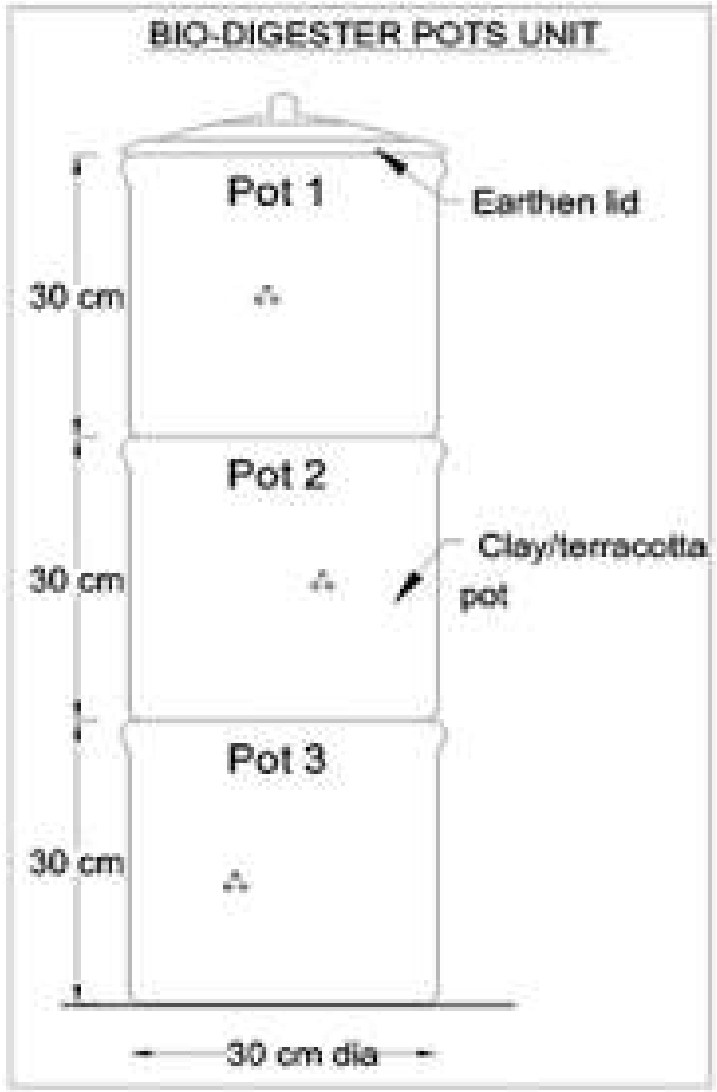
Place the pots, one on top of the other, with the pot having a closed bottom (pot 3) at the bottom of the stack.

Start adding kitchen waste to the topmost pot. Spray diluted bio culture after every layer of waste (The ratio of bio culture to water is 1:50 to make diluted bio culture).

The water used for diluting bio culture should not contain chlorine. To ensure that, the water to be used should be left open in a wide vessel for two days.

Once the topmost pot is 3/4th filled, swap the position of the pot with the middle one, and start putting in waste into pot 2.

Turn the waste every two days without tearing the newspaper at the bottom.



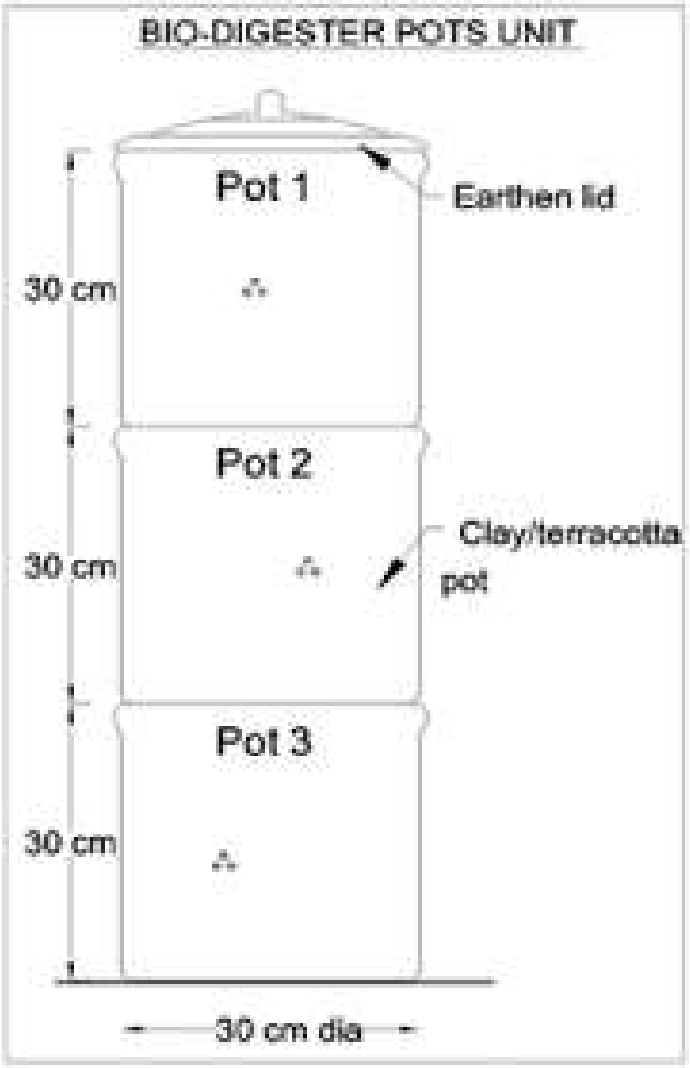
Steps – Khambha Composting

While the second pot is being used to collect the waste now, the composting process will shrink the material in the first pot, and it will be ready to use again when the second pot is 3/4th filled with waste.

Swap the position of pot 1 and pot 2 again. Now, pot 1 is at the top again. The waste should now be collected in this pot again, until it is filled upto 3/4th of its capacity. Then the positions will have to swapped once more.

Continue doing this until one of the pots is filled. Empty the contents in the bottommost pot, and continue the process until pot 3 is 3/4th filled.

Once that is done, sieve the contents of the last pot to get the compost. Any material that cannot be sieved can be added to the topmost pot for further decomposition.



https://www.youtube.com/watch?v=cReeLzYBPTY

Steps – Khambha Composting

- Place newspaper sheets at the bottom of the pot 1 & 2 to cover the mesh wiring
- Add wet waste in pot 1
- After adding a layer of wet waste, Spray bio culture after every layer of waste
- Once the topmost pot is 3/4th filled, swap the position of the pot
- Turn the waste every two days
- While adding the waste to 2nd pot, the composting process will shrink the material in the first pot
- Continue doing this until one of the pots are filled
- Sieve the contents in the pot and add the remaining material that cannot be sieved to the pot

Kitchen Bin Composting

Suitability

- Suitable for composting at a household level with 5 to 6 members.

Infrastructural requirements

- One 25 litre plastic bin with lid
- 3 Plastic grow bags
- One small trowel
- Small fork

Compost will be ready in around 30 to 45 days

Steps – Kitchen Bin Composting

Place the plastic bag inside the bin.

Spread starter material in 1-inch-thick layer over the bottom as bio-platform*.

Spread the shredded waste over the starter layer

Spray diluted bio-culture mixture over the waste. After third day, use the fork to mix the contents of old layer and new layer.

Repeat the procedure till the bin is filled.

Tie the grow bag and remove it and store it.

Keep the second grow bag inside the bin and continue the process.

Once the second bag is filled, remove it and store it. Open the first grow bag and remove the contents and start using it again. If the waste quantity is more than 2kg/day increase the number of grow bags to give at least 20 days of storing time for filled grow bag.

**Either prepared bio- compost or saw dust treated with bio-culture can be used as starter material. Mix saw dust with diluted bio-culture (bio-culture water ratio 1:50) and keep it in a sack bag duly tied. After two days, saw dust mixture becomes hot by the activities of the bacteria. This hot mixture can be used as the starter.*

Mose Pit Composting

Suitability

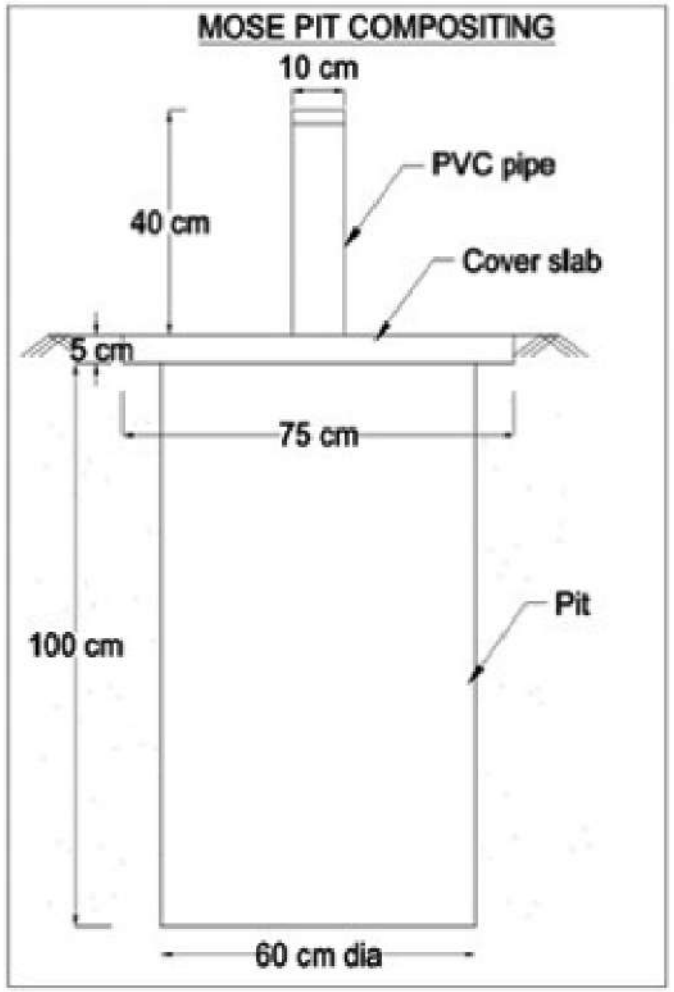
- Suitable for composting at a household level with 5 to 6 members.
- 2 pits will have to be dug as each pit shall be used alternatively for 6 months.

Infrastructural requirements

- Circular pits of required diameter and depth 1m in a convenient location – 2 Nos
- Circular/ rectangular slabs to fully cover the pit, with PVC pipe of required diameter, 50cm long (1.64 ft long), vertically placed centrally on the cover slabs - 2 sets.
- PVC caps to close opening of the pipe – 2 Nos

Compost will be ready in around 30 to 45 days

Mose Pit Composting



Size and specification of the infrastructure required:

- **Pit of size 60cm diameter and depth 1m** for a family of 5 members. (1.96 ft dia and 3.28 ft depth)
- Diameter of the pit may go up to 1.5m (in 4.92 fts) for institutions
- Restrict the depth to **minimum 1m (1.96 Ft)** in all cases as methanogenic activities get reduced at lower depth.
- The bottom of the pit is of oval shape.
- The **cover slab of size 75cm (2.46 Ft) diameter (for a pit of 60cm diameter) and thickness 7.5cm.** (In feet's - 2.46 ft size of slab ; For a pit 1.96 ft dia and thickness of 0.24 ft)
- PVC pipe of **100mm** (in feets - 0.32 ft) **dia. for domestic type and can be upto 200 mm** (in feet's - 0.65ft) **(diameter for bigger size pits.**

Steps – Mose Pit Composting

Ensure bacterial seeding before putting the waste into the pit by sprinkling cow-dung/ decomposed waste into the pit.

Drop the shredded bio-waste into the pit through the pipe opening daily and keep the pipe end closed always.

Pouring of warm water of 35˚ to 45˚C temperatures once in a week will accelerate the decomposing.

Occasionally pouring of cow-dung mixture or any bacterial seed into the pit will be helpful.

Keep using the pits alternately for six months each.

Methods of home composting

- **At household level**
- **At Community level**

Methods of composting - Community level

Pit Composting
Rotary Drum/In vessel composting
Drum Composting
Organic Waste Composter (OWC)
Steel Mesh Composter

Rotary Drum/ In-vessel Composting

Suitability

- Suitable for up to 10 households, daily waste intake up to 10 kg

Infrastructural requirements

- A rotary drum of 250 litres capacity

Compost will be ready in around 15 to 20 days

Steps – Rotary Drum/ In-vessel Composting

The waste is shredded and added to the drum.

→

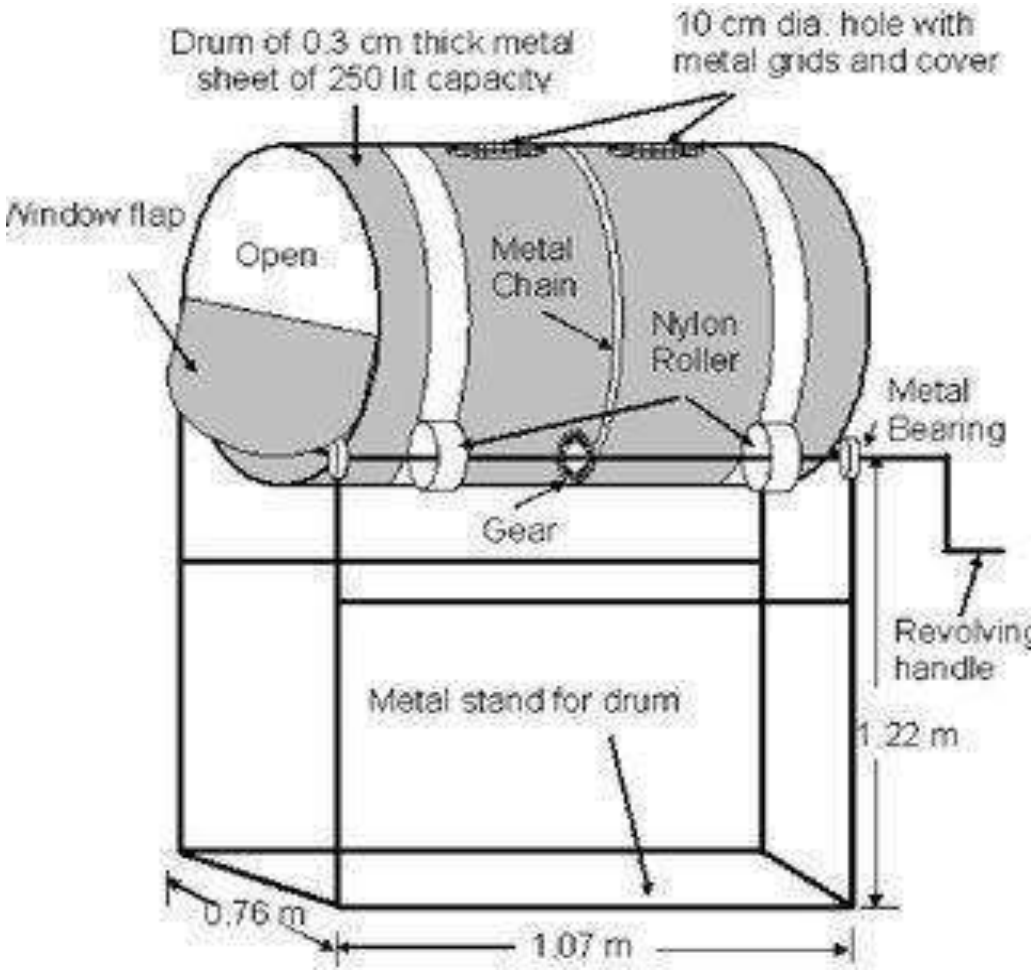
The handle of the drum is used to manually turn the waste once every day.

Make two to three rotations.

→

After the rotation, the half doors at the side of the drum should be opened.

Continue the process for 15 days



https://www.youtube.com/watch?v=1Aj0cEF5FWM

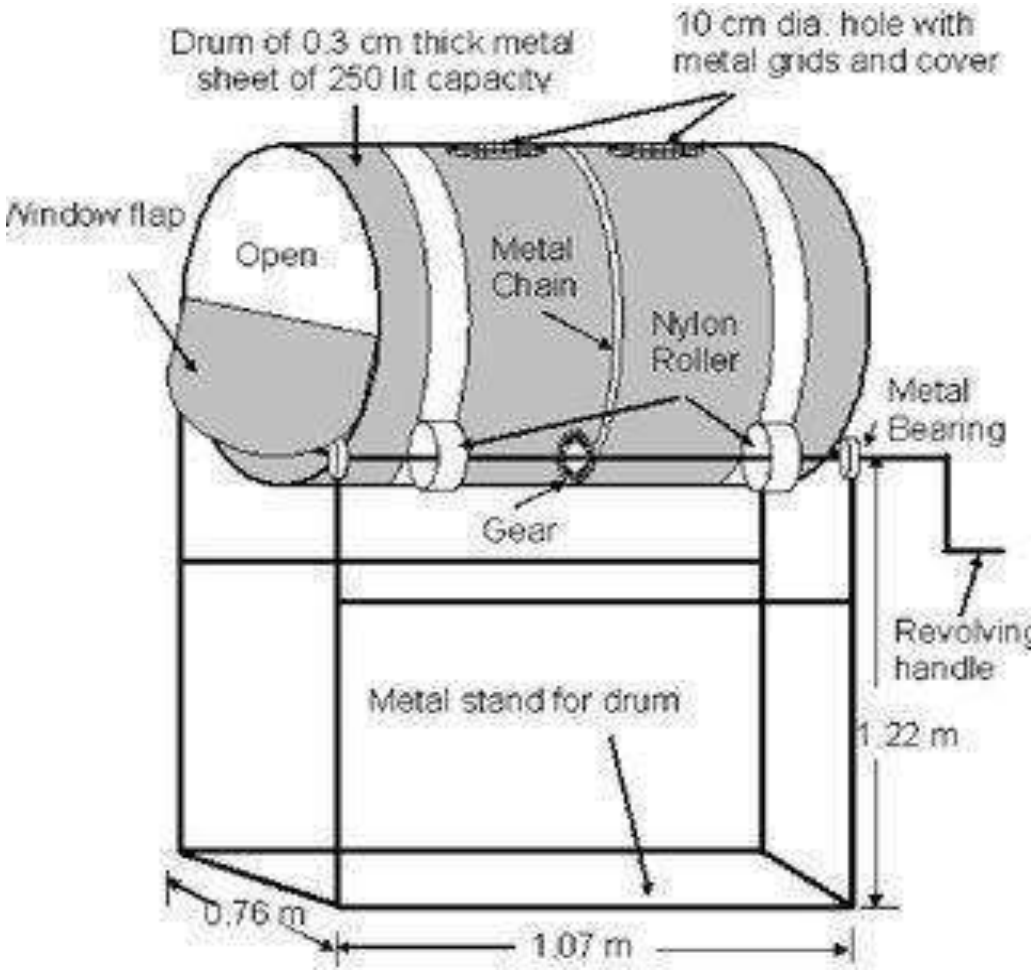
Steps – Rotary Drum/ In-vessel Composting

Add the shredded waste to the drum

Turn the waste once every day using handle

Make two to three rotations

Within 15-20 the compost will be ready



Drum Composting

Suitability

- For institutions or a large number of apartments

Infrastructural requirements

- 2 drums of 50 liters each
- A pedestal for the drum
- A tap
- Plastic vessel of 5-liter capacity
- Plastic net bags
- Two bricks
- Gloves

Compost will be ready in 15-25 days

Steps –Drum Composting

Take a plastic drum and fix the tap on the bottom of the drum.

Place this drum on a pedestal of suitable height to accommodate the plastic vessel below the tap.

Prepare the liquid culture by mixing an adequate amount of culture in water (For treating 80-100 kg of waste, mix 250 ml of culture in 3 liters of water).

Segregate the waste and keep the waste which can be converted into compost in the net bags. Don't put papers or materials which can be further used after recycling.

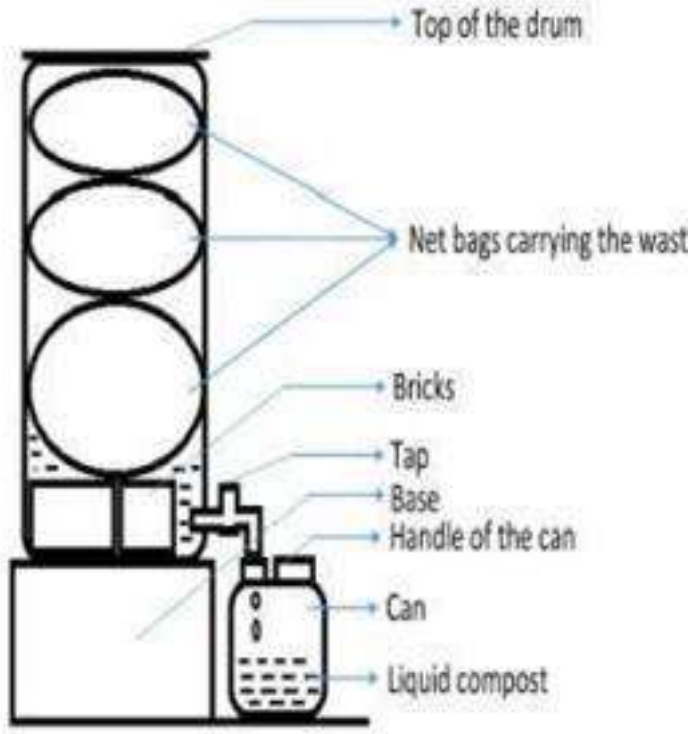
In a large container, mix the waste with the prepared culture solution by wearing gloves in the hands.

Put some bricks inside the drum in such a way that the bags carrying the waste do not block the tap (refer image).

Put the plastic net bags in the drum. Continue this process until the drum gets filled.

After mixing the waste with the solution, put the waste in the plastic net bags and tie a knot by the plastic rope when it gets filled.

Pour the remaining leftover solution of the container into the drum from the top and close the lid of the drum.



Steps –Drum Composting

Connect a pipe from the tap of the drum to the plastic can.

Open the tap for collection of liquid.

Pour back the liquid collected till the third day back in the drum through the top, after opening the lid. Also, when the drum is opened on the third day, see whether the compost is uniformly converting or not. If not, then add more liquid solution (250ml culture mixed with 3 litres of water) to it.

Put the can beneath the tap after pouring the liquid for collection of liquid compost.

Whenever during the composting, if the process starts to smell then add some more culture (mixed with water) to it from the top of the drum. Increase in foul smell is an indication that composting is not going properly.

On the 20th day of composting, take out all the net bags from the drum and spread the contents of the net bag on the ground to dry.

After drying the solid waste for 2 days, sift it with a sieve. The collected solid is the solid compost.

The liquid left inside the drum is also the liquid compost, so collect it in the can.

Organic Waste Composter (OWC)

Suitability

- The technique of drum composting would work for 10-15 households.
- The waste processing capacity of a mechanized OWC ranges from 100 kgs a day to 5000 kgs of wet waste a day

Infrastructural requirements

- Space requirement – 100 sq. meter to 500 sq. meter (1076 sq.ft to 5381 sq.ft) depending on the capacity of the OWC.
- A shed/designated space for the OWC
- Old compost/soil
- Culture
- Plastic racks for curing of compost

Compost will be ready within 24 hours

However, this compost should be cured for some days before using it. Put the compost in plastic crates and leave it for at least a week (longer the curing period, better is the quality of the compost). During this time, keep the compost slightly moist.

Steps – Organic Waste Composter

Shred the biodegradable waste into small pieces before putting it in the OWC.

→

Add culture and old compost to the waste.

→

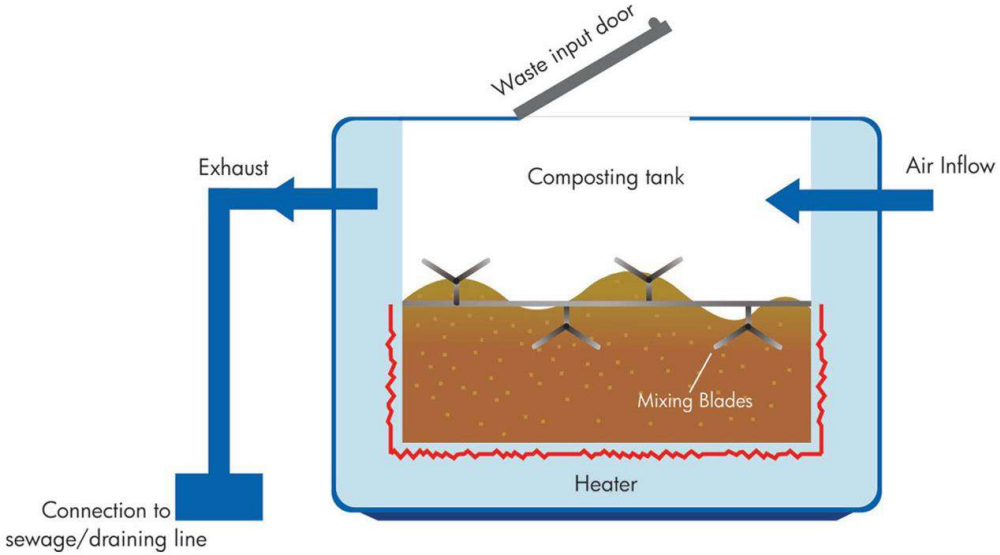
Switch on the OWC, and the compost can be collected after 24 hours.

The collected compost should be collected in the racks, and left for a few days to cure it. During curing, water should be sparsely sprayed to retain the required moisture.

→

The compost can then be used in the garden.

https://www.youtube.com/watch?v=1Aj0cEF5FWM



Source: http://www.abtechflow.in/organic-eco-waste-composter.html

Steel Mesh Composter

Suitability

- Works for a cluster of houses
- One unit has the capacity to hold waste of 50 kg per day

Infrastructural requirements

- Space requirement – 500 sq. meter (5381 Sq.ft)
- A shed/designated space for the composter
- Cement slabs
- Steel mesh plate for the top (should be equal to the size of the compost)
- Steel mesh ring (to install inside the composter).
- Saw dust

Compost will be ready in 30 days with 30 days for curing time

Steps – Steel Mesh Composter

Put together a square-shaped platform using a few cement slabs.

Leave some gap between each slab so that leachate, if any, drips down easily.

Place a steel mesh plate on top of the slabs to prevent entry of rodents from the bottom.

Make a steel mesh ring of 3 ft diameter and 2.5 ft height (open cylinder).

Place this ring on the platform.

Wrap the ring with gunny sack to avoid the contents from spilling out and messing up the surroundings.

This also prevents rodents from digging into the piles.

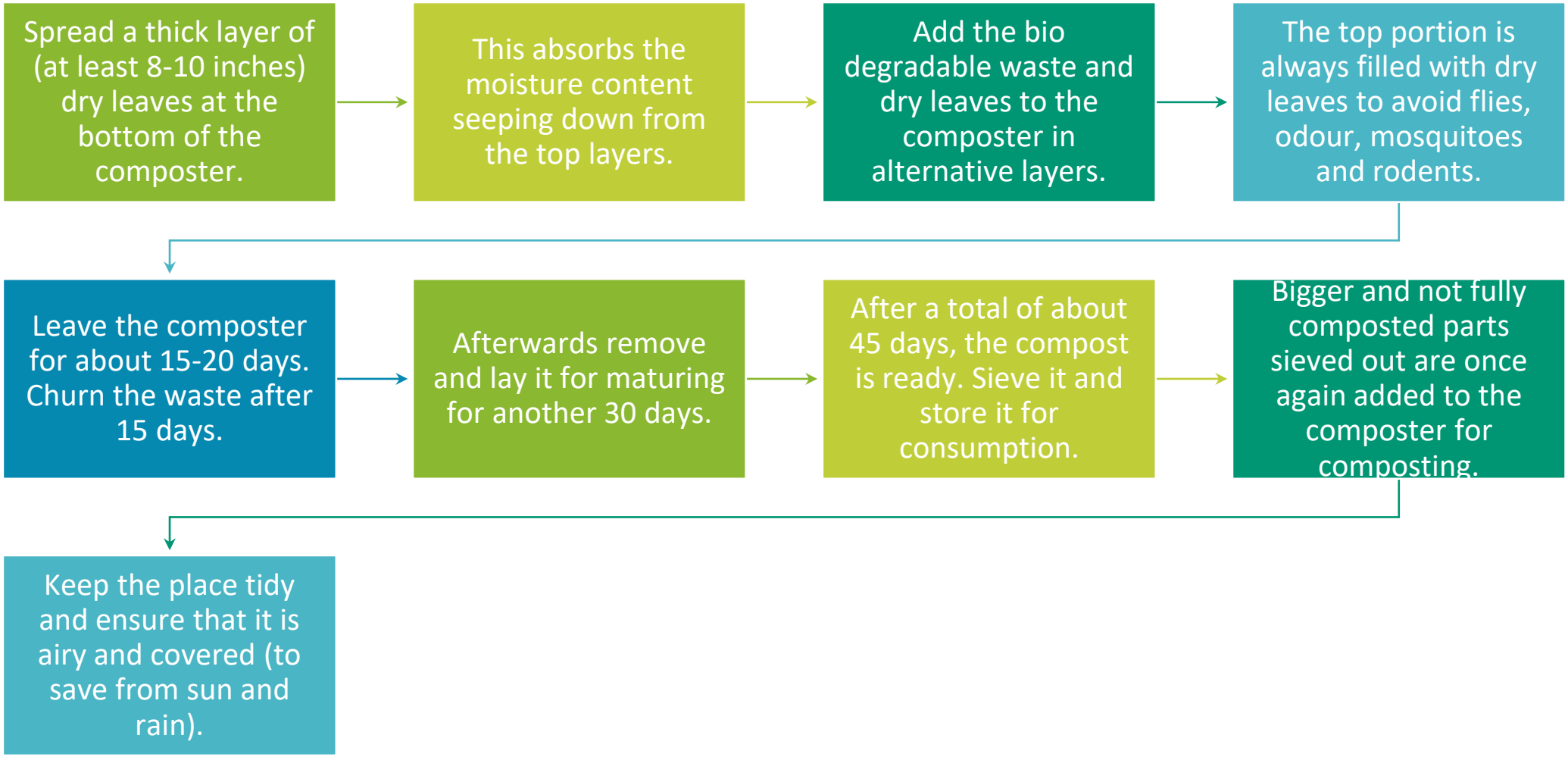
Collect the segregated kitchen waste.

Sprinkle little bit of saw dust on it to absorb excess moisture.

https://www.youtube.com/watch?v=Tj_goluMKO8&feature=youtu.be&ab_channel=judopuff

Source: https://www.pdotwolf.com/shop/garden/composters/500ltr-garden-waste-compost-bin-wire-mesh/

Steps – Steel Mesh Composter



Comparative Matrix

Method	Suitability	Quantity of waste input (per day)	Type of process	Time frame
Composting methods for individual household units				
Pit Composting	For a family of 5-6 members	Maximum 2000 kgs	Easy	120 – 180 days
Pot Composting	Units which generated 1 to 2 Kgs of waste daily	1 to 2 Kgs	Easy	60 – 75 days
Khamba/Matka/Three vessel composting	Individual HHs	2 kgs	Easy	Around 90 days
Kitchen bin Composting	Individual HHs	2 kgs	Moderately easy	60 – 75 days
Mose pit composting	For a family of 5 members		Moderately easy	30 to 45 days
Composting methods for communities, institutional establishments/BWGs				
Rotary Drum/In vessel composting	Upto 10 HHs	Daily waste intake upto 10Kgs	Easy	15 to 20 days
Drum Composting	10 – 15 HHs	80 – 100 Kgs of waste	Moderately easy	22 to 25 days
Organic Waste Composter (OWC)	Large number of apartments and institutions	100 – 5000 kgs	Easy	24 Hours and the collected compost from OWC shall be cured for a few days
Steel Mesh Composter	Community level	Each unit can hold a waste of 50 Kgs	Moderately easy	30 days

Do’s and Don’ts

What’s In		What’s Out
Greens	Browns	
Vegetable peelings	Corn stalks	Cooked food that may become moldy
Rotten fruit	Newspaper (Shredded)	Fatty food items
Coffee grounds	Leaves	Leftover meat, cheese
Tea leaves	Bark	Chemically treated fruit skins
Manure from plant eating pets/animals	Straw	Fish and bones
Egg shells	Wood chips	Plastic material
Tea bags	Unprocessed cartons/ cardboards (should be shredded)	Dairy products
Paper towels and napkins		Ash from barbecues or coal
Yard/Grass trimmings		Cartons and cardboard with plastic film, paper napkins used with chemical based cleaner
		Straws, stirrers and twist ties
		Metal
		Toxic chemical material

Use of Compost

Good Compost – Good compost is identified by its color and smell; it should be dark brown to black in color which does not stink. It should be finely granular, such that 90% of it can be sifted by a 0.4mm sieve.

Potted Plants & Gardens

Can be sold

Frequently occurring issues and their solutions

Issue	Possible Cause	Solution
Pile is wet and stinking	• Excess moisture • Compaction	• Add brown material • Turn Pile • Place browns at the center of the pile
Pile is dry	• Too much brown material • Too little water	• Add fresh kitchen scraps • Moisten with water • Cover pile to reduce evaporation
Pile attracting pests (birds, rodents, etc.)	• Inappropriate materials added and poor covering	• Adding of grease, oils, meats, breads, etc. shall be avoided (refer do's and don'ts) • Add soil or brown material to cover food scraps • Put kitchen scraps in the center of the pile
Pile is not warm	• Pile too small • Too little moisture • Poor aeration	• Increase pile • Add water and turn pile • Turn pile
Pile attracting flies	• Improper covering of food scraps	• Cover green material with browns • Place kitchen scraps in the center of the pile
Pile has excessive worms	• The pile is too wet	• Add crushed dry leaves or add ready compost

Implementation Strategy

SETUP A MONITORING CELL

AWARENESS GENERATION

IDENTIFICATION OF UNITS FOR HOME COMPOSTING

TRAINING & CAPACITY BUILDING

FORGING PARTNERSHIPS AT LOCAL LEVEL

DEFINING ROLES AND RESPONSIBILITIES OF VARIOUS STAKEHOLDERS

MONITORING & REPORTING

Monitoring Cell – State

The implementation of home composting activity in the state will be led by CDMA and will have the following members:

State Home Composting Cell
Deputy Director, CDMA
Solid Waste Management (SWM) Expert, State SBM
State Mission Coordinator (SMC), MEPMA
Compost Development Officer (CDO), CDMA

The state cell shall conduct review meetings with the cities once a week

Monitoring Cell- Municipalities / Municipal Corporation

- Shall conduct regular review meetings
- Act as a Helpdesk for the citizens.

The cell will have the following members

Nodal officer for implementation, monitoring and reporting to State

For Municipal Corporations	For Municipalities
Municipal Commissioner	Municipal Commissioner
Medical Health Officer	Town Mission Coordinator
Environmental Engineer	Environmental Engineer
Town Mission Coordinator	Sanitary Inspector/ Sanitary Supervisor
Sanitary Inspector/ Sanitary Supervisor	Community Organizer/ Resource Person
Community Organizer/ Resource Person	

The Cell shall monitor the progress on a daily basis.

Identification of properties for home composting at city level

The implementation of the home composting activity shall be taken up in phased manner

– The city shall identify a mix of individual households, Resident welfare associations, institutional establishments and bulk waste generators (BWGs)
– A minimum of 10% of total HHs and 50% of BWGs should be targeted in the first phase
– The city shall finalise the units, based on space availability and willingness of owners/managers

Ways of implementing home composting in the city

1. Implementation through CRPs

- The CRPs shall:
  - Generate awareness
  - Identify the units
  - Guiding owners/managers on best technologies

2. Implementation through SLFs/TLFs

- The SLF/TLF members shall:
  - Train and help the units in selecting a suitable composting technique
  - Handholding support to owners/managers
  - Spread awareness among other SHG members

3. Setting up Compost marts by SHGs

- Compost mart is the place where the material and equipment required for composting is made available.
- SHGs engaged in management of the compost mart will guide the buyers about its use

Training for home composting by Municipal officials and CRPs

Unit owners/ Managers

Training content will include :

- Importance of source segregation and composting
- Methods available for composting
- Steps to be followed for composting
- Do’s & don’ts of composting

SLF & SHG Members

Training content will include :

- Awareness generation among the unit owners
- Methods available for composting
- Equipment that would be needed to practice home composting
- Do’s & don’ts of composting
- Setting up and management of Compost mart

Awareness generation

What to inform?

With the support of Municipal officials, CRPs will sensitize RWAs, general public on

- Source Segregation
- Composting process
- Methods of composting
- benefits of composting, etc.

How to inform?

- Digital Broadcast
- Advertisement on local channels
- Social media platforms
- Print media
- Audio visuals
- Live demonstration

Roles & Responsibilities

- **Municipal Commissioner**
- **Town Mission Coordinator**
- **Environmental Engineer**
- **Community Resource Persons**

Roles of Municipal Commissioner

Municipal Commissioner
▪ Set up a home composting cell at ULB level
▪ Issue ID Cards to CRPs
▪ Finalise the CRPs (from each ward) and appoint a nodal officer (preferably sanitary inspector/supervisor) for monitoring the home composting activities at ground level
▪ Finalization of action plan prepared by Town Mission Coordinator and Environmental engineer
▪ Finalisation of list of units (Gated Communities; Apartment and Other bulk waste generators) for home composting
• Finalising the models for implementation in the city
• Allocating the space for establishing a compost mart (in case of Municipality/ Municipal Corporation is willing to establishment compost mart model)
• Review and monitoring of ward level awareness programs on home composting
• Review the daily progress of on ground activities.
• Submit the progress to the state home composting cell on weekly basis

Roles of Municipal Officials

Roles and responsibilities	TMC	Environmental Engineer
▪ Prepare the instructions for formation of cell		
▪ Identify/ Nominate the CRPs (from each ward) for implementation and monitoring of home composting activities at ground level		
▪ Provision of ID Cards to the nominated CRPs		
▪ Identify the master trainers		
▪ Preparation of action plan for implementation in consultation with Environmental Engineer		
▪ Review the action plan once in a month and updating it accordingly		

(Cont'd..)

Roles Municipal Officials

Roles and responsibilities	TMC	Environmental Engineer
▪ Finalisation of unit (Gated Communities; Apartment and Other bulk waste generators) in consultation with Environmental Engineer		
▪ Finalizing the models for implementing		
▪ Identify the SLFs (ward wise) for conducting training for unit owners/ managers		
▪ Identify the SLFs/SHGs interested in implementing compost mart		
▪ Ensures that ward wise awareness programs conducted		
▪ Reviews and Monitors the progress of CRPs and submit the progress to Municipal Commissioner (with support from Environmental Engineer)		

Roles of CRPs

Roles and responsibilities	Only CRP	Sanitary inspector/supervisor
▪ Identify/Locating the Gated Communities, Apartments, Hotels and other Bulk waste generators in their respective ward		
▪ Sharing the details with Town Mission Coordinator as per the prescribed format		
▪ Awareness generation at community Level		
▪ Conducting trainings for SLFs and TLFs for awareness generation in their respective wards		
▪ Training of the HHs/ unit owners or managers to understand the process of home composting and its techniques		
▪ Weekly visits to the HHs/communities practicing home composting for monitoring purpose		

Reporting and Monitoring

CRPs shall update the daily progress of on ground activities through the monitoring tool.

City Level – Home Composting Cell

home composting cell at city level shall review the progress and resolve the issues, if any, and update the progress to the state monitoring cell

State – Home Composting Cell

State home composting cell shall monitor the daily progress shared by city composting cell.

Thank You

Image source: https://hips.hearstapps.com/hmg-prod.s3.amazonaws.com/images/how-to-compost-1520281711.jpg