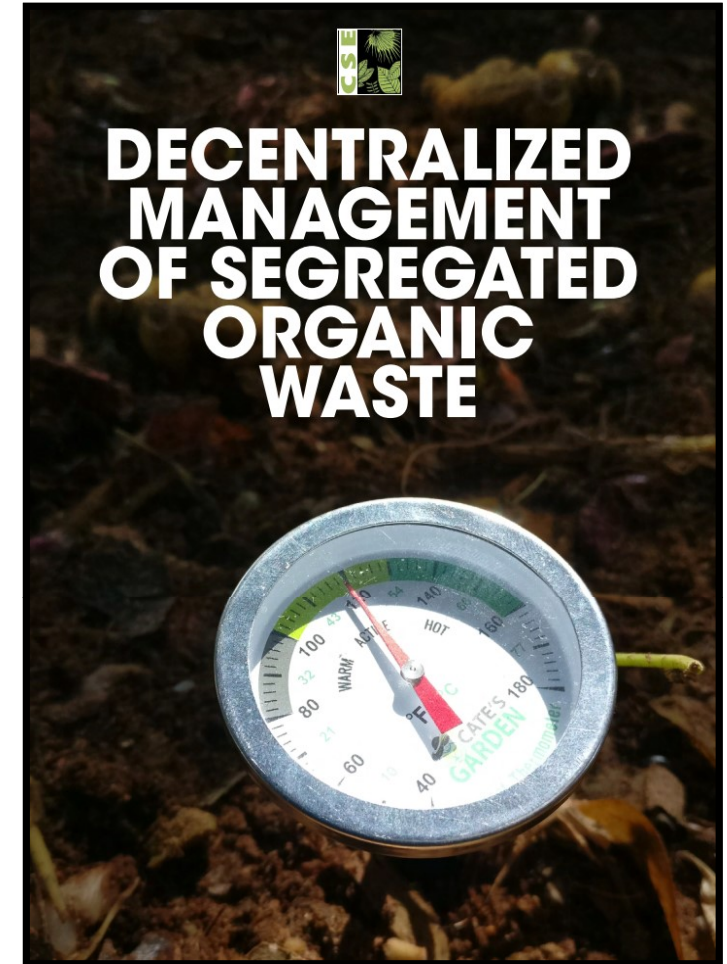


KEY FINDINGS

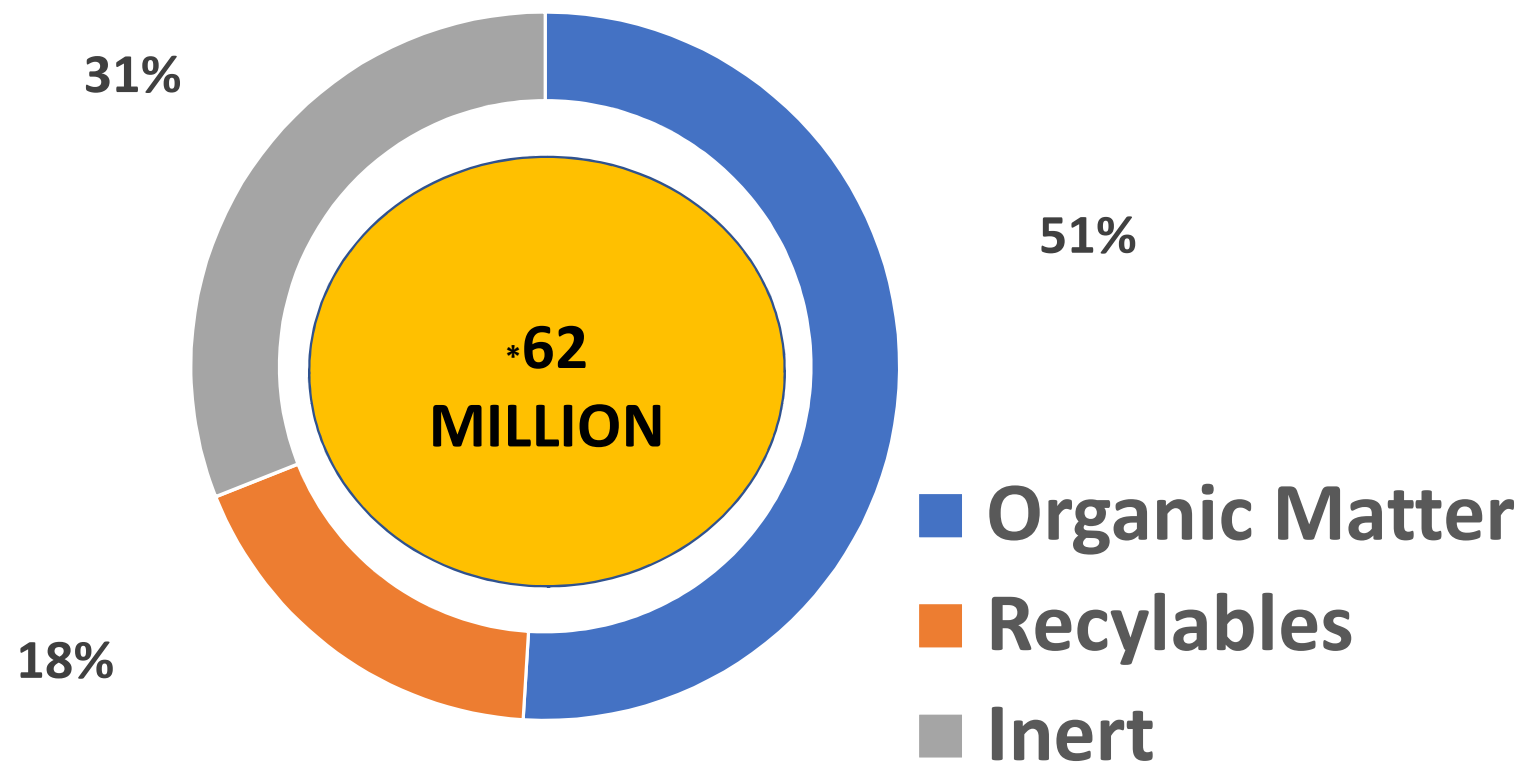
DECENTRALIZED MANAGEMENT OF SEGREGATED ORGANIC WASTE

Shailshree Tewari
Programme Officer



Municipal Solid Waste Management Unit
Centre for Science and Environment

MUNICIPAL SOLID WASTE (MSW) COMPOSITION IN INDIA



Source: Municipal Solid Waste Management Manual, MoUD, 2016

* Waste to Energy, Planning Commission Report, 2014



MUNICIPAL SOLID WASTE (MSW) MANAGEMENT

CURRENT SCENARIO



SOLID WASTE MANAGEMENT (SWM)

Waste Generated

1,40,600 Tonnes Per Day

51.31 MT per annum

Waste Processed

95,693 Tonnes Per Day

68%

100% Door to Door Waste Collection

83,525 No. of Wards



SOLID WASTE MANAGEMENT (SWM)

Waste Generated

1,32,686 Tonnes Per Day

48.43 MT per annum

Waste Processed

93,139 Tonnes Per Day

70%

100% Door to Door Waste Collection

85,209 No. of Wards

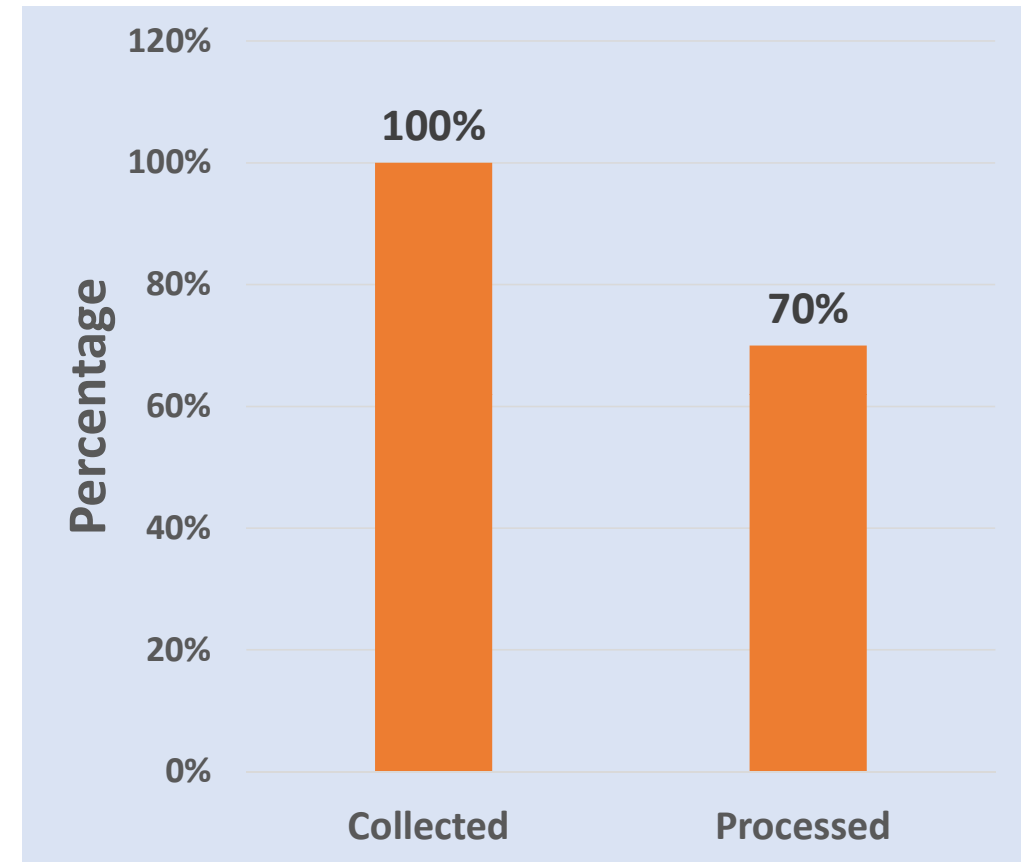
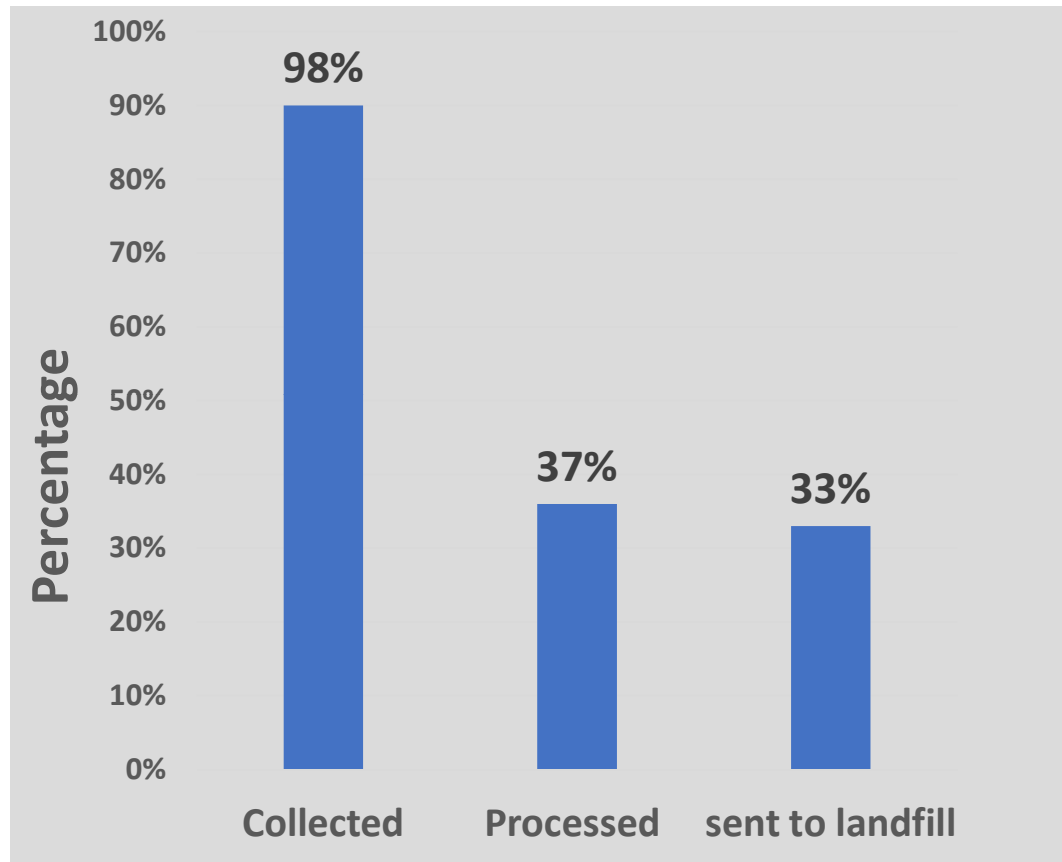
Status as on **16.03.2021**;
Source SBM(U) Dashboard, MoHUA

Status as on **10.08.2021**;
Source SBM(U) Dashboard, MoHUA



MUNICIPAL SOLID WASTE (MSW) MANAGEMENT

CURRENT SCENARIO... contd.

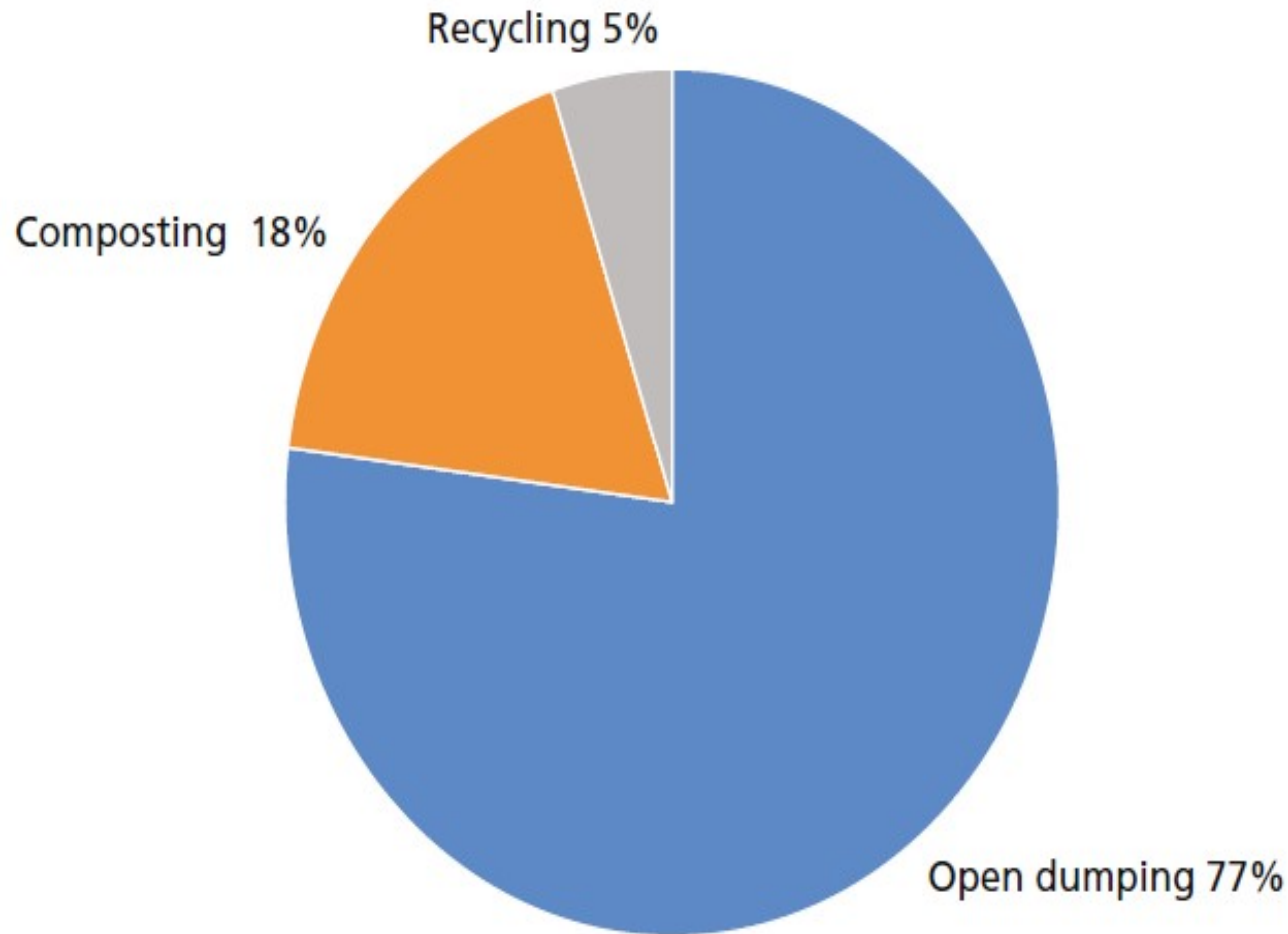


Source: CPCB, Annual Report 2018–19

Status as on 10.08.2021; Source SBM(U) Dashboard, MoHUA



CLEAR CONTRADICTION



- **3159 dumpsites**
- **23.35 million tons of waste has been dumped in 2019**
- **Fresh waste is dumped right next to the legacy waste in absence of alternative**

Source: *What a waste, World Bank, 2018*



CONSEQUENCE OF MISMANAGEMENT



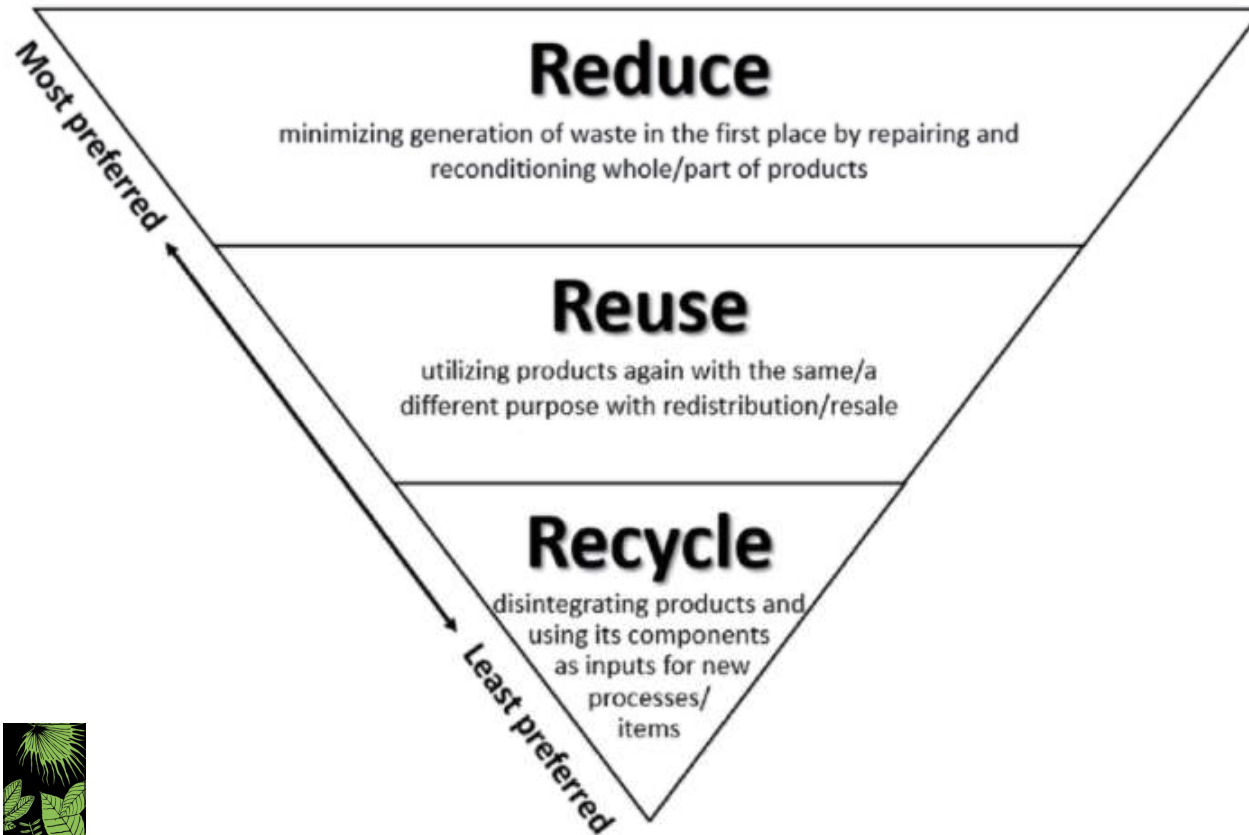
73M

65M

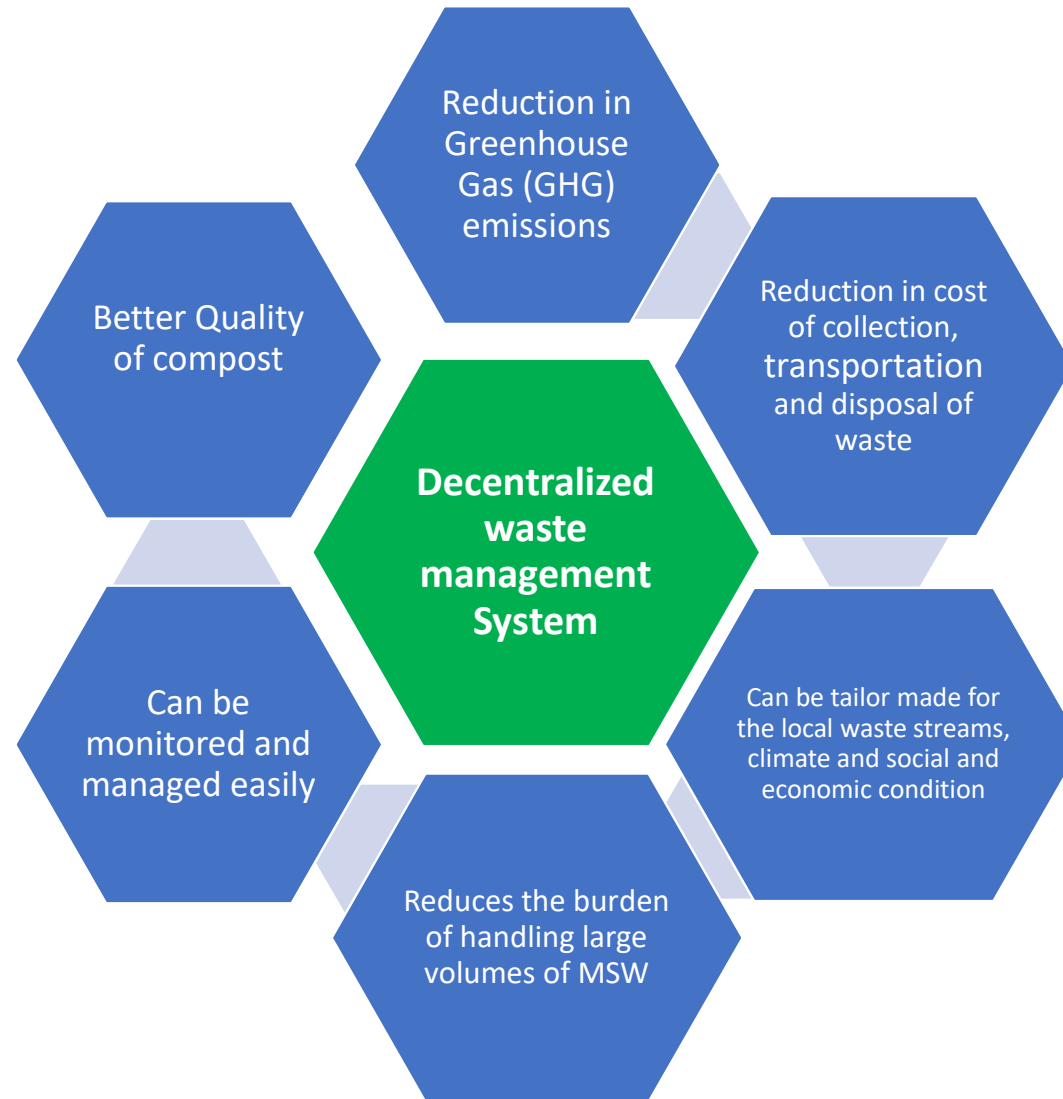
Source: Times of India, 2020

THE GOLDEN PRINCIPLE

Adopt 3R



WHY DECENTRALIZED SYSTEM?



DECENTRALIZED SYSTEM – LEGISLATIVE SUPPORT

Solid Waste Management Rules, 2016
Duties of Waste Generators

Solid Waste Management Rules, 2016
Duties of Local Authorities

City Compost Policy in India, 2016

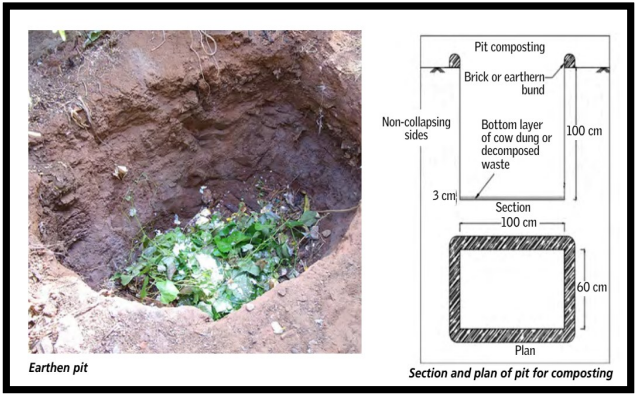
METHODS TO TREAT ORGANIC WASTE

**Aerobic
Composting**

Vermicomposting

**Anaerobic
Digestion**

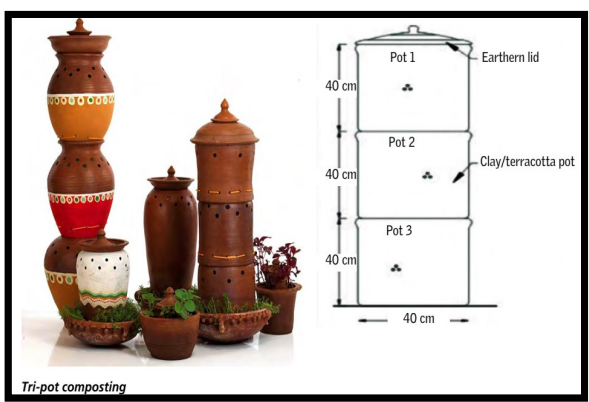
DECENTRALIZED TECHNOLOGY OPTIONS – HOUSEHOLD LEVEL



PIT COMPOSTING



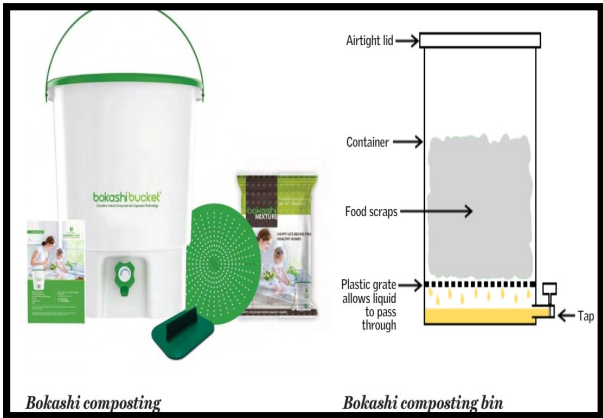
BUCKET COMPOSTING



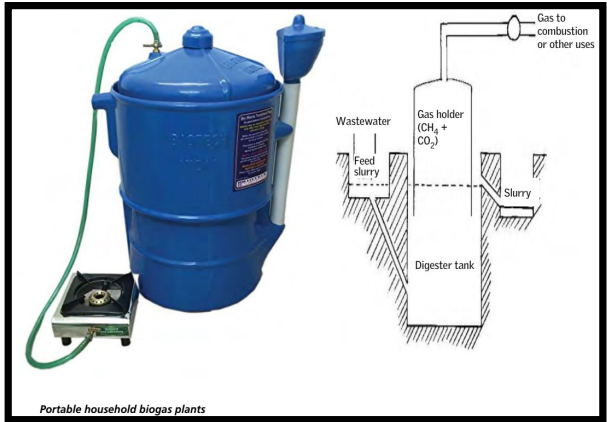
TRI-POT COMPOSTING



PIPE COMPOSTING



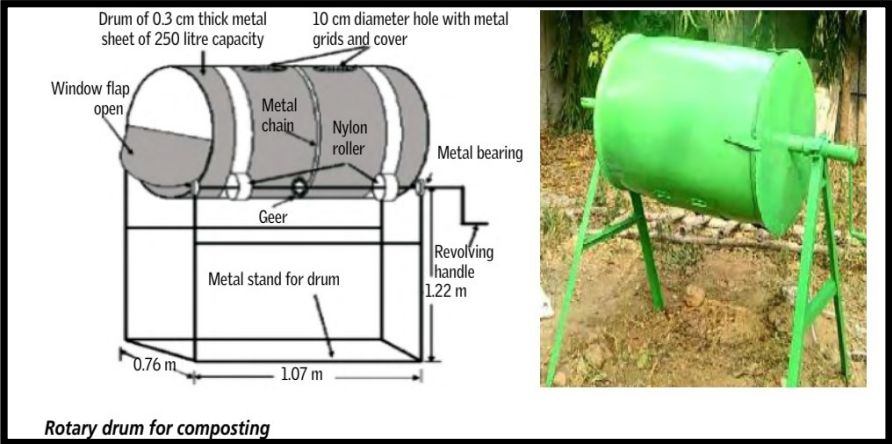
BOKASHI COMPOSTING



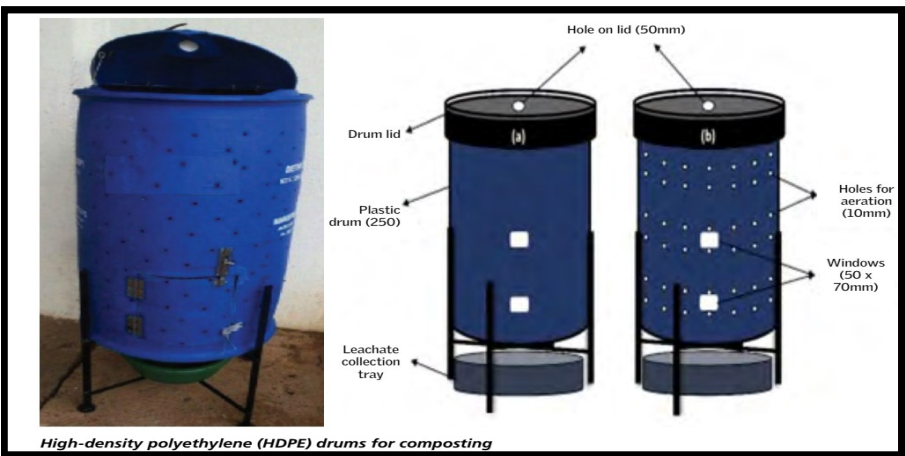
PORTABLE BIOGAS PLANT



DECENTRALIZED TECHNOLOGY OPTIONS – COMMUNITY LEVEL



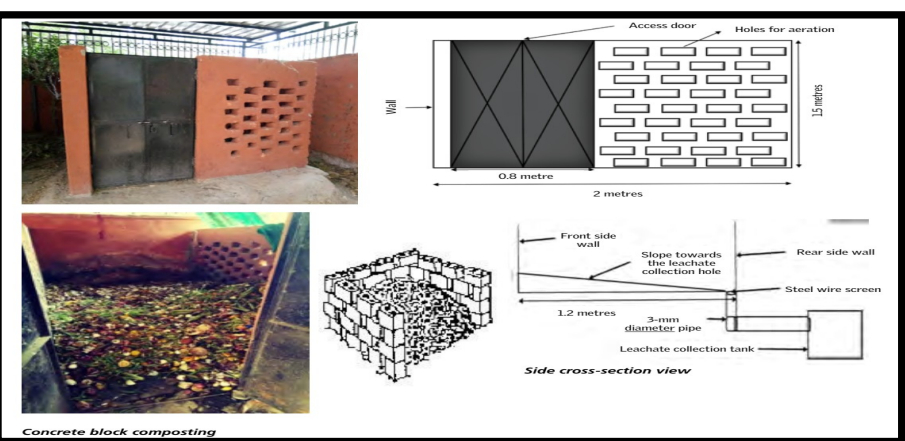
ROTARY DRUM COMPOSTING



DRUM COMPOSTING

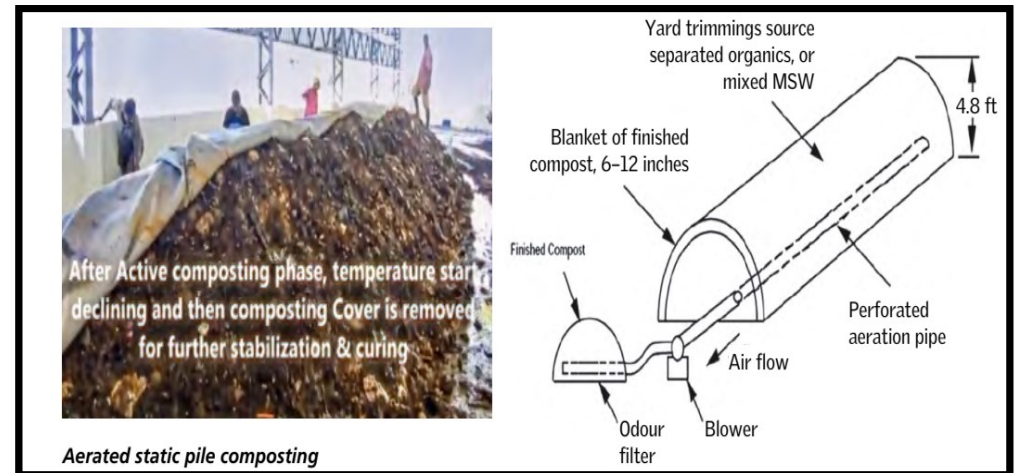
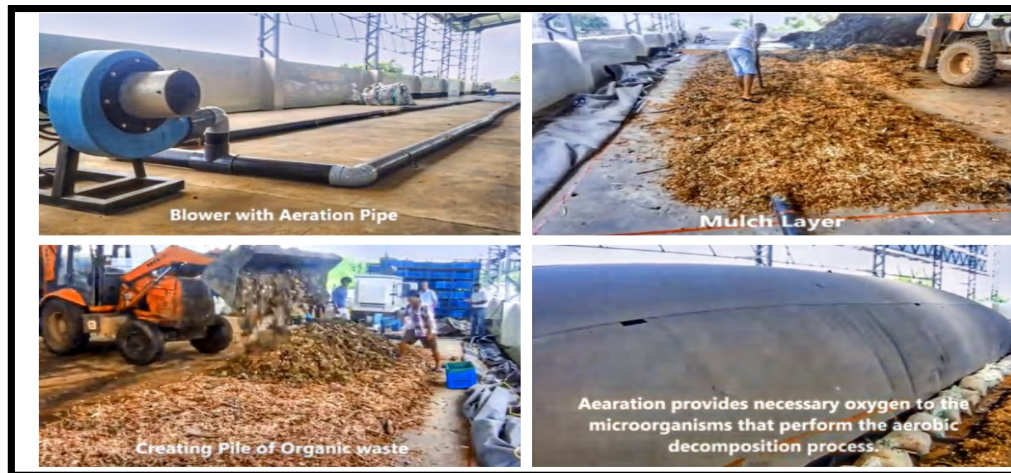


BYOBIN COMPOSTING



CONCRETE BLOCK COMPOSTING

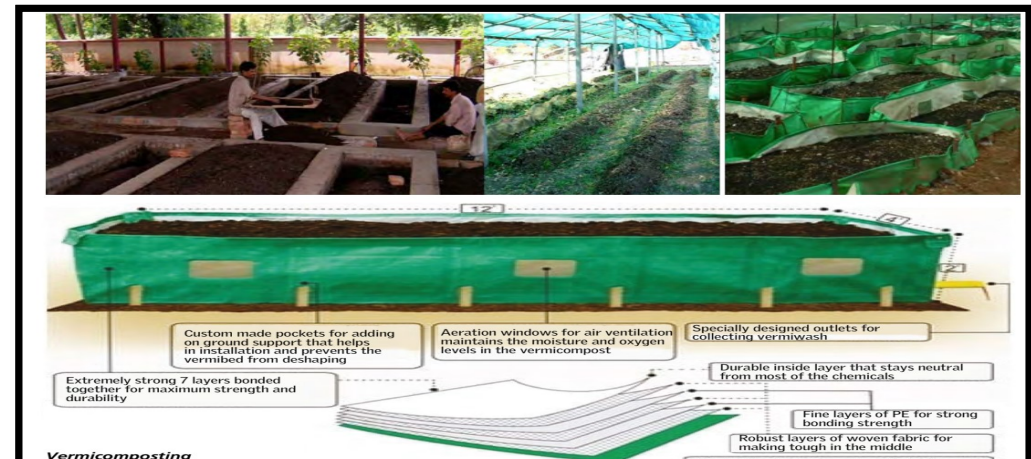
DECENTRALIZED TECHNOLOGY OPTIONS – WARD LEVEL



AERATED STATIC PILE COMPOSTING



BIOGAS PLANT



VERMICOMPOSTING

DECENTRALIZED TECHNOLOGY OPTIONS – ZONE (Cluster of Ward) LEVEL



Micro-composting centre, Paradeep, Odisha



MULTIPLE TUB COMPOSTING



Incoming waste at compost yard



Rain shed



Primary screening



Bagging machine

WINDROW COMPOSTING

IMPLEMENTATION OF DECENTRALIZED SYSTEMS

KEY CHALLENGES

Source
Segregation

Lack of technical
guidance

Low quality of
compost

No incentives for sale
of city compost from
decentralized
technologies

Process of
claiming MDA is
complicated and
restrictive process

Reluctance of
fertilizer
companies

Low trust among
consumers


Absence of market



OSIDHA SHOWS THE WAY

- The state department for housing and urban development issued an order on 16th July 2019
- Cities were directed to cancel all tender that were not in line with decentralized micro-composting
- Cities were given a clear mandate to adopt decentralized systems as a matter of state policy

e-mail : sanitationhud@gmail.com


Housing & Urban Development Department
Sachivalaya Marg, Bhubaneswar, PIN: 751001

No. 12881 /HUD., Date: 16.7.19
HUD-SAN-CASE OP-0010-2018

From
Kalyan Kumar Rath, OAS-A [SB]
Deputy Secretary to Government &
Additional Mission Director, SBM (Urban)


To
The Municipal Commissioners of BeMC, BMC, CMC, RMC & SMC
All the Executive Officers of Municipalities and NACs

Sub: Floating of or on-going Tenders in connection with solid waste management – restrictions thereon


Madam / Sir,

I am directed to intimate that no ULB shall proceed with any Tender / EoI / RfP etc. pertaining to the solid waste management **without specific approval of this Department.**

Any on-going tender / EoI / RfP etc. for the solid waste management which is not in line with the concept of decentralised Micro Composting will have to be **cancelled immediately.**

Yours faithfully,

16.07.2019
Deputy Secretary to Government &
Additional Mission Director, SBM (Urban)

Memo No. 1288A Date: 16.7.19
Copy forwarded to all the Collectors and the Project Directors, District Urban Development Agency for information and necessary action. They are requested to ensure strict observance of the instruction forthwith. **Deviations if any should be brought to the notice of this Department for appropriate action.**


16.07.2019
Deputy Secretary to Government &
Additional Mission Director, SBM (Urban)



RECOMMENDATION FOR POLICY REFORMS

To promote source segregation

Incentives and subsidies	Community Engagement
Revised contracts	Enact bylaws
Recognize best practices	Continuous IEC

To ensure quality of compost

Amendments in current FCO norms for city compost	Comprehensive assessment
Establishing testing frequencies	Subsidy for compost testing

RECOMMENDATION FOR POLICY REFORMS

To create demand

Take back
scheme

Adopt
different
models

Target for
fertilizer
companies

Awareness
among
consumers

Agriculture departments in each
district can ensure that fertilizers
companies sells compost alongside
urea to farmers

To ensure longevity of decentralized units

Registration of such
unit under ULB

Continuous monitoring
by local authority or
SPCB

Submission of records
to local authority

Local authority
Provide Technical
Guidance



Thank You!