



Training Manual on Operation & Maintenance of Material Recovery Facility for Swachha Karmis and Wealth Centre In-Charge

Housing & Urban Development Department,
Government of Odisha

Capacity Building Program for
Mission Shakti SHGs
Engaged in Sanitation Based Livelihoods

Technical Support



Disclaimer

Housing and Urban Development Department, Government of Odisha and Urban Management Centre, Ahmedabad, 2021

This training material has been prepared by Housing and Urban Development (H&UD) Department, Government of Odisha with technical support from Urban Management Centre (UMC). This document has been prepared for the trainers, who will train the Swachha Karmis and Wealth Centre In-Charge.

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Housing & Urban Development Department

The Housing & Urban Development Department, Government of Odisha, is the state's nodal department to manage urban development affairs including the Municipal Solid Waste Management. The Department, with support from the Urban Management Centre (UMC), has designed a state-wide capacity building program. The program aims to build the knowledge, skills and capacity of Mission Shakti Self Help Groups and strengthen the systems for effective and efficient management of municipal solid waste through the wealth centres.



Urban Management Centre

Urban Management Centre is a women led non-profit organization dedicated to building resilient systems for inclusive and equitable development. We work with governments to strengthen local governance and build lasting institutional structures. We also work directly with vulnerable people to ensure that they have the tools and support they need. Over the last 25 years, UMC and its teams have developed fundamental innovations in urban and rural development challenges such as performance assessment, capacity building, and decentralized institutional strengthening.

For more information, visit our website: www.umcasia.org

About this document

This Trainer's guide aims to prepare trainers to conduct successful training for Swachha Karmis and Wealth Centre In-charge. The training for this target group is envisioned to be very interactive and simple for ease of their understanding and active participation in the training program. This trainer's guide provides the trainers an easy-to-follow detailed instructions on how to conduct sessions using Trainer's guide given for each slide.

This trainer's guide is for trainers who may be empaneled by the state level authority to deliver training for building the capacities of Mission Shakti Self Help Groups engaged in sanitation-based livelihood activities.

- Thoroughly prepare yourself beforehand for the training session with clear understanding of the topics/ content and try to avoid reading the lines from PPT/Flip Book
- While imparting classroom training, trainer must use different training methods to make the session more interesting, participatory and keep participants engaged throughout the session
- Give clear directions to the participants if you are conducting any exercise or group-work
- Provide opportunity for questions- list out the questions and answer them one by one
- Manage time as per the session schedule
- Strictly follow the content and don't include or exclude any contents.
- Click at least 5 photographs/ short video (if possible) of the training session in the classroom and in-field
- Submit the attendance sheet and photographs to the Sanitation Expert/ UMC's Coordinator for certification and onward processing for release of honorarium

Preparations before training

1. The trainer must report to the venue at least one hour before the training and ensure the arrangement of the banner, white board and training tools
2. Keep the “attendance sheet” ready for recording attendance of the participants with signature.
3. Keep supporting materials and stationery handy for the group work/ group activity

Purpose of Ice breaking session:

An icebreaker is a facilitation exercise intended to help members of a group to begin the process of forming themselves into a team. Icebreakers are commonly presented as a game to "warm up" the group by helping the members to get to know each other. The trainer will organize a game as given below:

Activity: Find your Partner, Know your Partner!!!

1. Prepare various shapes of newspaper cutting into two parts, when brought together it makes a complete shape, mix all the papers.
2. Ask each participant to take one piece of paper. (1 minute)
3. Ask participants to walk around and find out the other part of the paper from other participants to complete the shape. (2 minutes)
4. After making pairs, each pair has to interact for 2 minutes.
5. Participants have to find out their partner's name, place they belong to, one thing that he/she likes and dislikes about their work and the reason behind that.
6. Introduce their partner when asked by facilitator. (15 minutes)

List of Materials required:

- Various shape cut outs as given in the training kit

Icebreaking



**Find your partner,
know your partner!!!**

Source: eventmanagerblog.com as on 24.11.21

This 2-day training program focuses on to develop understanding on municipal solid waste management system and roles and responsibilities of Swachha Karmis and Wealth Centre In-charge at Wealth Centres.

The training will be conducted in two parts:

Day-1: Classroom training mainly focusing on the following aspects -

1. Background and Introduction of the Training Program
2. What is waste, Type of waste, Source of Waste, Solid Waste Management Value Chain
3. Operation and Maintenance of Material Recovery Facility
4. Communication Skill

Day-2: In-field training on –

1. Practical training on dry waste processing at Material Recovery Facility

Training schedule

Session	Contents to be covered	Duration
Day – 1: Classroom Session		3 hours
Pre training assessment		15 minutes
Session – I	Background and Introduction of the Training Program	15 minutes
Session – II	What is waste, Type of waste, Source of Waste, Solid Waste Management Value Chain	15 minutes
Session – III	Operation and Maintenance of Material Recovery Facility	75 minutes
Session – IV	Communication Skills	45 minutes
Post-training assessment		15 minutes
Day – 2: Practical Session		2 hours
Practical training on Dry waste processing at Material Recovery Facility (MRF)		2 hours

The trainer will start by introducing the capacity building program where the vision, mission, and objectives of the state-wide capacity building program will be discussed.

Session - 1

Background and Introduction to the Capacity Building Program

State's vision for O&M of Wealth Centres

The trainer should emphasize on overall objective of state's program which is to create sanitation-based livelihoods for Mission Shakti Groups and strengthen their capacities.

*“Swachha Odisha, Sustha Odisha”
by effective and efficient management of waste to
create wealth*

The trainer will give introduction to the state's mission of collectivizing sanitation workers, waste pickers, transgenders and empowering them with the knowledge and skills for managing the solid waste management value chain.

“Mission Shakti SHGs of sanitation workers, waste pickers and transgenders are skilled and empowered to lead waste management for cleaner and greener cities, which brings employment, assured income and dignity for them.”

Objective of Capacity Building Program

The trainer will ask the participants if they are aware about the program.

Then, trainer will introduce the objectives of the capacity building program as shown in the slide.

Objective of Capacity Building Program

- To support MS-SHGs to manage solid waste to create wealth
- To build knowledge, skills and agency of MS-SHGs for operation and maintenance of wealth centres
- For effective and efficient operation and management of wealth centres for processing “waste to wealth”

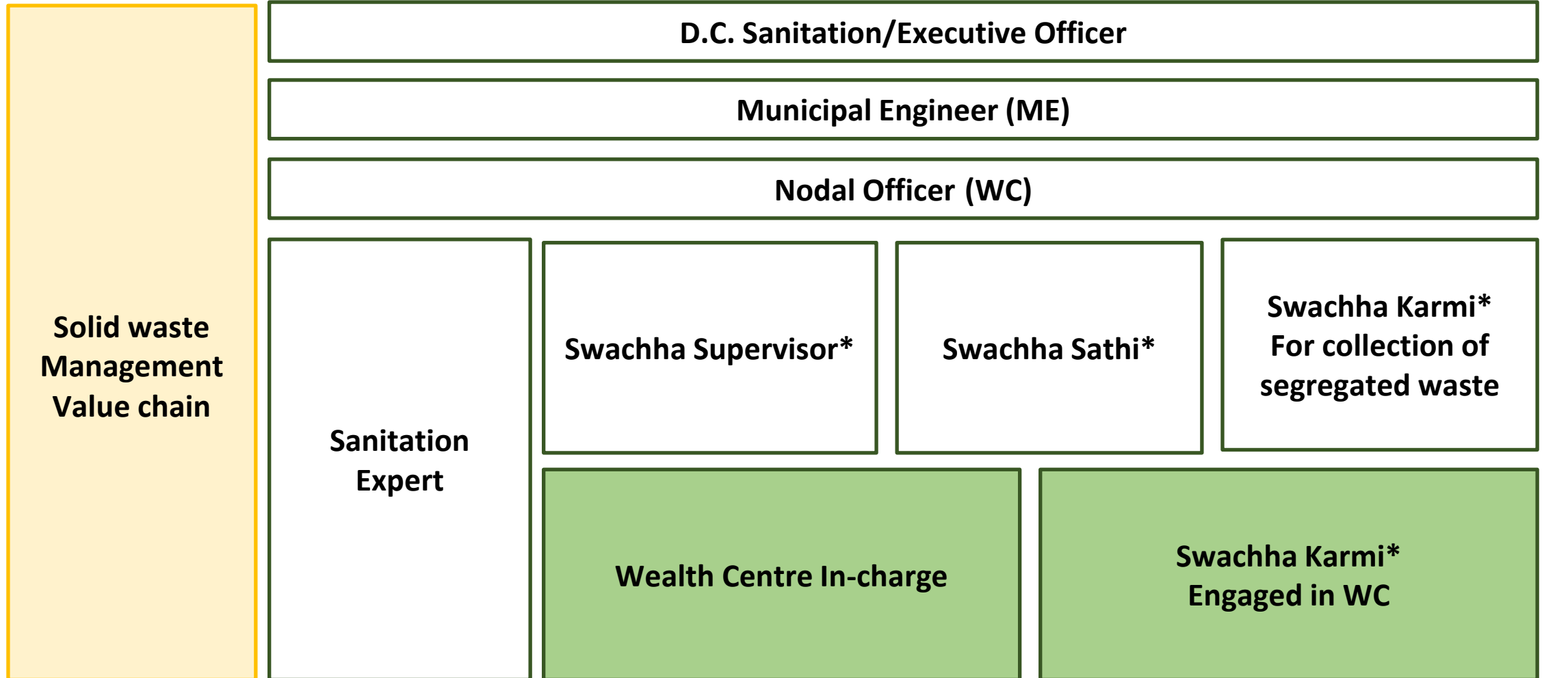
Municipal waste management is the prime responsibility of the Urban Local Body, hence various stakeholders are involved in the management of municipal solid waste.

Every individual has to play their role in implementation of the program, start from Executive Officer (EO) to Swachha Karmis.

The trainer will explain the involvement of Swachha Karmis and Wealth Centre In-Charge in source segregation, waste collection and transportation, and management of the Wealth Centre.

Say: You as a Swachha Karmi and Wealth Centre In-Charge play a very important role in management of municipal solid waste.

Stakeholders - Municipal Solid Waste Management



**MS-SHG members*

The trainer will ask the participating MS-SHGs members about their mode of engagement in MRF.

Based on the particular mode of engagement of MS-SHGs members present in the training, the trainer will emphasize on the mode of engagement and discuss about elevation of MS-SHGs engagement leading to profit sharing mode.

However, the discussion has to be based on the local conditions.

MS-SHGs of waste pickers or others engaged at MRF

- Odisha prioritizes engaging MS-SHGs of waste pickers, trans-genders and/or others for operation and maintenance of MRF
- ULBs identify MS-SHGs groups and builds their capacities for effective and efficient operation and maintenance of MRF
- MS-SHGs' members can be engaged as Swachha Karmis or may be engaged to manage MRF as a profit-sharing partner.
- ULBs will evaluate the performance of MS-SHGs in every six month to grade their performance
- Based on their grading, further handholding and capacity building will be arranged

The trainer will discuss about the importance of contract between ULB and MS-SHGs as discussed in the next slide.

Say: The written contract must have;

1. MS-SHG friendly contract
2. Defining clear role and responsibilities of MS-SHGs and ULB
3. Terms of engagement
4. Mode of payment of incentives and profit sharing
5. Maintenance responsibilities
6. Managing situations of risk and uncertainties / Theft / damage
7. Renewal / Termination of Contract
8. Insolvency / forced majeure

The written contract is a formal document the safeguard the rights and entitlements of MS – SHG.

Written Contract between ULB and MS-SHG

- MS-SHG friendly contract
- Defining clear role and responsibilities of MS-SHGs and ULB
- Terms of engagement
- Mode of payment of incentives and profit sharing
- Maintenance responsibilities
- Managing situations of risk and uncertainties / Theft / damage
- Renewal / Termination of Contract
- Insolvency / forced majeure

“Written contract” will help in protecting the rights and entitlements of MS – SHG

Session – 2: What is Municipal Solid Waste?

Say: This training program has been organized for you because you all are playing a key role in Municipal Solid Waste Management

Today we will learn the followings.

- What is waste?
- Where does the waste come from?
- Quantity of waste generated per day at ULB level?
- Types of waste
- Municipal solid waste management value chain

Session - 2

What is Municipal Solid Waste?

Before starting the session on municipal solid waste management, the trainer will trigger the discussion with participants by asking basic questions to make the session interactive.

Before explaining “what is waste?”, the trainer will ask the participants what is their understanding about the waste.

Ask: What is waste?, explain with example:

Trainer should first listen the response of the participants and then list out the responses in a white board/ flip chart.

At the end of the exercise, trainer should summaries the meaning of waste using the next slide linking it to the responses from the participants.

List of Materials required:

- White board/ Flip chart, Marker pen/ Sketch pen

What is Waste?

What is Waste?

Say: By definition, waste means any material or substance that has been discarded after it has served its purpose, is “Waste”.

It can also be called “Trash”, “Garbage”, “Kachra”, “Kuda”, etc.

What is Waste?



Any material that is discarded after its primary use is called ‘WASTE’ – “unwanted” or “useless”

Source: Waste Management_ IEC Campaign, An initiative of : Ahmedabad Municipal Corporation, 2012-13

Where does the Waste come from?

The trainer here will discuss about the source of waste and the waste generators.

Say: We all generate waste. Right?

Any activity that we do generates some waste. Such as food leftovers, waste wrappers, damaged or broken electronic items, discarded clothes and so on.

The waste is generated by households, commercial establishment such as shops, offices, hotels, restaurants, malls, markets, institutional areas such as schools, colleges, public institutions, religious spaces and parks, gardens and fairs.

Basically, waste is generated everywhere and by everyone.

Where does the waste come from?



Households



Shops and commercial establishments like hotels, restaurants, malls



Institutions like schools, hospitals, colleges



Vegetable, fish and meat markets



Temples and religious places



Parks, Gardens and Fairs

Source: pngfinder.com, canstockphoto.com, classroom clipart.com, 123rf.com, pngtree.com, canstockphoto.com as on 24.11.21

In order to manage the waste, first there is a need to understand the types of waste.

Before moving forward, the trainer will first ask the participants about their understanding on types of municipal solid waste.

- The discussion can be triggered by asking questions to random participants such as:
 - ✓ Do you know how many types of waste there are?
 - ✓ Can you name the types of waste?
- The trainer will make a note of the response received from the participants on white board/ Flip chart

Once the response from participants is received, the trainer will show the types of waste shown in the next slide.

List of Materials required:

- White board/ Flip chart, Marker pen/ Sketch pen
- Show different kind of waste

Types of Waste

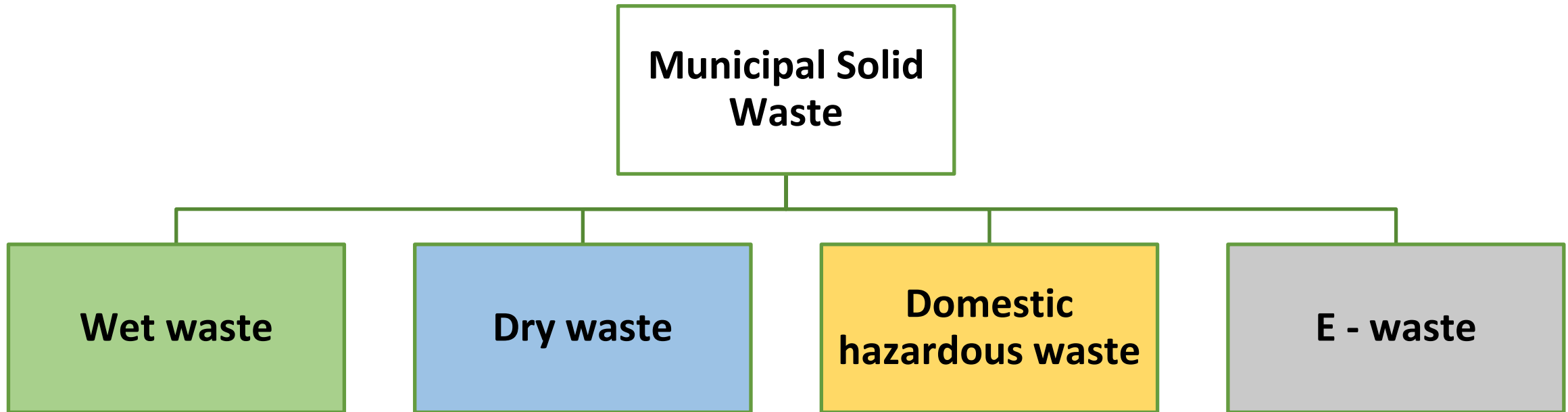
What is in our waste?

Say: Now let's see what all is there in our waste dump. The waste we generate is categorized into four major categories:

- (1) Wet waste
- (2) Dry waste which is further categorized into two recyclable and non-recyclable waste.
- (3) Domestic hazardous waste and
- (4) E-waste.

Let's understand each of these in detail.

What is in our waste?



Say: Wet waste is a type of waste that may be degraded by living micro-organisms and decomposes fast.

It includes kitchen waste such as vegetable/ fruits peels, rotten vegetable/ fruits. The garden waste such as flowers, branches, leaves are also considered as wet waste. The leftover food wastes, fish/ meat bones, eggshells and expired packaged food without the packaging.

Wet waste is also known as Bio-Degradable Waste. It is also commonly called as Green Waste.

Let's understand wet waste

Wet waste – “Any organic material that can be degraded by micro-organisms and decomposes fast”



Kitchen waste

- Discarded food grains
- Vegetable/fruit peels



Garden waste

- Flowers
- Leaves
- Grass



Leftover food

- Leftover cooked Food
- Fish/meat bones
- Egg shells
- Expired packaged food (without packaging)

Source: MISAAL IEC material, Urban Management Centre, 2019-20; depositphotos.com as on 24.11.21

Say: Dry waste is a type of waste that cannot be degraded by micro-organisms and takes longer time to decompose. The dry waste is can also be called non-biodegradable waste. It further categorizes in two categories: (1) Recyclable and (2) Non-recyclable

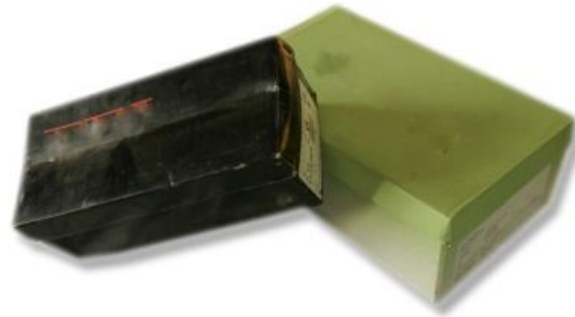
- (1) Recyclable waste includes materials such as paper, cardboards, plastic, metal, tins, rubber, glass and dry coconut shells and such similar materials. Recycling is the process of turning used materials into new products.
- (2) Non-recyclable waste includes materials such as thermocol, styrofoam, tetra packs, cloth, etc. These waste cannot be recycled.

Let's understand dry waste

Dry waste – “Any waste that cannot be degraded by micro-organisms takes longer time to decompose”



Papers



Cardboards



Plastic



PET bottles



Metal



Tin cans



Glass



Thermocol/ Styrofoam

Source: Waste Management_ IEC Campaign, An initiative of : Ahmedabad Municipal Corporation, 2012-13; thermocolinsulation.com as on 25.11.21

Say: The “Domestic hazardous waste” is any hazardous waste generated at the household level. It generally consists:

- Discarded paint drums
- Pesticide cans
- CFL bulbs
- Tube lights
- Expired medicines
- Broken mercury thermometers
- Used batteries
- Used needles and syringes
- Soiled bandages, etc.

Let's understand domestic hazardous waste

Domestic hazardous waste – “Any hazardous waste which is generated at the household level”



Expired medicines



Used paint containers



Used Batteries



Sanitary waste



Bulbs & Tube lights



Used Blades



Injections & Syringes

Source: Waste Management_ IEC Campaign, An initiative of : Ahmedabad Municipal Corporation, 2012-13; Urban Management Centre, 2019-20

Say: Any electrical and electronic equipment, whole or in part or rejects from their manufacturing, refurbishment, and repair process, which are intended to be discarded as waste is known as E-waste. It generally consists of broken/ damaged/ unused electronic items such as:

- Television, radio, music system
- Computer and its accessories
- Home appliances (mixer grinder, microwave-oven, toaster, water filter, gas-stove, etc.)
- Telephone, Mobile phone, etc.

The ULB is responsible for collection, storage, and disposal of e-waste. The waste generators will have to hand over the E-waste to the waste collector of ULB. The e-waste management rules specify that the collected e-waste at the collection point/MRF should channelize the e-waste to recyclers.

Let's understand e - waste

E- waste – “Any electrical and electronic equipment, which is discarded and has no further use”



Television, radio, music system



Telephones, Mobile phones



Computer, its accessories, home appliances

Source: Waste Management_ IEC Campaign, An initiative of : Ahmedabad Municipal Corporation, 2012-13; Urban Management Centre, 2019-20

The trainer will discuss about the Solid Waste Management value chain.

SWM Value Chain – To efficiently manage the solid waste generated within the local body area, it is necessary to understand the SWM value chain. The management of municipal solid waste begins with waste generation, source segregation, collection and transportation of waste, its processing and treatment and ends with the scientific disposal of waste.

While explaining the Municipal Solid Waste Management Value Chain, the trainer will talk about the four steps in detail as discussed in the subsequent slides.

Say: As shown here in the diagram, the solid waste management value chain has four steps: Source segregation, collection and transportation, processing and disposal.

Each of these components of value chain are required to recover potential valuable resources and allow the reuse and recycling of such resources.

To realize the “wealth” hidden in “waste”, the ULBs are responsible to establish a system for the management of each component of value chain starting from waste generation to waste disposal.

We will now understand each of the step of value chain in detail.

Municipal Solid Waste Management – Value Chain



1. Segregation at source



2. Collection and Transportation



4. Disposal



3. Processing

Source: Waste Management_ IEC Campaign, An initiative of : Ahmedabad Municipal Corporation, 2012-13; Urban Management Centre, 2019-20

The trainer will organize the game to explain the source segregation in a participatory manner.

Game instruction:

- The trainer will put three color buckets in one place and explain them about the buckets; which color bucket is for which waste (Green is for wet waste, Blue is for dry waste, and Maroon is for E-waste)
- Put all picture cards in the container and reshuffle it again and again throughout the game
- Trainer have to call one by one to each participant and ask them to pick a card from the container – the participant will see the picture properly and drop that card in the appropriate bucket; Trainer has to ensure that every participants have participated in this game one by one.

After game is over, the trainer has to make a quick shorting of cards from the bucket and explain the participants about objective of game (also highlight if there any variations happened in segregation) and importance of source segregation.

List of Materials required for game:

- 3 numbers color buckets (Blue, Green, Maroon), at least 30 cards having picture of different type of wastes (dry, wet, and e-wastes) . One plastic container – where one can put the hand inside the container and pick a card easily;

Source Segregation

Say: The waste is required to be segregated at source based on its type in 3 categories.

Source segregation is important because;

- It saves time and resources for manual or mechanical sorting of mixed waste at Wealth Centre
- It is much easier to recycle- processing of composting of wet waste
- Segregated waste has more value (recyclable)
- Very effective for waste processing
- Less waste go to landfill

Source segregation



Swachha Sathi to ensure:-

- Each household segregate their waste into wet, dry and e-waste
- Segregated waste is put in the relevant compartments of the waste collection vehicle



Types of waste as per collection

Daily Collection



Weekly Collection



Say: The next in the value chain is collection and transportation of segregated waste.

Once the waste is segregated at source by the waste generators, it is the responsibility of ULB to timely collect the waste in segregated manner and transport it to the wealth centres.

The Urban Local Body is responsible for setting-up a system for collection and transportation of waste and hence, the provision of waste collection vehicle has to be done by ULB.

There are various types of waste collection vehicles with separate chambers/ partition for the wet and dry waste that can be used based on the household coverage area and amount of waste to be collected.

ULB also provides facility of E-waste collection on weekly basis.

The Government of Odisha has introduced a Battery-operated Vehicle (also known as BoV - “Swachh Sabari”) with separate chambers (partitions) for the wet and dry waste to facilitate the collection with ease and dignity.

Say: Once the system is set by the ULB, the Swachha Sathis have to ensure that the timely collection of segregated waste from each household is done and transported to the wealth centre.

To ensure that each household gets covered, and collection happens on stipulated time, route has to be planned and followed accordingly.

Collection and Transportation of Waste

- ULB collects segregated wet and dry waste from the households daily
- E-waste is collected once in a week from the households
- ULB provides waste collection vehicles with separate compartments for wet & dry waste



Pushcart
150-250 HHs



Tricycles
200-300 HHs



BoV ("Swachch Sabari")
400-500 HHs



LCV
1000 HHs

Source: Urban Management Centre, 2021

After building the understanding on Solid Waste Management Value Chain, the trainer will discuss about the dry waste processing at Wealth Centre and operation and maintenance of Material Recovery Facilities.

The Government of Odisha has decided to take up decentralized solid waste management system for processing municipal waste across the state by establishing Micro Composting Centres (MCCs) and Material Recovery Facilities (MRFs) in all ULB. The facility where MCC and MRF are co-located will be known as “Wealth Centre”.

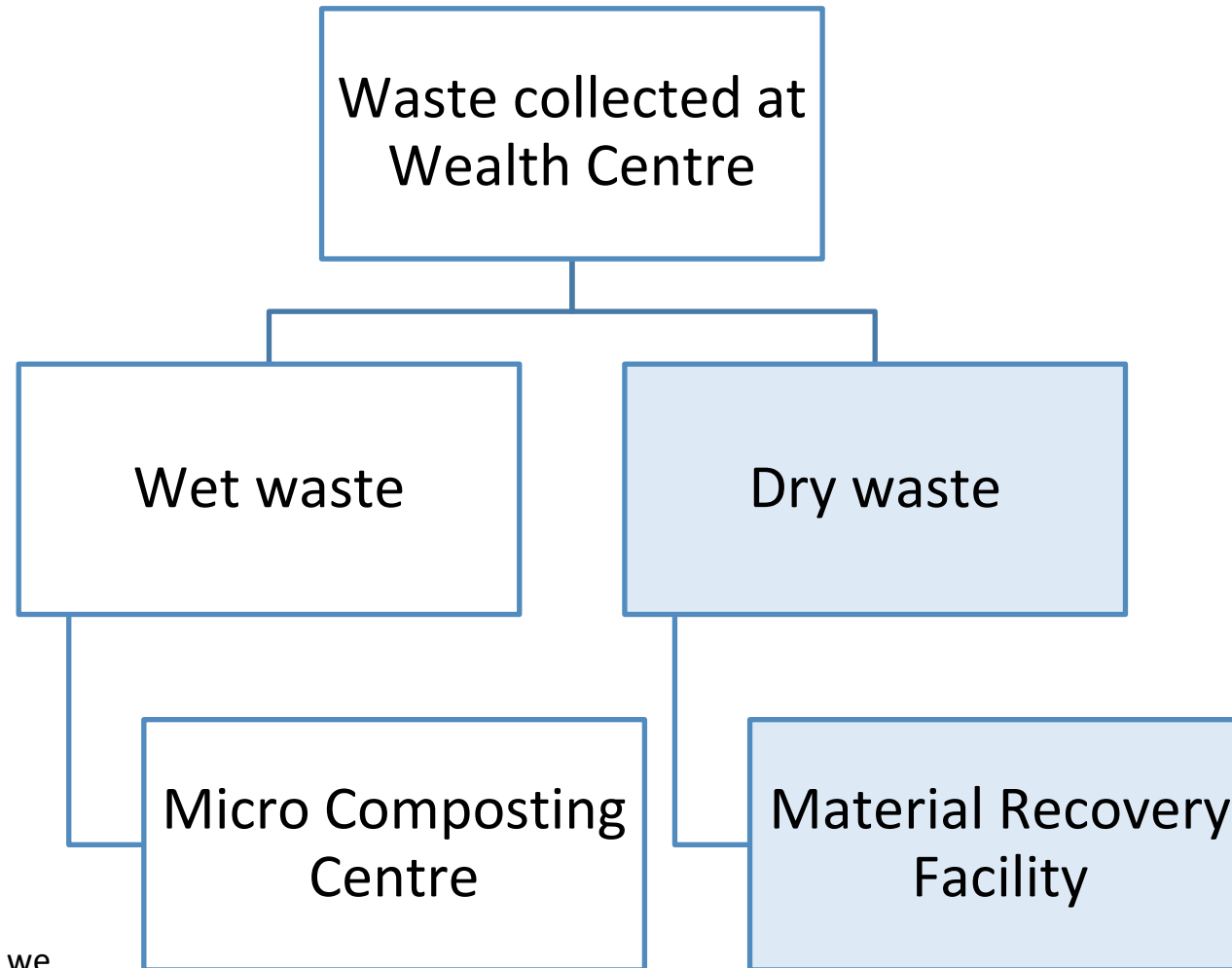
Session - 3

Operation and Maintenance of Material Recovery Facility

Say: Once the waste is collected from the households in segregated manner, it reaches at the designated wealth centres, where the dry waste is received at the MRF.

Let's now understand what MRF is and how the dry waste is processed once it reaches to the wealth centre.

Processing of dry waste



For the purpose of this manual, we will be focusing on O&M of MRF

What is Material Recovery Facility?

Say: A Material Recovery Facility (MRF) is a facility where dry waste is sorted and stored as recyclables, and further sold to bulk waste buyers, Scrap dealers or recyclers.

What is Material Recovery Facility?

- A Material Recovery Facility (MRF) is a facility where dry waste is sorted into different categories and sold to bulk waste buyers/ Scrap dealers/ Recyclers

Dry waste is received



Dry waste is sorted into different categories and stored



Sold to recyclers



Source: Urban Management Centre, 2021

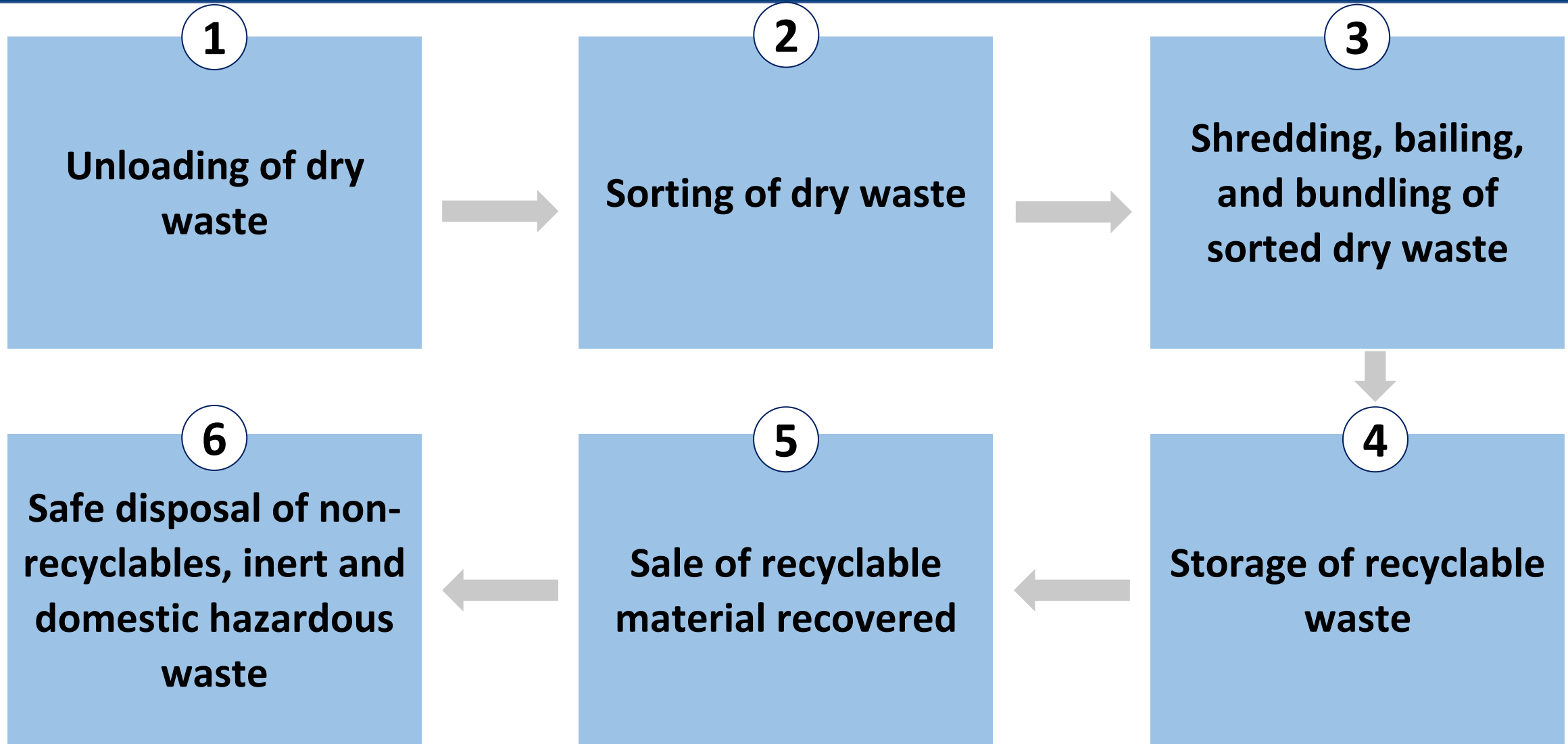


Say: At MRF, the dry waste processing mainly contains six stages:

1. Unloading of dry waste
2. Sorting dry waste into further categories
3. Shredding, bailing, and bundling of sorted dry waste
4. Storage of recyclable waste
5. Sale of recyclable material recovered
6. Disposal of domestic hazardous waste and inert

We will understand each of these in detail.

Dry waste processing at MRF



1. Unloading of dry waste

Say: Once the waste is received at the MRF, weigh and record the quantity of dry waste received.

BoV without any load may be weighed at weighbridge in the first instance for one time only and weight recorded along with vehicle Number.

When it arrives at the Wealth Center with loaded dry waste in separate chambers, its weight is measured and recorded.

Once the weight of the dry waste is recorded, unload the waste at the waste receiving platform/yard.

1. Unloading of dry waste



Receiving of dry waste



Weighing of dry waste=
weight of waste loaded
BoV/LCV- weight of
empty BoV/LCV



Unloading of dry waste

2. Sorting of dry waste

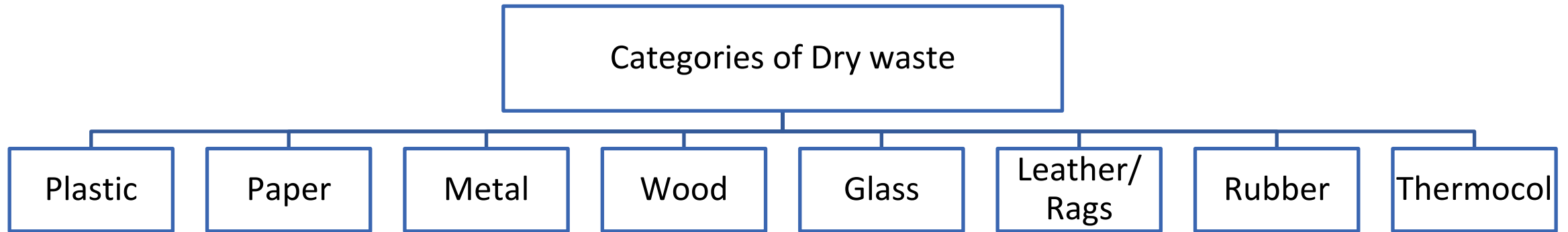
Say: Received dry waste at MRF is sorted based on the nature and category of the waste.

The dry waste is generally sorted manually, by the Swachha Karmis in the seven categories of;

1. Plastic
2. Paper
3. Metal
4. Wood
5. Glass
6. Leather/ Rags
7. Rubber
8. Thermocol

At this stage, Swachha Karmis should ensure the removal of any bio-degradable waste that is mixed with the dry waste.

2. Sorting of dry waste



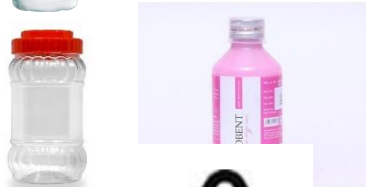
- Further sort the dry waste into various categories
- Remove the bio-degradable waste, if any



Let's understand category of dry waste received at MRF

The trainer will explain the other sub-categories of dry waste with examples of each.

Let's understand category of dry waste received at MRF



Polyethylene Terephthalate



High-Density Polyethylene



Low-Density Polyethylene



Polystyrene



Multi-Layer Plastics



Tin



Cardboard



Glass



Paper

Let's understand categories of dry waste

Sr. No.	Category of Dry Waste	type	Common Household Waste
1	Plastic	Polyethylene Terephthalate (PET)	Jars, Bottles, Beanbags, Ropes, Carpet, Tote Bags, Combs
		High-Density Polyethylene (HDPE)	Containers, Grocery Bags, Shampoo Bottles, Toys, Trash Bags
		Polyvinyl Chloride (PVC)	Plumbing Pipes, Tiles, Shoes, Ducts, Sewage Pipes
		Low-Density Polyethylene (LDPE)	Cling Wrap, Frozen Food Wrapping, Condiments
		Polypropylene (PP)	Tupperware, Kitchenware, Plastic Diapers, Disposable plates and cups, bottle caps
		Polystyrene (PS)	Disposable coffee cups, Plastic Cutlery, Peanut packaging
		OTHERS/Multi-Layer Plastics (MLPs)	CD's. DVD's, Eyeglasses, Baby bottles, Tetra packs, Food Packaging (Lays Packet, Kurkure Packet etc.)

Source: TSU – WC team, Urban Management Centre

Let's understand categories of dry waste

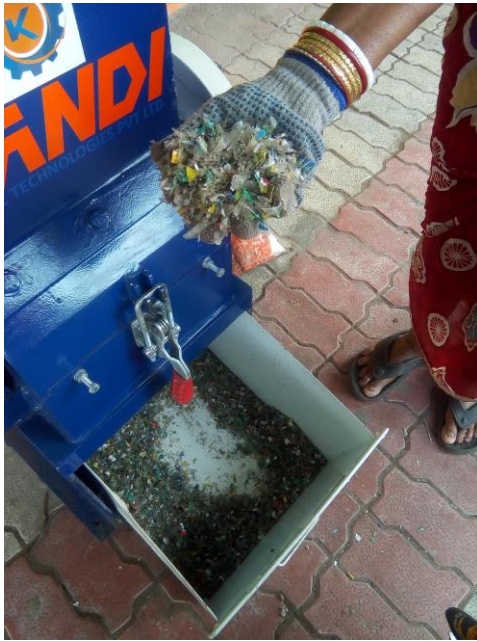
Sl. No	Category of Dry Waste	Type	Common Household Waste
2	Paper	Corrugated Cardboard	Packaging boxes, Egg Cartons, Shoe boxes, cereal boxes
		Mixed Paper	Mail, Catalogues, Phonebook's magazines
		Newspapers (ONP)	Newspapers
		High Grade Inked Paper	Envelopes, Copy Paper, Letter Heads
3	Metals	Aluminum	Aerated Beverage Cans, Aluminum Foils
		Steel	Food Cans, Stainless steel mugs, Toys, Lids
		Tin	Cans, Household containers
		Iron	Cooking Instruments
4	Wood	Wood	Broken Furniture, Blocks, Boxes
5	Glass	Container Glass	Bottles, Jars, Glassware, Bulbs
5	Leather, Rags and Rubber	L and R	Garments, Shoes, Bands, Wires
7	Thermocol	Polystyrene Foam	Styrofoam, Small or Large Packaging
Source: TSU – WC team, Urban Management Centre			

3. Shredding/ bailing/ bundling of sorted waste

Say: The next step is 'shredding'. Shredding is generally done for plastic waste.

- The dry and dust free thin plastic is shredded into 2-4 mm flakes using thin plastic shredder.
- These shredders break up the plastic into small pieces/flakes, preparing them for recycling into other products.
- The value of shredded plastic is more in comparison to non shredded waste and also it is easy to transport.
- The bailing machine is used to compress high volume of plastic waste/PET bottles, MLPs, cardboards, papers etc., into rectangular bales and bundle them for ease of storage as it consumes less space.
- Once the waste is sorted, record the weight of the sorted waste as per the categories.

3. Shredding/ bailing/ bundling of sorted waste



Shredding



Bailing and bundling



Weighing of sorted waste

- Use shredding machine to shred the plastic waste to get higher price from recycler
- Bale and pack the sorted waste in large bags or bundle it for easy storage and reduce space consumption
- Weigh the sorted dry waste as per the categories and record it daily

4. Storage of sorted waste

Say: The sorted and compacted waste should be kept in a demarcated storage area of MRF.

The storage room should be properly covered with proper ventilation and should be equipped with fire safety equipment.

4. Storage of sorted waste

- Put the sorted waste in respective storage area
- Storage area should be well ventilated and equipped with fire safety equipment.



5. Sale of recyclable material recovered

Say: The sale of recyclable materials is to be managed by the Wealth Centre in co-ordination with ULB.

The recovered recyclables from the dry waste are required to be sold to the empaneled agencies at the rates approved by the ULB.

Amount payable by the agency is to be deposited in the savings bank account or “Corpus Fund” of the concerned “Wealth Centre”.

5. Sale of recyclable material recovered

- Sell the recyclable waste to Kabadiwalas/ recyclers/ manufacturers
- Maintain the receipts of the sale of recyclables
- Deposit money collected in the savings bank account (Corpus fund) of the Wealth Centre



6. Safe disposal of non-recyclable/ inert waste

Say:

- Send the non-recyclables such as Multi-Layer Plastics to cement factories to be used as Refused Derived Fuel (RDF)
- Remaining Inert waste should be transported to the designated landfill.

6. Safe disposal of non-recyclable/inert waste

Non-recyclable MLP



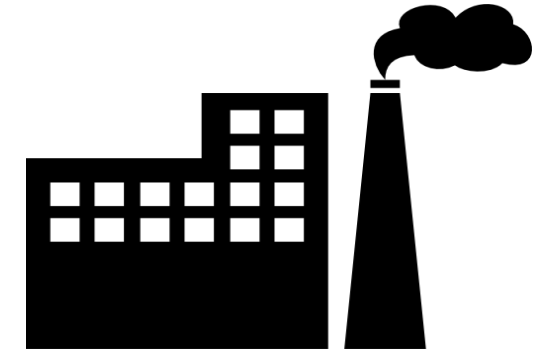
Inert waste



Storage of non-recyclable and inert waste at MRF



Transportation of non-recyclable waste by wealth centre



Cement factories to be used as Refuse Derived Fuel



Disposal at designated landfill

Non-recyclables

Inert waste

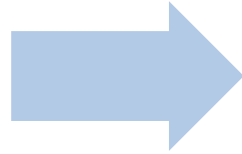
7. Incineration of domestic hazardous waste

Say: Sanitary waste (sanitary napkins, diapers, condoms etc.) Incinerator should be placed at Wealth Centre for safe disposal.

7. Safe disposal of domestic hazardous waste



Sanitary waste



Incinerators for Sanitary waste disposal

- Sanitary waste (sanitary napkins, diapers, condoms etc.) Incinerator should be placed at Wealth Centre for safe disposal.

Record Maintenance at MRF

Say: It is the responsibility of a Wealth Centre In-charge to maintain records.

Record Maintenance at MRF

Say: Wealth Centre In-charge are responsible for maintaining records of different things as per the frequency mentioned. The record of;

- Waste Received
- Segregated Waste
- Recyclable Sold
- Non-recyclable Disposed
- Sanitary waste Disposed
- Domestic Hazardous waste disposed
- E-waste disposed
- Disbursal of incentive
- Daily attendance marking
- PPE inspection record
- Monthly meetings record

Explain the frequency of data entry in Ama Sahara App as mentioned in the table.

Frequency of data entry in 'Ama Sahara'

Roles [Types of data entry]	Parameters /Forms and data	Frequency for filling in the forms
Wealth Centre In-charge [MRF MIS Forms]	Waste Received	Daily
	Segregated Waste	Daily
	Recyclable Sold	On the date of sale
	Non-recyclable Disposed	On the date of disposal
	Sanitary waste Disposed	Daily
	Domestic Hazardous waste disposed	On the date of disposal
	E-waste disposed	On the date of disposal
	Landfill	NA
	Disbursal of incentive	Monthly
Wealth Centre In-charge/ Swachha karmi [Attendance Marking]	Attendance	Daily

After explaining about operations and maintenance of MRF, the trainer will discuss about the various facilities of wealth centres, which is common for Micro Composting Centre and Material Recovery Facility.

Session - 4

Common resources and facilities at Wealth Centre

Say: Human resource with appropriate skills and number is required for efficient operationalization of MRF.

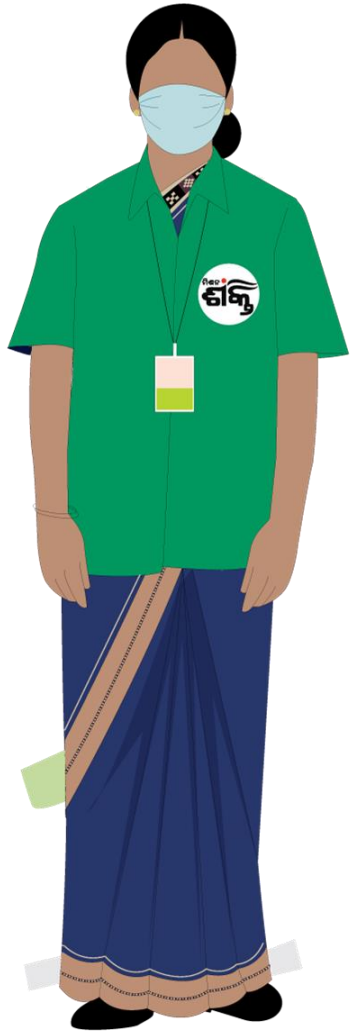
The local Mission Shakti group/ ALF/ CLF or transgender group should nominate suitable members and deploy them for dry waste processing activity at the MRF.

Human Resource at Wealth Centre

Say: Each Wealth Centre, will have one Wealth Centre In-charge stationed to co-ordinate managerial activities and timely reporting of issues to concerned authority to ensure overall performance of the Wealth Centre. He/she will be responsible for:

- Monitor performance of Swachha Karmis in sorting of waste
- Coordinate managerial activities of the MRF
- Ensure smooth operations and maintenance of machineries at MRF
- Preparation of bill/vouchers and take daily attendance of Swachha Karmis
- Ensure timely reporting of any issues to the ULB
- Maintenance of records at Wealth Center

Responsibilities of Wealth Centre In-charge



1 Wealth Centre requires, 1 Wealth Centre In-charge

Monitor performance of Swachha Karmis in sorting of waste

Coordinate managerial activities of the MRF

Ensure smooth operations and maintenance of machineries at MRF

Maintenance of records at Wealth Center

Ensure timely reporting of any issues to the ULB

Preparation of bill/vouchers and take daily attendance of Swachha Karmis

Say: The Wealth centre In-charge is responsible to ensure that all the Swachha Karmis are wearing appropriate Personal Protective Equipment (PPE) such as gloves, masks, shoes that cover the feet and florescent jacket as provided.

The ULB is responsible for providing the PPEs and for timely replacement.

In case the Swachha Karmis need to replace PPE, the Wealth centre In-charge should arrange it them from the ULB.

Ensure usage of Personal Protective Equipment (PPE)

- Wealth centre In-charge should ensure that all Swachha Karmis are wearing appropriate PPEs during work
- ULB is responsible for providing and replacing PPE.



Mask



Gloves



Florescent vest



Shoes



Swachha Karmis wearing PPE

Source: Urban Management Centre, 2021

Say: The number of Swachha Karmis for operationalizing the MRF will differ based on the capacity of the plant.

Swachha Karmis will work under the direct supervision of Wealth Center In-Charge and perform following activities:

- Recording of weight of the dry waste received at MRF;
- Sorting of dry waste by their nature and quality in different containers/Tubs;
- Shredding of plastic recyclable wastes and tied that in bags;
- Reducing size of dry waste by using Baling machine;
- Bundling, baggaging and storing of sorted waste;
- Selling of recyclable waste to the empaneled buyers;
- Sending inert waste to the designated landfill site;
- Ensure transporting of non-recyclable dry waste to cement factory identified by the municipality

Responsibilities of Swachha Karmis at MRF



No. of Swachha Karmis required at diff. capacity MRF	5 TPD	4 TPD	3 TPD	2 TPD	1.5 TPD
	5	5	4	3	2

Receiving dry waste

Sorting of dry waste

Ensure the recyclables are stored in demarcated area

Dispose the inert in safe and scientific manner

In this session trainer will explain about Health & Welfare Entitlements of Swachha Karmis.

Say: The Government of Odisha will extend their support to the MS-SHG members engaged in Wealth Centre for operation and maintenance of MCC and MRF.

Entitlements of Swachha Karmis

Say: After understanding about the roles and responsibilities, let's see what are we entitled for.

For a Swachha Karmi, the ULB will ensure monthly incentive, which can be received by you on every 7th date of the month. Apart from the monthly incentive, a Swachha Karmis is also entitled to monthly health check-up and PPE from the ULB.

Apart from the monthly incentive, a Swachha Karmi is also entitled to monthly health check-up and PPE from the ULB.

Entitlement of Swachha Karmis

ULB will ensure:

Swachha Karmi –

1. Monthly Incentive by 7th of every month
2. Monthly Health check-up
3. Personal Protective Equipment



Here, the trainer will explain about the roles and responsibilities of Urban Local Body.

Say: Now we will discuss about the supports provided by ULB.

Role of ULBs

Say: The ULB will ensure provision of identity cards for all Swachha Karmis.

It will ensure that adequate number of Swachha Karmis are appointed to work along with us.

The ULB will have to ensure deployment of adequate number of waste collection vehicles as per the requirement for efficient waste collection.

ULB will be responsible to release regular and timely payment of incentives for Swachha Karmis engaged at Wealth Center

ULB will identify forward linkages for sale of recyclables.

ULB will have to assure provision of PPE kits for all those associated in the management of solid waste.

In case, there is requirement of training for Swachha Karmis or other staff, ULB will have to arrange it.

And lastly, if there is any disputes within the sanitation staff would be resolved by ULB.

ULB will ensure:



Identity cards to you and Swachha Karmis



Engagement of adequate Swachha Karmis



Deployment of adequate waste collection vehicles



Regular and timely payment of incentives



PPEs and safety kits to all Swachha Karmis



Training to you and Swachha Karmis



Resolve disputes if any

Source: Pinclipart.com, 123rf.com as on 25.11.21; Urban Management Centre, 2021





Safety measures at Wealth Center

Here, the trainer will explain about the usage of PPE as a precaution at the Wealth Centre based on the type of the hazard.

Safety measures at Wealth Center

Say: While working at the MRF, our personal safety is how much important?, and how we can work safely and what equipment or clothing we need to use.

Safety measures at Wealth Centre

Sr. No.	Hazards	Precaution	PPE
1.	Cuts and injuries due to presence of broken glass, sharps, needles which may lead to septic wounds and tetanus or bacterial infections	Use of safety gloves	
2.	Exposure to gases causing irritation of nose, throat, and lungs.	Use of particulate mask	
3.	To keep the wearer visible while working	Florescent Jacket	
4.	Bacterial infection due to contaminated waste and Cuts and injuries due to presence of broken glass, sharps, needles which may lead to septic wounds and tetanus	Use of Shoes	

Source: (CPHEEO & MoHUA, 2020)

Say: It is the responsibility of a trainer to ensure that the first aid kit is updated and contains minimum basic requirement of the kit.

Wealth Center in-charge ensure that the first aid kit is updated and contains minimum basic requirement of the kit.

First Aid

- Wealth Center in-charge ensure that the first aid kit is updated and contains minimum basic requirement of the kit (Society, 2016).
- The most basic constituents include:
 - Band-aids
 - Bandages
 - Antiseptic liquid
 - Medical cotton
- Every person working in the WC should know how to use first aid in case of health emergency of any co-worker.
- The emergency contact numbers should be displayed.



Say: It is the responsibility of a Wealth Centre In-charge to ensure the fire safety in the wealth centre taking all necessary precautions.

The dry waste received at the wealth centre generally consists materials such as: wood, paper, cloth, rubber, and some plastics.

The presence of these materials involves the risk of fire hazards at wealth centres. Hence, the fire safety measures should also be taken at Wealth Centres to tackle fire emergencies.

The emergency contact number for fire emergency '101' should also be known by the workers at the WC.

Apart from this, the wealth center is suggested to be equipped with a suitable fire extinguisher to be used in emergency and every staff at the WC should know how to use it.

Fire Safety

1. **STOP** where you are



2. **DROP** to the ground



3. **Roll** over and over until the fire is out



1. Inform Others



2. Go to a Safety place



3. Use Fire Extinguisher



4. Call 101 or 112 for fire brigade



Dos and Don'ts at Wealth Centre

The trainer will explain what precautions to be taken while working at Wealth Centre by the point given as Dos and Don'ts as mentioned in the slide.

Dos and Don'ts at Wealth Centre

Dos and Don'ts at Wealth Centre



Use Personal Protective Equipment (PPE)



Monthly inspection & maintenance of equipment



Clean all the equipment after use



Ensure good hygiene in sanitation facilities



Ensure light and ventilation



Keep first-aid kit handy for emergency



Keep easy access to fire extinguishers



Do not wear loose clothing around equipment



Do not keep hands near moving parts of equipment



Do not allow pregnant women to operate equipment and carry load



Do not engage children below age of 14 years



No gender discrimination



Do not allow animals inside premise



Do not waste water and electricity



Do not use inflammable objects

Icon Source: dspan.library.com, Pngtree.com, Orlon.com, Creativeartistry.paly.com, Slicow.com, Infobart.com, Kallweirdo.com, PNGkit.com, workphoto.net, cshygh.com as of 23.01.2022

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