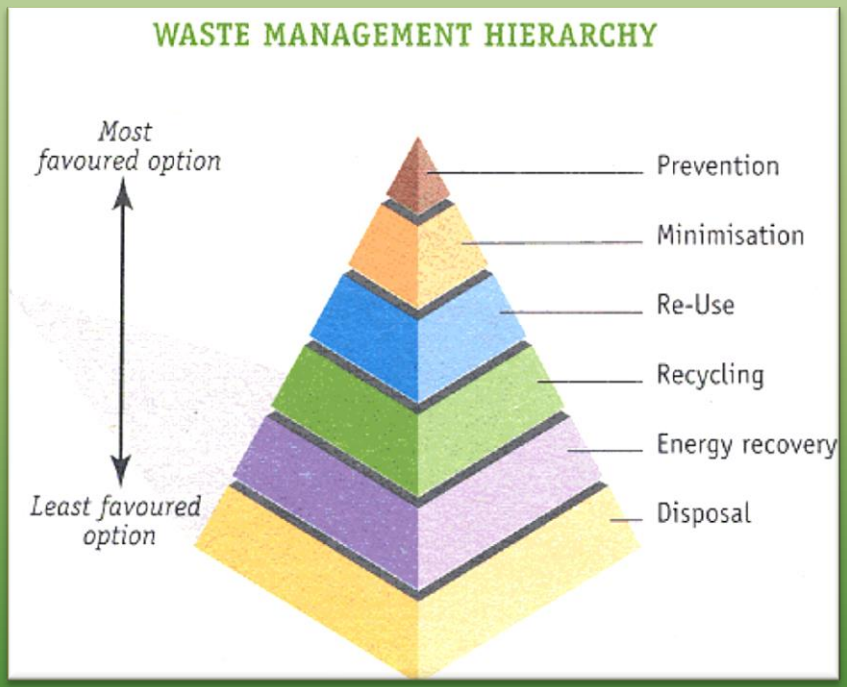
Presented By

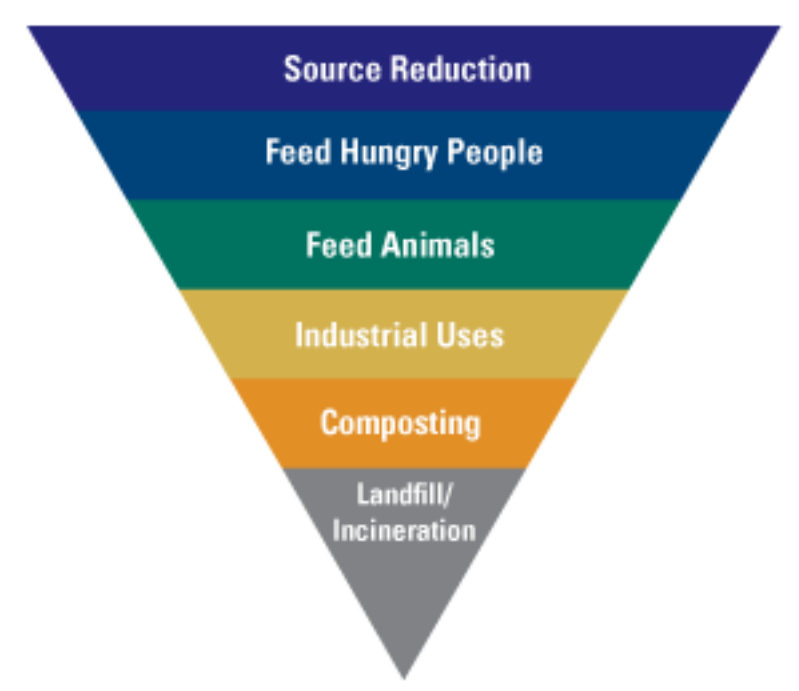
SOUTH DELHI MUNICIPAL CORPORATION

DELHI , INDIA

FOOD WASTE MANAGEMENT



Concept


Source Reduction
Feed Hungry People
Feed Animals
Industrial Uses
Composting
Landfill/
Incineration

Objectives

- To be able to describe some new technologies that may impact on food production and processing and management

- To be able to explain the effects of food waste processing, management and technologies.

Dangers of food waste

- The moisture content in food waste is high it easy to decay and go bad in a relatively short time, meanwhile, emit unpleasant smell and producing large amounts of toxins and stench breed mosquitoes, rats and other insects.
- If food waste is cumulated and dumped randomly not only occupies a lot of land, but also gas, polluting water and air.
- If poured into the sewers directly, it will cause the blockage of the sewer, affecting the city appearance and environmental sanitation seriously, and causing environmental pollution.

Difficulties exist in food waste processing

- It increases the volume of municipal solid waste and the labor intensity of sanitation workers, but also brings great difficulties for burying and burning treatment.
- If food waste and municipal solid waste are mixed burning directly, which not only consume a large amount of extra fuel and energy, and likely to cause incomplete combustion.
- food waste is buried with other municipal solid waste, that not only take up a lot of land, but also increased the pollution of soil and groundwater by leachate.

Features of Food waste

- As compared with other waste, food waste is rich in organic matter content and fat content; therefore it has a greater utilization value.
- bio-degradation is the most prevalent method to dispose food waste. In this way, not only have a small impact on the environment, but also can recover energy and produce the secondary product which is friendly to environment.

Needs

Fewer resources, population growth and climate change are all putting pressure on the world's food supply.

- sustainable, affordable food supply and demand;
- stability in food supplies;
- achieving global access to food and ending hunger;
- reducing the impact of food production on the world's environmental systems.

Preferable Food waste management technology

- Low GHG emissions
- Efficient resource recovery
- Low energy input
- Low monetary investment
- Low environmental impact
- Simple and easy to handle

Food waste is Expensive

- When thinking about the cost of food waste, most businesses just think about the disposal costs – but there are other costs to consider

- This cost includes:
  - Costs to buy
  - Costs to cook & manage on site
  - Cost of disposal

Handling of Different Waste

- **Hotel food waste**: Non-veg to piggeries, or left-overs to night-shelters or orphanages.
- **Market waste**: Stall-to-stall collection, hourly: Wet waste to cattle or goats, Separate Dry waste collection daily.
- **Residential Waste:** Door to Door Collection should be done.
- **Commercial waste**: Fees through trade associations
- **Broken glass**: Festival-collection boxes

Processing of Food Waste

- Commonly used methods are
  Bio-degradation
  Composting
  Incernations
- After pre-processing, food waste will be divided into two parts of solid and liquid. The lipid in the liquid can be separated and extracted to make biodiesel.
- Separated solid parts can be transformed into high value-added bio-protein feed or fertilizers through microbial degradation.

What food is being thrown out?

60% Avoidable:

- plate scrapings
- leftovers
- gone off fruit and veg
- passed date items
- damaged stock which cannot be used due to H&S, etc.

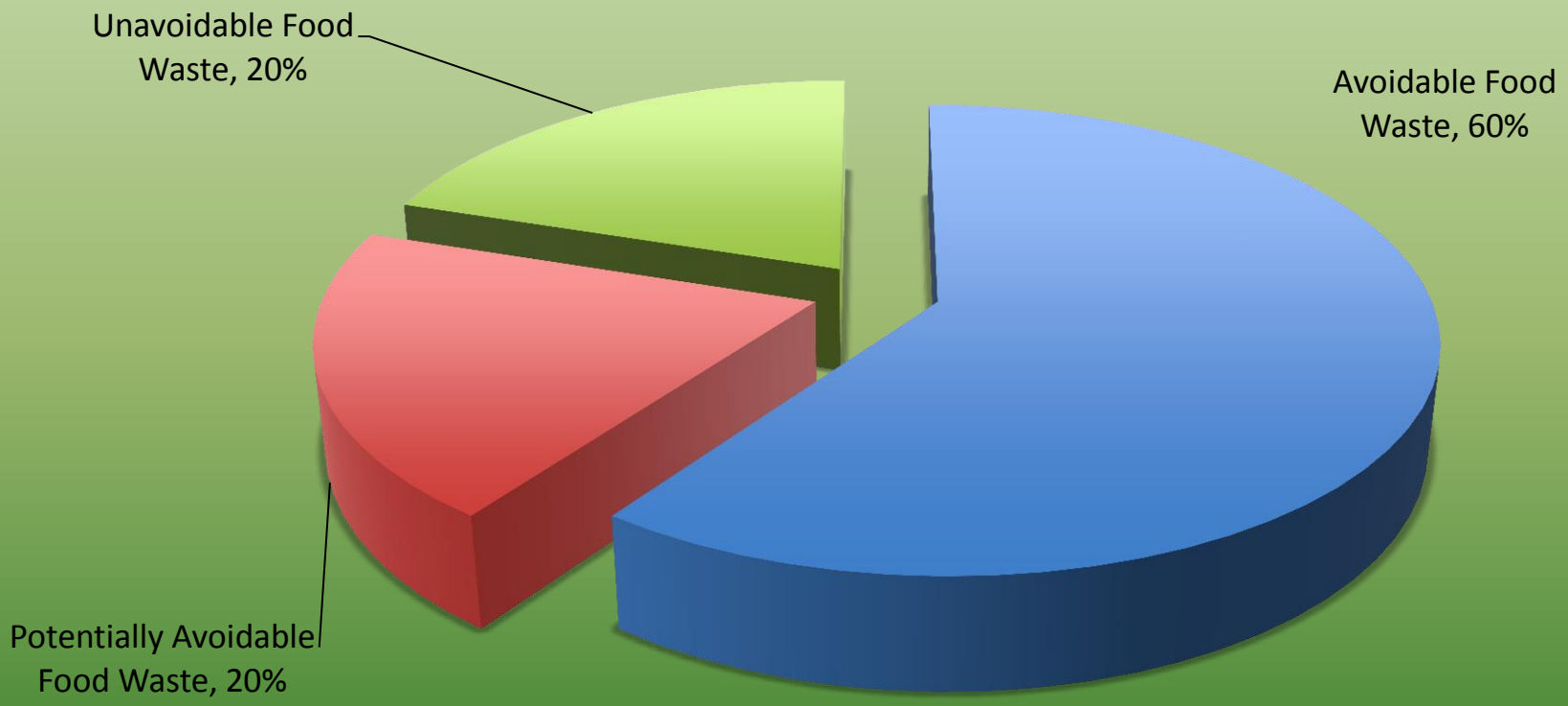
20% Potentially Avoidable

- bread crusts or heels made into bread crumbs
- vegetable trimmings used for stock and soups
- meat and fish bones used for stock
- discarded butter for cooking
- old fruit for jams and smoothies, etc.

20% Unavoidable

- banana skins
- animal bones (before or after used to make stock),
- unusable prep waste (e.g. potato peels with soil on them), etc.

In general there are 3 types of food waste



Food Waste Prevention

To Prevent Food Waste you must first identify where and why food waste is being generated

Then come up with solutions to prevent this waste as close to the wasting point as possible.

- Before you start, consider:
- The main food waste producing business types in your area
- Typical quantities of food waste generated by different business
- The main types of food waste generated by different business

Products Biodiesel

- The waste oil, separated from food waste, can be refined into biodiesel and avoided making use of
- Waste oil by lawbreakers to threat people's health. Biodiesel is a clean diesel of high quality.
- provided with excellent environmental characteristics, the fuel consumption can be reduced and pollution

Future for Delhi

- **Decentralized Composting**
  Saves enormously on waste-transport costs
  Reduces waste volumes for disposal by 90%
  Saves on manures for park maintenance
- **Who should do it?**
  All institutions like colleges, hostels, hotels, hospitals, clubs, marriage-halls, jails, zoos.
  Apartment-complexes, bungalows,
  Government and city offices.

How it can be done

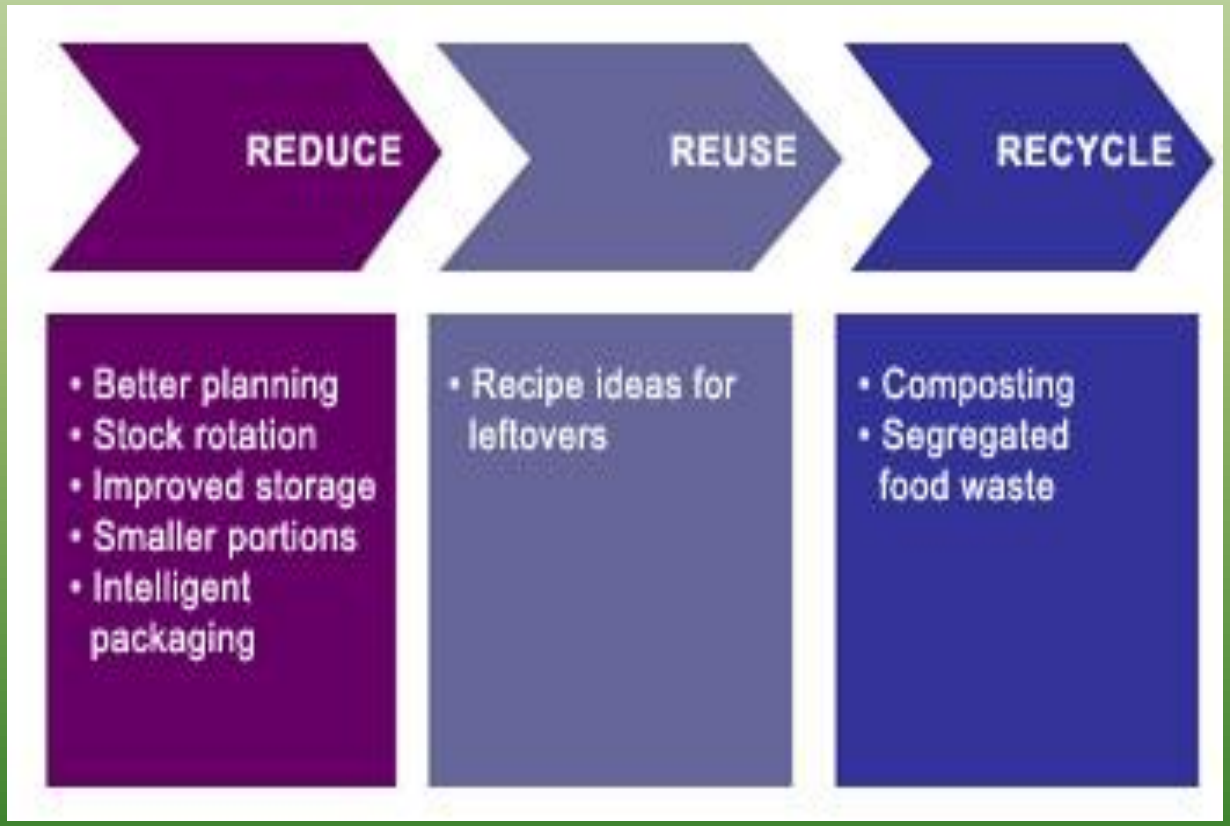
- Biomethanation in factory canteens apartments.
- Decentralizations of solid waste management systems
- Vermi-composting (needs animal-husbandry care)
- Organic Composters in Hotels, restaurants etc
- Bio-degradation Techniques

Roadblocks in Food waste management

- Lack of suitable infrastructure
- Lack of adequate quality control & testing infrastructure
- Inefficient supply chain vis a vis involvement of middlemen
- Developing-country waste is of very low calorie content
- High inventory carrying cost
- Affordability and cultural preference of fresh food.

The on-site management option

Roadmap


REDUCE
REUSE
RECYCLE
• Better planning
• Stock rotation
• Improved storage
• Smaller portions
• Intelligent packaging
• Recipe ideas for leftovers
• Composting
• Segregated food waste

THANK YOU