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## WASTE MANAGEMENT WITH EMPHASIS ON ENVIRONMENT ASPECTS

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### ABSTRACT

“Wastes are materials that are not prime products (that is products produced for the market) for which the generator has no further use in terms of his/her own purposes of production, transformation or consumption, and of which he/she wants to dispose. Wastes may be generated during the extraction of raw materials, the processing of raw materials into intermediate and final products, the consumption of final products, and other human activities. Residuals recycled or reused at the place of generation are excluded.” (UNSD)

- Non-wanted things created, not intended, or not avoided, with no Purpose.
- Things that were given a finite Purpose thus destined to become useless after fulfilling it.
- Things with well-defined Purpose, but their Performance ceased being acceptable.
- Things with well-defined Purpose, and acceptable Performance, but their users failed to use them for the intended Purpose.
- Any human activity that absorbs resources but creates no value.

## 1. INTRODUCTION & DISCUSSION

### WASTE – what is it?

**Waste** (also known as **rubbish, trash, refuse, garbage, junk**) is unwanted or useless materials

But idioms like “One man’s trash is another man’s treasure.” Is gaining ground now resulting in to NEW CONCEPTS like :

- “Substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law” (Basel Convention). (UNEP)
- EU defines waste as an object the holder discards, intends to discard or is required to discard.

Once a substance or object has become waste, it will remain waste until it has been fully recovered and no longer poses a potential threat to the environment or to human health

### Waste Generation in India from Different Sources

<u>Waste</u>	<u>Quantity</u>
1. Municipal solid waste	2.5 billion tonnes/year
2. Municipal liquid waste	4.5 billion litres/day
3. Distillery	48.06 million litres/day
4. Press mud	29 million tonnes/year
5. Food and fruit processing waste	54.5 million tonnes/year
6. Dairy industry waste	250 million litres/day
7. Paper and pulp industry waste	4600 m <sup>3</sup> wastewater/day
8. Tannery	5.0 mmc wastewater/day
9. Sewage	25 billion litres/day

## 2. EFFECTS OF WASTE IF NOT MANAGED WISELY

- Affects our health
- Affects our socio-economic conditions
- Affects our coastal and marine environment
- Affects our climate
- Quality of life will degrade

### Effects Of Waste

- GHGs are accumulating in Earth’s atmosphere as a result of human activities, causing global mean surface air temperature and subsurface ocean temperature to rise.

- Rising global temperatures are expected to raise sea levels and change precipitation and other local climate conditions.
- Changing regional climates could alter forests, crop yields, and water supplies.
- This could also affect human health, animals, and many types of ecosystems.
- Deserts might expand into existing rangelands, and features of some of our national parks might be permanently altered.
- Some countries are expected to become warmer, although sulfates might limit warming in some areas.
- Scientists are unable to determine which parts of those countries will become wetter or drier, but there is likely to be an overall trend toward increased precipitation and evaporation, more intense rainstorms, and drier soils.
- Whether rainfall increases or decreases cannot be reliably projected for specific areas.
- Activities that have altered the chemical composition of the atmosphere:
  - Buildup of GHGs primarily carbon dioxide (CO<sub>2</sub>) methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O).
  - CO<sub>2</sub> is released to the atmosphere by the burning of fossil fuels, wood and wood products, and solid waste.
  - CH<sub>4</sub> is emitted from the decomposition of organic wastes in landfills, the raising of livestock, and the production and transport of coal, natural gas, and oil.
  - NO<sub>2</sub> is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels.
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#### Practical Issues with Waste management in India

- Physical characteristics
  - Unsorted waste – Mixed waste of bio degradable and non biodegradable
  - Low calorific value
  - High moisture content
  - Presence of hazardous waste
- Lack of awareness
- Unplanned growth and development of cities
- Land
- Availability

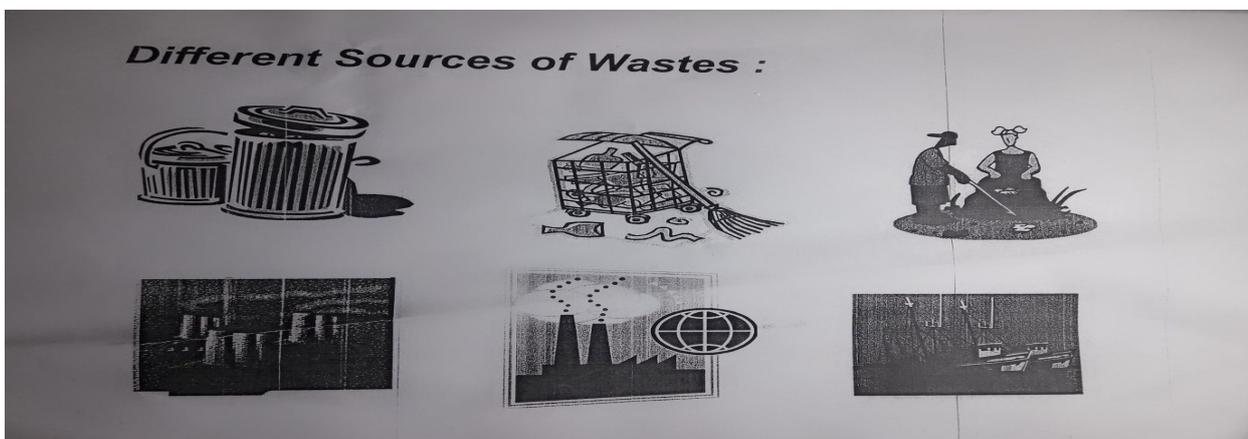
#### Identifying appropriate technology for waste management

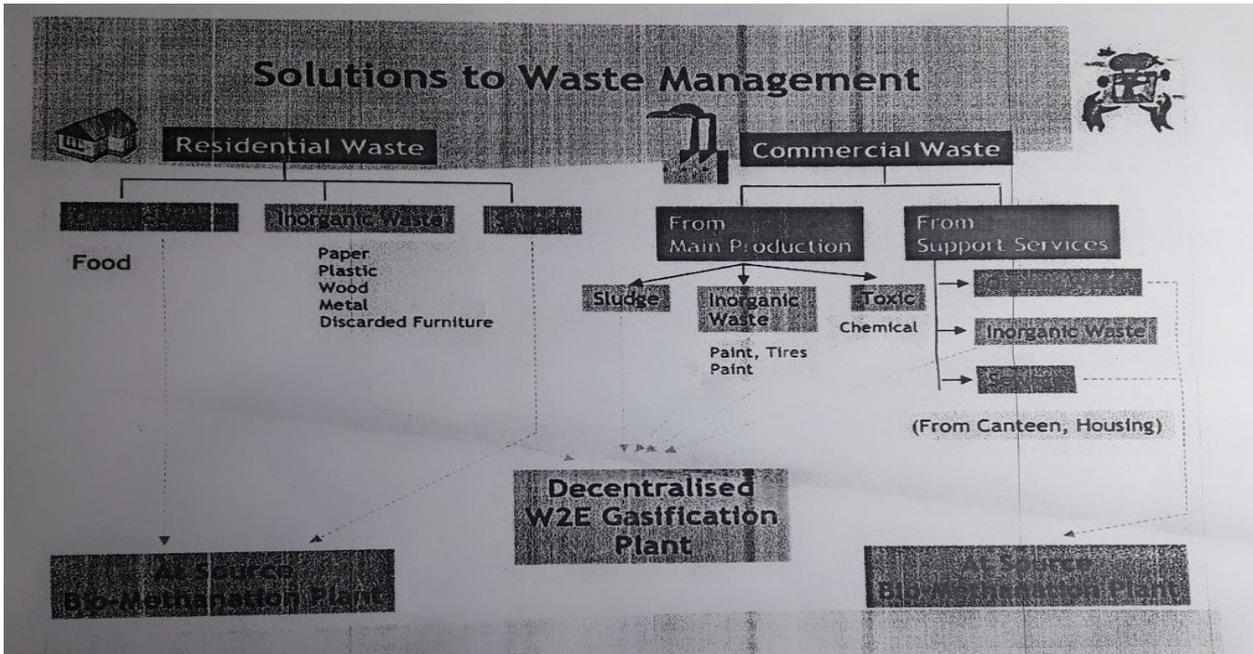
At Source treatment – Bio- degradable waste & Sewage Treatment

- Bio- Methanation Plant

Unsorted & Non- biodegradable Waste Treatment

- W2E Gasification Plant





### 3. WHAT SHOULD BE DONE

Conduct outreach program adopting an ecologically sound waste management system which includes:

- Waste reduction
- Segregation at source
- Composting
- Recycling and re-use
- More efficient collection
- More environmentally sound disposal

### 4. ENVIRONMENTAL MANAGEMENT SYSTEMS : EMS

What is an EMS?

An EMS is a formal set of policies and procedures that define how an organization will evaluate, manage, and track its environmental impact. It follows the basic model :

**Plan > Do > Check > Act**

This facilitates cost-effective environmental performance by defining and continuously improving the process and actions that an organization undertakes to meet its environmental goals.

Why Should an Organization Adopt an EMS:?

1. **Improve environmental performance**  
It helps monitor energy and water conservation, resource efficiencies, and pollution prevention.
2. **Better regulatory compliance**  
Increase regulatory compliance which is especially important for organizations that spend time and resources with regulatory violations.
3. **Certification and recognition**  
EMS implementation can enhance an organization’s image and improve public community relations.

Principles of an Effective EMS

For better environmental and overall organizational performance, an EMS should :

1. Focus on continual improvement
2. Serve the organization and its mission

3. Receive top management support
4. Remain dynamic and flexible
5. Fit the culture of the organization
6. Represent employees and their actions
7. Establish employees awareness and involvement

**Challenge ahead**

- Management of Recycling.
- Encouragement of Technology Development based on EMS.
- Stricter compliance of BASEL Convention.
- International Patent Laws are being modified to accommodate EMS.
- Awareness Programme at Macro-level

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