International Journal of Electrical and Electronics Engineers
Volume 14, Issue No. 01, Jan-June 2022
ISSN (O) 2321-2055
ISSN (P) 2321 -2045

WASTE MANAGEMENT

DR. AJIT KUMAR

VICE PRINCIPAL IN M .SRINIVAS INTERNATIONAL PUBLIC SCHOOL HANAGERE MANDYA TQ 57140

CHAITRA SANNE GOWDA 9th standard STUDENT OF M.SRINIVAS INTERNATIONAL PUBLIC SCHOOL HANAKERE MANDYA TQ

SIDDARTH GOWDA MS 7th standard STUDENT OF M.SRINIVAS INTERNATIONAL PUBLIC SCHOOL HANAKERE MANDYA TQ

SIDDARTH HN 7th standard STUDENT OF M.SRINIVAS INTERNATIONAL PUBLIC SCHOOL HANAKERE MANDYA TQ

KARNATAKA

ABSTRACT :-

Waste management (or **waste disposal**) includes the processes and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process and waste-related laws, technologies, economic mechanisms.

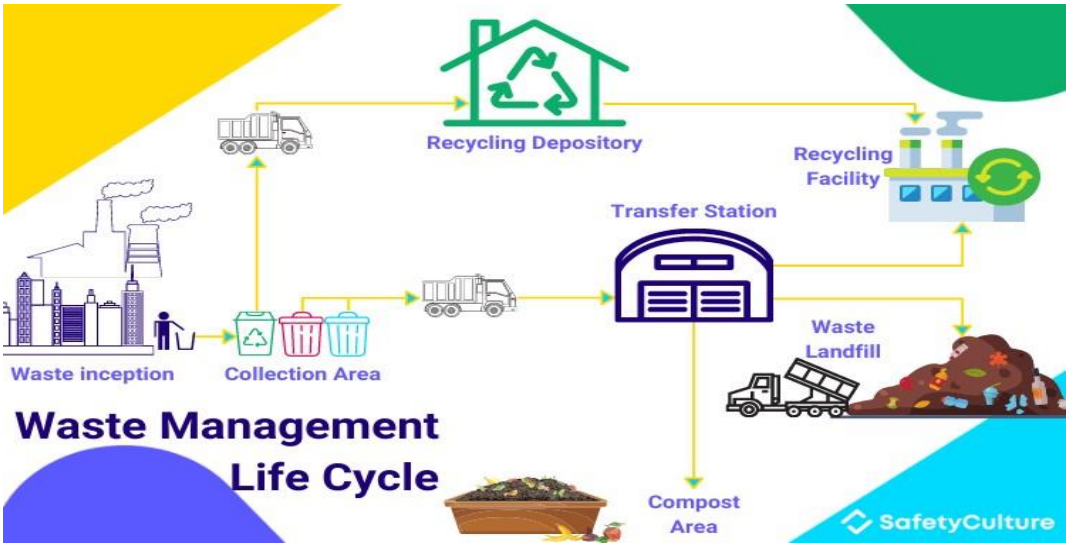
Waste can be solid, liquid, or gaseous and each type has different methods of disposal and management. Waste management deals with all types of waste, including industrial, biological, household, municipal, organic, biomedical, radioactive wastes. In some cases, waste can pose a threat to human health. Health issues are associated throughout the entire process of waste management. Health issues can also arise indirectly or directly. Directly, through the handling of solid waste, and indirectly through the consumption of water, soil and food. Waste is produced by human activity, for example, the extraction and processing of raw materials.Waste management is intended to reduce adverse effects of waste on human health, the environment, planetary resources and aesthetics.

INTRODUCTION:-

In the first systematic review of the scientific evidence around global waste, its management and its impact on human health and life, authors concluded that about a fourth of all the municipal solid terrestrial waste is not collected and an additional fourth is mismanaged after collection, often being burned in open and uncontrolled fires – or close to one billion tons per year when combined. They also found that broad priority areas each lack a "high-quality research base", partly due to the absence of "substantial research funding", which motivated scientists often require.Electronic waste (ewaste) includes discarded computer monitors, motherboards, mobile phones and chargers, compact discs (CDs), headphones, television sets, air conditioners and refrigerators. According to the Global E-waste Monitor 2017, India generates ~ 2 million tonnes (Mte) of e-waste annually and ranks fifth among the e-waste producing countries, after the US, P.R. China, Japan and Germany.

International Journal of Electrical and Electronics Engineers
Volume 14, Issue No. 01, Jan-June 2022
ISSN (O) 2321-2055
ISSN (P) 2321 -2045

The Ancient Roman Empire used sophisticated aqueduct and waste removal systems throughout their empire Utilizing the Cloaxa Maxima, the engineers of Ancient Rome created a vast network of sewers The Cloaxa Maxima emptied into the Tiber River, resulting in extreme pollution. This pollution led to the contamination of the drinking water used by the Romans (taken from the Tiber). The need for fresh water ultimately resulted in the development of the aqueduct technology The broader span of aqueducts generally utilized pipes made out of lead, while the pipes within the cities themselves were often made of ceramic, wood, and leather. There were distinct differences in quality of waste management practices between the socioeconomic classes. Access to the sewer systems, as well as having plumbing and other water-based luxuries, was seen as a sign of status in Roman society. Access was only granted to those who paid for it. Additionally, archaeological sites and ancient texts show evidence of the first European waste management labor force Duties performed by this force include collecting stored waste from houses not connected to the sewer system, and selling the waste to farmers for profit. The households utilizing these services were also required to pay. Compared to the systems utilized by the Fertile Crescent civilizations, the waste management systems of the Ancient Roman Empire were largely socially stratified, depending heavily on the socioeconomic status of the civilians. This stratification within waste management systems can also be viewed in Ancient Egypt.Another unique form of water/waste management was within the Aztec Empire.



Waste Disposal Methods

There are multiple waste management strategies and methods available. These strategies can be combined or rearranged to form a waste management system that fits an organization. Modern waste management strategies are geared towards sustainability. Other alternatives for waste management is to reduce, reuse and recycle waste.

International Journal of Electrical and Electronics Engineers
Volume 14, Issue No. 01, Jan-June 2022
ISSN (O) 2321-2055
ISSN (P) 2321 -2045

Also known as physical reprocessing, recycling is ideal for the disposal of inorganic waste such as plastic, glass, and metals. Though organic waste such as paper and food can also be recycled, composting would be a better waste disposal method as it converts organic waste into nutrient-rich fertilizer.

Waste to energy or Wet, on the other hand, is the conversion of non-recyclable waste into heat, electricity, or fuel using renewable energy sources such as anaerobic digestion and plasma gasification.

Anaerobic digestion is the biological reprocessing of animal manure and human excreta into methane-rich biogas. Plasma gasification uses a plasma-filled vessel operating at high temperatures and low levels of oxygen to transform hazardous waste into syngas. Another option for disposing of hazardous waste is bioremediation, the treatment of contaminants, toxins, and pollutants through micro-organisms.

Waste disposal methods

In general, waste should undergo material recycling or thermal treatment. If this is not possible for technical reasons, or it is not economically viable, the waste is deposited in a landfill following suitable treatment.

The standard waste disposal methods used in Switzerland are defined and described below:

Recycling

Recycling refers to both the direct **reuse** of used products (e.g. used clothing and functioning parts removed from used vehicles) and **material recycling**, that is the recovery of raw materials from waste (e.g. production of new glass from fragments, the melting of scrap iron and the production of recycled building materials from construction waste). **Down cycling** refers to the transformation of waste to materials of lower quality than the initially used material.

Combustible waste from households and waste wood that is not suitable for recycling undergo thermal treatment in waste incineration plants or waste wood furnaces. The heat released in the process **is used to generate electricity and heat buildings**. Waste with a high calorific value and low level of pollutant contamination can be used in industrial plants, e.g. cement plants, as an alternative to fossil fuels. Waste that is contaminated with organic pollutants undergoes separate thermal treatment (e.g. in hazardous waste incineration plants). Incinerators must have a flue gas treatment system. The requirements for flue gas treatment and the incineration system are based on the nature of the waste.

Specialised waste disposal companies treat the waste in accordance with the requirements of the incineration plant. This guarantees that the **fuel** will be of a **high quality** and reduces the accident risk. The companies ensure, for example, that no undesirable reactions occur when liquids are mixed. Waste materials that are used as substitute fuels in cement plants must be crushed in advance and set at a constant calorific value.

International Journal of Electrical and Electronics Engineers
Volume 14, Issue No. 01, Jan-June 2022
ISSN (O) 2321-2055
ISSN (P) 2321 -2045

Cement plants

Other thermal treatment plants

Chemical-physical and biological treatment

The objective of both chemical-physical and biological treatment is to enable **the removal of pollutants from waste** or its **safe landfilling**. Wastewater and polluted excavated material are typical of the types of waste that are managed in this way. Following chemical-physical treatment, the pollutants can be disposed of in concentrated form in facilities suitable for this purpose.

Chemical-physical and biological treatment

Landfills

Residues from waste incineration or waste that is not suitable for material recycling or thermal treatment are deposited in landfills that are compliant with the legal requirements. If the waste does not fulfil the requirements for landfilling, it must be pre-treated.

Landfills

Collection and logistics

The waste management sector involves many different specialised actors. Their tasks include the collection of waste at source (industry, commerce and households) in suitable transport containers, its intermediate storage and handover to waste disposal operations. The treatment of waste is often based on a cascade of specialised plants. In all cases, **smooth logistics** are a precondition for the efficient management of waste. In the case of hazardous waste, in accordance with the Ordinance on Movements of Waste, the handover must be **documented**.

Benefits of Waste Management

Let's take a closer look at all the advantages that the process of waste management serves:

1. **Better Environment**

A clean and green environment to breathe in is what everyone wishes for, and waste management has a considerable contribution to the well-being of the environment and the people. Placing multiple waste disposals in cities will help the environment stay cleaner and maintain proper sanitation in the city.

2. **Reduced Pollution**

Waste management does not merely reduce waste from the environment but also eliminates the impact of harmful greenhouse gases like methane, carbon monoxide, and carbon dioxide. This decreases the reliance on landfills for waste deposit that adversely affects the environment.

3. **Energy Conservation**

Recycling is a big part of waste management. One classic example of saving the environment with recycling is traced back to the practice of recycling paper. If a used paper is recycled, the need to cut down more trees

reduces. This helps in conserving energy and reducing carbon footprints.

4. **Increases Employment Opportunities**

If more people start adopting waste management practices, it creates a need for organizations to sell recycled products. This creates several employment opportunities for people.

5. **Helps Create a Change**

Although you cannot completely get rid of waste, you can reduce the waste by recycling it through eco-friendly practices. This creates a classic example for people around you to adopt the change and embrace a more sustainable approach.

Below are the **seven effective methods of solid waste disposal and management**:

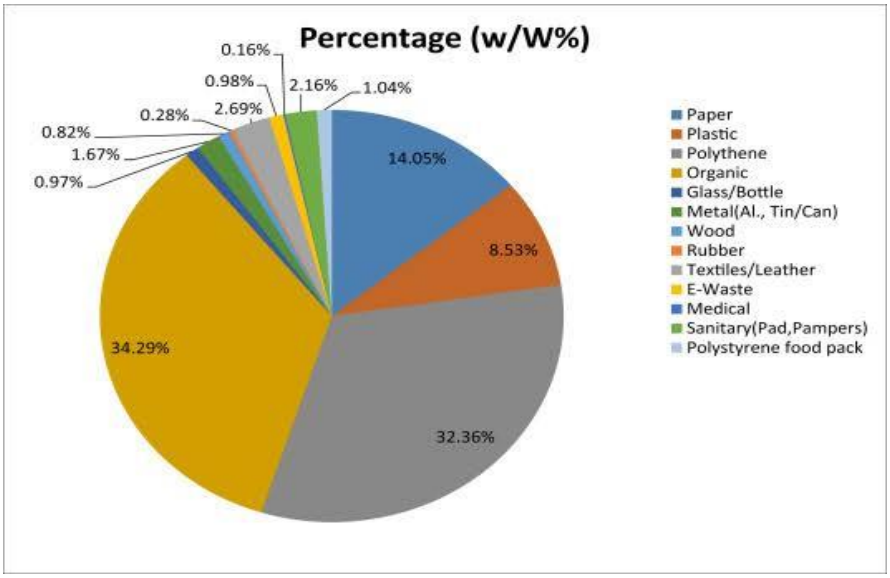
1. Preventing or Reducing Waste Generation
2. Recycling
3. Incineration
4. Composting
5. Sanitary Landfill
6. Disposal in Ocean/Sea
7. Plasma Gasification.

Thickness of plastic carry bags increased from 50 to 75 microns from 30th September, 2021 and to 120 microns with effect from the 31st December,2022

The manufacture, import, stocking, distribution, sale and use of following single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from the 1st July, 2022:-

a. ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration;

International Journal of Electrical and Electronics Engineers
Volume 14, Issue No. 01, Jan-June 2022
ISSN (O) 2321-2055
ISSN (P) 2321 -2045



b. plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.

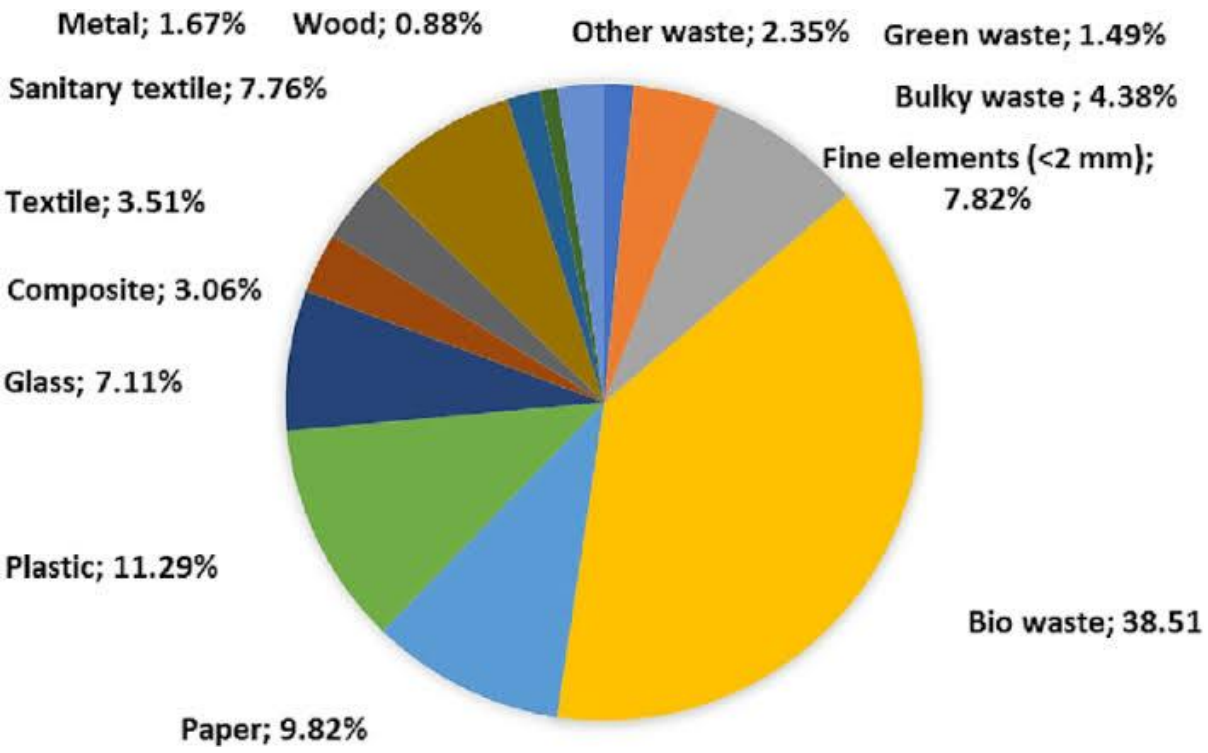
In order to stop littering due to light weight plastic carry bags, with effect from 30th September, 2021, the thickness of plastic carry bags has been increased from fifty microns to seventy five microns and to one hundred and twenty microns with effect from the 31st December, 2022. This will also allow reuse of plastic carry due to increase in thickness.

The plastic packaging waste, which is not covered under the phase out of identified single use plastic items, shall be collected and managed in an environmentally sustainable way through the Extended Producer Responsibility of the Producer, importer and Brand owner (PIBO), as per Plastic Waste Management Rules, 2016. For effective implementation of Extended Producer Responsibility the Guidelines for Extended Producer Responsibility being brought out have been given legal force through Plastic Waste Management Amendment Rules, 2021.

The waste management infrastructure in the States/UTs is being strengthened through the Swachh Bharat Mission. The following steps have also been taken to strengthen implementation of Plastic Waste Management Rules, 2016 and also to reduce the use of identified single use plastic items the States/UTs have been requested to constitute a Special Task Force for elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016. A National Level Taskforce has also been constituted by

International Journal of Electrical and Electronics Engineers
Volume 14, Issue No. 01, Jan-June 2022
ISSN (O) 2321-2055
ISSN (P) 2321 -2045

the Ministry for taking coordinated efforts to eliminate identified single use plastic items and effective implementation of Plastic Waste Management Rules, 2016.



CONCLUSION:-

In India we are facing still Waste Management Rules that is not followed by our people for that purpose.

1) we make use digital marketing like videos in every signals to avoid waste and how it is reused.

2)vegetables can be buried after cutting instead of throwing outside.

Like these small steps can be implemented to reused the waste products instead throwing in the environment and we all being a world citizen we need to create awareness in each people by saying or by explaining if waste things are infront of us.

I request Government must take tuff Rules and regulations by making into a consideration even though we have a municipal corporation but it's need to improved and worked against Waste Management.