ENVIRONMENTAL ISSUES AND THE IMPORTANCE OF ITS *PROTECTION ON* WASTE MANAGEMENT

DR. Manoj kumar Mishra
Shri LalBahadurShastri Degree College(LBS), Gonda
Dr Ashutosh Singh
Assistant professor
Goel Institute of technology and management, Lucknow

Abstract

Every year, landfills in the United States are filled with 140 million tons of waste. The most significant type of waste that ends up in landfills is food in world. The second-largest type of waste that is found in landfills is plastic in world. Plastic waste gives greatly to climate change and poses a critical threat to pollution, biodiversity, and human health. Whilemany types of plastic waste which cannot be recycled such as single-use plastic bags and straws, most we toss can actually be recycled and reused. Probably aadvantage of managing waste is that it eventually leads to a better and fresher environment.Waste disposal units also provide to the well-being of people by helping them become disease-free. The best part of this happens while the unnecessary is duly disposed of in a proper and sanitary manner.Multiple waste disposal units should be placed in tier-1 & tier-2 cities in a bid to prep up the process of waste disposal.It will also help implement remarkable safety measures in the long run.

Keywords: Waste management, Disposal, Environment, Waste Prevention, Waste Minimization, Recycling and Reuse

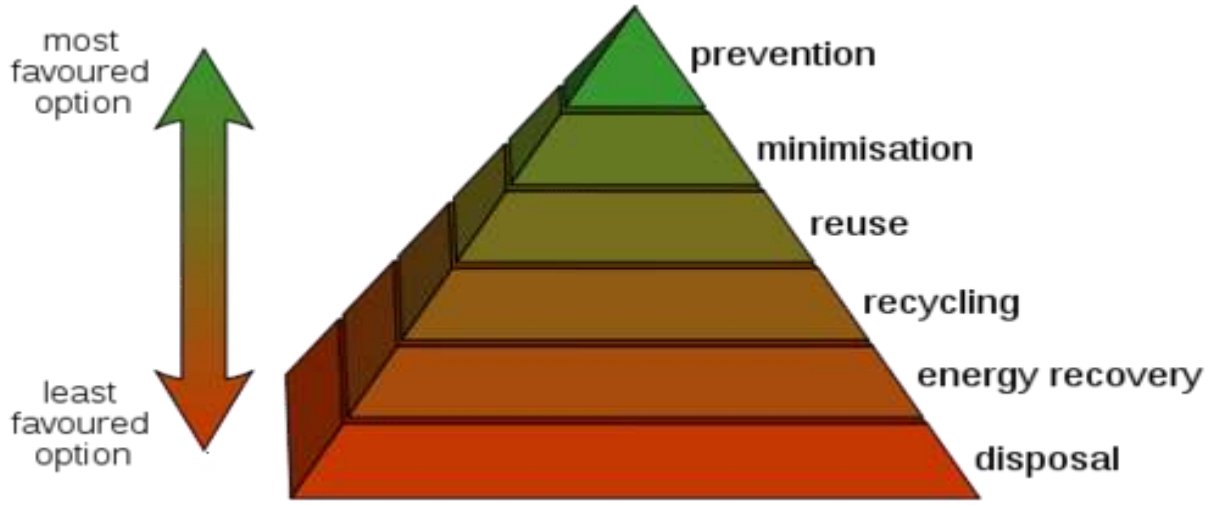
Introduction

Many toxic chemicals and pesticides, other agricultural wastes which released into the environment that are taken up by the plants from air, water and soil. Plants are growing under such conditions are severely affected by these toxic chemicals. Exposure to high concentration of pollutants may cause acute injuries like chlorosis, discolour and even the death of plants. Crops shows reduce production and yield. Quality of plant nutrients are also decreased. Past some years, the losses to agriculture and animal life due to fluoride content have greatly increased. Besides morphological changes, biochemical & physiological changes have also been observed in many mammals including man. Too much collection of wastes disturb the behaviour of wild and domestic animals and also cause health problems. Many domestic animals like cow, buffalo, goat etc. often eat plastics bags along with food material which ultimately reach to their alimentary canal causing many disorders and even their death. Big amount of wastes of human society are disposed of in the rivers, ponds and other aquatic bodies making the water polluted which is not good for drinking & domestic use.

Waste Management Strategie

In order of preference, the long-recognized hierarchy of waste management consists of prevention, minimization, biological treatment, incineration, and landfill disposal (see Figure

below).



Waste Prevention

Ideal waste management another is to prevent waste generation in the first place. Hence, waste prevention isfundamental goal of all the waste management strategies. Many technologies can be employed throughout the manufacturing, post-use portions of product life cycles to eliminate waste and in turn, reduce or prevent pollution. Environmentally conscious manufacturing methods that incorporate less hazardous and harmful materials, the use of modern leakage detection systems for material storage, innovative chemical neutralisation techniques to reduce reactivity, or water saving technologies that reduce the need for fresh water inputs are some examples.

Waste Minimization

Many cases, wastes cannot be outright removed from a variety of processes. Numerous strategies can be implemented to decrease or minimize waste generation. Waste minimization, or source reduction, refers to the collective strategies of design and forming of products or services that minimize the amount of generated waste and reduce the toxicity of the resultant waste.These efforts come about from identified trends and specific products that may be causing problems in the waste stream and the following steps taken to halt these problems. In the industry, waste can be diminish by reusing materials, using less hazardous substitute materials, or by modifying components of design and processing. Many benefits can be realized by waste minimization or source reduction, including reduced use of natural resources and the decrease of toxicity of wastes.

Wastage minimization strategies are extremely common in manufacturing applications; the savings of material use preserves resources but also saves significant manufacturing related costs. progress in streamlined packaging reduces material use, increased distribution efficiency reduces fuel consumption and resulting air emissions. Engineered building materials which can be often be designed with specific favorable properties that, when accounted for in overall the structural design, can greatly reduce the overall mass and weight of material needed for a given structure.

Dry cleaning industry Canprovides excellent example of product substitution to remove toxic waste generation. Dry cleaners used for tetrachloroethylene, and "perc" as a dry cleaning solvent.

Because of the toxicity and impact on the environment, the dry cleaning industry has adopt new practices &increasingly utilizes less toxic replacement products, including petroleum-based compounds. New emerging technologies which are incorporating carbon dioxide and other relatively harmless compounds. These alternate products have in many cases been mandated by government regulation, they adopted in response to consumer demands and other market-based forces.

Recycling and Reuse

Recycling means recovery of useful materials such as glass, plastics, wood, and metals from the waste stream.Theymay incorporated into the fabrication of new products. Greater corporation of recycled materials, the required use of raw materials for the identical applications is reduced. Recycling reduces need of natural resource exploitation for raw material.It is also allows waste materials that would be recovered and utilized as valuable resource materials. Recycling waste material directly conserves natural resources, reduces energy consumption and emissions generated by the extraction of virgin materials and subsequent manufacture into finished products, reduces overall energy consumption and greenhouse gas emissions that contribute to global climate change, and reduces the incineration or landfilling of recycled materials.Recycling has a number of economic benefits, including the potential to create new job markets and drive growth. Recycled materials which include plastics, glass, aluminum, steel, and wood. Many construction materials can be reused, including concrete, asphalt materials, masonry & reinforcing steel. "Green" plant-based wastes are immediately reused for mulch or fertilizer applications. Many industries which can recover various by-products and refine and "re-cycle" solvents for reuse. Examples which is include copper and nickel recovery from metal finishing processes; the recovery of oils, fats, and plasticizers solvent extraction from filter media such as activated carbon and clays; and acid recovery by spray roasting, ion exchange, or crystallization.

Such examples of successful recycling and reuse of product efforts are encountered every day. The recycled materials which is used as input materials and are heavily processed into end products. Examples include the use of scrap paper for new paper manufacturing, or the processing of old aluminum cans into new aluminum products. Some cases, reclaimed materials undergo little or no processing prior to their re-use.Examples include the use of tree waste as wood chips and the incorporation of brick and other fixtures into new structural construction.Recycling's success is dependent on effective recycling collection and processing, reuse markets, and public acceptance and promotion of recycled products and applications recycled materials.

Biological Treatment

Landfill wwastes containing significant organic fractions is increasingly discouraged in many countries, including the United States. Such waste practices are even prohibited in several European countries. Landfilling does not provide an appealing management option; therefore, other echniques have been identified.The alternative is to treat waste so that biodegradable materials degrade and the remaining inorganic waste fraction can be disposed of or used for a beneficial purpose. Waste can be biodegraded using aerobic composting, anaerobic digestion, and mechanical biological treatment methods..The organic fraction which can be separated from inorganic material, aerobic composting can be used to debase the waste and convert it into usable compost. Many organic wastes, for example, food waste, yard waste, and animal manure, which contain naturally degrading bacteria, can be converted under controlled conditions into compost, which can then be used as natural fertiliser.Aerobic fertiliser is made by putting specific proportions of organic waste into piles, rows, or vessels, either outside or inside buildings equipped with gas collection and treatment systems. During theprocess, bulking agents such as wood chips are added to the DISPOSE material to enhance the aerobic degradation of organic materials. The material is allowed to stabilize and mature during a curing process where pathogens are concurrently destroyed.

Various Methods of Waste Disposal

There are many ways of disposing of waste, in this section let's take a look at some of the most commonly used methods that you should know about waste management.

Landfills

Throwing daily waste/garbage in the landfills is the most popularly used method of waste disposal used today. This waste disposal focuses attention on burying the waste in the land. Landfills are mostly found in developing countries.

Incineration/Combustion

Combustion is a type disposal method in which municipal solid wastes are burned at high temperatures. The process eventually converts them into residues and gaseous products.

The most significant advantage of this method is that it can reduce the volume of solid waste to 40 to 50 percent of the original volume.It also reduces the amount of space they take up while also reducing the strain on landfills..

Incinerators can primarilyused in thermal treatment where solid waste materials are converted to heat, gas, steam, and ash. Incineration is also widely popular inmany countries where landfill space is no longer available, such as the US and Japan.

Recovery and Recycling

Resource recovery is the process which is taking useful discarded items for a specific next use. These discarded items are then processed to extractand recover materials and resources or convert them to energy in the form of useable heat, electricity or fuel.

Plasma gasification

Another type of waste management is plasma gasification.Plasma is primarily a highly ionised and electrically charged gas.Lighting is a type of plasma that generates temperatures in excess of 12,600 °F.The vessel employs characteristic plasma torches operating at +11,000 °F to create a gasification zone up to 3,100 °F for the conversion of solid and liquid wastes into syngas. As a result of the intense heat in the vessels and the elemental components during the treatment of solid waste by plasma gasification, the waste's molecular bonds are broken down.When waste and hazardous materials are discovered, they must be destroyed.This method of waste disposal provides renewable energy as well as a slew of other fantastic advantages. Composting

Composting is a simple and natural bio-degradation process that converts organic wastes such as plant remains, garden waste, and kitchen waste into nutrient-rich food for your plants.Composting, which is commonly used in organic farming, is accomplished by allowing organic materials to sit in one location for months until microbes decompose them.It should be noted that composting is frequently regarded as one of the best waste disposal methods because it can convert unsafe organic products into safe compost.The procedure, however, has some drawbacks.Some people have complained that it is slow, while others have complained that it takes up a lot of space.

Conclusion

Wastes are commonly found in landfills in a dry state, and as a result, the rate of waste degradation is typically very slow.These slow degradation rates are accompanied by slow degradation-induced settlement rates, which can complicate or reduce the potential for beneficial land re-use at the surface.Recently, the concept of bioreactor landfills has emerged, which involve the recirculation of leachate and/or the injection of selected liquids to increase the moisture content of waste, causing rapid degradation.Increased degradation rates accelerate biogas production, increasing the potential for beneficial energy production from biogas capture and utilisation.Recycling and composting are two of the most effective waste management methods.Composting is currently only possible on a small scale, either by individuals or in areas where waste can be mixed with farming soil or used for landscaping.Recycling, on the other hand, is widely practised throughout the world, with plastic, paper, and metal topping the list of the most recyclable items.The majority of recycled material is repurposed for its original purpose.

References

1. *Australian achievements in environment protection and nature conservation 1972-1982. Canberra: Australian Environment Council and Council of Nature Conservation Ministers. 1982. pp. 1–2.* ISBN 0-642-88655-5.
2. *Chunmei, Wang; Zhaolan, Lin. (2010).* "Environmental Policies in China over the past 10 Years: Progress, Problems and Prospects". *International Society for Environmental Information Sciences 2010 Annual Conference (ISEIS). 2: 1701–1712.* doi*:*10.1016/j.proenv.2010.10.181.
3. "Environmental-protection dictionary definition | environmental-protection defined". *yourdictionary.com*.
4. Environmental Psychology: Principles and Practices. *Bankston Cotton. 4 March 2019. p. 310.* ISBN 9781839474088.
5. Harding, R., Ecologically sustainable development: origins, implementation and challenges. Desalination, 2006. 187(1-3): p. 229-239
6. *Jeff Short and Andrew Smith (1994). "Mammal Decline and Recovery in Australia". Journal of Mammalogy. 75 (2): 288–297.* doi*:*10.2307/1382547. JSTOR 1382547.
7. Karamanos, P., Voluntary Environmental Agreements: Evolution and Definition of a New Environmental Policy Approach. Journal of Environmental Planning and Management, 2001. 44(1): p. 67-67-84.
8. Mitchell, R.B., International Environmental Agreements: A Survey of Their Features, Formation, and Effects. Annual Review of Environment and Resources, 2003. 28(1543-5938, 1543-5938): p. 429-429-461.
9. IrissBorowy, "Before UNEP: who was in charge of the global environment? The struggle for institutional responsibility 1968–72." Journal of Global History 14.1 (2019): 87-106.
10. *Zhang, Kunmin; Wen, Peng (2008). "Review on environmental policies in China: Evolvement, features, and evaluation". Environ. Sci. Engin. China. 2 (2): 129–141.* doi*:*10.1007/s11783-008-0044-6.