

Concept of Waste And Management Of Waste

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Abstract:

Adequate waste management is a basic key to natural manageability. Various researches and studies have been directed on the characteristics and sources of wastes as well as feasible adverse impact of improper handling and best worldwide practices. In this examination, the municipal solid waste administration and method of disposal is exhibited. The composition and characteristics of these wastes and the ecological issues related with its administration are additionally researched. The outcomes demonstrates that waste dump sites (assigned and non-assigned) on the significant streets and a few open spaces are left unattended for long periods such that trash stacks, infringe on roads in this manner constraining the access of road users, produce serious air contamination issues, comprise noteworthy nuisance when blown over by winds and deforms the perspective of the city. The synthesis of the wastes in the city is heterogeneous because it includes both biodegradable and non-biodegradable materials, for example, plastic, polythene materials, e-wastes, hospital wastes, and hair designer waste among others.

Keywords: Waste management, waste classification, waste disposal, and environment.

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I. INTRODUCTION

“There are few things certain in life – one is death, second is change and the other is waste.” No one can stop these things to happen in our lives. A significant inquiry in current day wastes the organization is – what precisely is a waste? Waste is the useless result of activities of human which physically contains a similar substance that are accessible in the valuable item. Anyway scientifically talking there is no waste as such in the world. Practically every one of the segments of solid waste has some potential that it is treated or converted in a scientific manner. Subsequently we can characterize solid waste as “Organic or inorganic waste materials produced out of household or commercial activities, that have lost their value in the eyes of the first owner but which may be of great value to somebody else.” Activities of humans generate administration yet with better administration we can set ourselves up. Here we will discuss waste and management of waste. Municipal solid waste disposal is a typical issue in most

countries of world. In recent times, the quantity and rate of waste generation have been on the expansion. As the volume of wastes increment, so in addition does the selection of the waste increment. A generous increment in volume of generation of waste started in the sixteenth century when individuals started to move from rural regions to urban communities because of revolutions of industries. This migration of individuals to urban areas led to explosion of population that led to surge in volume and assortment in arrangement of wastes created in urban communities. The enormous populace of individuals in urban areas and networks offered rise to aimless littering and open dumps. These dumps thus framed reproducing grounds for rats and other vermin, presenting noteworthy dangers to general wellbeing[1], [2], [11]–[18], [3]–[10]. The activities related with the administration of municipal solid waste from the purpose of generation to conclusive transfer can be assembled into the six functional components:-

- Waste age
- Storage
- Collection
- Transportation
- Segregation and Processing
- Disposal.

The purpose behind this paper is to pick up information about different activities in nations and locate the scope for development in waste management.

II. CLASSIFICATION OF WASTE

There are different types of waste such as Construction waste, Domestic waste, Waste from oil factory, E-waste, Food processing waste, Agricultural waste, Bio-medical waste, Slaughter house waste, Nuclear waste etc. We can classify waste as follows:-

- Solid waste- vegetable waste, household waste, kitchen waste etc.
- Liquid waste- water used for different industries, distilleries, tanneries, thermal power plants.
- E-waste- discarded electronic devices such as music systems, computer, TV etc.
- Plastic waste- bottles, plastic bags, bucket, etc.
- Nuclear waste- unused materials from nuclear power plants.
- Metal waste- unused metal sheet, metal scraps etc.

Further we can group all these types of waste into dry waste (Non Biodegradable) and wet waste (Biodegradable).

1. Wet waste-

- Kitchen waste including food waste of all type cooked and uncooked including bones and eggshells.

- Garden yard or sweeping waste consisting of dry and green leaves.
- Flower and fruit waste including juice peels and house-plant waste.
- Sanitary wastes
- Waste from food and tea stalls.
- Green waste from vegetable and fruit vendors.

2. Dry waste-

- House sweeping (dust etc.)
- Containers of all kinds excluding those containing hazardous material.
- All kinds of paper and plastics.
- Cartons and cardboard.
- Metals of all kinds.
- Rubber, rags
- Ashes
- Foils, wrappings, pouches, tetra packs and sachets.
- Discarded clothing, furniture and equipment.
- Discarded electronic items from offices, computer diskettes, colonies viz. Cassettes, printer cartridges and electronic parts.

In addition, another type of waste known as “Domestic Hazardous Waste” also generated at household level. Domestic Hazardous waste are batteries, household kitchen, aerosol cans, car batteries, drain cleaning agents, car care products, car batteries, cosmetic items, chemical based pesticides/insecticides, tube-lights, compact fluorescent lamps (CFL), light bulbs, oil, paint, lubricant and their empty containers. Hazardous waste is first required by EPA to meet legal definition of solid waste. In the same way, “Non Hazardous Waste” is define as the careless, extravagant or needless expenditure of DOD funds that results from deficient practices, controls, decisions or systems.

III. TYPES OF SOLID WASTE

1. Municipal Solid Waste

Municipal Solid Waste is a significant waste stream and furthermore one of the most examined. Municipal waste is same as household waste or other waste because of its composition is same as household waste. According to White et al. (1995) municipal solid waste has few amplifications. They contended that being the waste stream that individuals regularly interact with, their accumulation, disposal and treatment is considered as a significant assistance by local government and politicians. According to Kaseva and Gupta (1996) municipal waste is the waste gathered by the city authorities which incorporate deny from household, non-hazardous solids from institutional, industrial, commercial and non-pathogenic waste of hospital. According to Buah et al. (2007) municipal solid waste is collection of waste from business sources and domestic. According to White et al. (1995) municipal solid waste is waste delivered from business premises and household. They included that municipal solid waste is just a little part of total solid waste arisings. According to Vergara and Tchobanoglous (2012) municipal waste reflects the ways of life and traditions of the individuals that produce it. They included that, municipal solid waste can have an adversely impact on prosperity of people in general and environment if not appropriately managed.

2. Construction Waste

From construction industry solid waste is one of the major waste streams in numerous countries. In Hong Kong, about 29,674.013 metric tons waste is produced every day by construction waste. Construction waste includes both inert and non-inert materials. Moreover, Jaillon et al. (2009) said that huge volume of solid waste created by construction industry in Hong Kong is because of the constrained accessibility of land in the nation. They included that because of the blast in the development of multi-story structures in the city about 21.5 million tons of construction waste was created in 2005. Additionally

SEPA (2011) publicized that in spite of the fact that construction business contribute about £10 billion to the Scottish economy yearly, the part also created a huge level of strong waste which range from concrete, jms.ccsenet.org Journal of Management and Sustainability wood, plastics, metals, soils, glass among different materials. SEPA assessed that industry produce around 9,000,000 tons of waste every year. A comparative pattern is seen over the EU, volume of construction waste is on the expansion and the waste delivered is altogether high when contrasted with total waste produced. For example, figures from Eurostat (2014) estimate that in 2008 Construction waste in the UK represent around 100,999,493 tons while in 2010, the area contributed around 105,560, 291 tons of waste. Also, France created 252,979,840 tons and 260,225,886 of every 2008 and 2010 respectively while waste of construction in Germany was 197,206,500 and 190, 990,217 tons in 2008 and 2010. In total the 27 part nations of the EU produce around 871,370,000 and 859,870,000 of every 2008 and 2010 individually. European Environment Agency (2009) represents that about 31% of all waste delivered in the EU every year are construction waste. A report publicized that industrial and construction waste added up to about half of all waste created in the EU in 2006.

3. Agricultural Solid Waste

Agricultural solid wastes are numerous and are past the extent of this investigation. In any case, Tchobanoglous (1993) noticed that agricultural wastes are emerging from activities, for example, the raising of animals, planting of plants and from milk generation. Williams (2005) reported that agricultural waste materials incorporate animal fertilizer, different yield deposits and silage overflow. Rural wastes are generally reusable in the industrial and energy sector. Seadi and Holm-Nielsen (2004) reported that unseemly administration of horticultural waste may lead to environmental hazard for instance; high utilization

of compost on land could pollute ground water and surface.

4. Industrial Waste

According to Ngoc and Schnitzer (2009) industrial waste is waste delivered because of processing of raw materials for manufacturing of new products. They figure out that these could be in mines or factories. It has been accounted that in Malaysia, Thailand and Indonesia an enormous level of total solid waste arising is from processing of palm oil. The report found that, yearly about 3.2 million metric huge amounts of solid waste are delivered in Thailand from palm oil industry. The consequent value for Malaysia and Indonesia are 47 and 40 million tons individually. The waste created by industry incorporates palm fibre, fruit shells and bunches. Ngoc and Schnitzer (2009) revealed various sorts of wastes created by the industries and they included that a portion of wastes are toxic while others are non-poisonous.

5. Commercial Waste

Commercial waste is a significant waste stream particularly considering the immense measure of strong waste produced from this sector. The Environment and Heritage Service revealed that in Northern Ireland about 1.5 million tons of solid waste was created by industrial and commercial activities in 2005. They included that commercial activities delivered the greater part of total solid waste created for that year. The consequence of a study of commercial and industrial organizations in England shows that commercial waste represented about 11% of total waste generated in 2002. Supportable management of solid waste requires a sufficient comprehension of characteristics, generation rate and sources of solid waste in a region. Therefore it is important to address waste from commercial activities independently in order to comprehend the volume, age and composition rate from the different section of commerce. A breakdown of various origins of commercial waste uncovers that few thousand tons of waste are created

from different commercial activities yearly everywhere throughout the world as showed below.

6. Traditional or Open Market:-

Open market commercial is a well known practice in many growing countries for general selling and buying of products. According to Sridhar and Adeoye the items traded in these sectors incorporate foodstuffs, textile, household goods, pharmaceuticals, herbal medicine, electrical goods, stationeries, building materials among others. Adekunle disclosed that in spite of the fact that these markets attract development to domestic economy; the insufficient administration of waste in these traditional markets implies addition in environmental degradation. According to Aye and Widjaya the market wastes are second biggest supporter of total municipal solid waste produced in Indonesia after household waste. A study directed in India disclosed that waste from these markets is generally very wealthy in biological matter. Nonetheless, Rajeshwari and others detailed that, these biological materials are regularly dumped randomly. Sridhar and Adeoye observed that a large portion of solid waste generated in these open markets is food waste.

7. Hotels and Restaurants:-

Hotel industry can adversely affect on habitat because of the enormous volume of solid waste production. A study of solid waste management revealed that most operators of hotels are not naturally conscious; the review demonstrated that the majority of the hotels don't reuse their waste. Subsequently, they add to degradation of environment because of huge volume of solid waste they produce day by day. Comparative, Erdogan and Baris disclosed that a large portion of hotels that took an interest in a review to decide naturally practice of hotels in Ankara, Turkey don't sort or reuse their waste. They included that a portion of hotels that sort their waste had lacking framework for separation of waste. A review in Hong Kong disclosed that the absence of interest in reusing waste in the hotel business is because of the expense

related with the acquisition of reusing materials. Besides, the study demonstrates that the absence of data on the effect of solid waste produced by hotels on nature added to absence of interest to diminish solid waste by the hotels. Kasim called attention to that on average a hotel will create more solid waste than household. He further expressed that the volume and attributes of waste generated in hotels would rely upon the quantity of rooms accessible in hotel and their inclusion in event hosting.

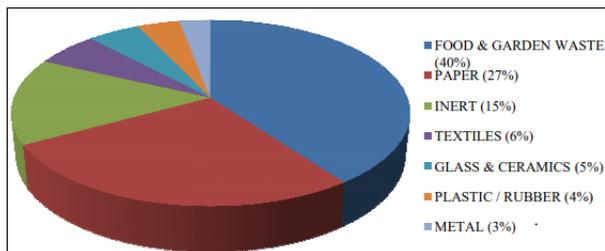


Figure 1:- Composition of Municipal Solid Waste in a Indian City

IV. WASTE MANAGEMENT

Human interactions with nature have consistently brought waste production. Nevertheless, Giusti describe that production and management of waste was not a significant issue until individuals started living collectively in communities. Vergara and Tchobanoglous disclosed that as purchasing power and populace of individuals increments around the world, more merchandise are delivered to meet expanding need, subsequently prompting the creation of increasingly waste. Marchettini et al. brought up that these consistent progressions of waste coming because of activities of human and overburdened nature. Vergara and Tchobanoglous announced that appropriate arranging and control is required in other to counteract the negative effect of waste on nature. Subsequently, an appropriate association of management of solid waste has become a basic assignment expected to shield the earth. According to Beranek (1992) the arrangement of a proficient solid waste administration framework is presently as significant as other fundamental enhancements, for example, expressways, electricity and airports. In 2009 Basu indicated out that due to

the expanding volume of waste. The continuous waste disposal to landfill is unsustainable. Consequently, Basu disputed that processing of waste is a vital step expected to safeguard general wellbeing. In 2011 Demirbas depicts waste the executives as a procedure by which wastes are accumulated, processed and transported before transfer of any outstanding deposits. Essentially, the executives as the powerful handling and supervision, collection, treatment, keeping and conveying of waste in a way that safeguard public and environment. Tchobanoglous included that solid waste administration uses knowledge and skills from different order, for example, financial, legal and administration among others in the everyday running of waste administration issues. Demirbas proposed that the fundamental purpose behind overseeing waste is to guarantee a safe environment. Troschinetz and Mihelcic brought up that some waste administration techniques are regularly favoured than others. For example, recycling, composting, energy generation and reuse from burning are regularly liked to landfills. However, even a portion of the favoured administration strategies, regularly produce some dangerous materials, for example, burning deposits. Land filling is the last goal of most waste created from treatment of waste and processing facilities. Unusual, included that, different advancements simply fill the need of volume decrease or treatment before definite disposal. There are various types of way to deal with management of waste. He included that waste streams with various qualities may require diverse administration approach. For example, mechanical waste may contain more toxic material than municipal waste pour. Henceforth, the administration of these two waste streams may contrast. There are some fundamental procedures or ways that waste the executive's needs to pursue. These ways are delineated in Figure 2, the investigation announced that waste produced must be accumulated and stock by the generator in a spot. The authorities of municipal gather the loss from the purpose of stocking for transportation to handling or

disposal destinations. The examination included that in certain instances the waste generators separate waste into different materials from where they are gathered for recycling by the recycling ventures.

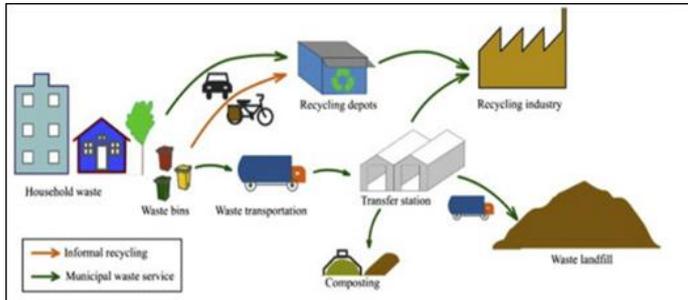


Figure 2:- Waste Management Cycle

V. Disposal of Solid Waste:-

Disposal of solid waste is finished by following two techniques:-

- Composting: - This process is done by vermin composting of biodegradable wastes, for example, biodegradable portion from residence, hotel refuge, leaf litter, vegetable waste etc. Size of every vermin composting rack is 6.12 m X 1.52 m X 0.6 m made up of steel. It requires two month.
- Land filling: - Waste is stocked on the highest point of the slope in 5 sections of land area. All inorganic material is utilized for dumping and land filling.

V. CONCLUSION

It is concurred that waste is an immediate result of human activities and interaction. Nevertheless, there are few options with respect to what comprise a waste. A few researchers anyway concurred that wastes are materials whose holders never again have a requirement for. . Nonetheless, it is essential to give a definition or if nothing else a guide for the reasons for legislations and policies. This is clear from the way that, it is the information of what explicitly establish a waste and the classes of waste that decides how waste is managed. Management of waste includes a procedure whereby waste are disposed, transported and collected in the most ideal method for eliminating or limiting out the hurtful impact of wastes. This part of natural management is as significant as other infrastructure or public amenities without which the life of contemporary

man would be in troublesome. This is because several studies have demonstrated an immediate connection between air, land and water pollution and illnesses, for example, cholera, hepatitis, heart disease and lung cancer. Environmental change and eutrophication are an immediate after effect of air and water pollution. Little wonder why there is a tremendous uniqueness in the future of individuals in developing and developed nations.

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