

Solid Waste Management

Sweety

M.A. & NET in Geography

Abstract: -Waste waste management is a term used to collect solid waste and refer to the process of treatment. It also provides solutions for the recycling of those items which are not garbage or garbage. As long as people are living in settlements and residential areas, garbage or solid waste has been an issue. Waste management is all about how solid waste can be converted and used as a valuable resource. Solid waste management should be embraced by each and every home, including business owners around the world. Industrialization has brought many good things and bad things too. One of the negative effects of industrialization is the creation of solid waste. According to Britannica, “Solid-waste management, the collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful. Improper disposal of municipal solid waste can create unsanitary conditions, and these conditions in turn can lead to pollution of the environment and to outbreaks of vector-borne disease—that is, diseases spread by rodents and insects.

Keywords:-Solid waste management and sources and methods.

Introduction: - Solid Waste Management is defined as the discipline associated with the control of generation, storage, collection, transport or transfer, which in a way is the processing and disposal of solid waste products, which can be used in public health, conservation, economics , The aesthetics, the boundary. Engineering and other environmental considerations within its scope, the management of solid waste management includes planning, administrative, financial, engineering and legal work. The solution may include complex inter-disciplinary relationships between areas such as public health, city and regional planning, political science, geography, sociology, economics, communication and conservation, demography, engineering and materials science. Solid waste management practices can vary for residential and industrial producers, for

urban and rural areas, and for developed and developing nations. The administration of non-hazardous waste in metropolitan areas is the job of local government authorities. On the other hand, the management of hazardous waste materials is typically the job of the generator, subject to local, national and even international authorities.

Objectives of Waste Management:-The primary goal of solid waste management is reducing and eliminating adverse impacts of waste materials on human health and environment to support economic development and superior quality of life.

Functional Elements of the Waste Management System:-There are six functional components of the waste management system as outlined below:

Waste generation: - It refers to activities involved in identifying materials which are no longer usable and are either gathered for systematic disposal or thrown away.

Onsite handling, storage, and processing: - These are the activities at the point of waste generation which facilitate easier collection. For example, waste bins are placed at the sites which generate sufficient waste.

Waste collection:- It is a crucial phase of waste management, includes activities such as placing waste collection bins, collecting waste from those bins and accumulating trash in the location where the collection vehicles are emptied. Although the collection phase involves transportation, this is typically not the main stage of waste transportation.

Waste transfer and transport:-These activities are involved in moving waste from the local waste collection locations to the regional waste disposal site in large waste transport vehicles.

Waste processing and recovery: - It refer to the facilities, equipment, and techniques employed both to recover reusable or recyclable materials from the waste stream and to improve the effectiveness of other functional elements of waste management.

Disposal: - This is the final stage of waste management. It involves the activities aimed at the systematic disposal of waste materials in locations such as landfills or waste to energy facilities.

Sources of solid waste: - Tons of solid waste disposal are settled on most different landfill sites. This garbage comes from homes, offices, industries and other agricultural related activities. These landfill sites produce waste smell if the garbage is not stored and treated properly. It can pollute the surrounding air and seriously affect the health of humans, wildlife and our environment. The following are the major sources of solid waste:

Residential: - Measures and homes where people live are some of the major sources of solid waste. Trash from these places includes special waste such as food waste, plastic, paper, glass, leather, cardboard, metal, yard waste, ash and electronics, tires, batteries, old mattresses and used oil like used oil. Most households have garbage cans where they can throw their solid waste inside and later the bin is emptied for the treatment by the garbage collectors or the person.

Industrial: - India is considered to be one of the largest contributors to solid waste. These include light and heavy manufacturing industries, construction sites, construction plants, canning plant, electricity and chemical plants. These industries produce solid waste such as housekeeping waste, food waste, packaging waste, ash, construction and demolition material, special waste, medical waste as well as other hazardous wastes.

Commercial: - Commercial facilities and buildings are another source of solid waste today. In this case, commercial buildings and facilities refer to hotel, market, restaurants, downstream, shops and office buildings. Some solid waste generated from these places include plastic, food waste, metal, paper, glass, wood, cardboard material, special waste and other hazardous wastes.

Institutional: - Institutional centers like schools, colleges, jails, military barracks and other government centers also produce solid waste. Some common solid waste derived from these places include glass, rubber waste, plastic, food waste, wood, paper, metal, cardboard material, electronics as well as various hazardous wastes.

Construction and demolition areas: - Construction sites and demolition sites also contribute to solid waste problem. Construction sites include new construction sites, road repair sites, building repair sites and building demolition sites for buildings and roads. Some solid wastes produced in these places include steel material, concrete, wood, plastic, rubber, copper wire, dirt and glass.

Municipal Services: - Urban centers still contribute greatly to solid waste in most countries. Some solid wastes brought by municipal services include waste cleaning, parks and beaches from the waste areas, wastewater treatment plants, waste wastes and waste from recreational areas including sludge.

Treatment Plants and Sites: -Heavy and Light Manufacturing Plant also produce solid waste. These include refineries, power plants, processing plants, mineral extraction plants and chemical plants. The waste produced by these plants includes industrial process waste, unwanted specification products, plastic, metal parts, but only a few.

Agriculture: - Farms, gardens, dairies, vines and feedlots are also sources of solid waste. The waste produced by them includes agricultural waste, bad food, pesticide containers and other hazardous materials.

Biomedical: -This refers to hospitals and biomedical equipment and chemical manufacturing firms. Different types of solid wastes are produced in hospitals. Some of these solid waste include syringes, bandages, used gloves, drugs, paper, plastic, food waste and chemicals. All of them need proper disposal; otherwise they will cause the environment and people in these facilities a major problem.

Effect of poor solid waste management:- Especially due to inappropriate waste disposal systems by municipal waste management teams, a pile of waste becomes a problem. People clean their homes and workplaces and affect their environments that affect the environment and the community. Biodegradable material is forced to rot and rot in inappropriate, uncontrolled and uncontrolled conditions due to dumping of wastes. After a few days of decomposition, a smelly

odor arises and it becomes a breeding ground for various types of diseases along with pests as well as infectious organisms. On top of this, solid waste from these industries is also a source of toxic metals, hazardous wastes and chemicals. When released for the environment, solid waste can cause biological and physical chemical problems for the environment and may affect or change soil productivity in that particular area. Toxic substances and chemicals can flow in the soil and pollute the ground water. During the process of collecting solid waste, the dangers wastes usually contain ordinary wastes and other combustible wastes which make the settlement process difficult and risky. Hazardous waste like pesticides, lead, mercury or zinc, batteries, solvents, radioactive materials, e-waste and plastic are mixed with paper and other scraps are burnt, causing them to produce dioxins and gas. These toxic gases are likely to have many types of diseases, including cancer.

Methods of Solid Waste Management:-There are different methods of solid waste management. The following are some of the recognized methods:-

Sanitary Landfill: - This is the most popular solid waste disposal method used today. Trash is basically spread in thin layers, covered with compressed and clay or plastic foam. Modern landfill is designed in such a way that the bottom of the landfill is covered with an impermeable liner that is usually made of thick plastic and several layers of sand. This liner prevents groundwater from being contaminated due to leaching or percussion. When landfill is filled, it is covered with layers of sand, mud, upper soil and gravel to prevent leakage of water.

Incineration: - This method involves burning solid waste at high temperatures until the waste is turned into ashes. Incinerators are made in such a way that they do not heat excessive amounts of solid waste after burning. This method of solid waste management can be done by individuals, municipalities and even institutions. The good thing about this method is that it ruins the original amount by 20 or 30%.

Recovery and Recycling: - Recycling or Recovery of Resources is a process for taking useful but abandoned items for the next use. Traditionally, these items are processed and cleaned before

recycling. The purpose of this process is to reduce energy loss, consumption of new materials and lack of landfill.

Composition: - Due to the lack of adequate space for landfill, the biodegradable yard waste is allowed to be dismantled in the medium designed for this purpose. Only biodegradable waste products are used in composting. Good quality eco-friendly compost is made from compost and can be used for agricultural purposes.

Pyrolysis: - This is the method of solid waste management by which solid waste disintegrates with heat without the presence of oxygen. It is usually under pressure and at temperatures of 430° C. Solid wastes are converted into gases, solid residues and in small quantities of liquid.

In spirit, proper solid waste management is an integral part of environmental protection which should be looked at by individuals and companies globally. It will keep the environment clean and reduce health and disposal problems.

Strategies to overcome the challenges in solid waste management

Collection and storage of solid waste: - Consolidated waste is collected by the vehicles in urban areas because of its high volume, but in rural areas this quantity is not very high, hence the use of small vehicles with load bearing capacity. Used for 4 to 5 tons. .

Separation of solid waste: - For metros, automatic large capacity units are used for the purpose of separation. But less production of solid waste in villages decreases the capacity of 100-200 tons / day.

Treatment and disposal of solid waste:- Treatment in urban areas is done on solid waste and is generated for the purpose of electricity, ice production, and cold storage. All units have a lot of potential. We can design small units for the village level for the generation of 1 to 2 megawatt, due to which every village becomes free for electricity.

Training and public awareness:- Education can be provided at various levels with the help of NGOs and private sector organizations. One of the most effective ways to curb open disposal is to make harsh punishments for wrong citizens.

Scientific approach to planting broom: - To assess the geography, road conditions and population of the area, the staff should be sensitively deployed. This kind of effective management will ensure the distributed network of employees. Cleaning workers should be encouraged for their work and must be effectively trained to collect and settle waste. They are the first point contact on the source and therefore they should be used as a means of spread awareness.

Waste segregation and reuse: - Separation of the source of wastewater should be encouraged and two boxes should be emphasized by the removal of waste on the source by the homes, shops and establishments.

Provision of adequate storage facilities: - All open waste storage sites should be discouraged and removed. They should be replaced with large containers at some regular distance in the city. On the basis of possession of municipal corporations, it should encourage the isolation by placing small boxes in strategic places.

Developing strong transportation facilities:- In all areas, adequate number of vehicles should be provided for transport of waste. Vehicles must be well equipped to ensure that there is no leakage of any waste material and the proper container inside the vehicle should be made to ensure that the waste is not mixed together. Vehicles can be fitted with speaker to spread awareness among the population.

Establishment of Transfer Station:- On the basis of geography, the city should be divided into smaller areas and transfer area should be in each area, in which all transport vehicles in that area must report and report solid waste. There will be large vehicles for efficient and cost effective transfer of waste materials in each intermediate transfer station.

Conclusion: - With increasing population and the increase in industrial production, the amount of solid waste increased manifold. It is generally believed that there is a positive relationship between a country's waste and money. In other words, in a rich country, there is more potential to generate waste compared to the poor. As a country is enriched, its capacity to generate solid waste also increases. The purpose of the study is to present an overview of the solid waste management system in India and highlight the important challenges it faces. There is a struggle

to provide efficient waste management services due to government policies, lack of funds, and the lack of infrastructure, technology and private sector involvement. In developing countries like India, any changes will be made in the mechanism of solid waste management system. Some methods of treatment and disposal can be used extensively and revenue can be generated. There are challenges like lack of awareness, careless planning, lack of resources and lack of resources. The Accountability System makes the crippled. All these challenges and solutions are called for a major change in the current system of solid waste management, which will lead us on the path of development and will make us a strong economy. In the case of the use of solid waste, such a suitable technique should be developed to make the world environment clean and healthy and reduce health hazards. If such a scientific and environment-friendly technique is developed that treats solid waste in such a manner that waste is used to generate energy, then it will be to kill two birds with a stone. If such a technique is possible then solid waste can be used to produce compost and energy.

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