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Solid Waste Management In India

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Abstract:-

There is widespread problem in many developing and developed countries in the world regarding disposal of raw material. In our country also there is a major problem in both urban and rural areas of regarding with disposal of these materials. Now a day solid waste management issue is the largest problem in small as well as large cities in India. Because of that I have selected this research topic in order to give a satisfactory solution regarding with the disposal of solid waste management. The solution should be economically, socially, technically acceptable and eco-friendly. In municipal corporation cities there is dumping of large amount of solid waste around the cities, which creates large problems to peoples. It is observed that in big cities municipal solid waste (MSW) gives a major contribution to the total amount of solid waste.

Keywords :

Solid waste management, municipal solid waste (MSW), Socially acceptable, eco-friendly.

Introduction :

Solid waste management is known collaboration associated with control of generation, storage, collection, transport or transfer, processing and disposal of solid waste materials in a way that good address the range of public health, conservation, economics, aesthetic, engineering and other environmental considerations. These materials is classified on the basis of types of material such plastic, paper, metal organic waste, glass, toxic non-toxic flammable radioactive elements, industrial waste, domestic waste etc. The solid waste are the residue part of raw material left after primary use of the things. These solid wastes are generated in the environment due to various activities of humans in the society. It is observed that, in our country the municipal solid waste creation rate per capita is around 0.3 to 0.7 kg per day in small towns. There are many sources of solid waste in the environment. Because of increase in population, industrialization waste are generated in societies. Due to various human activities in the society the wastes are generated.

It is observed that in many of hospital solid wastes, the Scenario of wastes is very dangerous. The hospital solid waste is generated during diagnosis, condition. The testing and production of biological product also create harmful solid wastes. It is observed that the hospital wastes are very hazardous to human beings, near about 5% is non-infectious and remaining is infectious wastes. Infectious waste consists of abundant amount of pathogens which are responsible for causing of various diseases to humans and animals such as tuberculosis, diarrhoea, hepatitis A, B and C, tetanus, AIDS, whooping cough and pneumonia etc.

During Covid-19 pandemic period there is increase in the amount due to that and so the challenges around waste management, particularly hospital waste and non-medical household waste have amplified. The policies of Government during pandemic period such as stay-at-home, institutional lockdowns and the need for preventative measures have been increased the production and consumption of products such as sanitizers, maske, gloves, cleaning products, thermometers, toilet paper etc. It is observed each every household is increasing more waste than ever before. The medical institutions during Covid-19 Pandemic period produces non-hazardous, pathological, chemical, radioactive, infectious, pharmaceutical, cytotoxic waste etc. According to Andersen (2020), the world Health Organization (WHO) has projected a monthly global expenditure of 76 million plastic-based protective goggles and 89 million plastic-based medical masks.

2. Disposal of Solid Waste :-

It is observed that in India open dumping is the biggest common method of solid waste disposal. It is also observed that there are many garbage laying along the roads while passing through a highway. It has been found that improper collection, transport system influence on the characteristics of solid wastes. There is bad roads, poor planning, lack of information related with collection schedule, number of vehicles for collection of solid wastes and insufficient infrastructure can also affect on the types of the solid wastes. It is also sometimes observed that such a material are illegally dumped into canals, rivers or used to fill land depression without proper consultations. According to Pokhrel and Viraraghavan there is insufficient Financial resources, absence of legislation, well equipped and engineered landfills all contribute to the limitation of solid waste safe disposal. Tadesse et al. were analyzed which factors influences household waste disposal. Sometimes these dumps are subjected to open burning, which can release toxic fumes and smokes where enough heat has been generated to trigger a spontaneous combustion. It is observed that there is degradation of the soil quality to leaching toxic chemicals into underground water sources.

3. Plastic Waste Disposal and their public health Effect

These are made up of synthetic organic polymers used in different purposes e.g. food packaging, medical supplies, water bottles, electronic goods, clothing, construction materials etc. Near about 6.4 billion tonnes of plastics have been produced worldwide and out of which 8% to 11% of which have been recycled. Due to increase in demand of plastic which adversely affect increase in environmental pollution. Plastics which is used in the production of many consumable products including water bottles, food packaging and medical devices containing toxic chemicals such as heavy metals, phthalates, polychlorinated biphenylethers nonylphenol, bisphenol A dichloro diphenyl dichloroethylene, phenanthrene etc. There is degradation of marine habitat due to release large amount of plastic into the ocean and which adversely affects the aquatic organisms. It is also observed that because of long term use and exposure of plastic products and plastics to

high temperature leading to leaching of toxic chemicals into water, food and drinks etc. Because of that their should be a global prevention and control of plastic wastes managements in the world. many animals are poisoned by toxic components from plastic products and plastics wastes can be adversely affected for human consumption of food. We know that many plastic polymers are lethargic and of little concern to public health, however different types of additives are responsible for the suspected health risks. Due to bioaccumulation of micro plastics in the food chain after ingestion by a wide range of freshwater and marine lives leading to a public health risk. Due to the use of different additives in the production of plastics have a detrimental effects on humans health. It is observed that many fishes, birds, seals, turtles and other marine animals are died by suffocation of entanglement in plastic debris.

4. Process of solid waste Managements

With the increasing population day by day globally which results in increase in the solid waste generation. We know that of collecting and treating solid wastes is known as solid waste management. It is nothing but how to change solid waste into a recycled useable source. Due to industrialization there is increase in many good things along with the bad things. 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. Due to increase in the percentage of such a material in the environment which leads to increase in percentage of environmental pollution.

There are methods of solid waste management. The following are some of the important methods :

4.1) Sanitary Landfill :-

Now a days this is the best popular method use for solid waste disposal. This method is useful for dumping of all types of residual wastes, organic and inorganic wastes as well as inert and mixture of all types of waste in land which is used as a major source of greenhouse gases e.g. carbon dioxide and methane. When the landfill is full, it is covered with layers of sand, clay, topsoil and gravel to prevent seepage of water.

4.2) Incineration :-

It is used for burning of solid wastes at high temperatures until the wastes are converted into ashes. This method do not give off extreme amounts of heat when solids are burned. This method useful for management of solid waste by municipalities, institutions or even also individuals. The advantage of this method is to reduce near about 21% to 32% of original volume of solid wastes.

4.3) Pyrolysis :

With the help of this method wastes are chemically decomposed by heat in the absence of oxygen under pressure and at near about 431 degree Celsius temperature. Then the solid wastes are converted into gasses, solid residue of carbon and ash. The main advantage of this method is to keep the environment clean and to reduce health and settlement problems.

4.4) Recycling :

The process of taking useful but discarded items for the further use is nothing but the recycling or recovery of resources. With the help of this method we can automatically recycled the materials like tins, glass, plastic bags and containers. Now a day the most developed countries follow a strong tradition of recycling to decrease the volumes of wastes. The main advantage of this method is that it is ecofriendly.

Conclusion :

There are many new techniques that arise for solid waste management, still land filling is the best method used in the northeastern area of Illinois. We know that waste management deals nothing but treatment and disposal but also it incorporates reduction of waste generation, collection, segregation and proper transportation to its respective recycling centres. The pyrolysis method of solid waste management can decrease the volume of solid waste. A manual way of separation type of solid waste at the dumping site in villages, it is the most effective way to obtain the recovery and reuse of materials e.g. glass, metal, rubber, plastic etc.

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