

Editorial on Hazardous-Waste Management

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Introduction

Hazardous-waste management refers to the collection, treatment, and disposal of waste that, if managed improperly, can endanger human health and safety as well as the environment. Hazardous wastes might be solids, liquids, sludge's, or confined gases, and they are primarily produced by chemical, manufacturing, and other industrial processes. They can cause damage if they are not properly stored, transported, treated, or disposed of. Improper hazardous-waste storage or disposal regularly pollutes surface and groundwater resources, as well as being a cause of hazardous land pollution. People who live near old and abandoned trash disposal sites may be especially exposed.

Characteristics of hazardous waste

Hazardous waste is categorised based on biological, chemical, and physical characteristics. Toxic, reactive, ignitable, corrosive, infectious, or radioactive compounds are produced as a result of these qualities. Even in minute or trace concentrations, toxic wastes are poisonous. They can have immediate consequences, such as death or severe illness, or they might have long-term consequences, such as irreversible injury. Some are carcinogenic, meaning they cause cancer over a long period of exposure. Others are mutagenic, causing significant biological alterations in the progeny of humans and animal who have been exposed to them.

Chemically unstable, reactive wastes react aggressively when exposed to air or water. Explosions or poisonous vapours are the result. Ignitable wastes burn at low temperatures, posing a fire hazard right away. Strong acidic or alkaline wastes are among the most corrosive. They use a chemical process to destroy solid and living tissue when they come into contact.

Ionizing energy is emitted by radioactive wastes, which can be harmful to living things. Because some radioactive materials might last hundreds of years in the environment before entirely decomposing, waste management is a major concern. The handling and disposal of radioactive material, on the

other hand, is not the duty of local governments. Because of the magnitude and complexity of the subject, radioactive waste management—particularly nuclear fission waste management—is usually treated as a separate technical endeavour from other types of hazardous-waste management, as mentioned in the article nuclear reactor.

Transport of hazardous waste

Hazardous waste created at a particular location frequently need transportation to a designated treatment, storage, or disposal facility (TSDF). Government agencies pay special attention to transportation because of possible dangers to public safety and the environment. Hazardous waste has been purposely poured or abandoned at random locations in the past, in addition to the occasional accidental spill. Hazardous material has been purposely spilled or abandoned at random sites in the past, in a practise known as "midnight dumping," in addition to the occasional unintentional spill. The development of legislation requiring appropriate labelling, transportation, and tracking of all hazardous wastes has drastically restricted this practise.

The majority of hazardous trash is delivered by truck on public routes. Only a small portion is delivered by rail, and virtually none is conveyed by air or inland waterway. Because road vehicles can access most industrial sites and approved TSDFs, highway transport is the most popular. Railroad trains are only appropriate for very big trash transfers and require expensive siding facilities. Tank trucks composed of steel or aluminium alloy with capacity of up to 34,000 litres can transport hazardous waste (9,000 gallons). They can also be containerized and delivered in 55-gallon (200-litre) drums. Government laws include specifications and requirements for cargo tank vehicles and shipping containers.

Hazardous-waste management can be done in a variety of ways. The best option is to decrease waste at the source or recycle materials for another purpose. Despite the fact that trash reduction and recycling are desirable solutions, they are not seen as the final solution to the problem of hazardous waste disposal. Treatment and storage will always be needed.

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