- Hardaous Waste Management

A hazardous waste is any waste or combination of wastes that poses a substantial danger, now or in the future, to human, plant or animal life and which therefore cannot be handled or disposed of without special precautions. The Hazards and Disasters can be classified into four categories viz., Natural events, Technological events, Man-made events and Region-wise events. The adverse impacts caused due to the indiscriminate disposal of Hazardous Wastes (HWs) come under the category of Environmental Disasters. For example, in 1982, 2242 residents are evacuated after dioxin is found in soil in Missouri, U.S.A. In 1996-97, 265354 tonnes of soil and other dioxin-contaminated material from Times Beach (Missouri, U.S.A) and 26 other sites in eastern Missouri had been incinerated. Release of Methyl Isocyanate (MIC) gas in Bhopal (1984) caused a severe disaster in India. So there is a growing concern all over the world for the safe disposal of hazardous waste generated from anthropogenic sources.

Steps involved in hazardous waste management

Identification of Hazardous Waste Generation: Identifying the HW generating industries is the first step. The HWs are classified under 18 categories and this information may be used to screen the wastes generated and classifying them as HWs. However there are few observations that- there is a probability of occurrence of wastes in more than one category; and this classification system does not give any information to understand the toxic characteristics of HW. Few suggestions are also given to improve the classification system. The data available with the State Industrial Development Corporation (IDC), District Industries Centre (DIC), State Pollution Control Boards etc. may be utilized to identify the industries with a potential for HW generation.

Data Collection: After identifying the HW generating sources, the inventory of the data pertaining to HW generation can be developed by conducting surveys through specially prepared questionnaires to each of the identified sources. This should be followed by field visits for data verification. It is essential that, the data that is obtained from the above options is verified from secondary data (either published data or available for another industry producing similar products).

Waste Characterization: The HW that is generated from the study region should be characterized. For this purpose, it is advisable that the samples may be collected from the waste generation source and analyzed in the laboratory. Literature data may be used in the absence of primary data.

Quantification of Hazardous Wastes: The HWs ar ·e quantified based on their individual characteristics. The several options of compatibility of wastes with different characteristics should be studied and segregated. The quantity of HWs

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will be expressed in terms of each category for disposal (e.g. Recyclable, Incinerable, or Disposable etc). The wastes that are recyclable are used/waste oil, lead wastes, zinc wastes.

Identification of sites for disposal: After quantifying the HW, and assessing the probable area requirements for its treatment, storage and disposal, the sites are to be identified. For this purpose, toposheets and/or remote sensing images of the study region may be used. The sites are to be physically verified in the field and to draw observations pertaining to the four different types of attributes available for ranking the sites. The site with a minimum score out of the available sites for ranking should be chosen as the site for establishing TSDF.

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