

## **A STUDY ON HOUSEHOLD HAZARDOUS SOLID WASTE MANAGEMENT IN INDIA**

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### **ABSTRACT:**

Discarded waste in our families may also incorporate dangerous and poisonous chemical substances. The typical Indian family makes use of many products that could incorporate numerous materials that may be categorized as hazardous. those family hazardous waste include: pesticides, insecticides and fungicides; timber preservatives; caused by household dangerous waste tube lights; paints, thinners, smudge and lacquer; adhesives and gum; medicines, cosmetics, nail polish and removers; batteries; various cleaners and polishes; objects, mercury-containing fluorescent lamps and different devices, electric and electronic devices (waste electric and digital equipment), remnants of family chemicals and drugs, and others. Such waste includes in its chemical composition of risky substances, which have a poor effect on the surroundings and human health. If risky additives aren't allotted from the overall waft of low-risk municipal strong waste (MSW), within the processing or disposal in landfills, they begin to have a negative effect at the environment, which has a tendency to accumulate. This truth sheet intends to describe some of the ability risks related to household dangerous Wastes, in addition to offer data about how to correctly manipulate and prevent the technology of household dangerous waste. The purpose of this look at is reduced and recycle the household solid waste, properly disposed of with the aid of the solid waste and enhance the environmental quality of existence. Waste separation from the family level, proper storage, more green waste collection structures, and sustainable healing and disposal practices are diagnosed as needed procedures inside the examine place. Thinking about the character and additives of waste generated through families and enterprise locations, the waste reduction, reuse, recycling, and composting approaches would be extra suitable in dealing with the task.

Keywords: Household waste, Hazardous, Recycling, Reduce, Reuse, Solid waste, Environment

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**INTRODUCTION:**

Disasters occur due to both natural and man-made activities (Khare, 2001). A hazard is a rare or extreme event that adversely impacts human life, property, or activity. No human settlements are free from the risk of natural hazards; therefore it is vital that researchers and decision-makers have access to all available hazards information (NGDC, 2003). E&DM (2003) classified the Hazards and Disasters into four categories viz., Natural events, Technological events, Man-made events, and Region-wise events (Refer Table-1). 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 (E&DM, 2003). Release of Methyl Isocyanate (MIC) gas in Bhopal (1984) caused a severe disaster in India (Banerjee, 2001; E&DM, 2003). The current contemporary issues of solid waste management in India. In case you purchase hazardous products buy only what you need and use it up completely. When using, read and follow the instructions on the label. Wear proper protection and use the right amount. Always re-seal the unused portion between usages. Store the products safely. Never store hazardous products in food containers. Keep them in their original containers and never remove labels. Secure hazardous products away from children and pets. Do not mix chemicals together; they might react, ignite, or explode.

**STATEMENT OF THE PROBLEM:**

Improper storage of chemicals in your household can turn out to be harmful to children or pets and be a fire hazard. Chemicals poured down the drain pollute our drinking water and can contaminate septic tanks and wastewater treatment facilities. When thrown in the trash, some household hazardous waste can harm sanitation workers. In a line, whatever we do with our household hazardous wastes will affect everyone. Household cleaners may contain solvents that are hazardous to breathe and can get into the body and skin. Many are irritants and can react with ammonia to create a toxic gas. Polishes usually contain petroleum distillates, which catch fire easily and can be hazardous to inhale. A small amount of oil, if disposed of improperly, can contaminate large quantities of drinking water. Car batteries contain lead and sulphuric acid. The lead can contaminate the water and the acid can burn skin. Paints can contain heavy metals and

additives, like lead and mercury that are toxic. Oil or solvent-based paints contain solvents that can be harmful to your lungs. Pesticides are chemicals designed to kill rodents, insects, and plants. They can injure or potentially kill people by inhalation, ingestion or absorption through the skin. The Municipal Solid Wastes Management and Handling Rules 2000, talk about the requirement of specially lined landfills for the disposal of waste contaminated with hazardous materials. The Bio-Medical Waste Management and Handling Rules 1998, do not allow bio-medical waste to be mixed with other wastes. Thus, it is the law that states HHW must be properly managed in India.

## OBJECTIVES

1. To Analyze household solid waste Management in India.

## REVIEW OF LITERATURE

**B.V. Babu and V. Ramakrishna (2003)**, examine 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. Detailed information on HW characterization pertaining to physical, chemical, and general characteristics; and properties pertaining to ignitability, corrosively, reactivity, & toxicity is given by Babu and Gupta (1997). The HWs are 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 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 (HPC, 2001).

**Sonam Sahu (March 2014)** this paper deals with the review of Solid waste management practice in India. Since solid waste management consists of lots of waste such as industrial, agricultural, municipal, transport, etc. here in this paper, we focus on municipal waste generated across the country and their treatment in order to conserve the environment. As municipal waste is one of the major environmental problems of Indian cities. UN effective management leads to the hazardous inhabitant. An attempt has been made to provide comprehensive review of the characteristics, generation, collection, and transportation, disposal and treatment technologies of MSW practiced in India is stated here and discussed.

**Tapan Narayana (2009)**, Rapid population growth, urbanization, and industrial growth have led to severe waste management problems in the cities of developing countries like India. The large quantity of waste generated necessitates a system of collection, transportation, and disposal. It requires knowledge of what the wastes are comprised of, and how they need to be collected and disposed of. Recycling of waste, energy generation and employment opportunities from waste management also have immense potential. However, it has been widely observed that the Municipal Corporations in India do not have adequate resources or the technical expertise necessary to deal with the problem. Successful waste management requires the participation of citizens, local governments, and private entrepreneurs

**Tumpa Hazra (2009)**, this paper presents an overview of current solid waste management (SWM) practices in Kolkata, India and suggests solutions to some of the major problems. More than 2920 ton/d of solid waste are generated in the Kolkata Municipal Corporation (KMC) area and the budget allocation for 2007–2008 was Rs.1590 million (US\$40 million), which amounts to Rs. 265/cap-y (US\$6.7/cap-d) on SWM. This expenditure is insufficient to provide adequate SWM services. Major deficiencies were found in all elements of SWM. Despite 70% of the SWM budget being allocated for collection, collection efficiency is around 60–70% for the registered residents and less than 20% for unregistered residents (slum dwellers). The collection process is deficient in terms of manpower and vehicle availability.

**Vikash Talyan (2008)**, MSW is collected and the rest remains unattended on streets or in small open dumps. Only 9% of the collected MSW is treated through composting, the only treatment option, and rest is disposed in uncontrolled open landfills at the outskirts of the city. The existing composting plants are unable to operate to their intended treatment capacity due to several operational problems. Therefore, along with residue from the composting process, the majority of MSW is disposed of in landfills. In the absence of leachate and landfill gas collection systems, these landfills are a major source of groundwater contamination and air pollution (including generation of greenhouse gases). This study describes and evaluates the present state of municipal solid waste management in Delhi. The paper also summarizes the proposed policies

and initiatives of the Government of Delhi and the Municipal Corporation of Delhi to improve the existing MSW management system.

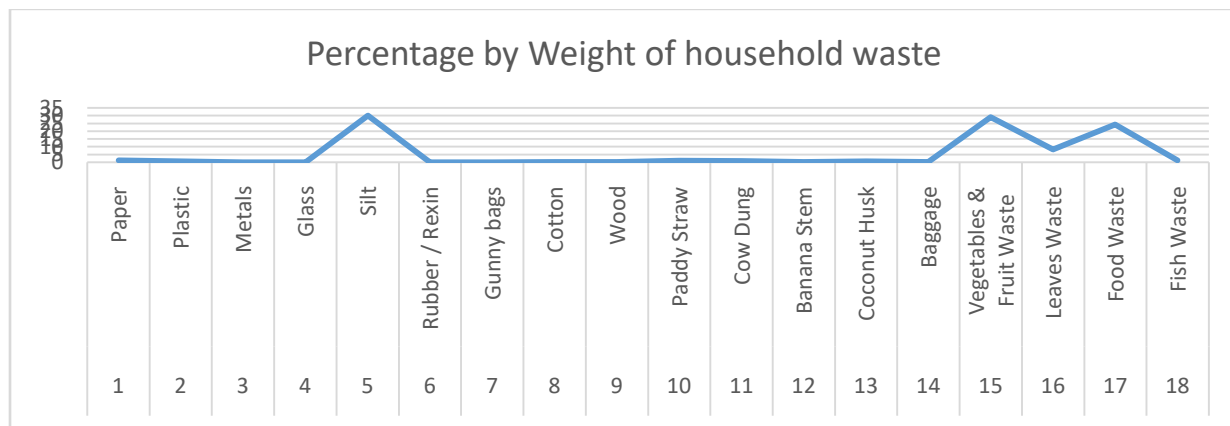
### **Components Percentage by weight of household waste:**

Collection of Solid Waste: MSWM-2000 prescribes collection of MSW at household level by using methods such as door-to-door collection or collection from community bins to prohibit littering and proper collection of MSW. Optimal schedule for collection should be prepared by minimizing the transportation cost in compliance with environmental constraints. Arrangement for collection of MSW from slums and commercial areas are to be done separately. Segregation of waste at source must be encouraged. Separate collection of horticulture waste, demolishing waste along with general MSW should be encouraged. The following table are Components Percentage by Weight of household waste:

**Table: 1**

<b>S.NO</b>	<b>Household Waste</b>	<b>Percentage by Weight of household waste</b>
1	Paper	1.3325
2	Plastic	0.7525
3	Metals	0.085
4	Glass	0.1675
5	Silt	30.13
6	Rubber / Rexin	0.0845
7	Gunny bags	0.1175
8	Cotton	0.36
9	Wood	0.3425

10	Paddy Straw	1, 11
11	Cow Dung	0.9046
12	Banana Stem	0.35325
13	Coconut Husk	0.70
14	Baggage	0.26535
15	Vegetables & Fruit Waste	29.00
16	Leaves Waste	8.238
17	Food Waste	24.367
18	Fish Waste	1.3228

**Diagram 1**

The above diagram 1 explained household waste Silt 30 per cent, Vegetables & fruits 29 per cent and food waste 24 per cent of household waste.

#### **Quantification of Hazardous Wastes:**

The quantity of HW generation reported in India is 4415954 TPA from 373 districts out of 524 districts. According to one estimate, the land required to dispose of 5.3 million tons of HW in an engineered landfill, assuming the average density of waste to be around 1.2 tonnes/m<sup>3</sup> and the depth of the landfill 4 m, would be around 1.08 km<sup>2</sup> every year. This information may be applied

to future waste projections to arrive at future land requirements for the disposal of hazardous waste.

### **Safe Management of Hazardous Household Waste**

To avoid the potential risks associated with household hazardous wastes, it is important that people always monitor the use, storage, and disposal of products with potentially hazardous substances in their homes. Improper disposal of HHW can include pouring them down the drain, on the ground, into storm sewers, or in some cases putting them out with the regular trash.

The dangers of such disposal methods might not be immediately obvious, but improper disposal of these wastes can pollute the environment and pose a threat to human health. Certain types of HHW have the potential to cause physical injury to sanitation workers, contaminate septic tanks or wastewater treatment systems if poured down drains or toilets. They can also present hazards to children and pets if left around the house. A solid waste management district (SWMD) is the local county's authority for information about recycling, yard waste, and household hazardous waste (HHW) services. An SWMD tracks material that is recycled, processed or sent for final disposal (placed in landfills or incinerated). It also conducts recycling and household hazardous waste collection events as well as community outreach and education activities.

### **CONCLUSION:**

The public sector will need to learn about the workings and motivations of the private sector if the mystery is to be taken out of the public-private interface. If the growing populations of the world's cities are to be well served, the public sector must learn how to bring the power of the private sector to bear on MSWM responsibilities. To do this effectively, they must acquire the skills to design and supervise programs that enable the private sector to participate as an active partner in all stages of MSWM. The Collaborative Group for MSE involvement in MSWM will continue to encourage and support this process. The municipal solid waste generated depends on population climate, urbanization, socio-economic criteria, etc. Overall MSWM practices adapted in India at present are inadequate. It is also noted that efforts are made to improve MSWM in major cities but due attention is not paid for MSW of medium and small-scale towns. Household solid waste management strategies in Harare are not effective especially in the medium and high-

density suburbs and this is attributable to several factors. Therefore, the following recommendations may be very useful in improving household solid waste management in different residential areas of Harare. These are: Harare waste management department needs an educational department that is responsible for educating households and members of the public on household solid waste management. This also ensures that households that do not have receptacles are provided with such. It is also important to increase the number of inspectors for the purposes of ensuring effective inspection and assessment. This is more important in the residential areas where waste dumping is very common and is witnessed in all open places along roads and open ground. There is also a need to ensure that the general number of workers in this department is increased for effectiveness.

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