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WASTE MANAGEMENT: AN OVERVIEW

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ABSTRACT

The commonly defined waste is everyday household garbage, which is collected by municipalities and disposed of in a landfill or incinerator. The definition of waste is any unwanted or discarded material that is not a liquid or a gas. It can include organic waste, paper, metals, glass, cloth, brick, rock, yard and wood waste. Waste generation is a continually growing problem at global, regional and local levels. Wastes are those organic and inorganic waste materials produced by various activities of the society, which have lost their value to the first user. Improper disposal of wastes pollutes all the vital components of the living environment (i.e., air, land and water) at local and global levels. Urban society rejects and generates solid material regularly due to rapid increase in production and consumption. The problem is more acute in developing nations than in developed nations, as their economic growth as well as urbanization is more rapid. This necessitates management of waste at generation, storage, collection, transfer and transport, processing, and disposal stages in an environmentally sound manner in accordance with the best principles of public health, economics, engineering, conservation, aesthetics and environmental considerations. Thus, waste management includes all administrative, financial, legal, planning, and engineering functions.

KEY WORDS: Waste, Management, Techniques, Urbanization, Landfill

INTRODUCTION

The environmentally sound management of wastes issue had received the attention of international and national policy making bodies and citizens. At the international level, the awareness regarding waste began in 1992 with the Rio Conference, where efficient handling of waste was made one of the priorities of Agenda 21. The Johannesburg World Summit on Sustainable Development in 2002 focused on initiatives to accelerate the shift to sustainable consumption and production, and the reduction of resource degradation, pollution, and waste Priority is being given to waste minimization, recycle and reuse, followed by the safe disposal of waste to minimize pollution. The government of India has taken many initiatives and implemented new technologies and methods by giving loans for setting up composting plants to encourage proper management of waste since the 1960s (MoEF, 2005). The MSWM problem was compounded with rapid urbanization. Due to increased public awareness of MSWM, a public litigation was filed in the Supreme Court, which resulted in the Municipal Wastes (Management and Handling Rules, 2000). Government, for the first time, now has included private organizations in providing this public service (DPCC, 2002).

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New methods of storage, collection, transportation, processing and disposal are being explored and implemented. It is necessary to evaluate the current process at this stage to understand if the methods being implemented are suitable for the Indian scenario and to identify the lacunae in the adopted methods. Generally, MSW is disposed of in low-lying areas without taking any precautions or operational controls. Therefore, MSWM is one of the major environmental problems of Indian megacities. It involves activities associated with generation, storage, collection, transfer and transport, processing and disposal of wastes. But, in most cities, the MSWM system comprises only four activities, i.e., waste generation, collection, transportation, and disposal. The management of MSW requires proper infrastructure, maintenance and upgrade for all activities. This becomes increasingly expensive and complex due to the continuous and unplanned growth of urban centers. The difficulties in providing the desired level of public service in the urban centers are often attributed to the poor financial status of the managing municipal corporations.

ISSUE OF MUNICIPAL WASTE

Wherever people live and work they will generate waste and that too in increasing quantities with changing characteristics as per the progress of economy and change in life style. Currently Nation-wide, every urban citizen is generating 400 to 600 gm waste per day. This is still 1/3rd to 1/4th as compared to developed countries, thereby meaning that at many locations, waste quantities could double within next 5 to 7 years. Arbitrary disposal of waste as open dumping has been the most wide spread form of waste management in every city of India. This practice has thrived because of the mistaken belief that it is the easiest and cheapest method of waste disposal. During the last few decades, deposition of waste along road side, on river banks, in marsh lands has proved highly detrimental to the ground water and living environment. The physical, chemical and biological contaminants in waste have been chocking drainage and water flows in several part of city. This is also assuring ideal breeding ground for pathogens, flies, mosquitoes, rodents, vermin's thereby, causing new disease epidemics. In the last decade of the 20th century, municipal waste drew country wide attention of Citizen Forums, Judiciary, some of the Beaurocrats and Democrats of Urban Local Bodies, as well as members of Planning Commission and Officials of Central Government.

The subject got real attention from the incidence of heavy rains-in Sept 94 in the city of Surat, where waste and rain water created so-called "Plague situation". (Unfortunately similar incidences again happened in several cities during July 2005 and Aug 2006). Such disastrous effects occurred in megacities resulted in framing and enactment of specific rules and regulations on this subject. These rules are: Municipal Waste (Management and Handling Rules 2000) from the Ministry of Environment and Forest (MoEF) Govt. of India. Final notification of these rules was done under the Gazette of India No. 648 Extra Ordinary Part II-Section 3- Subsection (ii) of 3rd October 2000. Prior to this draft notification was issued on 25th September 1999 for public opinion and responses. Compliance of these rules briefly called as (MSW Rules 2000) has become mandatory for every Urban Local Body that includes Municipal Corporation, Municipality, Nagar Palika, Nagar Nigam, Nagar Panchayat, Municipal Council and Notified Area Committee. Under these MSW rules, all Municipal Authorities in the country have to follow prescribed norms for collection, segregation,

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storage, transportation, processing and disposal of Municipal waste generated in their respective jurisdiction.

The Enforcement Authority for metro and mega cities is Secretary, Urban Development / Municipal Administration Department and for other cities and towns District collector or Deputy Commissioner. Until recently, changes in the environment have been almost entirely the product of natural forces. But in last century, human activities played a significant role in bringing about the changes in the environment. This is due to two fold development, viz., the industrial revolution and unprecedented growth in human population. As human society started feeling the brunt of its activities, it took some steps towards the prevention in the degradation of the environment. It recognized that some major problems like climate change, loss of biodiversity and waste management are threatening the survival of mankind.

WASTE MANAGEMENT

The term "Waste Management" means systematic control of generation, collection, storage, transport, source separation, processing, treatment, recovery, and disposal of waste. The collection, transportation, and disposal of garbage, sewage, and other waste, waste management encompasses management of all processes and resources for proper handling of waste material, from maintenance of waste transport trucks and dumping facilities to compliance with health codes and environmental regulations. There are various types of waste including municipal (residential, institutional, and commercial), agricultural, and special (health care, household hazardous wastes, sewage sludge). The term usually relates to materials produced by human activity, and the process is generally undertaken to reduce their effect on health, the environment or aesthetics. Waste management may not have huge impact at the global level but it can certainly spread diseases like plague, dengue etc. so man must learn to develop proper waste management techniques. For proper waste management it is very essential to comprehend the existing system of waste management and problems associated with it. Few decades back, there was no problem of waste management for the waste that was produced as it was either used in farms or it was assimilated by nature. This was due to the fact that most of the waste that was generated by human being was recyclable. The problem started mainly after industrialization and huge spurt in the population and waste was produced in a quantity which could not be assimilated by nature and waste like plastics etc. cannot be recycled by nature.

Ahmedabad district is also facing problems like proper management of the waste in recent times. The Municipal Corporation is playing its part in collecting and disposing off the waste. But the peculiar problem about Ahmedabad is that there is no public awareness regarding waste management. There are no specific sites of collection of waste produced in different parts of the city. The waste is just thrown out of the house, hospitals, hotels, offices, colleges etc. on the streets or open space available. This has created the impression in the mind of the people that does Ahmedabad district have proper garbage collection sites or Ahmedabad district is located in the Garbage itself. Let's have a look on some waste management methods.

COMPOSTING METHOD

Composting is an ancient agricultural practice for the reuse of organic wastes and nutrients for crop production. Composting is defined as decomposition of biodegradable waste under

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controlled aerobic conditions to a state that is sufficiently stable for storage and handling, and is satisfactorily for safe use in agriculture. Composting is an ideal solution for waste disposal in developing countries due to the large percent of organic matter contained in waste stream. Three levels at which composting can be been implemented include centralized municipal level, decentralized community level, and decentralized residential level. Centralized composting units are huge, high scale, high-technology plants requiring high capital investments. Decentralized composting units at community level are medium and small scale l about-intensive schemes initiated by Community Based Organizations or Non Governmental Organizations for commercial purpose. Decentralized residential units are initiated by individual at backyard of the houses are normally for small-scale units constructed for private purpose. Decentralized composting is considered to be suitable solution for developing countries. It diverts fraction of organic waste from the municipal waste stream close to the source of generation thus significantly reduces the amount of waste that goes to the dumpsite, reducing transportation costs and prolonging the life span of landfills. Decentralized composting also improves waste situation in communities as it is often goes along with an improved primary waste collection; and offers employment opportunities to underprivileged people manageable by residents or local entrepreneurs through the use of low technology. Despite being potential as a sustainable method of organic waste recovery, composting is not been overwhelmingly successful and widespread in practice throughout the developing countries. Experience shows that many composing schemes have failed in the past on account of inappropriate technologies such centralized plants not suitable for the local condition; inadequate attention to the biological process requirements; lack of vision and marketing plans for the final compost product; and weak business models; and environmental concern about industrial wastes or toxic waste that may enter waste stream and end up in compost.

RECYCLING METHOD

Recycling is usually the most environmentally consciousness and cost - effective method of waste disposal. Recycling of waste at generation level can subsequently reduce waste reaching dumpsite and landfills. Recycling not only improve waste management process but also brings economic benefit to those involved in it. In developing countries waste recycling is done by informal sector by the urban poor as means of employment. The informal sector in recycling is characterized by small-scale; labor – intensive; largely unregulated and unregistered; and low recycling technology. Depending on where material recovery takes place, the three categories of informal waste recycling are identified. The first category is by itinerant waste collectors who collect recyclable materials from households and from mixed waste in communal bins. The waste collectors transport recyclable wastes to a recycling shop. The second category is by municipal waste collection crew. They recover secondary raw materials from vehicles transporting municipal waste to disposal sites. The material recovered are then sold to recycling agents. The third category is by waste pickers from dumps whereby scavengers sort through wastes prior to being covered by a bulldozer. This practice is

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associated with communities that live near the dumpsite. Although recycling is accepted solution to waste disposal, there is limit to the amount of recycling that can achieve economically.

The key factors that affect the potential for material recycling include cost of separating recyclable material, purity and quantity of materials, existence of local and national markets, the need for secondary raw materials, level regulatory governmental intervention and prices of virgin materials. In India, except for few big cities, waste is disposed at open dumping sites. In Ahmedabad city & district also the method of open site dumping method of waste is practiced since its inception. Similarly lot of work has been done in India also, keeping in view the environmental aspect in mind. But very little work has been done on waste management, keeping in view the Geographical Perspective in mind, in general and Ahmedabad in particular, which can include the factors like causes of generation of waste, area producing a particular type of waste like commercial waste etc., Municipal waste management (MSWM) is one of the major environmental problems of Indian cities. Improper management of municipal waste (MSW) causes hazards to inhabitants. Various studies reveal that about 90% of MSW is disposed of unscientifically in open dumps and landfills, creating problems to public health and the environment. In the present study, an attempt has been made to provide a comprehensive review of the characteristics, generation, collection and transportation, disposal and treatment technologies of MSW practiced in Ahmedabad city & district.

CONCLUSION

Every man with the operation of daily domestic work creates waste for disposal. A study in Ahmedabad district shows that waste per Person per day 250 gm in year 2009, today's situation is increases per head per day waste generated 576 gm in 2021. This is show that waste per person is counting due to number of reasons. Waste disposal creates a problem primarily in highly populated areas. The more concentrated the population, it greater the problem. In India, generation of municipal waste (MSW), industrial, hazardous waste, and biomedical waste has been increasing due to population growth, life style changes and economic development. On the other hand, waste management responses have not kept pace with the increasing quantities of waste resulting in (a) a high proportion of uncollected waste and (b) poor standard of transportation, storage, treatment and disposal. Open dumping of garbage facilitates the breeding of disease vectors such as flies, mosquitoes, cockroaches, rats, and other pests. The poorly maintained landfill sites further, are prone to groundwater contamination because of leach ate production. Practically every citizen is now search of clear air and pleasant environment. The land pollution problem has grown enormously in the recent years due to waste dumping civics administration are facing the problem for hygiene disposal waste. Those call for separate efforts of not only the civics administration but participation of several responsibilities publics groups. As the cities are growing in size and problems seen as the generation of plastic waste, various municipal waste treatment and disposal methods are now being used to try resolving these problems. Garbage generation in

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household can be recycled and reused to prevent creation of waste at community dustbins. Because of this waste management is essential. The improvement of waste management is one of the greatest challenges faced by the Ahmedabad city & district. The Government and the local municipal authorities have taken many initiatives towards the improvement of the current situation. The private sector has been included in the management of the municipal waste recently. To understand the level of success in these initiatives, it is necessary to carry out to deep study. A study will identify and bring out the Ahmedabad city & district in the current system in regard to various environmental management aspects like the compliance with environmental regulations, occupational health, resource management, pollution prevention systems and occupational health and safety. This could be one of the best ways to increase awareness about the most suitable approaches to municipal waste management, the issues likely to be faced and the alternative measures that can be adopted considering the local scenario.

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