

MUNICIPAL SOLID WASTE

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Municipal Solid waste is a by product of the lifestyles of population of a city's inhabitants and with increasing consumption based economic activity and a growing population, the quantum of waste is showing a growing trend.

The modern world has changed to a throwaway society with population explosion, increasing urbanisation coupled with changing life styles, more and more waste of diverse nature are being generated in many cities and townships. In early days, the waste did not create any problem to the community as quantity of wastes generated was within the assimilative capacity of nature. Today, the scenario is quite different and the urban environment, all over the world poses serious threat from excessive generation of solid wastes. Non-availability of land for management too accelerated the gravity of the issue. A waste is viewed as a discarded, which has no consumer value to the person abandoning it. Solid waste is applied to unwanted and discarded material from houses, street sweepings, commercial and agricultural operations arising out of mass activities. Solid waste is the term used to describe non-liquid materials arising from domestic, trade, commercial, agricultural and industrial activities and from public services. It is commonly known as garbage, refuse, and rubbish/trash. Its main sources are residential premises, business establishments and street sweepings and mixture of vegetable and organic matter; inert matter like glass, metal, stones, ashes, cinders, textiles wood, grass etc. According to the percentage of the ingredient, it would be highly compostable or combustible, biodegradable or inert.

There are 3 types of solid waste:

1. Municipal solid waste consists of households waste, sanitation residue and waste from streets.
2. Hazardous wastes (industrial and hospital waste) may contain toxic substances. India generates about 7 million tons of hazardous wastes every year.
3. Hospital waste (Biomedical waste) generated during the diagnosis, treatment, or immunization of people or animals or in research activities.

Developing nations spend between 20% and 40% of their municipal revenue on waste management but this is not enough to keep pace with the magnitude and scope of the problem. It is projected that the total expenditure on solid waste management activities in Asia may double from an estimated \$25 billion in 1999 to 2 \$50 billion in 2025 (World Bank 1999). African countries while

prioritizing their environmental concerns has rated solid waste as the second most important problem after water quality since less than 30% of urban populations have some access to proper and regular garbage removal. It is estimated that in India the generation of solid waste in urban areas is about 27.4 million tons every year while that of liquid wastes in class 1 cities about 12,145 million litres per day. Fortunately the technologies are available which can reduce the volume by 60-70%. They include liquid waste anaerobic treatment, Bio methanation, sludge incineration etc. For solid wastes, incineration technology, gasification technology, sanitary land fill technology etc. are feasible. The main attraction of these technologies is the energy generation during process of treatment, which is a good source of revenue so that they prove to be commercially viable. The sectoral status study on Municipal Solid Waste Management done in Kerala has indicated that the total solid waste generation in the state is about 8300 tons per day. Studies have also indicated that 70-80% of the total solid waste generated is biodegradable in nature of the total, 13% of the waste is generated by the 5 city corporations, 23% by the 53 municipalities and the rest by the 978 Gram panchayaths. Several concrete steps have been taken by the Government during the year 2011-12, through Suchithwa mission, for solving issues in the waste management sector in the state. In the state, 27 municipalities and all 5 municipal corporations have already been completed the construction of solid waste processing plants and made the plants operational. They have been following treatment technology based on biomedical processing of municipal solid waste, using mainly the window composting and biogas plants, as specified in the MSW rules. Support has been provided to 17 municipalities for upgrading their plants to minimize environmental issues caused by them.

STATEMENT OF THE PROBLEM

The Urban Solid Waste Management (USWM) is a major problem facing fastest growing cities in developing world. Waste is the result of unsustainable production and consumption this can adversely affect environment and health. Kerala has 3 achieved high health standards. But the state now faces problems like high morbidity rate, re-emergence of infectious diseases, life style diseases etc. (Economic Review 2004) Improper solid waste management causes all type of pollution. The main impacts created by solid waste pollution are health impacts like contamination of surface water and ground water due to indiscriminate dumping of wastes and the formation of leachate, economic impact like land price decrease and social impact like disamenity effects.

Solid waste is generally disposed by several methods such as incineration, land filling and composting. The most commonly used waste disposal method for developing countries is land filling. Open dumps are still common in developing countries leads to adverse environmental impact and threaten human health. Land filling causes serious health and environmental risks.

The present study has focused to examine the status of Solid Waste Management in Municipality and the socio-economic and environment impact of improper Solid Waste Management.

SIGNIFICANCE OF THE STUDY

Economic development, urbanisation and improving living standards in cities have led to increase in the quantity and complexity of generated waste. Management of Municipal Solid Waste (MSW) resulting out of rapid urbanisation has become a serious concern for government departments, pollution control agencies, regulatory bodies and also public in most of the developing countries. Rapid growth of population and industrialization degrades urban environment and places serious stress on natural resources, which undermines equitable and sustainable development. Very high rate of urban growth is a major reason for the increased solid waste management problems. An effective, efficient and sustainable waste management system is still rare in India. Successful implementation of a solid waste management programme requires careful economic evaluation of all alternative waste solution. It has been realised that resources of the world are finite and in order to maintain a stable economic growth and a better living standard it is imperative to use the resources very carefully. Here the recycling of waste has become very important as what may be treated as a waste under one situation may prove to be a valuable product under 4 another situation. Moreover, the solid waste activities provide employment for a large no of people, with the potential of benefitting many more.

OBJECTIVES

1. To find out quantity and character of solid waste generated by the households
2. Examine management of municipal solid waste (MSW) generated .

METHODOLOGY

Both primary and secondary data were used for the study. Secondary data were collected from various sources include economic survey, pollution control board and municipal office and the office of health officer.

SOLID WASTE GENERATION IN KERALA

The pattern of solid waste generation in Kerala is similar to the pattern of India. The data on the MSW generation maintained by Urban Local Bodies is based on the number of trips made by the waste transportation vehicles or approximation on other basis (Ajayakumar Verma, 2008) it is estimated that about 2500 tonnes of solid waste is generated per day in the state of which only about 50% is collected for disposal (Economic review, 2004). The main issues associated with MSW in Kerala are: inefficient, inadequate and ad hoc primary collection of system, which result in the

dumping of solid waste into water bodies, road side etc; lack of proper road cleaning; inefficient waste transportation in open trucks; lack of proper technical expertise in SWM; lack of proper financial base for the urban local bodies as they depend too much on government grants; absence of engineered landfills and crude waste dumping in open dumps resulting in ground water contamination and breeding of mosquitoes, flies, rodents, and pests and lack of proper private sector participation in the MSW system (SEUF,2006, Economic review 2004). The Clean Kerala Mission was set up in 2003 to find a lasting solution to the problem of SWM. The main objective of the programme was to strengthen the managerial capacity and responsibility of the community and local governments in planning, implementation and maintenance of SWM facilities. The maximum amount of solid waste comes from domestic waste followed by hotels, marriage halls and institutions and other contributors followed by shops and markets etc . The per capita generation of solid waste is a better measure than the total waste generated in an area (Muraleedharan.S.2009). The city of Kozhikode with 458gms of solid waste has the highest per day per capita generation of solid waste in Kerala, followed by Cochin with 419gms and Kannur with 313gms. The composition of waste in terms of its physical characteristics will give a clear idea regarding the consumption pattern and waste disposal in an area. It is also important for reduction, reuse, and recycling of waste. Higher incomes and economic growth will also affect the composition of wastes. Various studies have shown that the MSW in Kerala contains a high biodegradable content.

QUANTITY AND CHARACTER OF SOLID WASTE

The quantity and character of solid waste vary from place to place. Factors that influence the quantities and composition are: the average income level, the sources, the population, social behaviour, climate, industrial production and the market for waste material. The total quantity of solid waste collected by the municipality workers through various methods was around 3 to 4 tons per day.

The major source of solid waste are from household, hotels and restaurants, fish or meat market, street sweepings etc. Of these the first three sources together constitute 70% of the total wastes.

Major composition of waste is vegetables and fruits waste from the market. About 50% of the net weight is made up by this component. Waste from fish market and slaughter houses contribute 8% of the weight.

conclusion

Solid waste is the term used to describe non-liquid materials arising from domestic, trade, commercial, agricultural and industrial activities and public services. It is commonly known as garbage, refuse, and rubbish/ trash.

Improper and unscientific techniques adopted for solid waste disposal are economically non-viable and socially unacceptable. Recycling of waste for winning energy and resources in an efficient and safe manner is no doubt, an economic proposition particularly for the developing countries, but the recovery is beset with a number of constraints which are to be carefully analysed.

India currently is facing solid waste management dilemma, for which all elements of the society are responsible. The public awareness is low. There is inadequate legal framework existing in the country to address municipal solid waste management. Public awareness, political will and public participation are essential for the successful implementation of legal provision. The willingness to pay of the public for solid waste management promotes the policy implication.

Hence it is concluded that the major problems faced by the municipalities are lack of proper planning and execution, lack of motivation among the workers, lack of public awareness towards solid waste management and lack of public corporation in solid waste management. Waste can be converted into wealth provided the three R's (Reduce, Reuse and Recycle) are effectively implemented.