

A Review on Municipal Solid Waste Generation, Their Effect On Health And Environment

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Abstract

Municipal solid waste management is one of the biggest environmental Issue in India. The reckless disposal of municipal solid waste not only causing environmental pollution but also leads to different health hazard problems. The various Factors responsible for this are Globalization, unsustainable development, rise in population, unplanned cities, poor knowledge of waste management. The purpose of this study is to summarize the problem associates with the reckless disposal of the municipal solid waste and their effect on the environment and the public health.

Introduction

Human activities create waste, and waste is handled, stored, and processed, which can pose a risk to the environment and human health. Economic development, urbanization and rising living standards in cities, as well as the increasing number and complexity of municipal waste are being created. When discussing waste in general, there have traditionally been some categories of waste that need to be properly identified, because they are very common. For example, solid household, commercial, industrial, waste (as a result of construction and operation), machinery, equipment, and others. In many cases, household and industrial waste that may not be possible and can be considered together as municipal solid waste. Ordinary municipal waste is usually a combination of domestic and industrial waste generated during the life of society. After all, the continuous and selective removal of municipal solid waste accelerates, and this is due to poverty, poor governance, urbanization, population growth, poor living and working conditions, low environmental awareness and insufficient management of environmental knowledge. The solid waste management system generally includes the distribution of paper, cloth, food waste, linen, and yard waste), partially decomposing wood, disposable paper towels, and sludge), and non-degradable materials (leather, plastics, rubber, metals, glass).

Waste generation cause and characteristics

Municipal solid waste (MSW) is one of the most important environmental challenges. Municipalities are often responsible for waste management. They

should provide an effective and efficient system for residents. However, they often face many problems beyond the control of the municipal executive council of MSW. This is actually due to financial resources, lack of organization and difficulties. The quantity and characteristics of MSW vary from place to place. There are various factor which influence the the composition and quantity are population, climate condition, urbanization, amenities, industries and per capita income.

Domestic or municipal waste is usually generated from flexible sources where different human activities are available. Many studies have reported that the strongest municipal waste generated from developing countries is mainly from rural areas (55-80%), followed by market or commercial areas (10-30%). The latter contains volatile values produced in industries, roads, institutions and many others. In general, solid waste from such sources is very high; in contrast to nature. Therefore, they have flexible physical and chemical properties depending on their original sources. Their composition is yard litter, food waste, plastics, wood, metal, paper, countertops, leather, batteries, inputs, fabrics, paint containers, demolition and building materials and many more that can be difficult to separate. The diversity of such solid waste is a great return on filtration and its use as important. Therefore, there is a need for proper separation and screening of these impurities before

any reasonable medical procedure. Filtering and sorting such waste is one of the most important and traditional methods as important steps in the management of solid waste to provide quality information for fragmented particles for any potential use. However, the success of any solid waste disintegration depends largely on the public awareness and active involvement of these waste producers in different communities (i.e., how they follow the basics and principles of waste filtration and segregation).

Municipal solid waste generation in India

It has been observed that the estimated value of the MSW production in India annually is more than 55 million tons and it increases around 5% every year. The estimated generation of solid waste by small cities is 0.1 kg per person per day, 0.3-0.4 kg by medium cities and 0.5 kg per capita per day by large sized cities. The average annual increment in human waste production is around 1.33% per annum.

In India the major production of MSW is biodegradable waste which includes the food and yard waste. The MSW generally contains 50% of biodegradable substances, 20% recyclable matters and 30% inert and inorganic materials. This is because of the rapid urbanization, change in lifestyle and eating habits. The amount of solid municipal waste has been increasing rapidly and its composition is changing.

Solid waste disposal

It has been observed that improper bin collection methods, collection, transfer and transportation system have a significant impact on solid waste signals. In addition, poor planning, lack of knowledge about the amount of solid waste collection vehicles and poor roads and inadequate infrastructure can also result in 'solid waste' signs. Currently 145 millions of MSW is generated every day in which 85% of MSW is collected by municipal corporation and rest 15% waste is directly dump openly. Management treatment information is one of the most important factors affecting solid waste management the factors influencing household waste disposal were analyzed by Tadesse et al. Their results have shown that the provision of waste disposal sites significantly affects waste disposal options. They

reported that inadequate availability of waste containers as well as long distances to transport these containers increased the risk of dumping such waste in open spaces and roadblocks during the journey.

Disposal method

Open dumping is the most common practices in india for disposal of MSW. The generated MSW is disposed directly on the open land and low lying area which does not fulfill the criteria of sanitary land-filling. The MSW is dumped into the open land, outer reaches of the town, along the road. Which leads to blockage of the sewers in monsoon season by which the untreated waste water sub merge the roads and the houses constructed in low lying area. Reckless dumping is the major cause of contamination of surface water during monsoon and ground water due to percolation of leaches.

Land-filling is the method of MSW disposal which is extensively used in India, specially in big cities like Delhi, Mumbai, Chennai and Kolkata. But these cities have limited land availability for MSW disposal and that too are going beyond their capacity. Due to rapid urbanization and population increment the MSW production is also increasing that result in a major issue in future. The development of new sanitary landfill/expansion of existing landfill are reported in different states according to CPCB, 2013 report, till date India has 50 constructed landfill and 376 are under planning and implementation stage.

Solid waste disposal problems

Waste disposal as solid waste is a disgusting problem and is widespread in both urban and rural areas in several developing countries. Several canals and pipelines as open spaces are widely used to dispose of waste types as a source of natural and inanimate household waste. Due to the lack of continuous garbage collection systems, simple debris, open ditches and ditches are closed by dumping solid piles of solid waste and garbage. Therefore, they no longer work. These garbage cans are mostly plastic and paper and a small toxic matrix. However, such toxic marriages represent a detrimental effect on the environment due to the degradation of their damaged genes, an issue that adds significant load to the local eco-system.

Many individuals and organizations have not planned on-site treatment and / or safe disposal of solid waste to address conservation measures. Garbage disposal of solid waste and untreated waste from nearby sources by humans; so, misbehavior and unaware of the sequence of their health risks. There are no so-called financial incentives to stop them from such policies and to encourage them to change their habits. Each person finds that the way they dispose of their garbage is efficient and cheap. In fact, it is a catastrophe for surrounding communities and the country. The truth is small amounts of pollution add pollution to a very large volume of water. At the moment, the rules do not work to prevent the environment from this dangerous practice unless better pollution is found.

Impact of MSW on human health and environment

There are possible risks to health and environment from inappropriate disposal of solid wastes. People are producing quantities of waste, and its composition is more complex than ever before. Direct combustion and decay of MSW in open space causes the gaseous emissions, in the environment which mix with air and produce a harm-full matter in the atmosphere. Combustion of organic matter produces large amount of methane (greenhouse gas), which is responsible for the rise of temperature and change climate condition. the main health risk is to the workers, working in this field due to growth of microbial pathogens which is increased by the high organic content in MSW. That may cause the chronic diseases (including cancer) to the workers and the people living around nearby area. Number of health problems like skin problem, blood infection resulting from direct contact with waste. Eye and respiratory infections resulting from exposure to infected dust, intestinal infection which are transmitted by flies fleeing on the waste. Different allergies, gastrointestinal and psychological disorder are noticed due to burning of MSW. The industrial hazardous waste when mixing up with municipal waste produce human health hazard. There is specific danger of concentration of heavy metal in a food chain occurs if any liquid industry containing heavy metal discharge into a drainage/sewerage system or

the open dumping site of municipal solid waste and the waste discharged causes mercury toxicity from fish, nausea and vomiting, neurological disease etc.

Conclusion

It has been concluded that the amount of MSW production in India has been increased extensively due to rapid industrialization, urbanization, economic development and population growth. The composition of waste is also changing due to mixing of various industrial Waste with the municipal solid waste. The Indian MSWM is not sufficient to handle the inappropriate waste infrastructure and open waste dumping. There is a need to raise awareness among the people regarding solid waste management. Because It is an essential step towards the sustainability and to develop appropriate MSWM system. People need to adopt these primary necessities to deal with the different health hazard and environment problem produced by MSW disposal. Following are the various recommendations that evolve from study to improve the existing MSWM practices in India.

- Appropriate method of MSWM have to be taken in order to insure that it does not affect the environment and cause the health hazard to the people.
- The proper segregation of waste has to be done all organic matter should be composite properly, which is best way to dispose off the organic waste, because organic matter of the waste attracts insects and causes disease.
- People should be educated to promote the goods which minimize the waste generation.
- For large cities, zone wise decentralized composting unit should be set up.
- Characterization of waste at collection and also at disposal point should be made and be available in public domain.
- Open dumping and open combustion should be avoided, because it cause different health issue.

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