



Solid waste issue, disposal and recycling

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Abstract

Disposal of solid wastes is a stinging and widespread problem in both urban and rural areas in many developed and developing countries. Municipal solid waste collection and disposal is one of the major problems of urban environment in most countries worldwide today. Management solutions must be financially sustainable, technically feasible, socially, legally acceptable and environmentally friendly. Solid waste management issue is the biggest challenge to the authorities of both small and large cities In both urban and rural settings, solid waste disposal is a serious and common challenge in many developed and developing nations. Collection and disposal of municipal solid trash is one of the main issues facing urban environments in the majority of nations today. Financially sound, technically attainable, socially, legally, and environmentally appropriate management solutions are required. The largest problem facing authorities in both small and large cities is solid waste management.

Keywords: Valorization of plastic and municipal solid wastes, Waste-to-energy, Organic solid, Enhanced Landfill Mining

Introduction

The issue of solid waste management is the most difficult for authorities in developing countries, whether in small and large cities. This is mostly owing to the increased output of such solid trash, as well as the stress placed on municipal budgets. Aside from the high expenses, solid waste management is coupled with a lack of understanding of several elements that affect the entire handling system. An examination of the literature and reports on waste management in developing nations revealed that few articles provided quantitative data. The objective of the mentioned studies was to determine the stakeholders' action/ behaviour that have a role in the solid waste management and to analyze different factors that affect the system. The studie carried out in details in order to encourage the stakeholders and to assess the factors influencing the performance of the solid waste

management in the studied cities Population increase, rapid urbanization, booming economy, and the rise in the standard of living in developing countries have greatly accelerated the rate, amount and quality of the municipal solid waste generation

One of the most significant is the valorization of organic food waste. As mature waste disposal technologies, traditional landfills, incineration, composting, and solid waste disposal methods are popular. Composting and anaerobic digestion have traditionally been the most widely utilised procedures for the treatment and valorisation of the organic fraction. Each year, the global generation of organic solid waste increases considerably. Most of them are composed of agricultural waste, household food waste, human and animal wastes, etc. They are normally handled as animal feed, incinerated or disposed to landfill sites' are comprised of materials rich in proteins, minerals, and sugars that could be used in other processes as substrates or raw materials.

Food solid waste

The huge amounts of garbage created around the world can provide a sustainable and vital source for some industrial chemicals. Food residues and trash, such as kitchen debris, garbage, and swill, are classified as food by products and solid wastes. Food processing, cooking, distribution, manufacture, and consumption generate such wastes. However, the concept of food waste varies considerably from city to city and country to city and country.

Disposal of solid waste

According to reports, inappropriate bin collection techniques, collection, transfer, and/or transport systems have a significant impact on the properties of solid wastes. Furthermore, bad route design, a lack of information regarding the collection schedule, the number of trucks for solid trash collection, as well as inadequate roads and insufficient infrastructure, can all have an impact on the characteristics of solid waste. Organizing the informal sector and encouraging micro-enterprises. Knowledge of treatment by authorities is one of the important factors affecting the handling of solid waste. Factors influence household waste disposal were analyzed by Tadesse et al. Their results indicated that the supply of waste facilities significantly affects the choice of waste disposal.

Plastics waste disposal

The disposal of plastic garbage is a serious global environmental issue. Europe, the United States, and Japan generate 50 million tonnes of post-consumer plastic waste each year. The disposal of these plastic wastes in landfills is regarded unsustainable from an environmental standpoint. Furthermore, landfill sites and capacity are rapidly diminishing. On the other hand, legislation is strict everywhere over the world. Plastic trash disposal and management are addressed in US legislation and many European directives.

Disposal of municipal solid waste

The collection, handling, and disposal of MSW in metropolitan settings is one of the most serious environmental issues. Significant environmental issues are being caused by a lack of MSW management and disposal. This encompasses soil, air, and water pollution, as well as aesthetic pollution. Because of the rise in greenhouse gas emissions, such environmental issues are linked to human health problems.

Problems of solid waste disposal within rural communities in developing countries

Garbage disposal as solid waste is a persistent and pervasive issue in many developing countries, both urban and rural. Several canals and drains are widely used as open spaces to dump various types of garbage as a source of domestic organic and inorganic waste. Because there are no continuous garbage collection services, convenient landfills, open canals, and drains are being clogged by dumping massive amounts of solid and rubbish debris. As a result, they are no longer operational. These rubbish wastes are largely plastic and paper, with a few dangerous materials thrown in for good measure. However, such toxic materials represent hazard impact to the environment due to the breakdown of their degradable constituents, a matter that adds significant loads of the BOD to the local eco-system.

Valorization of solid waste

Recent increases in organic solid waste restrictions, as well as increased demand for renewable chemicals and fuels, are pushing industrial producers and environmentalists toward better sustainability in order to enhance cost-effectiveness and meet customer demand. One of the key ongoing research fields in recent years has been the valorization of food organic waste. It has sparked considerable interest as a potential alternative to the traditional solid waste disposal of a wide range of leftovers at landfill sites. Furthermore, the increasing development of environmental solutions to handle such solid waste is an intriguing and growingly important issue in our modern civilization. The conventional landfill, incineration and composting ways of handling solid wastes are common as mature technologies for waste disposal. Nevertheless, they are not satisfactory to treating organic waste. The disadvantages are: high energy consumption, generation of toxic methane gas and bad odor, as well as slow reaction kinetics. Research efforts, in fact, have also been directed to the novel technologies towards the decomposition of organic waste.

Industrial organic solid waste

Industrial organic wastes include all organic by-products from a wide range of businesses, including fruit and vegetable processing factories, slaughterhouses, poultry processing, the sugar industry, the dairy sector, paper and pulp manufacture, and many more. The majority of these organic wastes have the potential to be employed as a substrate or support in SSF processes in order to generate valuable products. For example, sawdust, a solid waste and readily available by product of the wood industry,

Conclusion

One of the most serious environmental issues is solid waste. Inadequate waste management alters ecosystems, including air, water, and soil contamination, posing a serious threat to human health. Some studies have found that the local population around facilities has low birth weight, congenital abnormalities, and a few forms of cancer. The growing generation of solid trash put a strain on the municipal budget's high costs. Population growth, increased urbanisation, a thriving economy, and rising living standards have all accelerated the rate, amount and quality of the municipal solid waste generation. Biodegradation of municipal solid waste according to the time is an important factor that governs the amount of recyclable material particularly the organic contents. municipal solid waste generated from the developing countries are highly; heterogeneous in nature.

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