IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A STUDY ON IMPACT OF SOLID WASTE MANAGEMENT AND CONTROL MEASURES

Dr. K. Kanagarathinam
M.Sc., M.Phil.,M.A.,M.Phil.,MA.,B.Ed.,MBA.,PhD.,
Assistant Professor Dept.of Environmental Science,
Sri Subash Arts & Science College,
Pollachi,Coimbatore District -642 002,
Tamilnadu –India

ABSTRACT

Waste is the by – product of household, industrial and environmental resources. The term solid waste means, material such as household garbage includes recycling food wastes, yard waste and demolition or construction debris. It also includes discarded item like household appliances, furniture, scrap metal machinery can parts and abandoned or junk vehicles. Solid waste is characterised by the presence of an abundance of degradable carbon and solid waste microbiology is influenced by the nature of this carbon. Thus it is important to understand the composition of the waste which may undergo biodegradation. Waste Management is the learning that refers to the collection, processing, recycling, transport, and monitoring of waste products.

Keywords: Solid waste, biodegradation, resources, health, hazards.

INTRODUCTION

The solid waste products means the various materials produced by human activity and is undertaken for reducing their effect on health, environment or aesthetics. Another application of the waste management is to recover the various resources from it. It involves the management of solid, liquid and gaseous wastes. Each type of waste requires a different methods and fields or expertise. There is heavy increase in the quantity of solid waste is due to over population, affluence, and technological advancement. There are following basic sources of solid wastes. The main reasons for the failure of municipal rate, lack of efficient management and legislation, existing solid waste management systems in the city are not working properly. Failure of the municipal solid waste management system has serious environmental impacts like infectious diseases, land and air pollution, blockage of drains and water pollution in natural streams.

Abduli M. A., Samieifard, R and Jalili Ghazi Zade. M. (2008)"' in their study 'Rural Solid Waste Management' discusses the status of solid waste management in Bushahr village recommending appropriate system to handle the waste, require desk and field study for this study 21 scattered village all over the province were selected. There are 322 shops in chosen village and total amount of commercial waste is about 3565 kilograms per day. Waste composition in selected villages consist of materials 42.49%, construction and demolition 1 1.7% paper and cardboard 8.77%, plastics 8.24%, wood 6.90%. metal 6.08%. glass 5.89%, rubber and leather 5.1%, and textile 4.83% from the economic point of view, incineration with energy recovery cannot be a good alternative for rural waste disposal in Bushahr province. The quantity of waste generated in each village is not sufficient to be managed separately thus a regional solid, waste management must be defined to include adjacent village.

Capatina Camelia and Simonescu Claudia Maria (2008) in their article 'Management of Waste in Rural Areas of Gorj Country Romania' study the ecological priority list place following the problems regarding the surface and underground water pollution, as well as that of the atmosphere. The study presents the advantages of waste management for the landscape, which includes waste gathering and transfer, waste collection, waste biological treatment and the storage. The study concludes that by applying good management and treatment practices of the household wastes, one may achieve long term economic objectives such as the improvement of public health, protection of natural resources, water and air contamination.

Bel Germa and Fageda Xavier (2009) in their paper "Empirical Analysis of Solid waste Management Costs" Some Evidence from Galicia, Spain, have analyzed the factors that determines solid waste service costs. The empirical analysis based on the information derived from a survey conducted in a sample of Galician municipalities. Present study is based on primary and secondary data. This study presents that the total waste volume to recycling does not imply greater costs. The study concludes that economies of scale are clearly available to smaller municipalities and another is private delivery does not imply cost savings but municipalities are running a solid waste service.

Ray Amit (2009) 'Waste Management in Developing Asia Can Trade and Cooperation Help" discusses the problems relating to mounting solid waste fast acquiring gigantic proportions in the developing countries of Asia and examines the factors behind increasing trade in recyclable waste involving Asian nations and finds that the adverse economic and environmental impact resulting from such trade for out weight the proclaimed benefits, with reference to primary and secondary data. The study concludes by saying that a high degree of bilateral, regional or multilateral cooperation rather than trade in waste may be a better option for these appropriate capacities expertise and techniques for establishing a modern and environmentally sound waste management model.

Medina Matrin (2010) in a study 'Solid Wastes. Poverty and the Environment in Developing Country cities Challenges and Opportunities,' states that solid waste management in developing countries has received less attention from policy makers and academics, such as air pollution and waste water treatment. Insufficient collection and inadequate disposal generate significant pollution problems and risks to human health and the environment. In this study secondary data were used. Waste management usually account for 30.50% of municipal operational budgets. Waste management in the developing world is unsatisfactory. The improper management of solid waste represents a source of air, land and water pollution and poses risks to human health and the environment

OBJECTIVES OF THE STUDY

- To analyse various types of solid waste management
- To analyse cases of solid waste management
- To obtain control measures of solid waste management

REVIEW OF LITERATURE

In another study, the inefficiency of state to address solid waste problems was highlighted. The emphasis was laid on creation of local resources, execution of local codes, and commitment from central government to allow free exercise of existing policies(Dangi, M. B., Schoenberger, E., & Boland, J. J., 2017).

From a study of China, it is revealed that the source separation MSW collection, high energy recovery from incineration plants, appropriate leachate treatment, effective landfill location and management, increase waste recycling and proper taxation system for MSW disposal are essential to improve MSWM in China(, M. M., Zeng, X., Nasry, A. A., Naim, Bin, & Alhamadani, S., 2017).

Erfani, S. M. H., Danesh, S., Karrabi, S. M., & Shad, R., (2017) proposed an integrated model to optimize two functional elements of municipal solid waste management (storage and collection systems). The integrated model was performed by modelling and solving the location allocation problem and capacitated vehicle routing problem (CVRP) through Geographic Information Systems (GIS).

Ranieri, E., et all (2017) presented the classification of solid recovered fuel from the municipal solid waste treatment plant in Southern Italy in compliancy with the EN 15359 standard. The solid recovered fuel produced meets the European Union standard requirements and can be classified with the class code: Net heating value (3); chlorine (1); mercury (1)

Solid Waste Management in India

Increasing population levels, booming economy, rapid urbanization and the rise in community living standards have greatly accelerated the solid waste generation rate in India. Municipalities, usually responsible for waste management in the cities, have the challenge to provide an effective and efficient system to the inhabitants. However, they often face problems beyond the ability of the municipal authority to tackle mainly due to lack of organization, financial resources, complexity and system multi dimensionality. A study conducted by Sharholy M., et all (2008) concluded that the lack of resources such as financing, infrastructure, suitable planning and data, and leadership, are the main barriers in SWM in India. The increase of service demands combined with the lack of resources for municipalities are putting a huge strain on the existing SWM systems.The existing practices in solid-waste management in India can be classified at three levels, depending upon the quantity of solid waste and the physical area covered

Cause of Solid Waste

Paper Mills : A significant cause of solid waste is paper mills, are built next to rivers so. Though they do not pollute the rivers as much as they used to, still are a small part of water pollution. But not all of this pollution goes into the river they also have a chimney so they can let some of the chemicals from their factory pollute our air.

Fisherman : Solid waste damages many different aspects of the environment. When people are out in fishing boats, they carelessly dup trash into the ocean. Though this is illegal no one, can stop them. These people probably don't think about what they are doing to the environment when they put this trash in the water. Sea turtles like to eat jelly fish and when they see a clear plastic bag floating in the water they may mistake it for a jelly fish and eat it.

Batteries : People depend on a lot of battery power. They use batteries a lot more than they need to Though people probably do not think about this, when these batteries are dumped into a landfill the chemicals inside them leak and pollute the land, water and air.

Farm Waste : The solid waste that comes from these farms can cause great damage to the environment. Runoff from the farms can contain harmful wastes that may run into the river, When the manure decomposes, the oxygen level in the water is decreased. Fish and other aquatic animals can suffocate with out decompositon, the oxygen level in the water is decreased. Fish and other aquatic animals can suffocate without the necessary oxygen. The manure runoff's pollution strength is two to four times stronger than raw sewage.

Mining : In areas, there are mountains of waste generated in digging an openpit mine. Two types of waste are generated.

i. The over burden of rocks need to be relocated into large piles of waste rock.
ii. Slag and tailing left over after the extraction of metals from the ore is another source of waste.

Types of Solid waste

Municipal Solid Waste: It is made up of discarded solid materials from residences, business and city buildings. The most common waste product is paper. Municipal soil waste contains a wide variety of materials. It can contain food waste such as vegetable and meat material, leftover food, egg shells, etc. which is classified as wet garbage as well paper plastic , terra packs, plastic cans, newspaper, glass bottles, cardboard boxes aluminium foil, metal items, wood pieces etc., which is classified as dry garbage.

Non Municipal solid waste

It is the discarded solid material from industry, agriculture, mining and oil and gas productions. Some common items that are classified as non municipal waste include construction materials roofing shingles, electrical bricks, waste water sludge incinerator residues, ash scrubber sludge oil / gas / mining waste ; railroad ties, and pesticide containers.

Effects of solid waste

Spoilage of Landscape

Municipal waste heap up on road due to improper disposal system people clean their own houses and litter in their immediate surroundings. which affects the community including themselves. Every year, several tons of solid waste is dumped along the highways and other places thereby spoiling the landscape.

Pollution : Dumping of waste on the land may pollute ground and also the water bodies present in the vicinity. Toxic chemicals present in the wastes may percolate in the ground and contaminate the ground water.

Health Hazards : Heaps of domestic and industrial wastes are dumped on vacant and unused land in residential areas which causes unhygienic conditions and ultimately results into outbreak of diseases like cholera, gastroenteritis, malaria, dengue etc. Decomposition of organic wastes produces foul smell and allows breeding of various types of insects and infectious organism.

SUGGESTION

Every human empower can contribute their control measures of solid waste management strategy includes following main components.

Source Reduction : It is one of the fundamental ways to reduce waste. This can be done by using less material when making a product re use of products on site, designing products or packaging to reduce their quantity

Land fill : The most common and cheapest method of waste disposal is dumping in sanitary land fills which are invariably employed in Indian cities. Land fill structure is built either into the ground or on the ground into which is the waste is dumped.

Vermiculate : This technique is popularly known as earthworm farming . It is an important bio technique for converting solid wastes such as sewage sludge and domestic wastes into compost with the help of earthworms.

Recycling : It is an eco friendly techniques. In recycling a product at the end of its service life i.e. waste is converted into another useful product. It involves separating, collecting, processing, marketing and ultimately using the material that could have been through away. A sheet of paper can be recycled to other paper products cans bottles and pouches can be recycled for other uses.

i. It reduces our reliance on landfills and incinerators
ii. It protects our environment by effective handling of the waste
iii. It conserves natural resources because it reduces the need for fresh raw material.

Incineration

It is a hygienic way of disposing solid waste and is more suitable if the waste contains more hazardous material and organic content. It is a thermal process and is very effective for detoxification of all combustible pathogens. It is an expensive technology compared to land fill and composting because incinerators are costly. This technology is more suited to treat hazardous wastes and hospital waste.

REFERENCE

- Lavee, A., Vievek, : Is municipal solid waste recycling economically efficient. Environ. Manag. 40, 926–943 (2009)
- Asnani, P.U.: United States Asia Environmental Partnership Report, United States Agency for International Development, Centre for Environmental Planning and Technology, Ahmedabad (2004)
- Bhoyar, R.V., Titus, S.K., Bhide, A.D., Khanna, P.: Municipal and industrial solid waste management in India. J. IAEM 23, 53–64 (1996)
- Central Pollution Control Board (CPCB): Management of Municipal Solid Waste. Ministry of Environment and Forests, New Delhi, India (2004)
- Zhu, D., Asnani, P.U., Zurbrügg, C., Anapolsky, S., Mani, S.: Improving Municipal Solid Waste Management in India (2008)
- Ravi, D.: Solid waste management issues and challenges in Asia, Asian Productivity Organization (2007)
- Dayal, G.: Solid wastes: sources, implications and management. Indian J. Environ. Prot. 14(9), 669–677 (1994)

- Garg, S., Prasad, B.: Plastic waste generation and recycling in Chandigarh. Indian J. Environ. Prot. 23(2), 121–125 (2003)
- Gupta, S., Krishna, M., Prasad, R.K., Gupta, S., Kansal, A.: Solid waste management in India: options and opportunities. Resour. Conserv. Recycl. 24, 137–154 (1998)
- Rathi, S.: Alternative approaches for better municipal solid waste management in Mumbai. India J. Waste Manage. 26(10), 1192–1200 (2006).