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Research Paper

A Study on Environmental Dimension of Solid Waste Management in Coimbatore Corporation

Economics

KEYWORDS : Waste disposal, Landfill, MSW, SWM, Degradation, Recycling

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ABSTRACT

This paper indicates that the solid waste disposal has become a major environmental issues and this is mainly because of the rapid urbanization, population growth and economic development in the country. The generation of solid waste is interrelated to the population size whereby as the population increases the generation of solid waste increases. Without proper disposal methods, this waste causes many environmental problems worldwide. This trend can be ascribed to our changing lifestyle, food habits and change in living standards. Solid waste management is a basic essential service provided by municipal authorities to keep the cities clean. The study investigates the problem of solid waste in Coimbatore Corporation and also observed the environmental impact of solid waste with respect to health of the residents. To examine the objectives and hypothesis, both the primary and the secondary data has been collected and utilized. The result showed that the solid waste disposal in central part of Coimbatore Corporation is more. Disposal of solid waste in peripheral part is lower than the central part of Coimbatore Corporation. It is also found that the respondents of central part are strongly agreeing that because of solid waste disposal in open site's the mosquitoes were heavily circulated all over the area and the sample respondents are suffered by mosquito's bite and that causes skin diseases which obviously increases the medical expenses.

INTRODUCTION:

Solid waste is a significant and growing problem in many urban areas of the developing world. Current systems of waste management in most developing countries are very rudimentary at best and are grossly inefficient and ineffective. In the last few decades there has been a significant increase in Municipal Solid Waste (MSW) generation in India. This is largely because of rapid population growth and economic development in the country. As waste generation increases day to day due to varying population pattern, both developed and developing nations are looking out for new solutions to manage waste. This clearly indicates that the growth in MSW in our urban centres has outpaced the population growth in recent years. Uncontrolled landfill disposal of solid waste is a pervasive problem which causes a range of external costs, including human health hazards. As waste generation increases day by day to varying population pattern, both developed and developing nations are looking out for new solution to manage waste.

Domestic, Commercial, Bio-medical and variety of toxic and domestic hazardous wastes are commonly disposed of by the citizen on the streets, drains, open spaces, water bodies and so on. Consequently this causes serious problems of health and environment. Looking to very pathetic situation of solid waste management in the country, the Ministry of Environment and forest has notified Municipal Solid Waste Rules 2000 under the Environment Protection Act 1986. According to these rules, all the municipal authorities were expected to improve Solid Waste Management practices in terms of aforesaid rules by December 2003. But, the situation did not improve as expected for want of adequate technical knowhow and lack of human and financial resources.

THREAT TO ENVIRONMENTALLY SENSITIVE AREAS:

There are water streams in the city which are considered in the environmentally sensitive category as they often get contaminated by the municipal waste. There are some waste bins places very close to the stream which pollute the water. The close proximity of these bins to the stream is the main reason for the contamination. In rainy seasons the bins being open from both sides the waste is directly exposed to the rain.

STATEMENT OF THE PROBLEM:

Continuous population, household and industrial growth results in continually increased wastes. Without proper disposal method, these wastes definitely cause many environmental problems. These include environmental damages caused by burning or dumping of rubbish in an open site. Recycling is a preferable choice to landfills and incinerators. It reduces usage of non - renewable resources. Nevertheless, it has some disadvantages. We cannot say every item has a marketable value enough for recycling (Palmer2005) because it incurs a significant amount of cost, not only in manufacturing, but also in collecting and sorting process. Recycled material is often of lower quality compared with virgin material: some products are bulky because of packages so that it incurs the high transport cost. Also, since recycling process may require new machines, it may consequently require investment. So, efforts to separate waste could ease cost of recycling.

OBJECTIVES:

- To study the problem of solid waste in Coimbatore Corporation.
- To examine the environmental impact of solid waste with respect to health of the residents of Coimbatore corporation.

HYPOTHESIS:

- There is more solid waste disposal in the central part of the city when compared to the peripheral part.

METHODOLOGY:

- To examine the objectives and proposed hypothesis, both the primary and secondary data have been used.

TOOLS AND TECHNIQUES:

The collected data are classified, analysed and interpreted. The present has used simple statistical tools, averages, correlation and regression for testing the hypothesis.

REVIEW OF THE LITERATURE:

Esakku et al, found that Municipal Solid Waste management (MSWM) is a challenging problem for developing countries. Municipal Solid Waste (MSW) generation in Chennai, the fourth largest metropolitan city in India, has increased from 600 to 3500 tons per day (tpd) within 20 years. The highest per capita solid waste generation rate in India is in Chennai (0.6 kg/d).

Gayathri V Patil, conducted a acase study of bio-medical solid waste management in an Indian hospital. The objectives of the study consist of the following (a) To assess the waste handling and treatment system of hospital bio- medical solid waste and its mandatory compliance with Regulatory Notifications for Biomedical Waste (management and handling) Rules, 1998, under the Environment Production Act 1986, Ministry of Environment and forestry, government of India, at a selected medical research centre at Belganum in India. (b) To quantitatively estimate the

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amount of non- infectious waste generated in different wards/ sections.

Hans Schenk, Isa Baud and B. Ramaneswari, examined in this study about the two types of voluntary organizations that concentrated either on India's urban solid waste or its collection. The first type consisted of middle class residents who were irritated by the nuisance of waste. The second type was concerned with the living conditions of the men, women and children who depended on waste to make a living. It was understood that the first group received recognitions and respect by the local authorities while the voluntary organizations concerned with the waste collectors were looked upon with contempt. The study attempted to expose the waste oriented and waste collector's oriented voluntary organizations and the divergent approaches of red and green voluntary organizations dealing with urban waste in terms of objectives, activities and groups addressed.

Usha and Raghupathi, studied the aspects of solid waste management is such as its status and factors determining improvement in MSW management in selected Indian cities. Municipal Solid waste generation has been increasing in urban India due to population growth, economic development and increasing incomes. The respective municipal acts have assigned responsibility to municipal bodies to keep the city clean and to remove wastes from the areas within their jurisdiction.

ANALYSIS AND INTERPRETATION:

OBJECTIVES I & II:

- To study the problem of solid waste in Coimbatore Corporation.
- To examine the environmental impact of solid waste with respect to health of the residents of Coimbatore corporation.

Name Of The Area		Impact Of Solid Waste On Housing Accommodation			
Land Degradation		Mosquito's Problem	Occurrence Of Diseases	Medical Expenses Increased	
Central part	Mean	3	1	2	2
Peripheral part	Mean	3	1	3	3
Total	Mean	3	1	2	3

Source: Primary Survey
(DISAGREE- 3, AGREE-2, STORNGLY AGREES- 1)

The above table explains area wise opinion about the impact of solid waste on housing accommodation. Central part and peripheral part respondents are disagree that because of solid waste there is no land degradation problem but the respondents of central part are strongly agreeing that mosquitoes were heavily circulated all over the area and sample respondents suffered by mosquito's bite it causes skin allergy, rashes etc., which obviously increases the medical expenses. But peripheral part respondents are saying diseases caused but not because of solid waste and they disagree with the problem of diseases and increase of medical expenses.

HYPOTHESIS:

- There is more solid waste disposal in the central part of the city when compared to the peripheral part.

Null Hypothesis: There is no significant difference between the two areas with respect to solid waste disposal in Coimbatore Corporation.

Alternative Hypothesis: There is significant difference between the two areas with respect to solid waste disposal in Coimbatore Corporation.

t-test:

Name of the Area	N	Mean	Std. Deviation	Std. Error Mean
Total waste per day(kg)				
Central part	40	1.6562	.94001	.14863
Peripheral part	40	1.1688	.75189	.11888

Independent Sample Test:

		Levene's test for equality of variances		t-test for equality of means						
		F	Sig.	T	d.f	Sig (2 tailed)	Mean Difference	Std. Error Difference	95% Confidence interval of the difference Lower	Upper
Total waste per day (kg)	Equal variance assumed	1.96	0.165	2.561	78	0.012	0.4875	0.19033	0.10859	0.86641
	Equal variance not assumed			2.561	74.4	0.012	0.4875	0.19033	0.1083	0.8667

The t-test results confirmed that the null hypothesis gets rejected. This implies solid waste disposal release in central part of Coimbatore Corporation is more. Disposal of solid waste in peripheral part is lower than the central part of Coimbatore Corporation. The mean difference showed 2 kg of solid waste released in central part of the Corporation and 1 kg of solid waste released in peripheral part of Coimbatore Corporation.

FINDINGS:

- About 80 percent of the sample respondent residing in central part of the eastern zone are agreeing that due to solid wastes the mosquitoes coming are larger in number consequently that creates the dangerous diseases, while taking sufficient treatment for such a harmful diseases it obviously increase the medical expenses largely that is 90 percent of the respondent strongly agree with the concern.
- Central part and peripheral part of the respondents are disagree that because of solid waste there is no land degradation problem but strongly agreeing that mosquitoes problem were heavily circulated all over the area and sample respondents suffered by mosquito's bite.

SUGGESTIONS:

- Recycling a potential waste on the site where it was generated.
- User pay charge should be levied by the government for those who litter the streets.
- Public awareness is playing a vital role in minimizing the solid waste.
- Treat the organic waste via vermiculture at the community level itself.

CONCLUSION:

An investigation of this kind has brought to light the status of solid waste in Coimbatore Corporation. Coimbatore Corporation is one of the major city is generating large amount of solid waste. The state government introduced ban aimed at restricting the use of carry bags below 30 micron thickness. While, following this government regulation quite a small part of the plastic waste products were thrown in public places not much more. Hence, it obviously protects the serious environmental problems and environmental degradation of the Corporation. The magnitude of damage and the measure to control the sufferings of people will constitute the future study.

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