



STUDY ON SOLID WASTE MANAGEMENT

Ved Prakash Singh	Research Scholar, Department of Chemistry, J.P. University, Chapra, India
Md Khairul Wara	Research Scholar, Department of Chemistry, J.P. University, Chapra, India
Dr. Pramod Kumar Mishra	Assistant Professor, Department of Chemistry, J.P. University, Chapra, India

ABSTRACT

Municipal solid waste management in India has seen unresolved problem in recent years due to exponential population growth, high population density in urban areas, diverse culture, rapidly changing life styles due to globalization and increasing inclination towards junk fast food habits. Investigations are going on all over the world for finding out ways to overcome the problems. A brief account of works done in context to Indian cities is presented here. A glimpse of works done at world level is exhibited.

KEYWORDS :**1. INTRODUCTION:**

Recently in the last decade, an international on "Sustainable Solid waste management for cities: Opportunities in South Asian Association for Regional Cooperation (SAARC) countries" as organized at Nagpur during 25-27 March 2015. It was organized by the Joint collaboration of Council of Scientific and Industrial Research (CSIR, New Delhi) and National Environmental Institute (NEERI), Nagpur. SAARC includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka and Afghanistan. The seminar was financed by DST, New Delhi and The Royal Society, London (UK). The seminar covered different facets of solid waste management in cities especially cities of India. It was suggested that India must shift its reliance on waste dumps which offer no environmental protection, to waste management systems that retain useful resources within the economy.

Municipal Solid waste generation per person /day in many urban local bodies has shown an upward trend which is a major problem for municipal administration. This is due to urbanization, industrialization and economic growth. Improvement in living standards is more difficult in India in comparison to other countries because India is a diverse country with many different religious groups, cultures and traditions. Significant developments in economic, social and environmental areas have been made but scenario in the solid waste management sector has remained practically unchanged. People are still dumping the waste in an unscientific manner.

2. Methodology and Data Collection:

The purpose of present thesis is to find out a way for improving the solid waste management system in Chapra town. For this, data were collected by door to door survey regarding current status of SWM system. There are many variable parameters related to the problem such as population, population density, socio-economic factors, willingness of the person to cooperate with the municipality staff in segregation of waste, willingness to pay for the service, practice of composting or recycling of waste materials etc. The data collected has been analyzed as per logistic regression model OLS (Ordinary Least Square) model. There is an urgent need to move to more sustainable management systems. Due to current inefficient solid waste management systems, a negative impact is falling on public health, environment and economy. Waste management handling rules have been introduced but compliance is limited, variable and ineffective. Ministry of Environment and Forests are not working effectively. Major contribution to increasing municipal solid waste comes from population growth. Trend in population growth for 100 years from 1911 to

2011 is shown in Table-1.1 and trend in increase of solid waste generation is shown in Table-1.2 respectively.

Table 1.1 Population growth in India between 1911 and 2011

Census Year	Population x106	Decade Growth 106	Avg. annual exponent growth	Progressive growth rate compared with 1911
1911	252	13.7	0.56	5.75
1921	251.3	-0.8	-0.03	5.42
1931	278.9	27.6	1.04	17.02
1941	318.6	39.7	1.33	33.67
1951	361.1	42.4	1.25	51.47
1961	439.2	78.1	1.96	84.25
1971	548.1	108.9	2.2	129.94
1981	683.3	135.1	2.22	186.64
1991	846.4	163.1	2.16	255.03
2001	1028.7	182.3	1.97	331.52
2011	1210.2	181.4	1.64	407.64

Table 1.2 Major cities in India and per capita waste generation data CPCB census 2011/2010-2011

Sl. No.	City	Population (2011)	Waste in tons/day	Waste (Kg/per capita/day)
1.	Ahmadabad	6.3	2300	0.36
2.	Hyderabad	7.7	4200	0.54
3.	Bangalore	8.4	3700	0.44
5.	Chennai	8.6	4500	0.52
6.	Kolkata	14.1	3670	0.26
8.	Delhi	16.3	5800	0.41
9.	Mumbai	18.4	6500	0.35

India is a country of diversity. It has physical, climatic, Geographical, Ecological, Social, Cultural and linguistic diversities. It is experiencing a rapid Urbanization due to globalization. Population grew from 1028 million in 2001 to 1252 million in 2013. This population growth is major factor which is contributing an increasing trend in solid waste generation. Recently many megacities are coming up whose populations are expected to cross crores. Kolkata, Greater Mumbai and Delhi have already crossed the crore mark. These megacities have dynamic economic growth and very high waste generation per capita as shown in Table- 1.3

Table 1.3 Waste generation per capita in Indian Cities

Population	Waste generation rate kg/capita/day
Cities with a population <0.1 million (eight cities)	0.17 - 0.54

Cities with a population of 0.1 – 0.5 million (eleven cities)	0.22 – 0.59
Cities with a population of 1 – 2 million (16 cities)	0.19 – 0.53
Cities with a population of >2 million (13 cities)	0.22 – 0.62

To become a world leading economy, India has to improve its civil infrastructure that the need of the population protection of environment is fundamental to achieve effective economic growth. Natural resource have been depleted due to rapid growth in population. Wastes if managed properly can act as a potential resource for producing materials, energy and nutrients in the form of Organic manures. It can also provide lively hood to many people especially for those who come from poor families.

CONCLUSION:

To find out the probability of house-holds willingness to segregate waste, the parameters from logit model can not be used to interpret effects of each of the explanatory variable as the model is non-linear. Marginal effects, in this case, are calculated to find the relative magnitude of effects of each of the explanatory variable.

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