



Generation, composition and management of solid waste at Muthi, Jammu

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Abstract

The paper deals with the generation, composition and management of solid waste at Muthi, Jammu. Study on Generation and Composition of solid waste was carried during January to December, 2007. In this paper characteristics of solid waste and its probable impacts on the environment in general and population in particular have been discussed. Recommendations regarding solid waste management have also been given. Findings revealed various short comings in the present disposal system which affected the quality of environment in the study area.

Keywords: Solid waste, composition, characteristics, management

Introduction

The western model of development by means of aggressive industrialization and insane consumerism has invaded urban India and converted innocent elegant spaces into technologically driven factories and slews of concrete skyscrapers. All over the urban areas, we find waste, garbage, factory refuse, medical leftovers, plastics and municipal filth. Much of it is miasmatic, foul and toxic. A recent report on ambient air quality around Chennai's Kodungaiyar waste dump site has sent out a strong health warning to over 100,000 residents living in its vicinity. Every day the municipal corporation of Chennai dumps around 3,200 tonnes of waste either at Kodungaiyar or the near by Perungudi dumpyard. Released by a Chennai based NGO Community Environmental Monitoring (CEM) in December 2006, the report notes the presence of chemicals in the ambient air of Kodungayar. Analysis showed five of the chemicals exceeded permissible levels of USEPA out of which 1, 2 dichlorobenzene, benzene and chloromethane are known carcinogens. The data also indicated that unsegregated waste, including medical waste and plastics is being openly burnt at Kodungaiyar (Nidhi Jamwal, Down To Earth

Jan., 2007).

Currently the city of Kochi is a victim of garbage macro crisis. It faces the imminent peril of fatal fevers. There is even the potential for a plague outbreak. Avijit Ghosh (2007) highlighted the role of waste pickers in municipal solid waste management and reported that every day waste picker picks 50-60 kg of waste which means he helps recycle between 15000-18000kg waste every month. NGOs estimate that their efforts save the MCD about Rs 6 lakh every day. Waste pickers often pick up diseases such as TB, anemia, gastrointestinal ailment and eye infection diseases related to lungs and skin are common. Choudhary and Malik (2007) explained various kinds of health hazards related to solid waste. Except for some preliminary investigations made by Rampal *et al.* (2002) Sambyal (2006), Manhas (2007) who have tried to gather information on this aspect of environmental concern, very less is known about the impact of unscientific and improper waste disposal on the environment in general and population in particular from J&K state in general and Jammu in particular.

Methodology

The study area Muthi lies between 32°27'16.16"N latitudes and 75°21'47.08" E longitudes in the North of Jammu city within the municipal limits.

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In order to analyze the composition of solid waste at Muthi, the area was divided into four study sites which include **Site I: Primary health centre, Site II: School, Site III: Main bazaar and Site IV: Minibus stand.** Sampling of solid waste was carried out thrice a month for a period ranging from January 2007 to December 2007. During each sampling, solid waste generated for 24 hours was collected and segregated into various categories viz., biodegradable material (vegetative/putrescible matter, paper and rags), non-biodegradable material (plastic, metal, glass) and inert and miscellaneous waste (sand, pebbles, stones, chalk pieces, construction & demolition waste etc.). Each component of the waste was then weighed and the average weight percentage, standard deviation was computed for a period of one year.

During present investigations, for analyzing household waste, the residential area of Muthi was divided into four zones. From each zone five houses were selected and the average waste generation/capita/day was studied. Samples were collected thrice a month from each house over a period of twelve month (January, 2007-December, 2007). During each sampling, the waste generated during period of twenty-four hours in a household was collected in a polythene bag and weighed, with the help of spring balance of different scales viz; 200gm, 1kg, 10kg, 25kg. The total number of residents of the house during the sampling period was also recorded to calculate per capita per day values. Per capita per day waste generation values were also calculated for 12 months.

Results and Discussion

Site: (I): Primary health centre: The critical examination of the table: 1 reveals that the total average solid waste (gm/month) ranges from 16014.6 to 22505.07gm with an average value of 20040.69gm comprising 5787.52 \pm 2388.24gm of biodegradable 10210.13 \pm 2230.81gm of non-biodegradable and 4043.9 \pm 786.23gm of inert & miscellaneous waste.

Site: (II): School: A close examination of the table: 1 reveals that the total average solid waste (gm/month) ranges from 21313.72-28140gm with an average value of 24847.32gm and comprised

15792.47 \pm 1669.61gm of biodegradable waste, 4563.12 \pm 449.85gm of non-biodegradable and 4491.78 \pm 993.99 gm of inert & miscellaneous waste.

Site: (III); Main bazaar: An observation of the table: 1 reveals that the total average solid waste (gm/month) ranges from 1160101.9-17332227gm with an average value of 14287718gm comprised 11485467.5 \pm 2259815.16gm of biodegradable, 1835142.56 \pm 1105039.96gm of non-biodegradable and 990361.7 \pm 412908gm of inert & miscellaneous waste.

Site: (IV): Minibus Stand: The close examination of the table: 1 reveals that the total average solid waste (gm/month) ranges from 71025-249996.43gm with an average value of 106626.6gm and comprised 50078.16 \pm 46401.22gm of biodegradable, 28685.33 \pm 5601.25gm of non-biodegradable and 27863.12 \pm 8271.5 gm of inert & miscellaneous waste.

Household waste generation at Muthi: The results of twelve months data have revealed that the average solid waste/capita/day generation was observed to be 935.35gm. The total domestic waste generated per day at residential area was recorded to be 7950475.2gm (7950.47kg).

When a comparative study of solid waste generation at different sites was made it was observed that the average solid waste gm/month was maximum at Site: III; Main bazaar (14287718gm) followed by household waste (7950475.2 gm), Site: IV; Minibus stand (106626.6gm), Site: II; School (24847.32gm), Site: I; Primary health centre (20040.69gm).

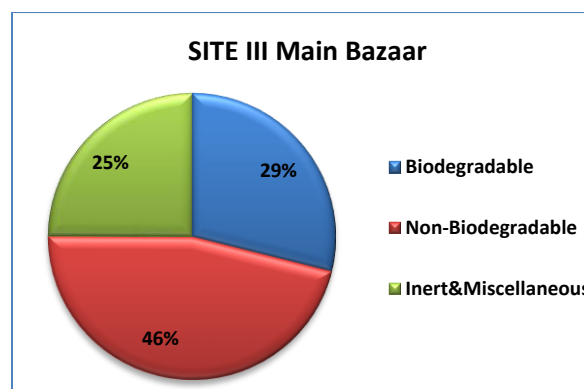
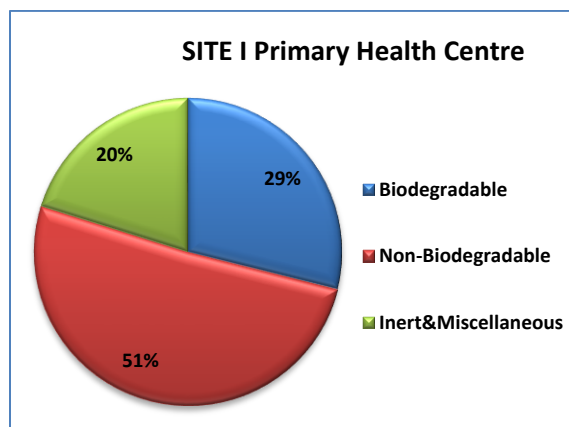
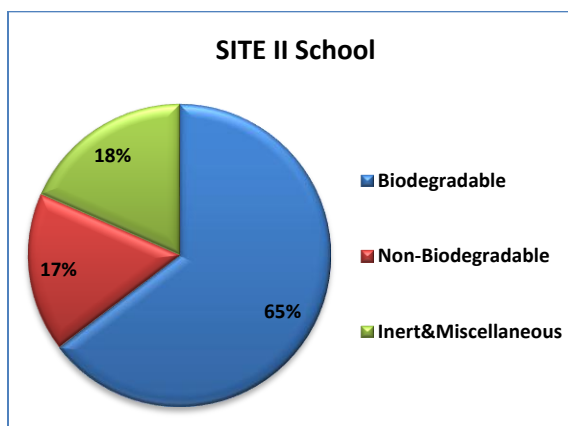
The present findings reveals that the biodegradable waste was found to exhibit the maximum percentage at all sites except the primary health centre where non-biodegradable waste showed dominance the reason being vaccination programmes carried out their, lots of medicines, glucose bottles are wasted as they exceed the expiry date, as very few people visit their for the purpose of treatment and mostly its visited for purpose of vaccination and minor injuries & illness. The waste collected from the



Table 1: Showing average solid waste generation (gm/day) generation & composition at different Sites (I, II, III, IV) in the study area, Muthi.

Categories	Average	Standard deviation	Range
SITE I Primary health centre			
Biodegradable	5787.52	2388.24	3209.54 -9771.2
Non-biodegradable	10210.13	2230.81	6947.1-15370.4
Inert & miscellaneous	4043.9	786.23	3000-5626.2
Total	20040.69	2206.15	16014.6-22505.07
SITE II School			
Biodegradable	15792.48	1669.56	13300-18290
Non-biodegradable	4563.12	449.85	3042.0-5042.0
Inert & miscellaneous	4491.78	994.05	2948.4-6045
Total	24847.32	2010.50	21313.72-28140
SITE III Main bazaar			
Biodegradable	11485467.5	2259815.16	8970016.8-15960000
Non-biodegradable	1835142.56	1105039.96	651027.5-1372006.6
Inert & miscellaneous	990361.7	412908	382209.2-1798003.4
Total	14287718	2084339	11160101.9-17332227
SITE IV Minibus stand			
Biodegradable	50078.16	46401.22	26123.7-195350.53
Non-biodegradable	28685.33	5601.24	20399.1-41863.02
Inert & miscellaneous	27863.12	8271.5	18298.06-45024.0
Total	106626.6	48039.56	71025-249996.43

municipal limits is commonly disposed off by open dump method. The temporary dumping site are near the pond in Muthi village, vacant plots, streets adjacent to roads, at the bank of canal, in Muthi nullah and near a community handpump in Muthi camp from the temporary dumping sites only a fraction of waste is being collected every week on Wednesday, rest remains unattended. The final disposal site is the bank of river Tawi. This presents a clear picture of ill management of waste generated in Muthi.



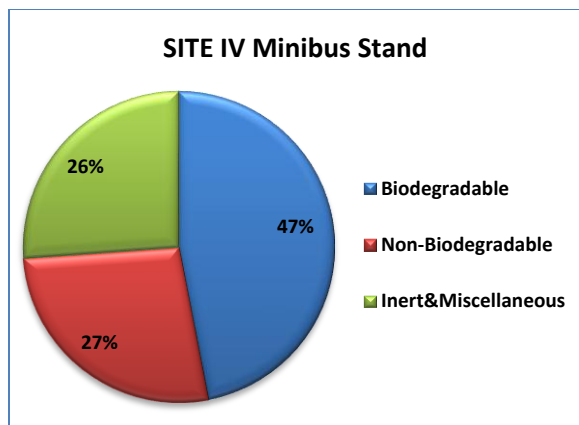


Fig.1. Pie diagrams showing percentage of different components of solid waste at different study sites

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