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Research Article

Current Scenario of Solid Waste Management in Raju Colony, Balanagar

M. Ashwini[1*] and D. Seshikala[2]

[1]Research Scholar, [2]Assistant Professor

Environmental Science Department, Osmania University, Hyderabad, Telangana

*Corresponding Author E-mail: ashwini.ashu1328@gmail.com

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ABSTRACT

Municipal solid waste management is one of the major environmental concerns globally. Improper management of Municipal solid waste poses a severe threat to all living beings and also to the surrounding environment. Various studies reveal that about 90% of Municipal Solid Waste is due to improper management of open dumping sites and landfills, creating severe problems to public health and the environment. Rapid population growth, Urbanization, industrialization and lack of awareness among people are the major drawbacks for enormous quantities of solid waste generation. An attempt has been made to comprehensively review waste characteristics, generation, collection, transportation, treatment & safe disposal methods of MSW practiced in Hyderabad City. Daywise activities pertaining to MSW have been carried out in order to evaluate the present existing status & to identify the major problems pertaining to it. Hence various methods used for MSW treatment are critically reviewed along with their merits & limitations.

Keywords: *Organic Waste, Sustainable Waste Management, Resource recovery, Waste disposal.*

INTRODUCTION

Organic solid waste management refers to the process of collecting, disposing of, and recycling organic materials that individuals, businesses, and communities discard. Organic waste primarily consists of biodegradable materials, such as food scraps, yard waste, and other organic materials. Proper management of organic solid waste is essential for several reasons:

- Organic waste management can enhance soil quality and promote healthier plant growth using organic matter as a soil conditioner or fertilizer.
- Properly managed organic waste can be used to restore and improve ecosystems, contributing to biodiversity conservation.
- Continuous evaluation and improvement of organic waste management techniques encourage innovation and the development of more efficient and environmentally friendly methods.

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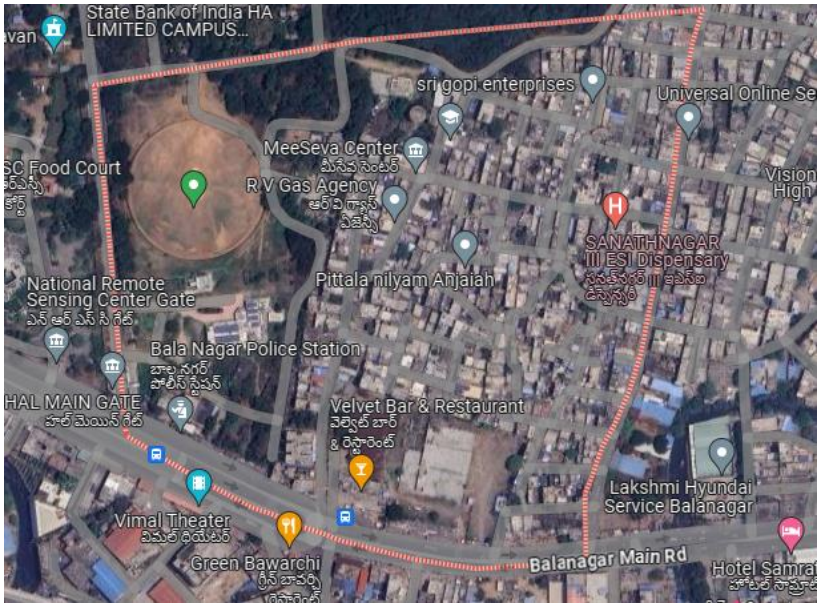
Organic waste accounts for most of the waste created in nature. The need for organic waste management or recycling has increased over the years as waste management has become an emerging issue in many metropolitan cities. This is because of the excess moisture content in the Urban organic waste that increases its volume and lowers its incinerator temperatures, causing waste overload. To deal with such issues, various treatment methods and practices have been formulated and introduced throughout the world.

Status of Municipal Solid Waste in Raju Colony:

Raju Colony is located in Balanagar Urban of Telangana State. It admeasured about 8 km in radius and is surrounded by Raju Colony in the North, BHEL in the South, HAL in the South and Phoolbagh Colony heading towards the East. It has a population of about 2300 individuals and 328 households. The quantity of waste generated is about 0.6kg/day. The total waste generated in the colony is about 1580 kg/day. However, recent studies indicate that it differs from city to city, and the per capita waste generation varies between 0.2-0.6kg/capita/day (Agarwal et al., 2005).



Satellite Image of Study Area

MATERIALS AND METHODS

Study Area:

A study was conducted on garbage collected from each household on a daily basis, which was further segregated by rag pickers in transfer stations. It is situated 8 km away from the selected colony, measuring about 2800 sq. yards. The segregated quantities of waste are further quantified to estimate the generated proportions.

Procedure:

Waste characterization was done by identifying, classifying, and quantifying different types of waste materials generated by human activities. Waste characterization involves several key steps:

1. **Collection:** The first step in waste characterization is to collect samples of the waste materials. These samples include residential, commercial, industrial, or hazardous waste.
2. **Segregation:** Once collected, the waste samples are segregated into different categories based on their physical and chemical properties. Common categories include organic waste, recyclables, non-recyclables, hazardous waste, and special waste (e.g., electronic waste or medical waste).
3. **Weighing and Measurement:** Each waste category is weighed and measured to determine its volume, weight, and density

which helps in estimating the overall quantity of waste generated.

4. **Visual Inspection:** Waste samples are visually inspected to identify specific items or materials that may require special handling, such as batteries, chemicals, or electronic components.

Work Plan:

The total quantity of Solid Waste Collected from households is segregated into different categories like Organic Waste materials, non-degradables, plastics, cloth materials, recyclable items etc.

Organic Waste: Organic Waste includes food waste, green waste, landscape and pruning waste, paper waste etc.

Inorganic Waste: Inorganic waste includes aluminium cans, spoons, plastic & glass.

Recyclable Waste: Components like plastic, leather & metals.

After the solid waste being segregated, all the components present in it are weighed with the help of a weighing machine & enlisted as mentioned below:

S.no	Components	% of waste per Ton
1.	Biodegradable Organic waste	46.4
2	Green Waste/Garden Waste	18.6
3	Wood waste	6.3
4	Plastic bottles, milk packets	12.3
5	Clothes/Rags	7.8
6	Rubber/Leather	5.2
7	Bio-medical & Others	3.4

Source: Greater Hyderabad Municipal Corporation (March 2018)

RESULT AND DISCUSSION

The above data was collected from GHMC, SCTP plant behind Metro, Balanagar. It was observed that the majority of the MSW comprised Organic /Biodegradable Waste.

Non-biodegradable waste accounts for about 10 to 12% of total waste generated by households. Hence, the focus to be projected on biodegradable materials which can be easily converted into manure through an organic process of microbial decomposition by generating an economy through the selling of rich & fertile organic manure.

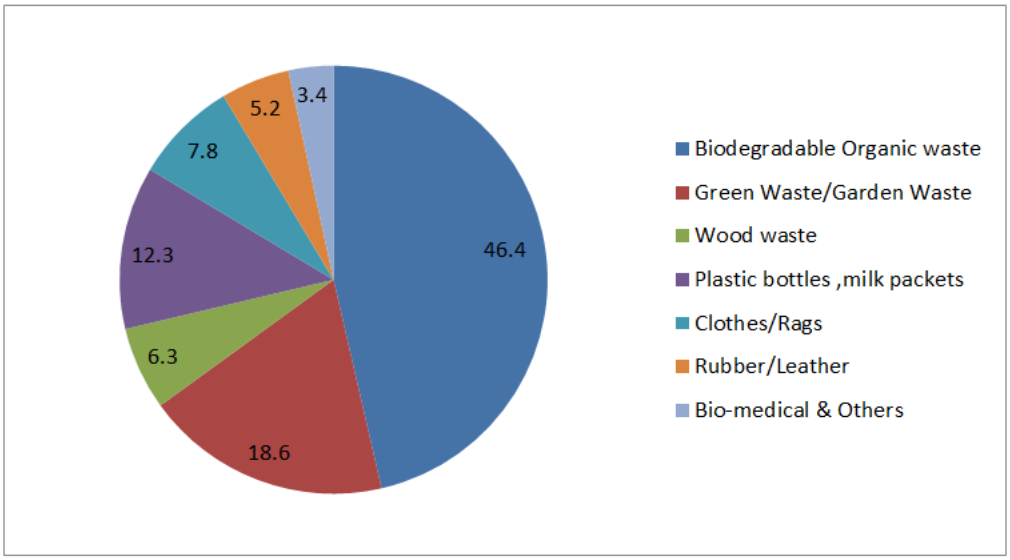


Fig. 2: Graphical Representation of quantities in MSW

CONCLUSIONS AND RECOMMENDATIONS

The Corporation authorities are operating MSW disposal plant unit set at Prashanthnagar. Source level segregation of municipal solid waste plays a key role during collection, followed by safe disposal. It is also important to maintain proper storage facilities to avoid unhygienic conditions posing severe threat to the environment. Well-equipped vehicles for safe transportation and disposal of generated waste to be maintained to avoid spillage on the roadside and also at the disposal & processing site to overcome the menace of odor and release of harmful gases into the atmosphere causing various modes of pollution. Concept of 4R's (Reduce, Reuse, Recycle, Refuse) must be encouraged to control the generation of waste.

Recycling and composting organic waste can reduce the need for landfills and incinerators, which require valuable land and energy resources.

Organic waste, when managed correctly, can be a valuable resource for producing renewable energy and biofuels. Effective organic waste management practices help reduce the proliferation of pests and the risk of disease transmission associated with decomposing organic matter.

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Conflict of Interest:

There is no such evidence of conflict of interest.

Author Contribution

All authors have participated in critically revising the entire manuscript and approving the final manuscript.

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