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### Abstract

Solid-waste management is a major challenge in the urban areas. Without an effective and efficient solid-waste management program, the waste generated from various human activities, both industrial and domestic, can result in health hazards and have a bad impact on the environment. The objectives of the study are to determine different types of solid waste generated by the households, to assess handling methods at household level, to ascertain common challenges associated with waste management systems.

Generation of solid waste leads to large environmental problems in great parts of the world. However, solid waste can also be seen as a resource and potentially constitute resource for material and energy production. The potential benefits from waste are most effectively used through separation of materials at source. Waste management is intended to reduce adverse effects of waste on health, environment by minimizing pollution, conserving natural resources, cutting down amount of waste in landfill sites, ensuring sustainable use of resources along with promoting reuse of the waste.

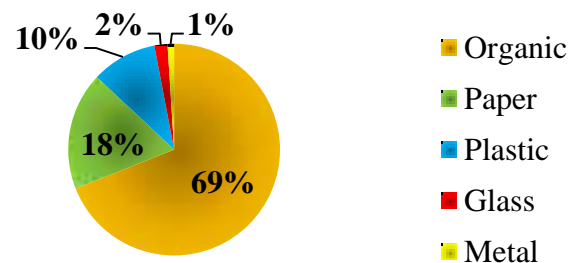
**Index Terms:** Solid Waste, Solid Waste Management, Landfill Sites, Management System

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## 1. INTRODUCTION

Solid waste is the unwanted or useless solid materials generated from the combined residential, industrial and commercial activities. It can be categorized according to its origin (domestic, industrial, commercial, construction or institutional); according to its contents (organic material, glass, metal, plastic paper etc.) or according to hazard potential (toxic, non-toxin, flammable, radioactive, infectious etc.). Solid waste can create noteworthy health problems and a very unpleasant living environment, if not disposed of safely and appropriately. If not correctly disposed of, the waste may provide breeding sites for insect-vectors, pests, snakes and vermin (rats) that increase the likelihood of disease transmission. It may also pollute water sources and the environment.

Management of solid waste reduces or eliminates adverse impacts on the environment and human health and supports economic development and improves quality of life.



**Fig-1: Composition of solid waste generated in house**

### 1.1. Aim of Study

- To assess household solid waste management system for a household unit

### 1.2. Objective of Study

- Determination of different types of solid waste generated by households.
- Assess solid waste handling methods at household level.

### 1.3. Scope of Study

Generation of solid waste leads to large environmental problems in great parts of the world. However, solid waste can also be seen as a resource and potentially constitute resource for material and energy production. The possible benefits from waste are often optimized through separation of materials at source. Waste management is intended to reduce adverse effects of waste on health, environment by minimizing pollution, conserving natural resources, cutting down amount of waste in landfill sites, ensuring sustainable use of resources along with promoting reuse of the waste.

### 1.4. Need of Study

The spread of unmanaged waste and rubbish is a key detriment to the environment. Waste that is not dealt with effectively, and left to rot in big piles in the open, can lead to air and water pollution which is harmful for the environment and any living organisms that have to deal with the repercussions of the pollution. Not only these, but when a natural area is the victim of widespread littering and rubbish dumping, the area ceases to sustain its natural beauty. By having an effective waste management, which either disposes of the waste properly or recycles it efficiently, the adverse effects of waste on health, environment can be reduced.

## 2. LITERATURE SURVEY

### 2.1. Introduction to Solid Waste Management, Dr. Jawad A.H Shoqair

In the twentieth century, due to industrial revolution and technology development, consumption patterns of the people, all over the globe, have changed. The use of natural resources and goods has increased manifold. Due to this, huge quantities of different types of solid wastes are produced every day, creating an alarming problem of their disposal. It is now recognized that proactive management is required to deal with this problem, i.e., it is required to reduce the generation of solid waste, effective collection of solid waste and utilization of solid waste rather than concentrating on disposal alone. Thus, solid waste management involves management of activities associated with generation, storage, collection, transfer and transport, reuse and recycling, processing and disposal which should be environmentally compatible, adopting to the principles of economy, aesthetics, and energy conservation.

### 2.2. Assessing Household Solid Waste Management System In Barton Centre, Omambia Bernard & Ogonya .A. Mildred

Solid-waste management is a major challenge in urban areas throughout the world. Without an effective and efficient solid-waste management program, the waste generated from various human activities, both industrial and domestic, can result in health hazards and have a negative impact on the environment. The objectives of the study were; to determine different types of solid waste generated by the households, to assess handling methods at household level, to ascertain common challenges

associated with waste management systems in Baraton Centre and to determine factors that affect household waste management methods. The study employed a Quantitative Descriptive Case study design and Convenience sampling technique. The study findings shows that majority of the respondents (78%), knew about solid waste management. In conclusion the research provided statistically accurate answer to a number of household solid waste related issues. The fact that the education level of a family head was negatively associated with the practices regarding household solid waste management indicates that improving general public awareness concerning the problem of solid waste management should be a high priority of the responsible authorities and the general public as well.

## 3. METHODOLOGY

### 3.1.1. Waste Segregation

Waste Segregation means sorting the waste. One of the easiest ways to segregate your waste is to have different coloured bins for different types of waste. This means it will be simple to keep the various types of waste separate and therefore easier to recycle.

The types of waste that you have will impact how you segregate it. This type of segregation is perfect for general household waste such as paper or cardboard. If your waste is hazardous you will have to segregate it from other forms of waste and dispose of it correctly.



Fig-2: Waste segregation

### 3.1.2 Composting

Composting is a easy and rewarding way to recycle yard trimmings and food scraps at home while creating compost, a valuable soil amendment for gardens and lawns.

Food scraps and yard trimmings, such as leaves, grass clippings, garden debris, and brush, consist up over 20% of a typical household's solid wastes.

Where people have their own gardens or vegetable plots, organic waste can be dug into the soil to add humus and fibre.

This makes the waste perfectly safe and also assists the growing process.

Process:

- Add jaggery on the bottom of the bin.
- Place the filter [Strainer] in the bin.
- Take a paper sheet and cover the filter fully
- Add solid food waste.
- Add about 2 table spoons of compost maker powder evenly. For every 2 inches of waste add compost maker powder again.
- Repeat the steps of adding food waste and compost maker till the bin is completely full
- Once the bin is full make sure the lid is closed tight.
- Do not open the bin for next 15 days.
- After 15 days the food waste would have pickled. If lot of white mould is seen then it is a good sign. Bin should have a sour pickle kind of smell. If it has foul smell the something has gone wrong.
- After the food waste is pickled, compost is made by curing the pickle.
- Take the coco peat blocks and place it in any container. Add 4 liters of water, wait for 20 minutes. Break the expanded coco peat block evenly. Now the coco peat powder is ready to mix with the pickle.
- Lastly layers of pickled waste and coco peat are to be created
- Take a big pot or any container, Add 2 to 3 inches of pickled waste and 3 to 4 inches of cocopeat powder. Continue the process till the pickled waste is over. Allow it to cure for next 2 to 3 weeks. Finally the pickle will become compost in this process.



**Fig-4: Kitchen waste**



**Fig-5: Cocopeat block**



**Fig-6: Compost**



**Fig-3: Composting bin**

#### 4. CONCLUSION

The study confirmed that a number of household related factors affected the household solid waste management; family size, disposal method used, source reduction, reuse and recycling measures, frequency of waste collection, participation and the education level of the household head. The fact that the education level of a family head was negatively associated with the practices regarding household solid waste management indicates that improving general public awareness concerning the problem of solid waste

management should be a high priority of the responsible authorities and the general public as well.

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