



# Community Awareness of Solid Waste Management Practices: a case Study from Ethiopia

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## Abstract

In today's society problems associated with the management of solid wastes are complex. Solid waste is being generated by varying human activities starting from domestic to industrial wastes. Waste management in developing urban areas is becoming more complex due to inadequate disposal planning. It is pervasive in many developing economies. The present study was carried out to assess the community awareness regarding the solid waste disposal and the difficulties occurring due to inadequacy of proper disposal places. Data were collected from 280 randomly selected sampled households using open ended and close ended questionnaires, and from purposively selected key informants using semi structured interview. The results showed that there is a large quantity of waste being generated that are improperly disposed. There is a lack of management due to different reasons like lack of laborers who engage in cleaning process. There is awareness among the public regarding the issues of SWM but the lacuna is still observed in the place.

Key words: Solid waste; Municipality; Waste disposal; Perception; Awareness

## Introduction

The world population whether living in developing or developed countries are now worried too much about wastes. Disposable areas are getting scarcer every year. Wastes are getting complex from time to time. Solid waste such as garbage from homes and industries, are probably, the most visible solution. One of the most difficult problems facing humans today is the disposal of solid wastes (Alemayehu, 2007).

Municipal solid waste management system involves various activities like storage, collection, transportation, disposal etc. These activities if not properly controlled and with proper precautionary measures adopted, may have adverse impact on land, water, and air environment, human and environmental health, aesthetics and quality of life (Justine, 1993). The environmental and Health Impact Assessment may help in increasing the potential adverse effects of these activities and in formulation of precautions which could prevent these effects from taking place (UNEP, 2009).

Much of the solid wastes from homes offices and municipal wastes end up littering road sides, floating in lakes and streams, and collecting in ugly dumps. When the wastes are put in to open dumps, they ruin the attractiveness of the surrounding areas and would potentially endanger the healthy environment necessary for human existence. Ecological phenomena such as water and air also attributed to improper management of solid wastes (Monroe, 1997). SWM requires among other things effective local planning and citizen participation backed by clear, integrated and comprehensive strategy towards effective and safe solid waste disposal mechanisms (Aarne, *et al*, 2002).

The most obvious environmental damage caused by municipal solid wastes is aesthetic, the ugliness of street litter and degradation of the urban environment and beauty of the city. More serious, however, and often unrecognized, is the transfer of pollution to water, ground water. Excess packaging is one of the major sources of solid wastes. Disposing of packaging and other solid waste is a serious problem. Some communities dispose of refuse in an open dump where the refuse is left on the ground. There open dumps are a threat to the environment and a health hazards. Rain carries materials from the dump in to water supplies. Since rats, insects, bacteria, and fungi are found in open dumps, such dumps may be source of disease (EPHTI, 2004). The present study was organized to assess the awareness of institutions and the community on the environmental impact of solid waste management practice.

## Methods

Shambu town is a district and a zonal capital of H/G/W/Z with an absolute location of  $9^{\circ} 33' 00''\text{N} - 9^{\circ} 35' 25''\text{N}$ ,  $37^{\circ} 05' 05''\text{E} - 37^{\circ} 07' 55''\text{E}$ , found at a distance of 325 kms from Addis Abeba or Finfine, the capital city of Ethiopia.

A total of one thousand seven hundred forty two 1742 households living/ residing in the two (2) kebele's of the town were selected for the survey as a target population. Out of these households, 275 of them were selected to be surveyed using questionnaires. Respondents for the survey work were selected using simple random sampling techniques. In the same way simple random sampling techniques were employed to select the sampling unit i.e. respondents from each kebele were selected in accordance of the size of sample households found in each kebeles. The data were collected from primary sources, particularly from randomly selected sampled households, using both open ended and close ended questionnaires, from purposively selected key informants of the study from the staff of the municipality and from the health office of the town using semi structured interview, and from the observation of the researcher made concerning the issue under study using check list.

Secondary data, providing relevant information for this study were obtained from different documents related to the issue under study and those found in the municipality of Shambu town and in the health office of the town. In addition, published and unpublished materials, and other relevant materials were revised to obtain secondary data. The data were analyzed and interpreted in accordance with the nature of the data replied by respondents.

**Results and Discussion**

The data collected indicated that the food waste and their packaging materials, demolition and construction waste are the major type of solid waste. It was also observed that there were no solid wastes generated from industrial and agricultural sources. Table 1 and Figure 1 gives the data of types of wastes generated by different activities. The major sources of solid wastes in developing countries as compared to the developed countries, the major sources of solid wastes generated more is different, since industrial and demolition wastes are the major case in the developed countries (Pervezalam and Kafeel, 2012). But the obtained information on major sources of solid wastes of the study area indicated the dominance of residential sources.

Table1 Dominant sources of solid wastes

No.	Item choices	Frequency	Responses in%
1	Residential	168	60
2	Construction and Demolition	63	22.5
3	Commercial and Institutional	49	17.5
4	Agricultural	0	0

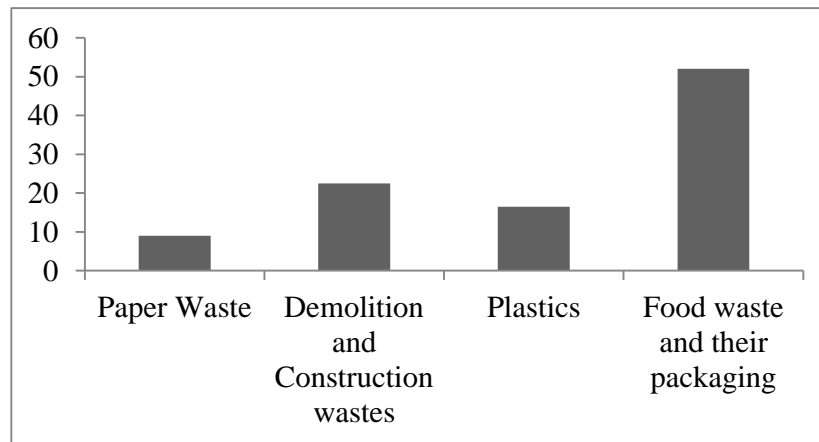


Figure 1 Types of solid wastes regularly generated from the Shambu town

The proportion of the community practicing the proper waste disposal of composting forms only 18.57%. Majority of the people practice dumping of wastes to the solid waste disposal site as indicated in Figure 2. The information obtained from the selected workers of the municipality and health office of the town using interview also indicated open-dumping and open-burning are the primary system used by the residents of the town. Composting of organic waste makes available nutrients for soil replenishments and reduces amounts of waste to land filled (Karanja, 2005). Although both open dumping and open burning are environmentally able to cause pollution in the air we breathe and water we drink and soil and land degradation, regarding the communal disposal system of the study area the information obtained from sampled households and

key informants makes open dumping and open burning the two dominantly practiced disposal methods of Shambu town. There is a lack of environmentally effective and efficient solid waste disposal methods, the dominance of environmentally unadvisable solid waste disposal methods in the study area.

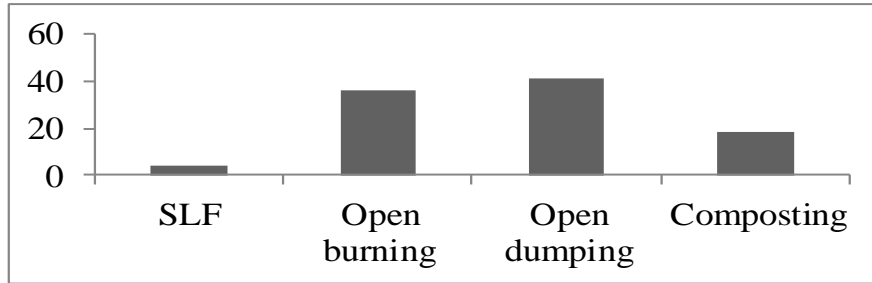


Figure 2 Common solid waste disposal systems in Shambu town

### **Institutional and Community Awareness on the Environmental Impact of SWM**

The information obtained from sample households regarding their knowledge of the environmental impact of poor solid waste management practice indicated the absence of awareness problem. Because all sampled households were able to mention at a minimum one environmental impact of solid waste management practice such as surface water pollution, air pollution, loss of amenity, loss of soil quality, land management and conservation problems.

The existence of numerous factors which made them to practice those disposal methods are lack of collection container in a near distance, absence of enough disposal sites, absence of planned solid waste collection activity by the municipality, open dumping and open burning are easy to get rid their solid wastes, were some of the factors mentioned by households. Although institutional and community awareness on the environmental impact of SWM practice is essential to realize environmentally safe and effective SWM system, the information obtained from sampled population of this study indicated the minimum value of such awareness in areas characterized by lack and shortage of the necessary equipments and materials used for effective management of solid wastes.

In developing countries, the main motivations for waste reduction are frequently related to legislation, environmental protection, and the scarcity of sites for landfills. Urban centers which do not have effective collection and disposal systems should not devote resources to developing waste reduction measures until adequate waste management systems are in place.

Similar studies have been conducted by Nigatu *et al.*(2011) in Addis ababa city and reported that the city also faces similar problems. Even though people are aware of

the consequences of inadequate waste disposal, there is a lack in the proper disposal practices to be followed in the city.

## Conclusions

The poorly collected and managed solid wastes of the study area due to the lack of necessary materials and facilities of solid waste collection, lack of labors engaged in street sweeping and daily removal of solid wastes, is now becoming the major causes of environmental problems such as surface and ground water pollution, decline of soil quality and land management and conservation problems. In addition the solid waste management system of the study area favored for increased breeding of disease causing agents such as flies and rodents.

*Authors' contributions Aboma Fekadu Tsega (Assistant Professor) and R. Uttama Reddy (Assistant Professor) have equally contribution in manuscript; R. Uttama Reddy has also corresponding author.*

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