

**Case Study to Solid Waste Management Practices at Teiman in the La-Nkwantanang
Madina Municipality in the Greater Accra Region, Ghana**

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Abstract

The study was about solid waste management in Teiman Township. Solid waste in the Teiman township is poorly managed this prompt researcher to carry out the research in the area. The respondent view on the pertinent issues such as knowledge level of the people on management of solid waste, the importance management of solid waste and the dangers associated with indiscriminate disposal of solid waste. From the findings, it was concluded that poor solid waste management practice was as a result of lack of health education, the inability of the District Assembly to supply the people with communal dust bins and the inability of the Chief to supply them with a final disposal site.

Keywords: Waste Management, Solid Waste, Health Education, Disposal Site

1.0 Introduction

1.1 Background of the study

Humanity has always produce waste that includes not only discarded bones of animals slaughtered for food but the momentous increase in waste that characterized contemporary society dating

from the industrial revolution. Ghana has witness a peaceful and smooth political transition lately. This positive change has also help in creating strategic environment which is favorable to economic and social process .However the thing which is ruining the perfect picture of Ghana is the problem of solid waste management. Solid waste management according to Miller (1998) is anything considered to be useless, unwanted or discarded materials, which is on longer useful by a particular person, it includes garbage which is the anima land vegetables waste resulting from handling, cooking and serving food and rubbish which consist of combustibile and non food waste. Solid waste are waste arising from human and animal activities that are normally solid that are discarded as useless or unwanted. Man must learn to live harmoniously with his environment if the life expectancy is to be enhanced. Man must take a sustainable development and desist from land degradation, air and water pollution, indiscriminate dumping of refuse and seek scientific method of mitigating the negative effect of solid waste for a sound mind live in a sound body and a sound body should automatically live in a sound environment.

In this case, solid waste at a source fall under three general categories and these include;

- Municipal / Domestic waste
- Industrial waste
- Toxic /hazardous waste

Sanitation leads to good health from the very existence if man both solid and liquid wastes are generated. However, priority has been given to liquid waste to the detriment of management of solid waste. All people old and young, rich and poor need to get rid of waste matter every day, because all impair health. In Ghana health expects report that about 70% of the most reported cases in hospital are as a result of poor sanitation practices. As time passes the only certainty is that accumulation of waste will outstrip its control, TV 3 news Monday 19th January 2013. According

to Edmunso (1991) in his study on refuse management in Kumasi pointed out that most sites used for refuse dumps are chosen without taking into consideration the distance to be covered by residence. He recommended that sanitary sites should be sited close to waste generators.

Adelaide (1995) also observed that disposal sites in Accra situated quite a distance away from inhabitants or sellers. Thus, one cannot dispute the fact that long distance disposal sites discourage inhabitation from making use of them. They resort to littering of their surroundings. Besides, she argued that industrialists dispose of waste on the street into troughs and other unauthorized places. Undoubtedly this unacceptable habit of indiscriminate disposal of waste is due to the public lacking waste disposal culture as well as inadequacy of waste disposal facilities. Solid waste management has remained one of the intractable problems because waste producers generate large volumes of waste but do not dispose of waste in unacceptable manner. This is important to the study because people's attitude towards waste management are questionable. With the establishment of waste management department (W.M.D) of Metropolitan and municipal assemblies, the public tends to have the view that department should solely be responsible for managing waste. Also indiscriminate disposal of waste has resulted in the clogging of few built drainage channels and natural water courses with garbage and silt which are not removed regularly (Songsore, 1992). According to Bonnet et al (1993) domestic waste forms the bulk of all sources of solid waste produced in urban areas. These household wastes are known to have high densities with high moisture content and the organic component of solid waste which properly accounts for about 70% to 90% which tins, cans and paper are properly responsible for about 5% to 10% of the total waste produced. It is therefore important for this study to examine the problems of solid waste management in Teiman community.

Solid waste according to Miller (1998) is anything considered useless, unwanted or discarded material that is not liquid or gas, it is the complete range of material which is no longer considered useful by a particular person, it includes garbage which is animal and vegetable waste resulting from handling, cooking and serving food and rubbish which consists of combustible and non-food waste. Therefore solid waste management is the process of collecting waste from the source of generation, it involves transportation using an appropriate vehicle and treatment to a final disposal site in an unauthorized and environmentally friendly manner” (Environmental and sanitation policy, May 1999).

Teiman is one of the communities that falls under La-Nkwantanang Madina Municipality in the Greater Accra region. It has a population of about 2,730 according to the biometric registration 2012. The inhabitants are mainly farmers. Some of the crops cultivated are cassava, garden eggs, tomatoes and cocoa being the main crop cultivated in the community. Their source of water is pipe-borne and well. In the community 15% of the population are having latrines in their dwelling premises mainly improved pit latrine (VIP) and pit latrine. The settlement of the land is described as undulating, undulating in the sense that part of it is hilly, part also being sloppy and the other side being rugged. There is a river that flows north to south in the western part of the community. The community shares boundaries with Adum Bansa, Kansaweredu (Ahunter) and Daboase.

1.2 Identification of problem

This involves interviews and distribution of questionnaires to 30 females of households selected from Teiman community. Simple random method was employed for the population sampling. The greater advantage of the method is that each member of the population was selected at a random in the study area. The target population was female household heads since women are responsible for the upkeep and general house environment management. A detailed structured questionnaire

was used to collect information on solid waste storage and disposal practices. It was identified that solid waste are dumped indiscriminately in the community. Several reasons could be attributed to this bad practice. During my interrogation with them it was, it was discovered they have one final disposal site at the out sketch of the town. Most of them also do not have standard waste bins for collection and storage of refuse. Instead, sack, polythene bags and pans without covers are uses for collection and storage of refuse. These refuse are transported by children and on the way throw them anywhere and return home. It was notice that they do not have public containers or refuse track in the community which will be used to convey refuse from vantage point to the final disposal site. In conversation with them, majority of them said they know it is not good to dump refuse indiscriminately but as the disposal site is far from them, they do not see why they should not dump refuse at their own undeveloped piece of land behind their dwelling house.

1.2 Aims/ objectives of the study

The main purpose of the study is to access solid waste management in Teiman community.

1.2.1 Specific objectives

- To access the knowledge level of the people on solid waste management.
- To ascertain the importance of solid waste management.
- To know the dangers associated with indiscriminate disposal of solid waste.

1.3 Research questions

Based on the specific objectives outline in section 1.3 the following research questions will be answered;

- What is the knowledge level of the people on management of solid waste

- What are the importance of solid waste management
 - What are the dangers associated with solid waste management
- Significance of the study

The study will serve as a source of relevant information to the Environmental Health and sanitation unit of the district assembly. It may also serve as a review and draw action planes to Health Educate the inhabitation of Teiman community and carry out Health policies on solid waste management

1.4 Limitation to the study

There is no internet café and library in the community which makes it difficult getting access to book and other relevant information for literature review, hence compels the researcher to travel out of the town to get the aforementioned information. Moreover finance is the main problem the researcher encountered since it involves travelling, printing and accessing information.

2.0 Literature Review

2.1 What is the level of knowledge of people on management of solid waste?

According to Dairy Graphic Tuesday 29 January 2008, Ablekpe Boniface spoke seriously about poor solid waste disposal. He said in Accra the metropolis generates about 2000 tons of waste a day but the metropolitan authority is able to collect 1500 tones. Thousand wastes is mainly solid waste and it is disposed off through incineration, recycling, composting and convention to bio-fuel. Adelaide (1995) also observe that disposal site in Accra are situated quite a distance away from inhabitation or sellers, thus one cannot dispute the fact that long distance disposal site discourage inhabitation and sellers from making use of them. They therefore resort to littering their surroundings. Kolavalli and Kerr 2002 said participatory management approach is considered as an alternative to traditional waste management system in which the municipality and the people

assumed co-responsibility for the delivery of solid waste management service. Therefore participation cannot operate in a vacuum and the co-operative between all parties is crucial. Mere manipulation or welcoming people to get involved in solid waste management with no legitimate function or power is no guarantee that optimal benefit or set objective of this arrangement would be achieved. For favorable and durable participator management practices, it is important to make sure that all relevant actors have the role to play in the entire process of solid waste management. On the other hand requires change in peoples attitude and behavior. Jones and Mackean (1983) stated that bins or garbage containers are used for collection of waste in kitchen and other parts of the house. They are made of galvanize steel or strong plastic and should have a lid that fit closely to exclude flies which breed quickly in decomposing rubbish. This lid should behave enough to prevent scavenging dog and cats from time to time and dried out in the sun before being used again, the number of bacterial is kept low (p .115)

According to Songso(1992), said solid waste management has remain one of the intractable problem with Accra Metropolitan Assembly (AMA) this argument support the fact that waste producer s generate large volume of waste but do not disposed of in an acceptable manner. People's attitude towards waste management is questionable. With the establishment of waste management department (WMD) of metropolitan and the municipal Assembly, the public tends to have the view that the department should be solely responsible for managing waste. According to Richie Grace (2009) the disposal of waste by land filling or land spreading is the ultimate fate of all solid wastes, whether they are residential waste collected and transported directly from material recovery facilities (MRFS) Residue from the combustion of solid waste compost or other substance from various solid waste processing facilities. A modern landfill is not a dump, it is an engineered

facility sued for disposing of solid waste, without creating nuisance or hazards to public health such as the breeding of insects and contamination of water. However recycling in many developing countries and countries with economic transition, there are two types of recycling sectors, a formal sector and informal sector. Formal recycling sectors using efficient technology and state of recycling facilities are rare as a recyclable material are manage through various informal sectors with low management alternative such as manual separation of recyclable components, burning of component in open pit to recover previous metals, and dumping of residue into surface water bodies. This informal sector of the economy employs thousands of poor people who are not aware of hazards exposure or hazard that exist in some recyclable materials (Basel convention report paper 2009). Malombe (1993), irregular service rendered to producers of refuse by Municipal council compels them to find ways off disposing off refuse. He observed that, the main method adopted by the producers of refuses is indiscriminate dumping.

This is very practicable or common in Ghana where waste management services are largely insufficient ineffective it is estimated that about 83% of the population dump their refuse in other authorized or unauthorized sites in their neighborhood and due to weak capacity to handle solid waste, in sanitary conditions are created (Benneh, Songsore, Nabila, Amuzu, Tutua and Yangyuorn, 1993) Although these weakness have been attributed to lack of logistics and poor financial management, people attitude towards waste management should not be ignored. the Acting Communications Manager for Zoomlion Ghana Limited in Water and Sanitation Times (April, 2013 edition) called on Ghanaians to change their attitudes towards environmental sanitation. This he says will reduce the perennial flooding in homes and shops in Accra and other urban areas nationwide.

2.2 What are the importance of management of solid waste?

According to MC Cracken, 2005 incineration are design for the destruction of waste and are commonly employed in developing nation who could afford the cost of the burning facility, plus its operation and maintenance. This type of waste disposal is the second largest disposal method in most developed countries and ranks the next to landfills in the United States and the United Kingdom. In the UK, approximately 5% of the household waste 75% of commercial waste and 2% of industrial waste is dispose of through this method. According to World Bank (2000) municipal waste can be used to generate energy. Several technology have been developed that make the processing of municipal solid waste for energy generation clearer and more economical than ever before, including land Fills gas capture, combustion, pyrolysis, and gasification, while older incineration plant emitted high level of pollutants. New technologies have reduced this concern. United states Environmental protection Agency (EPA) regulation in 1995 and 2000 under the clean Air Act have succeeded in reducing emission of dioxins from waste to energy facilities by more than 99% below 1990 levels , while mercury emission have been by over 90% . The EPA noted this in 2003 citing waste to energy as a power source with less environmental impart than almost any other source of electricity. Some countries on the other hand have managed their solid waste through incinerators. Incineration or the controlled burning of waste at high temperatures produce steam and ash. (US Environmental protection Agency, 2009).

According to Richie Grace (2009) disposal of waste by land filling or land spreading is the ultimate fate of all solid wastes, whether they are residential waste collected and transported directly to a landfill site, residential material from material recovery facilities (MRFS), residue from the combustion of the solid waste, compost, or other substance from various solid waste processing

facilities. A modern sanitary landfill is not a dump, it is an engineered facility used for disposing of solid waste on land without creating nuisance or hazards to public health such as the breeding of insects and contamination of water. However recycling in many developing countries and countries with economic interaction, there are two types of recycling sectors, formal and informal sector. Formal recycling sector uses efficient technology .As result recyclable materials are manage through various informal sectors such as manual separation of recyclable components, burning of some component in open pit to recover precious metals and dumping of residue into water bodies. This informal sector the economy employers thousand of poor people who are not aware of hazards of exposure or hazards that are in some recyclable materials (Basal convention report paper 2009).

2.3 What are the dangers associated with indiscriminate disposal of solid waste?

According to Nyang echi (1992), poor refuse disposal encourages fly breeding and may thus promote the transmission of faeco- oral infections. It can also promote disease associated with rats such as dengue fever, leptospirosis, uptospirosis, endemic typhus and rate bite fever. He noted that uncontrolled refuse disposal can obstruct street and drainage channel. Disease risk associated with composting result from;

- The pathogen that are normally present in the raw waste (called primary pathogens) and
- Fungi and actinomycetes that grow during composting (called secondary pathogen).

The primary pathogen such as bacteria, virus, protozoa and helminthes can initiate an infection in healthy individual whiles secondary pathogens usually infect people with debilitate immune system. Despite the importance of adequate solid waste management to the urban environment,

the performance of many city authorities in this respect leaves much to be desired. According to Malombe (1993), irregular service rendered to producers of refuse by Municipal council compels them to find ways of disposing off refuse. He observed that, the main method adopted by the producers of refuses is indiscriminate dumping. This is very practicable or common in Ghana where waste management services are largely insufficient ineffective it is estimated that about 83% of the population dump their refuse in other authorized or unauthorized sites in their neighborhood and due to weak capacity to handle solid waste, in sanitary conditions are created (Benneh, Songsore, Nabila, Amuzu, Tutua and Yangyuorn, 1993) Although these weakness have been attributed to lack of logistics and poor financial management, people attitude towards waste management should not be ignored.

According to the United Nations Conference on Human Settlement report –UNCHS – (1996), One-Third to one-half of solid waste generated within most cities in low and middle income countries of which Ghana is no exception are not collected. They usually end up as illegal dumps on street, open spaces and waste lands.

3.0 Summary, Recommendation and Conclusion

3.1 Summary

This deal with the how the study was conducted and how details collected. It seek the availability and use of solid waste management, the knowledge level of the people on hazard associated with indiscriminate dumping of refuse and the importance of solid waste management. The type of research study design used is descriptive cross sectional survey to obtain feed back to why solid waste management are not properly practiced in manso community. Interview guide, observation

and research used to collect data. Open and close ended question were asked to ascertain what the respondent know about and to come out with their own view and suggestion about the topic under study. Also data was collected from other sources such as books, journal and activities both published and unpublished.

3.2 Conclusion

From the discussion and analysis of data the following conclusions were drawn

- Refuse collected were not sent to disposal site but rather dumped on a portion of undeveloped piece of land
- Most of the respondent have bust bins but these receptacles are not standard
- There are no public waste bins or truck at any point of the town for collection of waste
- Byelaws to punish violates were not enforce
- The people have knowledge on solid waste but feel reluctant to implement them
- There was no zoom lion truck to convey refuse from vantage points to final disposal site
- Most of the drains in the town were not kept clean

3.3 Recommendation

Base on the conclusion drawn for section 1.2 the following recommendations were made.

- The Environmental Health and Sanitation Unit should intensify health education on proper way of managing solid waste.

- The District Assembly should enforce the sanitation byelaws in the district.
- The people should use standard waste bins to prevent flies and cockroaches from getting access to the waste.
- Final disposal site should not be too far from the users
- The Assembly should provide public waste bins or truck at any point of the town for collection of waste
- The street and public places in the community should be kept clean by the help of the Zoom lion workers

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