

**SOLID WASTE MANAGEMENT IN KISUMU MUNICIPALITY  
KISUMU DISTRICT – KENYA**

**BY**

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## Declaration

I Onyango Hezbon Wasonga declare that the work presented in this study is for award of a degree in bachelor of education is original and has never been presented in any other degree currently or any other degree or diploma apart from a few references indicated.

Researcher

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Signature



date

28-Aug 2008

Supervisor

Mr. Tindi Seje

Signature



date

28<sup>th</sup> August 2008

## **Dedication**

This research work is dedicated to my dear wife Hellen, daughter Ashley and son Clyde who constantly encouraged me to study hard to get a degree in education.

## **Acknowledgement**

Foremost, I hereby wish to extend my heartfelt gratitude to Kampala International University Administration for offering me the opportunity to undertake the course in this institution.

I acknowledge the effort of all Kampala International University Lecturers for imparting knowledge, attitude and skills to me in order to serve others effectively.

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Last but not least, I wish to thank my classmates and colleagues in the academic struggle for unity and team work exhibited in the three years of my study.

Above all, to God is the glory for the sound health and stamina to see me through to this end. May He bless you abundantly!

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## **List of acronyms**

AMREF:	Africa Medical Research Foundation.
DDHS:	District Director of Health Services.
GDP:	Gross Domestic Product.
HC:	Health Center.
IMR:	Infant Mortality Rate.
LC:	Local Council.
MOH:	Ministry of Health.
MMR:	Maternal Mortality Rate.
MUK:	Makerere University Kampala.
SLF:	Sanitary Land Fill.
WHO:	World Health Organization.

## Operational definitions

aesthetics:	Concerned with beauty.
amplify:	Increase.
biodegradable:	A substance that can be taken back into Earth naturally (by decay) hence not harmful to the environment.
hazardous:	Dangerous.
incineration:	To destroy something completely by burning.
refuse:	Rubbish and garbage.
waste management:	A process through which wastes produced are stored, collected, transported and finally disposed of.

## **ABSTRACT**

A descriptive cross sectional study was conducted in Kisumu municipality, Kisumu district- Kenya between 20<sup>th</sup> may to 20<sup>th</sup> July, 2008.

The main objective was to determine solid waste in Kisumu municipality. Specifically, the study objectives include;

Identification of methods of solid waste management , to determine the level of awareness on dangers of improper solid waste management in the study area, and to find out the role of local and town council in management of solid wastes.

The data was collected by the use of questionnaires (closed and open ended). From sample size of n=80 who include both males and females of the range 20-60 years. More than half of the respondents (63.75%) knew crude damping as a method of refuse disposal and a few (3.75) knew SLF. Most respondents use crude damping because it is cheap and time saving.

Problems experienced with the use of crude damping include; destruction of plantations and bad smell on damping areas.

All the respondents (100%) were aware of health problems associated with improper solid waste management. The health problems includes; disease outbreak and harboring of rodents and pests.

More than three quarters of respondents (90%) said the local council gives assistance in management of solid wastes. However, all the respondents said that the solid management in the area was inadequate.

# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background information

The amount and type of solid waste produced varies from one community to another. The larger the community, the more the solid waste produced and the greater the need for proper solid waste management. (Lwanga, 2004)

Solid waste refers to all biodegradable and non biodegradable matter for human activities which are no longer needed for use including: garbage, dead animal remains, syringes and needles, ashes, etc. Common waste management in the community can be grouped as follows:- (Lwanga, 2004)

House hold wastes includes; waste food, vegetables, bones, banana peelings, cassava, potatoes, husks, cobs, banana leaves, waste paper, rugs, old clothes, plastic and polythene wastes, broken bottles, glasses, pots, ashes and wastes from animal houses. (Lwanga, 2004)

Garden wastes include; cut grass and weeds, hedge trimming, cut tree branches trade or street wastes include: wastes from house holds if it comes from hotels restaurants and markets. They are found dropped abandoned along streets like car wrecks. (Lwanga, 2004)

Medical wastes includes; placentas, needles, syringes, used bandages, cotton wool, bedding – clothing and expired drugs. (Lwanga, 2004)

Industrial wastes includes; wood sharing and saw dust, waste metals, waste from manufacturing places, slaughter houses and other institutions. (Lwanga, 2004)

Methods used in the solid waste management include crude dumping or open tipping, compositing, incineration, SLF or controlled tipping, and even recycling (Lwanga, 2004). Proper solid waste management is more problematic in urban and pre-urban areas than in the rural areas owing to the greater amount produced and the limited area for disposal.

The amount of solid waste production depends on factors like; number of household establishment, ethnicity and eating habits, season of the year, geographical and administrative zoning of urban areas and social economic status (Lwanga, 2004).

The criteria of solid waste management depends on many factors like; belief of the people about solid wastes, diet of the people and health awareness/sanitation of the target community (Lwanga, 2004).

## **1.2 Problem statement**

Solid waste can become a great health hazard if not properly stored, collected and disposed off. Solid waste management remains a serious problem as far as sanitation is concerned.

World wide diseases related to sanitation are common due to poor solid waste management. These diseases includes: gastro – intestinal and parasitic diseases, leptospirosis; which occur as a result of proliferation of insects and vectors. The risk of injury and poisoning at garbage dumping sites also increased (ATKINSON Report of WHO 1993).

The question of solid waste removal has been amplified in recent years because the world's population; the manufacturers of consumer products and the manufacture of non-biodegradable and biodegradable materials hence all increased. For instance the use of plastic containers which are very difficult to burn and do not decay, has increased extensively in recent years (Dean F. Miller, 2001).

Solid waste removal is a problem in cities and towns, but in also rural communities. Agricultural solid waste, including animal waste and orchard pruning, account for much of the solid waste each year in the United States of America where two billion metric tons of animal waste are produced annually, half generated in livestock and poultry. (Dean F. Miller, 2001).

Parameter disposal of solid waste materials is an ever increasing problem in the world, for instance in the United States, the amount of solid waste thrown away everyday is about 1.8Kgs. per person. Owing to the high population density, large volumes of solid wastes are generated in Kisumu Municipality- Kisumu District.

### **1.3 Justification**

Communicable diseases are still among the main natural health problems, accounting for large numbers of inpatients and out patients in most health facilities. These illnesses are either directly or indirectly related to poor waste management and have been leading causes of most epidemics. However, most of these illnesses could have been cheaply prevented among most residents if waste was properly managed; saving a lot of money that is normally spent on curative services.

In Kisumu Municipality, several activities including carpentry, markets, households, metal workshops, and coffee stores which have generated a lot of wastes. The researcher therefore wanted to find out the residents' methods of waste management, identify the level of awareness of people in the area about proper waste management, so that he could be able to provide formidable solutions to these preventive problems in the study area.

## 1.4 Objectives

### General

To determine solid waste management in Kisumu Municipality - Kisumu District – Kenya

### Specific

1. To identify the methods of solid waste management in Kisumu Municipality Kisumu District – Kenya.
2. To determine the awareness on dangers of improper solid waste management in the study area.
3. To find out the role of local town council in the management of solid wastes.

## **CHAPTER 2**

### **2.0 LITERATURE REVIEW**

#### **2.1 Solid waste management**

Solid waste management involves proper storages of refuse improper containers, proper collection and treatment, proper transportation and finally proper disposal I the designated areas. (Sloan, 1996) In rural areas, the following methods of solid waste disposal commonly practiced: Refuse pit, mulching in the gardens, burning or incineration and crude dumping.

In urban and peri- urban areas where there are local authorities such as townships, municipalities and cities, solid waste disposal is undertaken by the local authorities. The solid wastes are stored in dustbins of approved specification. In some areas large containers are used for temporary storage. Such containers are removed regularly and the solid wastes taken to the appropriate dumping grounds for final disposal. Crude tipping is usually employed but controlled tipping must always be the main aim (Lwanga, 2004)

#### **2.2 Awareness on dangers of improper solid waste management**

Solid waste if not properly managed become a nuisance and posses danger in the following ways.

Poor aesthetics, offensive, smell from decomposing materials, areas of breeding lead to multiplication of disease vectors and rodents, direct transmission of disease from contaminated materials, injuries from sharp objects (Sloan, 1996).

Attraction of stray animals like dogs and cats, to feed on garbage and attraction of people salvaging some materials which may be useful to them, contamination of underground water supplies and seepages, out break and easy spread of diseases like typhoid,



dysentery and intestinal worms, high budget to treat disease out break, poor health status leading to low productivity, poor drainage system due to solid waste blockage of drainage systems (Sloan, 1996).

Proper solid waste disposal is an essential process for any community setting to have a sanitary environment. Man produces solid waste all the time, where he lives works thus the need for individuals to control its production. Production is more in towns as compared to rural areas (Wood, 1981).

Proper solid waste management will help to curb the bad effects related to poor solid waste disposal, hence proper general cleanliness, disappearance of water borne diseases, promotion of general well being of the people and whole some clean air for breathing (Sloan, 1996).

Two of the most persistent environmental issues facing Americans today include; hazardous wastes and growing mountains of garbage. The volume of hazardous waste produced by United States is about 250 million tones annually. Since 1987, the states of United States launched a solid waste reduction program in which house holds were given separate bins in which to put glass, paper and aluminum cans. These are picked up weekly at no cost and recycled (United States Information Agency October, 1991).

Densely populated urban and pre – urban areas in Africa especially have a serious problem of poor sanitation due to accumulation of solid waste. All sorts of wastes are generated due to increased demand of all human requirements (Alfred Merkle et al, 1993).

Increasing quantity of solid wastes is creating serious environments problems in urban areas in developing countries. For instance in Tanzania, urban authorities collect only 245kgs of the estimated solid wastes produced everyday in urban areas.

Improper solid waste disposal causes an imperious ground surface. This in turn affects the peak flow, base flow, ground water replenishment and source of pollution of water. It

increases flow risks as does inappropriate waste disposal. Less than half of the world's households have access to formal garbage collection, even fewer in slum and squatter areas where collection manual stocking and disposal are often inefficient and dumps pollute the environment (Sloan 1993).

## **2.3 Role of Local town council in solid waste management**

In urban and peri-urban areas, where there are townships, municipalities and cities, solid waste disposal is undertaken by these local authorities (Lwanga, 2004).

Municipal authorities manage solid waste within their jurisdiction, which varies from place to place. They give guidelines on how best waste generators can handle their waste products. They monitor the waste production, transport and disposal of industrial wastes even if this task is assigned to a specialized body, which determines different charges for the various categories of wastes (Rukumga, 2001).

World conventions and conferences on environmental issues have been held in Stockholm (1972), Basel (1993), Lome (1989), Rio de Janeiro (1992), and most of these conventions address issues of hazardous solid wastes, waste management and principles adopted accordingly by various countries for example Sweden Adherence to agenda 21 of the Earth summit (Rio de Janeiro), which states that every signatory must participate in the "Global Partnership for Development" (Sloan, 1996).

The system of private sector involvement in solid waste management was critically established as far back as 18<sup>th</sup> century when the public health ordinance was enacted as a result of deteriorated urban environment in terms of health and welfare of the people. Management of solid waste by the private sector in developing countries was always done at local level especially at the source of wastes.

Due to increasing population in urban areas, land has become scarce and health conditions continued to worsen until when public health ordinance was introduced to

different cities in the developing world that made the management of wastes central (Cointreau, 1989).

According to Danhoe (1989) in his comprehensive book on privatization in industrialized countries, the key are the absence of barriers to entry, the service involves low economies of scale, technological simplicity and moderate investments costs. It is feasible for local firms with modest financial resources to enter into the business of solid waste collection. A study of private sector participation in Latin America showed that there are virtually no barriers to entry. In Seoul, Korea each of which is collected by 85 private contractors each of which is a relatively small firm with an average of 6 vehicles. In Lagos, Nigeria there are nearly 100 private contractors almost with only 1 or 2 vehicles and less than 10 with more than 5 vehicles.

## **2.4 Constraints of solid waste management by local council**

NEMA condemns irresponsible dumping on streets, open space and road sides hence easy for municipal councils to handle solid wastes. Mixing of solid and liquid waste makes it hard for municipal councils to handle and reclamate the solid wastes (NEMA, 2001).

Money availability being inadequate, storage, collection and disposal of refuse is expensive for the health department or town engineer, which explains the improper management of solid waste (Wood et al, 1981).

Low work motivation due to low salaries and lack of supervision has greatly influenced the deterioration of sanitation coverage (Atkinson, 1989).

One of the problems of communal storage is that of balancing storage volume which is the function of population density against an acceptable walking distance for residents. It is reasonable to assume that unless sites are spaced at a reasonable distance say about 50m apart, people will be tempted to dispose off their wastes in unauthorized locations which are near their homes (Off, 1984).

## **CHAPTER THREE**

### **3.0 METHODS**

#### **3.1 Study design**

It was a descriptive cross- sectional study designed to identify and determine the factors affecting solid waste management among residents of Kisumu Municipality- Kisumu District – Kenya. The study was carried out from 20<sup>th</sup> may to 20<sup>th</sup> July, 2008.

#### **3.2 Data collection**

Questionnaires (closed and open-ended) were employed and conducted in both English and Dholuo with the help of an interpreter for respondents who could not understand English language. Another questionnaire was designed for the local council leaders.

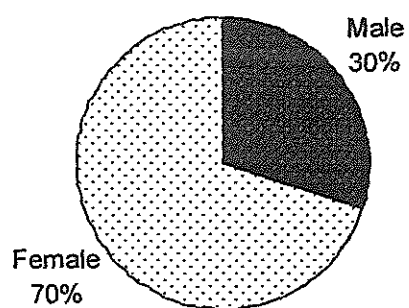
#### **3.3 Data analysis and presentation**

The data collection, procession and analysis were done manually. The calculations were done by the use of calculator and information was presented in form of tables, graphs and charts.

#### **3.4 Study limitations**

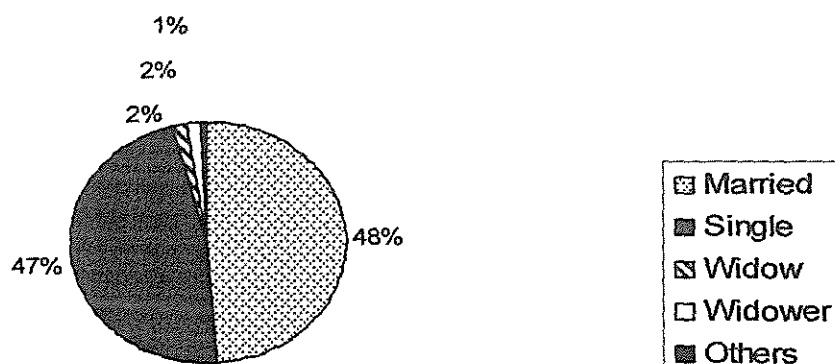
The difficulties encountered by the researcher during the study included the following; shortage of time considering the fact that the researcher had a lot of class work in addition; due to illiteracy, some respondents did not have any information to give, some refused to comment as they thought it was legally binding; financial constraints, since the researcher was a self sponsored student.

Proportion of respondents by gender (n = 80)



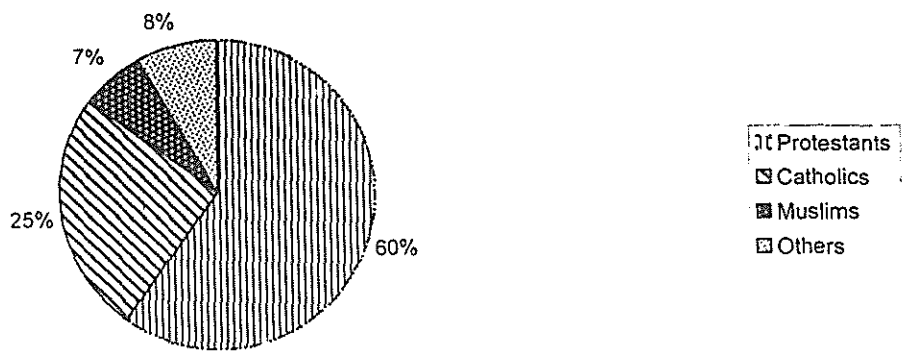
More than half of respondents (70%) were females and males were (30%).

Figure 1: Proportion of respondents by marital status (n = 80)



Half of the respondents 40 (48%) were married and 38 (47%) were single.

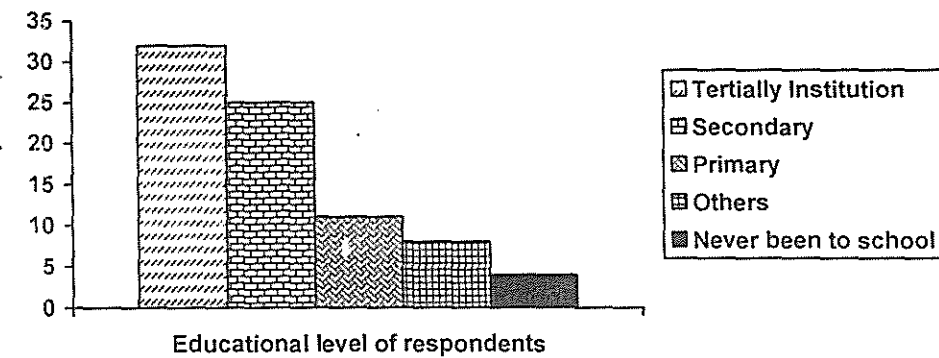
Figure 2: Proportion of respondents by religion



More than three quarters of the respondents 68(85%) were Christians while 12(15%) were non-Christians.

### Educational level of respondents

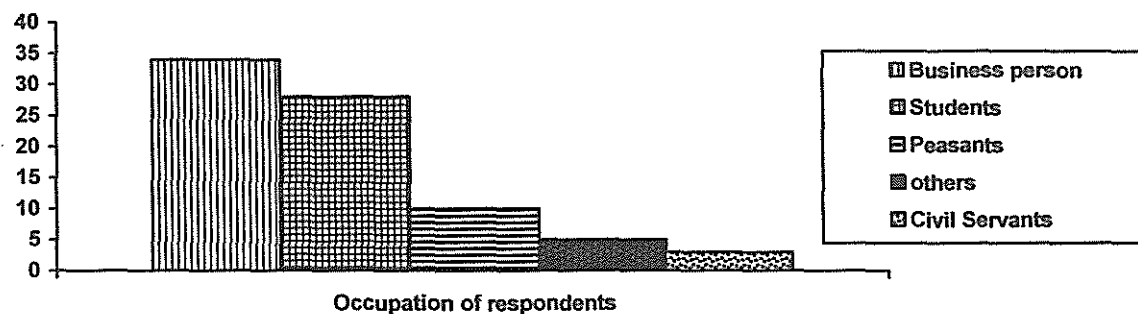
Figure 3: Distribution of respondents by Educational level, n = 80



More than quarter of respondents 76(95%) were educated. Those of secondary level of education were 32 (40%), others, 8(10%) included individuals who had attended adult literacy classes. The non-educated 4(5%) were the least.

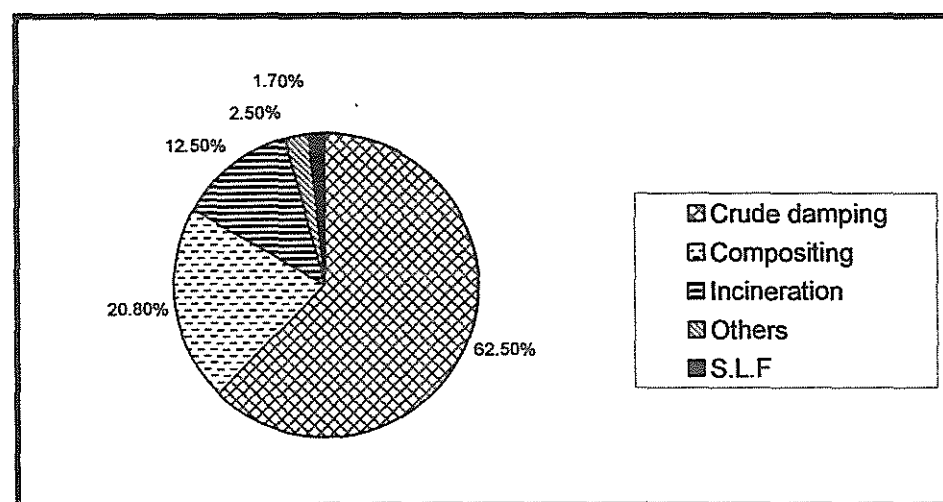
### Occupation of the respondents

Figure 3: Distribution of respondents by occupation n= 80



The majority of respondents (42.5%) were business people and the least number of respondents, (3%) were civil servants. Others, (6%) included petrol station attendants, shop attendants, drivers, nurses in private clinics, lecturers in private university and casual laborers.

**Figure 4: Distribution of methods used by respondents (n= 80)**



More than a half of respondents (62%) knew crude damping, 20.8% compositing, 12.5% incineration, 1.7% S.L.F. and 2.5% knew of other methods.

**Table 2: Distribution of methods used by respondents (n= 80)**

Method	Frequency	Percentages (%)
--------	-----------	-----------------



Crude dumping	53	66.25
Compositing	19	23.75
Incineration	8	10.00
<b>Total</b>	<b>80</b>	<b>100.0</b>

More than half of respondents, (66.25%) used crude dumping or open-tipping while 23.75% used incineration, as in table 2.

### Reasons for use of the method of solid waste disposal

Table 3: Distribution of methods used by respondents according to their reasons (n = 80).

Method	Reasons	Frequency	Percentages (%)
Crude dumping	Cheap and time saving	10	12.5
	Easy for use	34	42.5
	Lack of facility set appropriate method	9	11.25
Compositing	Is the only known method	1	1.25
	Easy to use	7	8.75
	Refuse, rots and enriches the soil	3	3.75
	Availability of enough space	5	6.25
	Piles of refuse do not look smart	2	2.5
Incineration	Refuse does not heap together	8	10
<b>Total</b>		<b>80</b>	<b>100</b>

More than half of respondents (66.25%) used crude dumping, (22.5%) of those who were using crude dumping used because it is easy to use while all respondents, (10%) used incineration did so because refuse does not heap together.

### Health problems associated with solid waste disposal

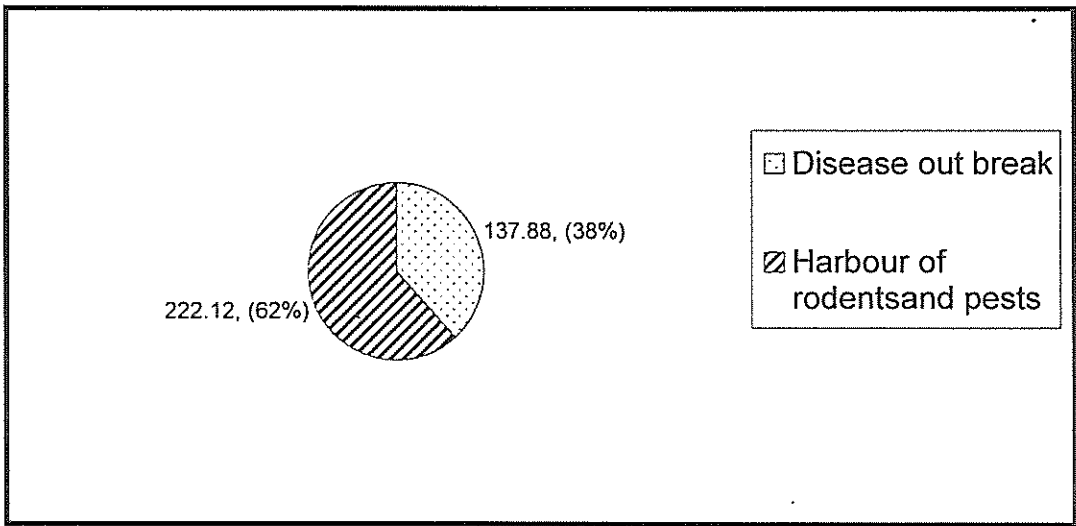
More than half of respondents (66.25%) used crude dumping, (22.5%) of those who were using crude dumping used because it is easy to use while all respondents, (10%) used incineration did so because refuse does not heap together.

**Health problems associated with solid waste disposal**

All the respondents agreed that there were some health problems associated with improper solid waste disposal in the area.

**Health problems associated with improper solid waste disposal**

Figure 5: Proportion of health problems associated with improper solid waste disposal (n = 80)

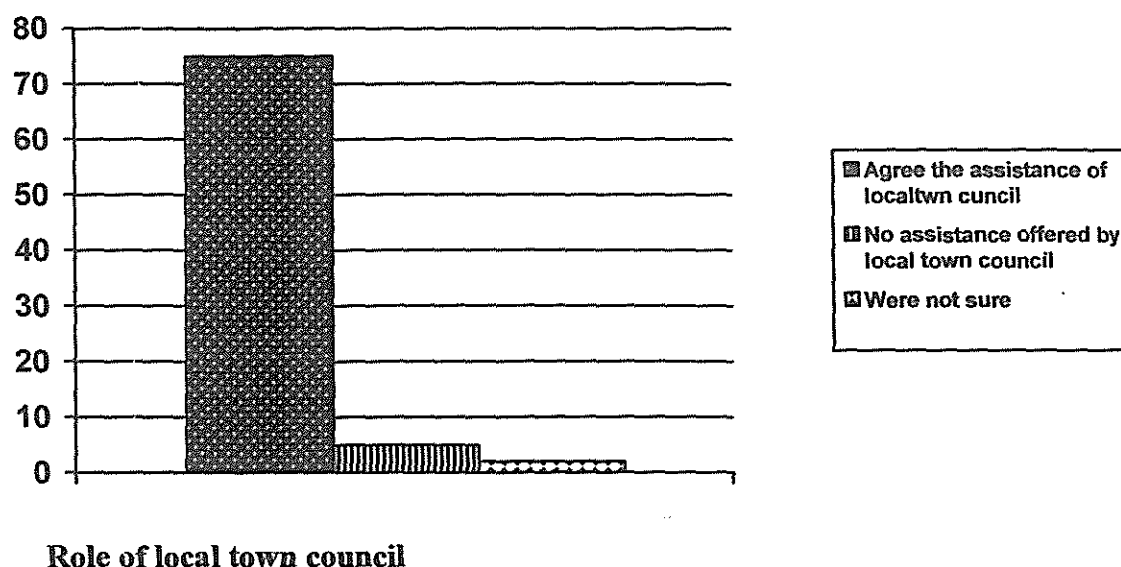


More than half of respondents are aware that disease outbreaks was the main problem (61.5%) and (38.3%) responded that the main problem was harbor of pests especially rodents.

**Role of local town council in management of solid waste**

More than three quarters of the respondents, (91%) agreed that the local town council gives assistance in management of solid waste while (6.25%) responded that there is no assistance given and (2.75%) were not sure.

Figure 6: Role of local town council in management of solid waste (n = 80).



### Assistance given by local town council in management of solid waste

Table 4: Assistance given by the local town council in management of solid waste (n = 80)

Assistance	Frequency	Percentage (%)
Provide disposal of solid wastes	15	18.75
Provide storage, collection and transportation of solid wastes	58	72.5
Construction of communal disposal sites	2	2.5
Others	5	6.25
<b>Total</b>	<b>80</b>	<b>100</b>

More than half of the respondents, (72.5%) accepted that the local town council provides storage, collection and transportation of solid waste while the least (2.5%) the council constructs communal disposal sites for sold waste. Others (6.25%) responded that local town council provides skips for disposal of solid waste.

## CHAPTER FIVE

### 5.0 DISCUSSION AND CONCLUSION

#### 5.1 Discussion

##### Demographic Data

A sample of 80 respondents, who were adults in the age group 20 – 60 years answered the equations. More than half of the respondents (68.75%) were in the age group of 20 -30 years. However, the age seemed not to affect respondents' knowledge on solid waste disposal because most of the respondents in this age group, (66.25%), mainly used crude dumping as a method of solid waste disposal. The reasons advanced for using crude dumping were that it is cheap and time saving and lack of any other appropriate method.

Half of respondents, (48%) were married, (47%) were single, (2%) were widows, (1%) was a widower and others (2%) were both female divorcees.

More than three quarters of respondents, (95%) were educated. Those of secondary level of education, (40%) predominated, (31.25%) had tertiary level of education, (6%) included individuals who had attended adult literacy classes.

The majority of respondents (42.5%) were business people and the least number of respondents, (3.75%) were civil servants. Others (6%) included petrol station attendants, shop attendants, drivers, nurses in private clinics, lecturers at Kampala International University and casual laborers.

The occupation of the respondents was found to affect solid waste disposal used in that, business-people and students mostly used crude dumping because it is easy to use, cheap, time saving and lack of set facility for solid waste disposal while civil servants mainly used composting and incineration. This has contributed to the increased number of solid waste piles especially due to crude dumping.

## **Methods of solid waste management**

More than half respondents (66.25%) used crude dumping (22.5%) knew composting, 8 (10%) knew incineration, others (2.5%) knew about disposal in skips. However, crude dumping was being used by majority, (66.25%) which had contributed to heaps of uncollected solid waste over the years. Some of the solid wastes are hazardous to human health.

## **Awareness of dangers of improper waste management**

All the respondents agreed that there are some health problems associated with improper management. More than half of the respondents, (61.07%) wrote disease outbreak was the main problem and (38.8%) wrote that the main problem was harbor of rodents and pests.

In addition to the problems above there was medical waste at the dumping site. This contradicts the aim of Uganda MOH to increase awareness in the population on the relationship between the health and improper solid waste management to improve sanitary living conditions.

## **Role of town council in management of solid waste**

More than three quarters of the respondents, (91%) agreed that the local town council gives assistance in management of solid waste while (6.25%) responded that there is no assistance given and (2.75%) were not sure.

According to (91.25%) of the respondents, storage carried out by the council include; providing storage, collection and transportation of solid waste, provision of skips of solid waste disposal and construction of communal disposal sites. In addition to the above, the town council employs some people to empty the skips on rare occasions.

## Conclusions

Based on the study findings, the following conclusions are made;

Most of the respondents were not aware of the methods of solid waste disposal and have resorted to use of crude dumping which has risky implications.

There was no provision of adequate safer methods of solid waste disposal.

There are little efforts put in place by the community members to safely manage solid waste generated.

The town council has not put adequate means in place to make sure solid waste is properly disposed off.

Community members have not been fully sensitized on how to handle and safely dispose waste.

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## APPENDICES

### APPENDIX 1

#### SOLID WASTE MANAGEMENT IN KISUMU MUNICIPALITY

#### KISUMU DISTRICT – KENYA

Greetings, I am Onyango Hezbon Wasonga, a third year taking bachelor of education in early childhood and primary education at Kampala International University. I am out to research on factors affecting solid waste management in your area. Your cooperation will be highly appreciated, kept confidential and used solely for research purposes.

#### **A PROFILE**

1. Age of the student (years).....
2. Sex of respondents.....
3. Tribe of respondents.....
4. Marital status of the respondents;  
(a) Married ☐ (b) Single ☐ (c) Widow ☐ (d) Widower ☐  
Others (specify).....
5. Religion of the respondents;  
(a) Catholics ☐ (b) Protestant ☐ (c) Muslim ☐  
(d) Others (specify).....
6. Educational level  
(a) Primary ☐ (b) Secondary ☐ (c) Tertiary institution ☐  
(d) Never been to school ☐
7. Occupation of respondents  
(a) Business person ☐ (b) Civil servant ☐ (c) Peasant ☐  
(D) Others (specify)



## B. METHODS OF SOLID WASTE MANAGEMENT

8. What methods of solid waste disposal do you know?

(a) Crude Dumping/Open tipping ☐ (b) Controlled Tipping (SLF) ☐

(c) Incineration (Burning) ☐ (d) Composting ☐

(e) Others (Specify).....

9. Which methods of solid disposal do you use? .....

.....

10. Why do you use this method? .....

.....

11. Are there any problems with the method of waste disposal mentioned above?

(a). Yes ☐ (b) No ☐ (c). Not sure ☐

12. If yes, what are the problems? .....

.....

13. What methods do other residents use? .....

14. What is your recommendation on solid waste management in this area.....

15. What is your opinion on solid waste management in this area?

(a). Good ☐ (b). Inadequate ☐ (c). Poor ☐

## C. AWARENESS ON DANGERS OF IMPROPER SOLID WASTE MANAGEMENT

16. Do you think there are some health problems associated with the methods of solid waste disposal in your area?

(a) Yes ☐ (b) No ☐ (c) Not sure ☐

17. If yes, what do you think are the health problems?

(a) Harbor rodents and pests ☐ (b) Disease outbreak ☐

(c) Not sure ☐

(d) Others (Specify).....

18. Has anybody taught you about the dangers of improper solid waste management?

(a) Yes ☐ (b) No ☐ (c) Not sure ☐

19. If yes, who taught you?

(a) Health personnel ☐ (b) Local council ☐ (c) Unknown official ☐

Others (Specify).....

D. ROLE OF LOCAL COUNCIL IN MANAGEMENT OF SOLID WASTE

20. Does the town council give any assistance in solid waste management?

(a) Yes ☐ (b) No ☐ (c) Not sure ☐

21. If yes, what assistance is given?

a. Provides disposal of solid waste ☐

b. Provides for storage, collection and transportation of solid waste ☐

c. Construction of communal Disposal sites ☐

d. Others (Specify).....

## APPENDIX II

### E. CONSTRAINTS FACED BY LOCAL TOWN COUNCIL IN THE MANAGEMENT OF SOLID WASTES.

Greetings, I am Onyango Hezbon Wasonga, a third year taking bachelor of education in early childhood and primary education at Kampala International University. I am out to research on factors affecting solid waste management in your area. Your cooperation will be highly appreciated, kept confidential and used solely for research purposes.

#### A **PROFILE**

22 Age of the student (years).....

23 Sex of respondents.....

24 Tribe of respondents.....

25 Marital status of the respondents;

(b) Married ☐ (b) Single ☐ (c) Widow ☐ (d) Widower ☐

Others (specify).....

26 Religion of the respondents;

(b) Catholics ☐ (b) Protestant ☐ (c) Muslim ☐

(d) Others (specify).....

27. Educational level

(a) Primary ☐ (b) Secondary ☐ (c) Tertiary institution ☐

(d) Never been to school ☐

28. Does the council participate in solid waste management?

(a) Yes ☐ (b) No ☐ (c) Not sure ☐

29. If yes, what activities does the council do as far as solid waste management is concerned?.....

30. What constraints does the town council face in carrying out these activities?

(a) Lack of enough funds ☐

(b) Lack of co-operation from community members ☐

(c) Inadequate staffing ☐

- (d) Lack of appropriate equipment like tractors ☐
- (e) Others (Specify).....
31. How do you overcome the above constraint? .....
32. What is the goal of the town council as far as solid waste management is concerned? .....
33. What have been put in place to attain the goal? .....
34. Does the government assist the town council in solid waste management?  
 (a) Yes ☐ (a) No ☐
35. If yes, what assistance is given? .....
36. If no, why? .....
37. Is there any other organization involved in management of solid wastes?  
 (a) Yes ☐ (b) No ☐ (c) Not sure ☐
38. What are the activities of this private organization as far as solid waste management is concerned?  
 (a) Pay collectors of solid waste ☐  
 (b) Providing disposal bins ☐  
 (c) Construction of communal disposal bins ☐  
 (d) Provides trucks of solid waste transportation ☐  
 (e) Other (Specify).....
39. What is the reaction of the residents about the issue? .....

## APPENDIX IV

### BUDGET EXPENDITURE

Particulars	Quantity	Cost (Ushs)
Ball pens	200 pcs @ Ushs 50	10,000
Writing Pens	5 pens @ Ushs 200	1,000
Coloured pencils	1pc	1,000
Whiskettes	5 @ Ushs 1,000	5,000
Visit to Ishaka-Bushenyi town council office	Return visit	40,000
Interpreters' / Assistants motivation fee	2	6,000
Refreshments	10 soft drinks	5,000
Visit to MUK Library	Return visit	2,000
Printing charges	65 pages @ Ushs 250	16,250
Typing Charges	65 pages @ Ushs. 400	26,000
Photocopying charges	68 pages @ Ushs 50x2	6,800
Binding services	1	1,300
<b>TOTAL</b>		<b>120,350.</b>



Kampala International University  
**Institute of Continuing and Distance Education**

P. O Box 20000  
Ggaba Road, Kansanga, Kampala, Uganda

DATE: 21 APRIL 2008

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: INTRODUCTION LETTER FOR MRS/MS/MR. ONYANGO H. WASONGA

The above named is our student of Institute of Open and Distance Learning (IODL), pursuing a Diploma/ Bachelors degree in ..... in Education.

He/she wishes to carry a research in your organization on:


SOLID WASTE MANAGEMENT IN KISUMU  
MUNICIPALITY - KISUMU DISTRICT KENYA

The research is a requirement for the award of a Diploma/ Bachelors degree in education.

We shall appreciate your assistance in this regard.

Thank you.

Yours Sincerely,

  
Prof. E. O. Fagbamiye  
Director Institute of Open and Distance Learning

