Master thesis

Public Participation in Solid Waste Management: Challenges and Prospects. A case of Kira Town Council, Uganda

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The master thesis is carried out as a part of the education at the University of Agder and is therefore approved as such. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

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Abstract

Solid waste disposal and management is both an urban and rural problem. Every person is a potential generator of waste and thus a contributor to this problem. To generate waste is one thing, the type of waste generated is another and yet also the way the generated waste is managed or disposed of is quite a different issue.
This study was carried out in Kira Town Council which is located within Wakiso District in Central Uganda, in Buganda Region.
The main objective of this study was to explore the level of public participation in solid waste management in Kira Town Council, in light of the challenges and prospects for future management.
This study used a combination of both quantitative and qualitative methodologies to research. It therefore draws on the cross-sectional study design as explained by Bryman (2004) and also on aspects of a phenomenological research design as discussed by Blanche et al., (2006).
The findings revealed that the majority proportion of the public in Kira Town Council exhibited concern and an amount of sensitivity about solid waste though sorting of solid waste is less adopted. The level of item reuse is similarly low in Kira Town Council and the people still think that they cannot do anything to reduce the volume of solid waste they generate. There are challenges of limited resources to manage the solid waste and illegal dumping in Kira Town Council. However, there are plans for formal disposal facilities, use of the legal instrument and awareness-raising as a way to deal with the challenges.
Therefore, because the level of public participation in solid waste management at present in Kira Town Council is low, the best way to start dealing with the problem is for the Town Council authorities to show the people that they are worth by involving them in the initial planning process.

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List of Abbreviations and Acronyms

AD	After Death
CET	Centre for Ecological Technology
CIA	Criminal Investigation Agency
DP	Democratic Party
ICC	International Criminal Court
KCC	Kampala City Council
KSU	Kansas State University
KTC	Kira Town Council
KY	Kabaka Yekka
NEMA	National Environmental Management Authority
NGOs	Non Governmental Organisations
NRA	National Resistance Army
NRA/M	National Resistance Army/Movement
NRM	National resistance Movement
PSSP	Purpose, Structure, State and Performance
RCs	Resistance Councils
RDC	Resident District Commissioner
UBOS	Uganda Bureau of Statistics
UNEP	United Nations Environmental Program
UPC	Uganda People's Congress
UPM	Uganda Patriotic Movement
USA	United States of America
USEPA	United States Environmental Protection Agency

Chapter 1: Introduction

1.1 Background

Solid waste disposal and management is both an urban and rural problem. Every person is a potential generator of waste and thus a contributor to this problem. To generate waste is one thing, the type of waste generated is another and yet also the way the generated waste is managed or disposed of is quite a different issue. It has more often than not turned out that the rate at which solid waste is generated is far higher than the capacity to responsibly manage this waste. Waste is generated by, and from different sectors; domestic, commercial, industry and others and in many instances; the waste management responsibility has been left to the government or administrative authorities.
There is growing consensus that the immediate stakeholders in the issue of solid waste (the generators of waste), in this case the residents need to join hands with the authorities in dealing with this problem that has far-reaching environmental and human health effects.

Uganda is one of the countries in the world that rank low in urbanization but this notwithstanding, the urban population is growing. Actually, the urban population is growing faster (3.7%) than the national average (3.4%). The implication of this growth is that pollution issues such as solid waste management and the provision of adequate safe water alongside acceptable levels of sanitation coverage will need closer attention (National Environment Management Authority (NEMA), 2005). As Uganda's urban areas increase in number and expand in geographical and population size, solid waste is swiftly emerging as a significant issue in environmental management. Although there are established guidelines for solid waste management, there is need for clear legislation and preferably a national policy specifically on solid waste management (NEMA, 2005).

Particularly, waste volumes have increased in urban area due to the growing urban population, concentration of industries, consumption of residents, and inadequate finance and facilities to manage waste collection and disposal (NEMA 2007:276). This state of affairs has led to the volume of solid waste generated to go beyond what the available facilities can accommodate.

One of the major factors that have contributed to poor waste collection and management in Uganda is limited community participation in solid waste management (NEMA, 2007). The limited participation has budded from co-ordination and collaboration problems that exist among the three stakeholders in solid waste management- the communities, the public (government) and the private sectors (NEMA, 2007).
This study seeks to explore public participation in solid waste management in Kira Town Council, Wakiso District in Uganda. The current level of participation as well as whether and what, can be

done to improve public participation in solid waste management are concerns addressed by this study.

1.2 Area of Study

This study was carried out in Kira Town Council which is located within Wakiso District in Central Uganda, in Buganda Region. Wakiso District surrounds Kampala City which is the capital city of Uganda. The Town Council is proximate to Kampala on the eastern side. Due to its proximity to the Kampala, several people still struggle to tell the boundary between Kampala and Wakiso districts and Kira Town Council in particular. The continuous expansion and development of the city of Kampala has been responsible for such slight confusion among some people. However, politically and administratively the boundaries are very clear.

Kira Town Council is dominantly a residential area with a large proportion of people residing there but commutes to work in Kampala where they are employed. The town Council is made up of six wards; Kira, Kimwanyi, Kyaliwajala, Kireka, Kirinya and Bweyogerere. Kireka and Bweyogerere are fast growing townships in the Town Council probably because of their location along the Kampala-Jinja highway. Kira Town Council has some peculiar characteristics that make it special in contemporary Uganda.

Bweyogerere ward hosts the national sports stadium- Mandela National stadium. This facility attracts several events that bring people from all over the country at certain times of the year. Very important national football matches are played in this stadium, national end-of-year overnight prayers, and Religious crusades by international preachers, national political party delegates conferences are usually held in Mandela National stadium and the recent 2006 presidential and parliamentary election vote-counting was done in the same stadium. These and other functions hosted there, present an occasional flux of people into the Town Council.

Kireka ward hosts one of the biggest residential housing estates (Naalya) in the country and data from the Wakiso District Planning Unit indicates that Kireka has the biggest population among all the wards of Kira Town Council. There is another relatively smaller private housing estate (Akright housing estate). Kireka also hosts one of the King of Buganda's palaces on Kireka hill.

Facilities like housing estates and the National stadium have attracted development in Kira Town council since a bigger population translates into higher demand for products. Indeed Kira Town Council has seen a number of businesses spring up in response to the demand. Hotels, guest houses, bars and restaurants have sprung up to meet the occasional demand for their services when the stadium hosts functions. The permanent resident population which is on the increase due to the expansion of the city of Kampala has attracted the establishment of such businesses as supermarkets, retail shops, food markets and recreational centres.

The irony in this development is that the volume of solid waste generated from the several development projects and occupational activities in the Town Council is increasing enormously. It has consequently become one of the issues of concern to the Town Council authority as well as the public who reside and/or work within the Town Council. According to the *Kira Town Council Three year Development Plan 2008/09-2010/11*, poor waste management and waste disposal is identified as one of the environmental threats. This is attributed to the increased urbanisation without proper planning, use of polythene bags, which are non-bio-degradable and inadequate garbage collection points. The plan also identifies that 60% of the residents dispose of their solid waste by burning while only 29% use waste bins. However, not all the solid waste is properly disposed of.

I have been a resident of Kira Town council for the last five years and over this time I have been observing the numerous developments taking place. I have particularly been concerned about the way people in the Town Council dispose of waste. As a student of Development management, I have been motivated to make my contribution as a resident of Kira Town Council, by way of studying the solid waste management issue with particular reference to public participation. It is my hope that the findings of this study will give insight to the concerned parties to work more effective on the management of solid waste in conformity to sustainable development practices.

1.3 Research objectives

1.3.1 General Objective

The main objective of this study is to explore the level of public participation in solid waste management in Kira Town Council, in light of the challenges and prospects for future management. In doing so, the current level of public participation is examined and what more the public can contribute in solid waste management, in the future.

1.3.2 Specific objectives

- To establish the role that the public plays in solid waste management in Kira Town Council and the different ways through which this participation is manifested.
- To find out what more the public think they can do apart from what they are currently doing, for better solid waste management in the future
- To explore the challenges faced by the Kira Town Council authorities in involving the public in solid waste management.
- To establish people's views on what may stand in the way of public participation in solid waste management in Kira Town Council
- To establish whether there are any plans in place by the Town Council, to improve public participation for better solid waste management in Kira Town Council.

- To identify what the public thinks should be done by Kira Town Council to ensure that the public play their part in solid waste management for better practices.

1.3.3 Research Questions

In this study therefore, I employ four broad research questions below;

1. What role does the public play in solid waste management in Kira Town Council?
2. What role can the public play for better solid waste management in Kira Town Council?
3. What are the challenges of involving the public in solid waste management in Kira Town Council?
4. What mechanisms are in place to improve public participation in solid waste management in Kira Town Council?

1.4 Methodology in Brief

This study uses a combination of both quantitative and qualitative methodologies to research. It therefore draws on the cross-sectional study design as explained by Bryman (2004) and also on aspects of a phenomenological research design as discussed by Blanche et al., (2006). I chose a cross-sectional/phenomenological design for this study basing on the kind of data that was required to answer the research questions. I therefore divided the research questions in such a way that the first two would be handled using quantitative data collection techniques while for the last two, data would be collected qualitatively to give descriptive information to support the quantitative data.

Out of the six wards in Kira Town Council, three wards were selected by simple random sampling method. Data was consequently collected from Kirinya, Kireka and Kyaliwajala wards. From these wards, a total of 101 respondents (from the public) were conveniently sampled and interviewed by structure interview method. Thirty other respondents from the public were interviewed by semi-structured interview and at the same time observed. Three focus groups were held, with private-individual solid waste collectors/service providers. Two officials from the town council were also interviewed by semi-structured interview. Photos were also taken as observations were being made in due course.

The quantitative data was processed and analysed using SPSS computer software to produce frequency tables and descriptive statistics while the qualitative data transcribed and processed in themes and was presented and discussed in light of the theoretical framework.

1.5 Thesis outline

From the introduction given in this chapter, this thesis has four aditional chapters. Chapter 2, which follows here after presents a review of related literature following through the different themes reflected from the research questions and at the end of the chapter, a theoretical framework to inform the structure of data analysis and discussion, is given. Chapter 3 presents the empirical findings while chapter 4 presents a discussion of the empirical findings in relation to the theoretical framework. The last chapter of the thesis gives the conclusions drawn from the discussion of the finding and also outlines some recommendations.

Chapter 2: Literature review and Theoretical framework

In this chapter, I present the literature review and also draw out the theoretical framework for analysis of the findings. I will start by introducing some key concepts and terminologies that are relevant to this thesis, then a review of the related literature. The review of related literature has three subsections; the first presents a general literature related to solid waste management and public participation with particular inclination to the research questions. In the second subsection I review literature on the study area beginning with the country data and down to Kira Town Council where the research was conducted. In the last subsection I present waste management in the Ugandan context. The research questions are presented thereafter and then the theoretical framework for this thesis follows lastly in this chapter.

2.1 Key Concepts and Terminologies

In this section, a number of concepts and terminologies are explained. These include: waste and a few types of waste, waste management and public participation.

2.1.1 Waste

UNEP defined wastes as substances or objects, which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law. Waste also refers to "an item, material or substance you as an individual consider useless at a given time and place" (Mugambwa, 2009:1). Waste is a dynamic concept which can be defined in different ways (Pongrácz, 2009:93). Pongrácz introduces an innovative description of waste in what she refers to as "object-oriented modelling language, PSSP. PSSP stands for purpose, structure, state and performance, which are object attributes" (Pongrácz, 2009:93). In most cases, the definition of waste depends on the type or category of waste under consideration. Some of the dominant types of waste include; municipal waste, solid waste, hazardous waste and, electronic waste. I will define municipal and solid waste, which are relevant to this study.

Municipal waste

Cointreau-Levine and Coad (2000:4) take municipal waste to refer "to wastes from domestic, commercial, institutional, municipal and industrial sources, but excluding excreta, except when it is mixed with solid waste". It is however necessary to note that in developing countries, many a times, it becomes difficult or even impractical to put a line between excreta and solid waste. In many instances, solid waste mixes with excreta to the extent of being potentially hazardous to human health.

Solid Waste

Solid waste, also known as garbage is not very different from municipal waste. This study takes on the definition by the State of the Environment Report for Uganda (NEMA, 2007:275) that defines solid waste as "organic and inorganic waste materials produced by households, commercial, institutional and industrial activities that have lost value in the sight of the initial user". I found it prudent to adopt a definition and meaning of solid waste that is in the context of the area of study.

2.1.2 (Solid) Waste Management

Waste management refers to the "collection, transportation, processing, recycling or disposal of waste materials"(Mugambwa, 2009). It ought to be appreciated that waste management practices differ for developed and developing countries, for urban and rural areas, and for residential and industrial producers. The volumes and types of waste in these different sources of waste justify the difference in the waste management practices. It therefore implies that the methods appropriate in one setting may be incompatible within another setting. It is imperative to take into consideration the context of the waste source, to arrive at an appropriate method.

2.1.3 Public Participation

According to the Oxford English Dictionary, participation is "the action or fact of partaking, having or forming a part of". Participation as a concept came to the lime light as a result of rising advocacy for the end of the top-down strategies to development action, in favour of greater inclusion of the subjects of the development programs. Oakley and Marsden (1984) agree that participation is a process and not just a solid product; however, they are also quick to note that it is very difficult to establish a universal definition for participation. This indicates that different scholars, authors and organizations define and understand participation differently. Their definitions and understanding is often guided by the orientation and intent of the individual or organization defining participation, given the circumstances.

Although participation is widely known to be a free process, in some instances it practically requires that people are dragged into getting involved in operations that are of no interest to them, but they are coerced in the name of participation. Oakley and Marsden (1984), look at participation as a concept that is closely linked to rural development. They also explain that very often, participation is seen as some kind of ingredient that can be added to the recipe for rural development so that the results from the development project are palatable (Oakley and Marsden, 1984:17). The conception that participation is an important ingredient in development presents a temptation to force participation at any cost. However, it is perhaps helpful to note that there is what Oakley and Marsden refer to as authentic participation, which is described as a result of a

bottom-up process of development. The concept of participation requires clear interpretation and careful comprehension before it is adopted for any given purpose.

Oakley and Marsden (1984) try to explain the different interpretations of the concept of participation by use of four "terms", that is; collaboration-input-sponsorship, community development, organization, and empowering. These terms are used to explain the different orientations in the participation discourse, and the different terms represent different intentions or purposes for which participation is adopted by the implementers.

According to Oakley and Marsden (1984), participation can be looked at as a means as much as it can be looked at as an end in itself. Participation can be perceived as a means if it is adopted as a method of achieving success in a development program. It can also be an end in itself if it is seen as "a process the outcome of which is meaningful participation" (Oakley and Marsden, 1984:27). In contemporary practice of participation, the former perception is more prominent. Participation is adopted as a catalyst to success of a beneficial undertaking in a community.

(Barnes, 2005), advises that there is no need to look for a model of participation that is a one-size-fits-all; thus this study takes on the perspective of participation as a means.

2.2 Review of related literature

This section contains five divisions, the first reviews Sustainable Development as a means and as an end in itself, the second presents waste management practices, the third presents an integrated strategy to solid waste management, followed by how the strategy can work and the last presents in detail the significance of public participation in solid waste management.

2.2.1 Sustainable Development as a means and an end in itself

In this 21st century, concern about sustainable development is at the helm of most contemporary development debates/discussions and project undertakings. Most conventionally, sustainable development is understood as that development that is mindful of the future generations' needs while resources are used to meet the needs of the present generation (Brundtland, 1987). Several issues arise when we start talking about sustainable development. Most of these issues relate to the "how" of sustainable development. Sustainable development has continuously become a prominent phrase in the development discourse and has been impactful in changing the orientation and practice of development (Adams, 2001). Its prominence, however, has also bred varying meanings and definitions of the concept.

I personally conceive sustainable development as a concept with two faces, on one hand as a means and on the other as an end in itself. Sustainable development as a means in this case refers to the orientation behind the different ways in which interventions or undertakings of any nature

(for development purposes) are made. In this, sustainable development presents an ideology upon which development-related activities are initiated and implemented. Such activities would include but not limited to, education provision, health provision, natural resource allocation, land use and waste management.
Sustainable development as an end, on the other hand can only be tested and proved by the future generations, whether those generations can meet their needs conveniently and yet carry on the sustainable development legacy left behind by the preceding generations.

Taking a closer look at the list under sustainable development as a means, brings out the fact that most, if not all such activities are dictates of either the state or at least a privileged group that possesses the power to do so in any given society. I strongly feel that without a proper scrutiny of how such as these activities are done, sustainable development may become only an ideal fantasy that may never be attained. As I have noted, in most cases the state or any other mandated structure of authority singly takes the responsibility of determining how, how much, and to whom these activities/services, are provided. This unilateral nature of responsibility definitely has an effect on sustainability.

Waste management is one of the services that are usually left to the authorities to take care of, and is particularly of concern in the debate on sustainable development. Particular attention has to be paid to the practices of waste management because if not well done, may have far reaching effects on the environment and thereby affecting sustainable development.

2.2.2 Waste management practices

There are several factors that have facilitated increase in the volume of solid waste generated. One of the factors that have led to increased solid waste generation is rapid urbanization (UNEP, 2007). Urbanization comes with expansion of towns which manifests through the growth of social and economic infrastructure/services and industrialization. The growth in such services warrants the increase in population in such areas. An increased population automatically means increased demand for not only social services but also consumables which potentially present a larger base for waste generation-in most cases solid waste.

The increase in the volumes of waste generated has also been proved to be synonymous with the "new lifestyles associated with greater affluence" which convert into higher consumption levels, thus generating more waste amidst changes in waste composition (UNEP, 2007:224). Affluence influences people to adopt superfluous demand and purchase patterns making people acquire more of what is not very necessary for their wellbeing. When people possess more than what they actually need, failure to consume all that they affluently have, eventually leads them to get rid of the useless excess which turns into solid waste. In most cases more purchases also mean more packaging material- which readily translates into solid waste especially for the manufactured products. The manufactured products contain materials which are very difficult to decompose, for example plastics, thus increasing waste volumes uncontrollably (Bournay, 2006). In a capitalistic

world, the ultimate aim of the manufacturers is to make as much profit as the market can permit. Because of this line of thought, the manufacturers are more concerned about suiting the product to the consumer. Little or even no effort is made to package the products in an environmentally sensitive way and those that make an effort, are still very few. Usually, the burden is left to the consumer to dispose of the waste packaging material by their own means. In doing so, the manufacturers actually externalise the costs of solid waste management by extending it to the consumers. The problem here is that in most cases the manufacturers do not even bother to give any instructions to the end user on how to manage the waste appropriately. This complicates the solid waste management process as those who "manufacture" the solid waste have not considered internalisation of the cost of solid waste management, say as a way of doing Corporate Social Responsibility.

Generally, there is a tendency for development to come with increased waste generation. Data from Asia confirms that the more developed countries like Japan, Laos and Thailand, have more municipal waste generated per capita. Interestingly also, there have not been signs of abating the increasing amounts of waste generated (UNEP, 2007:224). The rapid increase in waste generation has therefore made effective waste management in many countries, challenging. Consequently, it has put human life and the environment at stake. Some countries in Asia have taken on eco-labelling as a market-based tool/strategy to deal with the waste problem (UNEP, 2007:225). On top of eco-labelling, the 3-R approach: (reduce, reuse and recycle) is also becoming popular in Asia (and other parts of the world).

There is an indication that the ways in which solid waste is managed, are as diverse as the human race itself. Some methods of waste management are proper and environmentally sound, while some are not. Conventionally, solid waste (in most cases referred to as garbage) is usually collected as a bundle of trash by local authorities or by private firms to be taken to a transfer station and then to a landfill (sometimes collected and taken straight to the landfill).

However, considering the fact that there are not always enough resources and infrastructure for waste management, especially in developing countries, this scenario ultimately implies that some waste will not be collected, or will be improperly disposed of (UNEP 2002). As a result, landfills, burning waste, rodents and odours which are very common in developing countries have made residential areas susceptible to health hazards (UNEP, 2007). In agreement, the United States Environmental Protection Agency (USEPA) affirms that improper disposal of solid waste exposes the environment and human life to danger by way of emission of green house gasses and contamination of ground water, respectively (2002).

At landfills, the Kansas State University (KSU, n.d:6) reports that:

> "Containers break open and spill their contents. Liquids put in the landfill combine with rainwater and soak through the garbage. Soluble hazardous materials may be washed with them, producing leacheate. Leacheate will flow downhill over surface land, or will percolate through the soil until it reaches an impermeable layer. Leacheate can contaminate groundwater and surface water" (KSU, n.d:6).

Therefore solid waste, if not well managed, can cumulatively have long-lasting and difficult-to-reverse negative effects on the environment. There have been efforts to improve on the management of solid waste. One of the suggestions has been the application of an integrated waste management strategy.

2.2.3 An integrated strategy to solid waste management

The United States Environmental Protection Agency (USEPA) (1993a, 1994) outlines and explains three main components in an integrated municipal waste management strategy- that is; waste prevention, recycling including composting and, combustion. In a review of these components, USEPA (2002:4), categorically introduces and defines five main activities (in a hierarchy) classified under integrated solid waste management (waste prevention, recycling, composting, combustion and landfilling), and the similarity is noticeable between the former components and the later activities classified.

a) *Waste Prevention* also known as *source reduction* in the design, manufacture, purchase, or use of materials and products to reduce the amount and/or toxicity of discarded waste. Waste prevention also means, in simple terms, "reducing waste by not producing it" (USEPA, 2002:4). USEPA asserts that since it reduces the amount of waste that a community must manage, waste prevention is the preferred municipal solid waste management technique. According to USEPA (1998:2), source reduction involves reuse activities and "has come to be recognized as a commonsense approach with significant potential to use resources efficiently, save money, and reduce waste" and because of the various advantages it presents, many states in the United States of America (USA) have increasingly engaged in innovative ventures towards solid waste prevention. Grass cycling and backyard composting are taken to be "forms of source reduction or waste prevention because the materials are completely diverted from the disposal facilities and require no municipal management or transportation" (USEPA, 2005:7-9).

b) *Recycling* involves the reuse of materials that are potential waste but are rather turned into valuable resources. The most important advantage with recycling is that it reduces the production of greenhouse gases since there is diversion of the waste from the landfills. Recycling also reduces the use of new resources, in a way contributing to sustainable development. Materials like paper, glass, steel, plastic, and aluminium can be recycled such that instead of disposing them of, they can be regained and thereby reused.

c) *Composting* refers to;

> "The controlled aerobic biological decomposition of organic matter, such as food scraps and plant matter, into humus- a soil-like material. Compost acts as a natural fertilizer by providing nutrients to the soil, increasing beneficial soil organisms, and suppressing certain plant diseases" (USEPA, 2002:4).

This implies that the need for chemical fertilizers will be reduced and at the same time, composting helps in reduction of greenhouse emissions from solid waste.

d) *Combustion* refers to the controlled burning of waste in a bid to reduce the volume that has to go to landfills, and in some cases to generate electricity. Combustion can be employed for waste that cannot be prevented or recycled. There is also an element here of providing safer disposal methods for example through "improving the design and management of incinerators and landfills" (USEPA, 1993b:2). Although "the combustion process can generate toxic air emissions, these can be controlled by installing control equipment such as acid gas scrubbers and fabric filters in combustors" (USEPA, 2002:4)

e) *Landfilling*- this presents a safer alternative to uncontrolled dumping of solid waste. It is very clear that poor waste disposal can be dangerous to human life as well as the environment; therefore establishment of designated places (landfills) where waste that can neither be recycled nor composted can be managed, becomes necessary. A standard landfill is designed in a way that it can protect ground water from contamination, and also avoids fires that would break out as a result of methane emission.

2.2.4 How can the strategy work?

Although solid waste is quite challenging to manage and dispose of, it is not always totally useless. Innovative ways of dealing with solid waste can be devised to make solid waste useful. The Centre for Ecological Technology (CET) which supports sustainable technologies in New England undertook such a venture, turning waste compositing into a "way of doing business" (Majercak, 2002:1). Through collaboration with commercial haulers, commercial waste generators and, farmers, the project took off with the farmers being the composting agents who would then send the products to the market.

Engaging in such a complex of collaboration, in itself presents an opportunity for constructing a synergy that would beneficially take advantage of solid waste to make it productive. This would result into a double gain since composting can fit very well in the marketplace dynamics as it provides an opportunity for benefits both economically (income to farmers) and environmentally (reducing greenhouse gasses and reduction on leacheate production), from organic waste. Farmers also get empowered to manage their own waste by using it as fertilizers, thereby minimizing on the use of synthetics or petroleum-based fertilizers (Majercak, 2002). Such an undertaking may not necessarily be simple to start and maintain, but it could definitely turn out to be worthwhile.

In Africa, a very small volume of the generated solid waste is recycled or recovered as there is little "economic incentive and market for recycled materials (UNEP, 2002:249). On one hand, Bournay, (2006) notes that rich countries continue to send waste to Asia and Africa which turns out to increase the burden in those continents. This waste is in form of obsolete items that no

longer meet the consumer preferences and standards in the rich countries, and or unnecessarily extravagant packaging of manufactured products for export. The defence of the rich countries is that the waste they send can be "recycled anyway" (Bournay, 2006:24). On the other hand, many European countries have recycling schemes for glass and paper, but the success of such schemes has also been reduced by the increased generation of waste paper and glass and thus making the solid waste problem just yet to be mitigated (UNEP, 2002). It also some what sounds impractical to assume that there will be effective and efficient recycling of waste in Africa, when actually the main method of waste management and disposal is landfilling.

Landfilling has become the immediate most possible way of managing solid waste in most African countries because of the high prevalence of indiscriminate waste dumping. The authorities that primarily bear the responsibility to clean up the cities, towns and residential areas find it easier and time saving to collect the waste and carry it to a landfill other than sorting the waste for recycling and less still for composting.

The solid waste management challenge is therefore world-wide albeit at different levels in the different parts of the world. The magnitude of the challenge is driven by the amount of effort put in by different countries to contain the solid waste problem. In the developed countries, solid waste is not as alarming a problem as it is in developing countries. The disparity can be explained by the fact that in developing countries, the rate at which solid waste is generated is not in consonance with the capacity to properly manage it (UNEP, 2007). The public seems to be leaving the burden of solid waste (which they generate) to the administrative units/authorities. There is little and in some instances no indication of public concern in containing the problem and yet closer involvement/participation by the public is very important if solid waste is to be well managed.

2.2.5 Significance of public participation in solid waste management

This subsection details the different relevant literature on public participation in solid waste management including; whether public participation could be the missing link, the role of public participation in solid waste reduction, social capital and participation in solid waste management, the role of the public in solid waste management, the challenge of involving the public in solid waste management and, the strategies for public participation.

Could public participation be the missing link?

In many parts of the world, communities continue to be looked at as passive recipients of government services, and are very often disregarded even in local decision-making processes (Tadesse, 2006). Ultimately, this approach results in the people failing to know the role they can play in the process. Therefore, in the midst of several waste management and disposal methods, participation could be a missing link/component in a possible recipe for better solid waste management. Considerable research efforts have been directed to public participation even in the

aspects of recycling behaviour (like Barr, 2004). Such researches have had interesting findings emerge in support of public participation in solid waste management. Research findings show that landfill space is now scarce and yet the communities also are less likely to accept landfills to be sited near their habitation for environmental, health and aesthetic reasons (Barr, 2004). Because it may no longer be viable to use waste management methods of an autocratic nature, the participation of the people in solid waste management decisions and practices becomes inevitable.

In the study on *Residential Solid Waste Management in India*, (Sauro, 2000) found out some gaps in the solid waste management practices that would easily point to public participation as the most possible solution. It was found out that systematic sorting of waste at the different stages right from the source to the disposal sites was lacking (Joardar, 2000:322). It was also a major finding that in India, incineration has not shown success due to the diverse composition of the waste since it is not sorted. Basic sorting should ideally be a role played by the public, at the source (of waste generation). Without waste sorting, it practically becomes difficult to manage the solid waste in a sustainable way.
Besides, the manner in which waste is disposed of especially in the developing world may only suit participation of the public in order to reverse the effects of poor solid waste disposal. Joardar (2000:322), found out that "the most widely practiced municipal disposal method has been uncontrolled dumping, concentrated in low-lying fringe locations and leading to leacheate percolation and pollution runoff and contamination of soil, ground water, canals, and river ways". Uncontrolled dumping when practiced indiscriminately by the public, it imposes far-reaching effects as Sauro points out. However, in itself, dumping is not a sustainable way of management of waste, it would actually be a qualified destructive method, yet it can be controlled and the effects reversed if the public were involved in the waste management and disposal structure.

The process of public participation may sometimes be long and not cheap in terms of time. To some people, it may not even be meaningful. However, it is almost impossible to talk about sustainable development and at the same time evade the need to have the people involved. This is because in contemporary development practice, growing awareness of the importance of people's non-expert experiences and knowledge has continuously led to a dire need for shared decision-making in various contexts (Barnes, 2005). The input of the public is not ignorable in any given sector because of their exerted influence on the direction of development.

At face value, it may be difficult to see the importance of public participation in solid waste management. However, it is imperative to look at some of the methods in solid waste management and locate the place for public participation in the success and effectiveness of such methods in managing solid waste. The most popular method, which has notably attracted a lot of research in the field of waste management, is recycling. Although the contribution of recycling to solid waste management has been heralded (Tsai, (2007), Bekin et al. (2007)) argue that there are other environmentally friendly ways that can be adopted to manage waste. They do not wholesomely buy the idea that recycling is an environmentally sound way of managing waste because of the shortcomings levelled against it. Recycling consumes energy and thus imposing costs on the environment (Mackaness 2005 cited in Bekin et al., 2007:274). Read et al., (1998:79)

also note that though it is common for even developed countries to deal with solid waste by recycling and, disposal after treatment, it is not the best way to manage solid waste.

The scale of public participation in solid waste management is noticeably different between the developed and developing countries. In developed countries, public participation in solid waste management may go as far as sorting of the waste generated. The private firms then collect the already sorted waste at a fee. The fees paid cover up for the processes in which the public should have participated in the waste management line. In other words, the burden is passed on to the private waste collectors at a fee.

In developing countries, the picture is different. In the first place, the majority of the population is too poor to regularly afford fees for waste collection. Secondly, many of the people ignorantly albeit innocently, dispose of waste carelessly with little concern about the imminent effects their careless disposal will ultimately cause. Thirdly, in some instances the people just do not think out the complexity of the waste problem and on whom the effect will finally rest. The public seems to think that it is completely the concern of the local administration to ensure proper waste management at no extra charge on the public.

Role of Participation in solid waste reduction

Read et al., found out that Local Governments were increasingly encouraging waste reduction as a better way of managing solid waste (1998:82). In their study on waste reduction, Bekin, Carrigan and Szmigin argue for waste reduction as a more environmentally viable and yet involving way of mitigating the solid waste problem. They found out that in communities that engaged in production of some consumption items (vegetables and fruits), there was reduced solid waste generation (Bekin et al., 2007:277). In these communities however, they found out that there were structures that had ensured an understanding of the need for deliberate measures to deal with waste from a sustainable development point of view. The community members were actively involved in the appreciation of the need for collective effort and thus agreement on such undertakings. It is not out of context therefore that Read et al., recommended that despite financial constraints, the private and public sectors need to embrace waste minimization as an important venture to invest in, for waste management (Read et al., 1998:88).

For a community to register the kind of successes that is reported by Bekin et al., (2007), an amount of social cohesion is essential. This is further affirmed by Tsai (2007:45) that "households living in a region with a higher degree of social capital are more likely to work against opportunism and participate in waste management". The implication of this is that there is potential in strategizing for solid waste management from the community/public angle. If the members of the public are supported to build and concretize their social capital, their constructive participation in solid waste management can easily be harnessed. The members of the community are capable of thinking of more tailor-made, viable and sustainable ways of managing solid waste, when availed the opportunity.

Tsai believes that waste recycling is a perfect method of managing waste and that it fits very well in sustainable development practices. However, his discussion of the findings from his study on *the impact of social capital on regional waste recycling*, gives a link to the effect that recycling is "a function of community involvement" (Tsai, 2007:53). Community participation in all activities related to waste management is pivotal and un-ignorable.

Social capital and participation in solid waste management

Barr, (2004) argues that it is not the role of the product producers alone, to reduce waste but also a duty of the general public to manage waste in a sustainable manner. This argument is valid because the will for involvement of the public needs to be guaranteed so that the roles of the producers and the consumers in waste reduction can reinforce each other. It should be appreciated that success of participation relies strongly on collective action by group/community/society members. Implicitly, the members in the group need to have cohesion as a basis for their collective operation in solid waste management. Tsai, (2007:45), emphasises the importance of social capital in waste management. Social capital in this case offers an opportunity to the people to collectively construct meaning and vision, consequently reducing probability of divergence in belief and ideology. They instead are most likely to share a common vision and thus able to work together to attain it.

Community institutional structures are also of importance in managing solid waste. In their study, Bekin et al., note that in the absence of appropriate institutional structures, it becomes difficult to ensure solid waste reduction at an individual level. They continue to emphasise that waste reduction may only be viable in a community with some control over production and consumption of some items (Bekin et al, 2007:279). This kind of arrangement is bound to give power to the existing structure to operate in a manner within their own choice of means. Waste reduction begins at the stage of production when there is deliberate effort to prevent production of waste material, but this can be very difficult if the structure within which production is made does not deliberately support the prevention of such materials at production stage. When this is ensured by the structure, it simplifies the solid waste management system at the next level- of consumption.

It is very clear that without community support and involvement at least at sorting stage (which has to be done at the source before waste collection), even recycling may be very costly to undertake. Here, the community manifests as a very important stakeholder in solid waste management and the level of their participation counts on the success of recycling in particular and solid waste management in general. Notably, the costs of collection, transportation and land for landfills, are high; however engaging the community serves to reduce such costs. In a way, this proves to be a sustainable mode of waste management. For example: in Dhaka where community-based solid waste management and composting projects have been implemented, a lot of such costs have been reduced (UNEP, 2007:225). The projects have been able to save the

municipalities from the costs of collection while at the same time reducing the need for landfills (UNEP, 2007). Diversion of costs from the municipalities allows them to invest in other services that benefit the community.

Apart from cutting costs of management and disposal, since waste collection, sorting and processing is in most cases labour intensive, it serves to employ a substantial number of people. It is revealed that in India, over one million people are employed in the waste sector (Gupta, 2001, in UNEP, 2007:225). Potentially, a number of otherwise would-be unemployed people can gainfully engage in the process of sorting and collecting especially recyclable waste materials either on a private individual (informal) basis or at (formal) company level. In so doing, financial gains would permeate to those who engage in sustainable waste management practices, and thus encouraging sustained participation.

Role of the public in solid waste management

The role of the public in waste management and in solid waste management in particular, has become indispensable and, can be through various ways.
According to Tsai (2007:54), a society that is willing to work together presents an opportunity for "creativity and innovation" in dealing with the waste problem. Tsai's observation brings out the importance of the will of the people/public to work together on matters of waste. Mutual understanding and agreement is vital in having the members of the public to work together. When solidarity is achieved, it presents fertile ground for the germination of creative ways of handling waste in a sustainably agreeable manner. It therefore becomes a responsibility of the public to be willing to work together in solid waste management, among other things.

Bekin et al., (2007:280) recommended that purchasing second-hand items as a way of waste-reduction is important before people can resort to recycling and composting. This can go a long way in having potential waste kept at the minimum. It is a form of re-use of items which implies that less new items on top of the already under-use items will be purchased. The developing countries have been operating within this kind of arrangement, however with different push factors like inability to afford first-hand, new items.

When the waste aspect of these items is put into perspective, one could easily arrive at the conclusion that to a larger extent, the importation and use of second-hand items has actually accelerated the solid waste burden. Despite the emphasis on waste reduction and recycling as compared to disposal, avoiding or even reducing disposal is easier said than done specifically in developing countries (Chung and Poon, 2001). The developing countries especially in Asia and Africa usually import second-hand items from Europe and America, though a number of affluent Asian countries also export some of their send-hand items to Africa for reuse. A large volume of these second-hand items are either obsolete thereby ending up as waste sooner than expected, or they just have a very short lifespan remaining and thus becoming out of use. This scenario is not very different from the argument that rich countries negatively contribute to the waste burden in

the developing countries by exporting second-hand items (Bournay, 2006). The appropriateness of this suggestion as a way of waste reduction is brought under check, especially in the poor countries which may not have adopted effective and efficient recycling systems.

Challenge of involving the public in solid waste management

Governments, whether central, federal or decentralised, have been a bit obstinate to public involvement in development projects and social service planning and implementation. From a political point of view, it is expected that the authorities posses the mandate to think and take decisions on behalf of the electorate, besides, it may save time to technically exclude the public in such processes. It is not uncommon, however, to find many of such projects that neglect public participation, failing to yield the planned gains. Provision of solid waste management and disposal services is no exception. The process of public participation in solid waste management is challenged by several factors, depending on the method chosen for this purpose as well as the characteristics of the public in a particular location.

Tsai (2007:45) notes for example that "attitudes towards recycling are influenced by appropriate opportunities, facilities, knowledge and convenience". People are diverse in terms of the knowledge base they posses as well as in what they feel is convenient for them. This automatically makes their attitudes to differ. Reaching consensus on the most convenient system of managing solid waste around a particular facility becomes challenging.

Goulet, a development scholar argued that "development is not a cluster of benefits given to people in need, but rather a process by which a populace acquires a greater mastery over its own destiny". His argument emphasises the importance of people's participation in development ventures and projects that concern them. This does not go without caution, though. It is dangerous to leave the people with the power to decide for themselves what they want and how they want it, without any guarantees that the people posses the basic requisite knowledge for analysis and subsequent informed decision-making. The information, knowledge and awareness gaps among the members of the public make their involvement a challenging option. In their study on waste minimisation in Local Governments in the United Kingdom, Read et al., (1998) found out that there was low awareness about the best practices in waste minimisation across different administrative areas/Local Governments. For public participation to yield optimum benefit, prior arrangements to close or at least narrow the knowledge and awareness gaps ought to have been made. Involving the public with their knowledge gaps, may only lead to a challenging process of participation in solid waste management.

Solid waste management is a matter influenced by policy. Ideally, policy acts as an engine that gives direction and impetus to the solid waste management system. Sauro's analysis, however, shows that due to the absence of clear public policies as well as the economic inviability of investments in municipal waste segregation and recycling, such activities have not thrived in most parts of the developing world (Joardar, 2000:322). To effectively involve the public in solid waste

management within a structure that does not provide clear public policies becomes very cumbersome. There has also been a tendency to localise the nature of the waste concern and thus looking at it as a mere "nuisance rather than a health and environmental hazard" (Joardar, 2000:329). This has translated into low political will and the reluctance of the public to respond to the problem.

The absence of clear and specifically outlined legislation and mandate makes it difficult to achieve quality solid waste management practices. This is because it "deprives local bodies of transparent tools to regulate activities of individuals, firms, or organisations towards effective solid waste management" (Joardar, 2000:323). The participation of the private sector in solid waste management also most often than not concentrates on municipal "contracting-out" of secondary waste collectors in form of transferring the waste to disposal sites (Joardar, 2000:327). The participation of the public as individuals is still virgin and provides a lot of potential for doing more about solid waste management. This therefore calls for strategies that will help to enlist the participation of the entire public for their attention to sustainable solid waste management practices.

Strategies for public participation

Participation of people in any kind of project needs careful planning by way of laying down strategies to encourage it. Tsai recommends that in order to encourage households to participate in waste recycling, there needs to be "a well informed waste collection regime, good quality of environmental education and attitudes, an effective enforcement scheme from social norms, proper economic incentives and promotion from local communities" (Tsai, 2007:44-45). This is what many authorities have not been able to do especially in the developing world. Waste collection regimes do not seem to receive enough attention and environmental education has almost not been taken seriously. For the public to be interested to be associated with a project, and put in their efforts, they need to be assured that their efforts will yield success and progress, and the best way to do this is by presentation of a clear and easy-to-understand system of operation. These efforts notwithstanding, there is need for consideration of some other factors.

The social and economic status of the people also has a connotation on whether or, and how the people will participate in solid waste management. The authorities need to keep such factors at the back of their mind as they plan strategies for ensuring quality participation of the public. Tsai (2007) gives evidence that higher incomes and higher education levels elicit the will to participate in waste management programmes like recycling in order to protect the environment. However, he does not show whether the influence of the income and education level goes only as far as recycling is concerned. Recycling is different from other activities in solid waste management. The authorities could easily take advantage of such factors to begin recycling programmes in areas where high income earners reside and or work and the successes that may be registered in such areas may form a basis for rolling it out to other areas. It could be a resource-cutting measure to start with such a group as it is believed that the rich and middle-class households organise themselves to privately collect and transfer their waste to centres where the authorities can pick it

from. This assumption is premised on the belief that it is very rare that the municipal or city authorities will engage in door-to-door collection of the waste, especially in the developing world (Joardar, 2000). The limited resources within which the authorities in developing countries operate make it hard to do waste collection at a door-to-door basis. If the households can collect their waste to a centre where the authorities can in turn pick it from, it may make the work easier.

In India, Non-governmental Organisations (NGOs) have helped in civic campaigning, arranging for door-to-door collection of waste as well as assisting in the establishment of cooperatives for "rag pickers" (Joardar, 2000:329). NGOs, especially those that have an environment orientation need to be supported to mobilise the community to participate in solid waste management as a sustainability measure. NGOs have been instrumental in promoting popular participation in the developing world. The people believe in them, and the voluntary nature of their work, gives authenticity and virtue to their programs. Besides, their membership is widely civic and thus qualifying their interventions as self help, with a higher chance for success and sustainability.

To Joardar, introduction of a "user charge based on door-to-door collection" can support waste sorting and recycling (Joardar, 2000:327). The user charge can also work as a stimulus for item reuse thus reducing on the rate of waste generation at the source. The charges can be levied on both residential and commercial establishments but with consideration of household size and with "built-in cross-subsidization in favour of slum dwellers and petty traders" (Joardar, 2000:327). This arrangement may not necessarily be implementable without clashes between the authorities and the low-income households, but it may be worth the efforts because a financial instrument is more flexible than a legal one since the financial instrument provides a choice for the consumers and at the same time makes the polluter incur the cost of environmental management (Joardar, 2000). The effectiveness of such a program is determined by the form of governance in a particular area whether it is centralised or decentralised. Where taxation is centralised activity, it may be tricky to have the taxes specifically form waste charges to be remitted in order to meet the costs at the local level.

Chung and Poon, (2001) agree that having a clear structure of charges for waste collection and disposal in place, may even work as an incentive for waste reduction. They believe that there is need to change the approach for waste reduction from the "command-and-control" to the use of economic incentives and "polluter-pays" (Chung and Poon, 2001:102). This can be a step in involving the public in solid waste management and also forms an impetus for innovative thinking to devise cheaper and more convenient ways of managing solid waste.

On the part of government, employing the waste management hierarchy may be a viable strategy. Production of materials that are less likely to become waste can be emphasised. Before the products are disposed of, consideration for reuse, recycling, compositing and energy recovery can be encouraged before materials are finally disposed of (Barr, 2004:33). It can be seen that the public has a big stake in most of these processes/activities in solid waste management. It is the public that can decide or not, to buy products that produce less waste. They are the ones who have to play the basic waste sorting role at household level, before the waste can be conveniently

collected for recycling or compositing purposes. Therefore, in order to cultivate sustainable waste management, there is need to do more than just creating awareness and disseminating knowledge (Barr, 2004). There is a dire need to strategically involve the public in solid waste management.

2.3 Study Area

In this section I give information about Uganda the country where this research was carried out, Wakiso district and Kira Town Council the study area.

2.3.1 Uganda- the Pearl of Africa

Map of Uganda (Source: United Nations Department of Information)

Uganda is a land-locked East African country sharing borders with Kenya to the east, Sudan to the north, the Democratic Republic of Congo to the west, and Rwanda and Tanzania to the south. The country covers a total area of 236,040 sq km, with 36,330 sq km of these being water. Uganda located astride the Equator and is characterized by a number of major trans-boundary natural resources that include lakes, rivers and mountains (CIA, 2006, NEMA 2005). Uganda possesses important resources that include: fertile soils as well as regular rainfall. Uganda enjoys a favourable climate because of its relatively high altitude. The Central, Eastern, and Western regions of the Uganda have two rainy seasons per year, with heavy rains from March to May while light rains come between September and December. The level of rainfall though, decreases towards the north, turning into just one rainy season a year. These features give the country a mosaic of vegetation, modified climates and extensive wetlands. When climate is considered with agriculture and altitude, two highland agricultural zones and seven zones with different agro climatic potentials can be identified (NEMA, 2005).

Agriculture therefore is the most important economic sector with over 80% of the population engaged in agricultural production or agro-based industry. Agriculture contributes up to 31.1% of the GDP, with coffee accounting for the biggest portion of the country's revenue (CIA, 2006). The country is relatively self-sufficient in food, although the distribution is uneven over the different areas. Due to global climatic changes, the country was affected by a prolonged dry season (draught) between February and August 2007 followed by El Nino rains, causing flooding and landslides in several areas of the country. This destabilised the country in matters of food security and such a scenario is expected in this year (2009) also.

Administratively, Uganda is organised in form of districts as the basic units of administration. From the 39 districts which were in existence in 1994, and by 2007 there were over 75 Districts confirmed, with others proposed but yet to be implemented (NEMA, 2007).
Politically, Uganda is governed through a decentralized system of governance and some functions and responsibilities have been relinquished by the central administration to the local governments using the districts as the administrative units for the system. However, the central government retains the responsibility of making policy, setting standards, and supervising and ensuring national security among others (UBOS, 2007).

The population of Uganda as at 2006 was estimated to be 28. 2 million (CIA 2006) and projected to reach 36.4 million in 2018 (Ministry of Natural Resources, 1995). The population is growing rapidly at a national average of 3.4% per annum. This growth rate masks differences among the districts, ranging from over 9% for Kotido District to less than 1% for Kabale. The national population is relatively young with 50% of the population below 15 years while those below 18 years of age make up 56% of the total population. There is also a high dependency ratio with a significant number of orphans. The mean household size is 4.8 persons - 4.2 persons in urban areas and 4.9 in rural settings (NEMA, 2005).

Ugandans are a hospitable people consisting of at least 46 indigenous tribes with varying production and consumption patterns and hence varying influences on the environment (NEMA, 2005). The main religion is Christianity, where 41.9% are Roman Catholic and 35. 9% are Anglican. Only 12.1% of the population are Muslims (UBOS 2002).

2.3.2 Historical and Political background of Uganda

Uganda's history is characterised by aspects of change, population migration, and progressive development of cultural diversity. It is said that the earliest occupants of Uganda were joined by new migrants from the north and west around the 4th Century A.D. These intruders, who are the ancestors of today's Bantu-speaking societies, are said to have come under pressure from the expansion of non-Bantu speaking warriors and herders from the northeast in around the 10th Century A.D (Byrnes, 1992).

By the 19th Century Uganda had a number of kingdoms especially in the Central and South-western regions while in the North, East and north East, there were smaller tribal groupings in form of Chiefdoms that had developed over time (Karugire, 1980). The strongest tribal grouping/Kingdom at that time- Bunyoro began to lose power to its breakaway neighbour, Buganda. Incidentally, by the end of the 19th Century, the new Buganda Kingdom dominated the region, but the rivalry between Buganda and Bunyoro endured for a period long enough to be exploited by British colonialists who established the Uganda Protectorate in 1894 (Byrnes, 1992).

Uganda came into the world economy through ivory trade and agricultural products. In the early 20th Century, the business section of the colonialists led by K. Borup, with the help of chiefs from Buganda region introduced cash crops, especially cotton in 1903, and later coffee. Buganda prospered and continued to draw labourers from other areas of the protectorate especially from the northern districts (Byrnes, 1992). Agricultural production increased in the 1920s and 1930s and many progressive farmers enjoyed economic benefits from their produce consequently affording to take their children to school. By 1962, when independence was granted to Uganda, the economy was doing well and was equated to be at the same level with that of Malaysia.

Just before independence in 1961, Uganda's political parties contested in a national election which saw the Democratic Party (DP) win the elections and thus Ben Kiwanuka, the President General of the party becoming the first Prime Minister of Uganda. However, another election was held the following year that saw the coalition between Uganda People's Congress (UPC) and Kabaka Yekka (KY) win the elections. Apollo Milton Obote the UPC party president became the second Prime Minister of Uganda. Uganda was therefore granted independence under the leadership of Obote. After an amendment of the constitution to remove the position of Governor replacing it with the position of non-executive President, Sir Edward Mutesa II became the first President of Uganda. This was after his election by the legislature.

A military coup in 1971 plunged Uganda into eight years of terror and turmoil under the government of Idi Amin Dada who was formerly the army commander in the Obote government.

Amin ruled the country by decree and is remembered for his famous "war on the economy". He expelled the Asian community who were supporting the country's economy with their businesses and investments in the industrial sector. He accused them of "milking the cow without feeding it" referring to the economy that he felt the Asians were not contributing enough taxes to it.

Amin was overthrown by Ugandan exiles assisted by the Tanzanian army in 1979 in the fierce Kagera war. Multi-party elections were later held in the country in 1980, which were won by the DP under the leadership of Paul K. Ssemwogerere. However, because the Chairman of the Military Commission who had the authority to declare the election results belonged to UPC, he chose to declare the results in favour of his party. This saw Obote come back as Head of State for the second time.

No sooner had Obote been sworn in as President than Yoweri Kaguta Museveni went to the bush waging a protracted guerrilla war against the government of Uganda under Obote. Museveni was the leader of the Uganda Peoples Movement (UPM) which had lost miserably in the 1980 elections. He went to fight because he was discontented with the election results that were in favour of UPC.

Due to growing rebellion in the country, besides the war by Museveni, government troops led by Baslio Okello and Tito Lutwa Okello deposed Obote, and Tito L. Okello became president until Museveni's National Resistance Army (NRA) seized state power on the 26th January 1986 (Mutibwa, 1992). However, the government led by Museveni had not inspired overwhelming public confidence in its ability to rule. The NRA, however, had shown greater military discipline than any other armed forces in recent years, and when Museveni declared that establishing a peaceful and secure environment was his highest priority as president; his government cultivated strong popular backing from the populace.

Museveni's government came with the Ten-Point Program, which advocated for a broad-based democracy and a hierarchy of popular assemblies, or resistance councils (R. Cs), from the village through to district level. A twenty-one member constitutional commission appointed in 1988 completed its nationwide consultations in late 1991 and in 1995; a new constitution was promulgated putting Uganda in a "Movement" system of governance authored by Museveni's National Resistance Movement (NRM). In 1996, presidential elections were held and won by Museveni there by becoming the first directly elected president of Uganda. In 2001, Museveni again contested in the presidential election and won. The last recently held election in 2006 was conducted under the multi-party system of governance, after a referendum that led to the amendment of the constitution, in 2005.

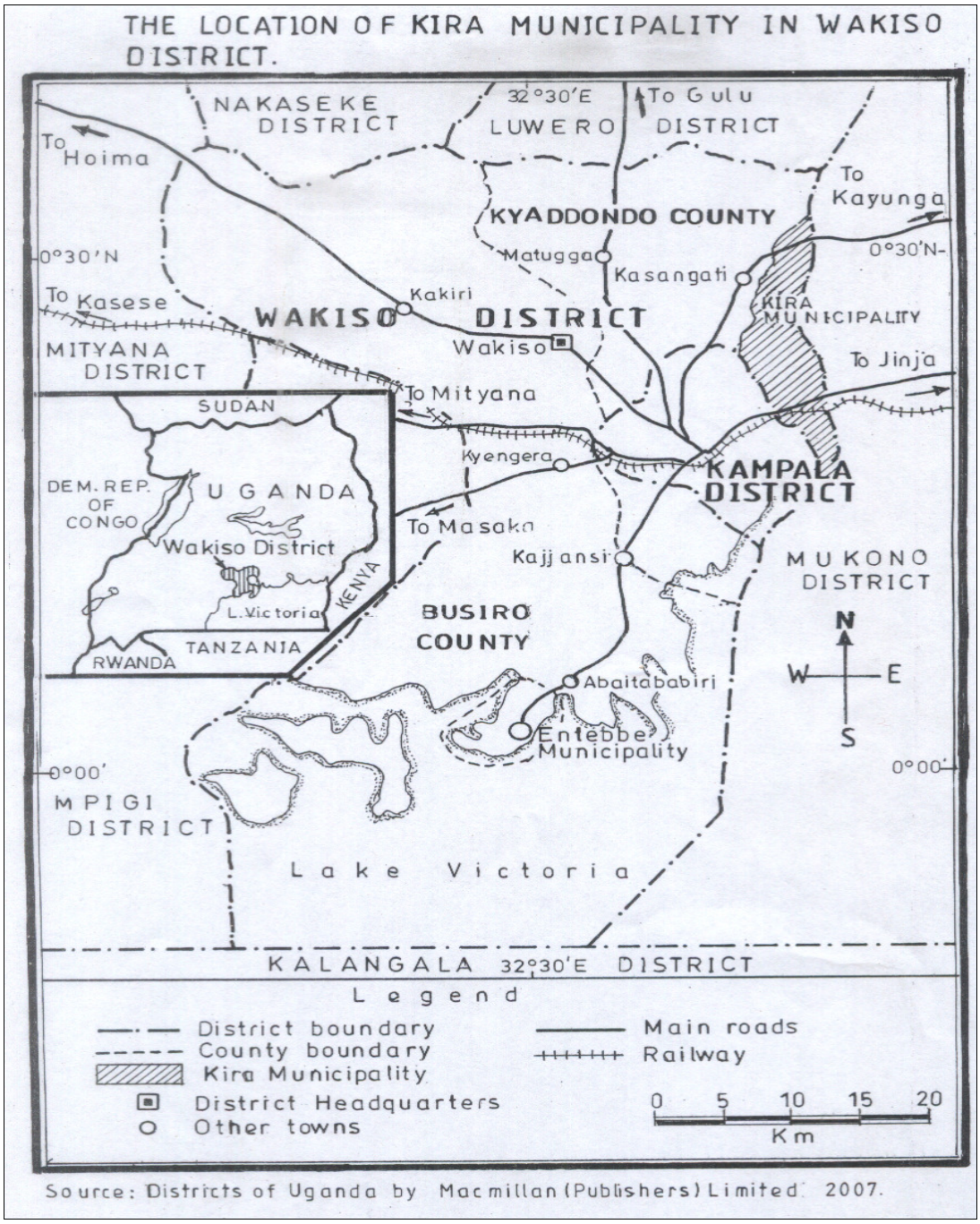
Uganda has experienced profound, social, political and economic stability as well as relative peace since 1986 when the NRA/M took over. However, since 1986, Museveni's government has been engaged in a war against a rebel group called the Lord's resistance Army led by Joseph Kony, in Northern Uganda. In April 2008, it was expected that a final seal would be put on the peace deal between the rebel group and government of Uganda; however, Kony refused to sign,

demanding for more assurance of protection against the International Criminal Court (ICC) indictment. There is wide optimism that peace will prevail in Northern Uganda after over two decades of turmoil.

2.3.3 Wakiso District

Wakiso District was formerly part of Mpigi District. It came into existence by an Act of Parliament in November 2000, when the three counties of Mpigi District that is; Busiro, Kyadondo and Entebbe Municipality became Wakiso District. The District lies in the central region of Uganda. It shares Borders with the districts of Luwero and Nakaseke in the North and Kampala in the east, Mpigi and Mityana in the west, and Kalangala lying in Lake Victoria to the South. It is the second-most populated district in Uganda with a total of 957,280 people (UBOS, 2002). In the district, the percentage of children below 18 years is 53% as compared to the national percentage of 56%. Household size is at 4.1 compared to the national figure of 4.7.
Wakiso district has a total area of 2,704 square Kilometres out of which 1710.45 square kilometres is land area while total of 994.10 square kilometres is covered with forest, water and swamps. The people are Baganda and the main language is Luganda. Its central location around Kampala, the capital city of Uganda has made it strategic to attract investments in both industry and agriculture.

Wakiso district is divided into two counties (Busiro and Kyadondo) and one municipality (Entebbe). It has 13 sub-counties, three (3) town councils (Kira, Nansana and Wakiso) and two Municipal Divisions. It has a total of 135 parishes and 676 villages of which some are semi-urban surrounded by the city characterized by slums, poorly planned structures and heaps of garbage. The other rural areas basically rely on subsistence agriculture. The administration headquarter is located in Wakiso Town Council 10 km along Hoima Road from Kampala (Wakiso District portal, 2008).



Map of Wakiso District with the location of Kira Municipality (Now Town council): Source: Districts of Uganda by Macmillan (Publishers) Limited 2007

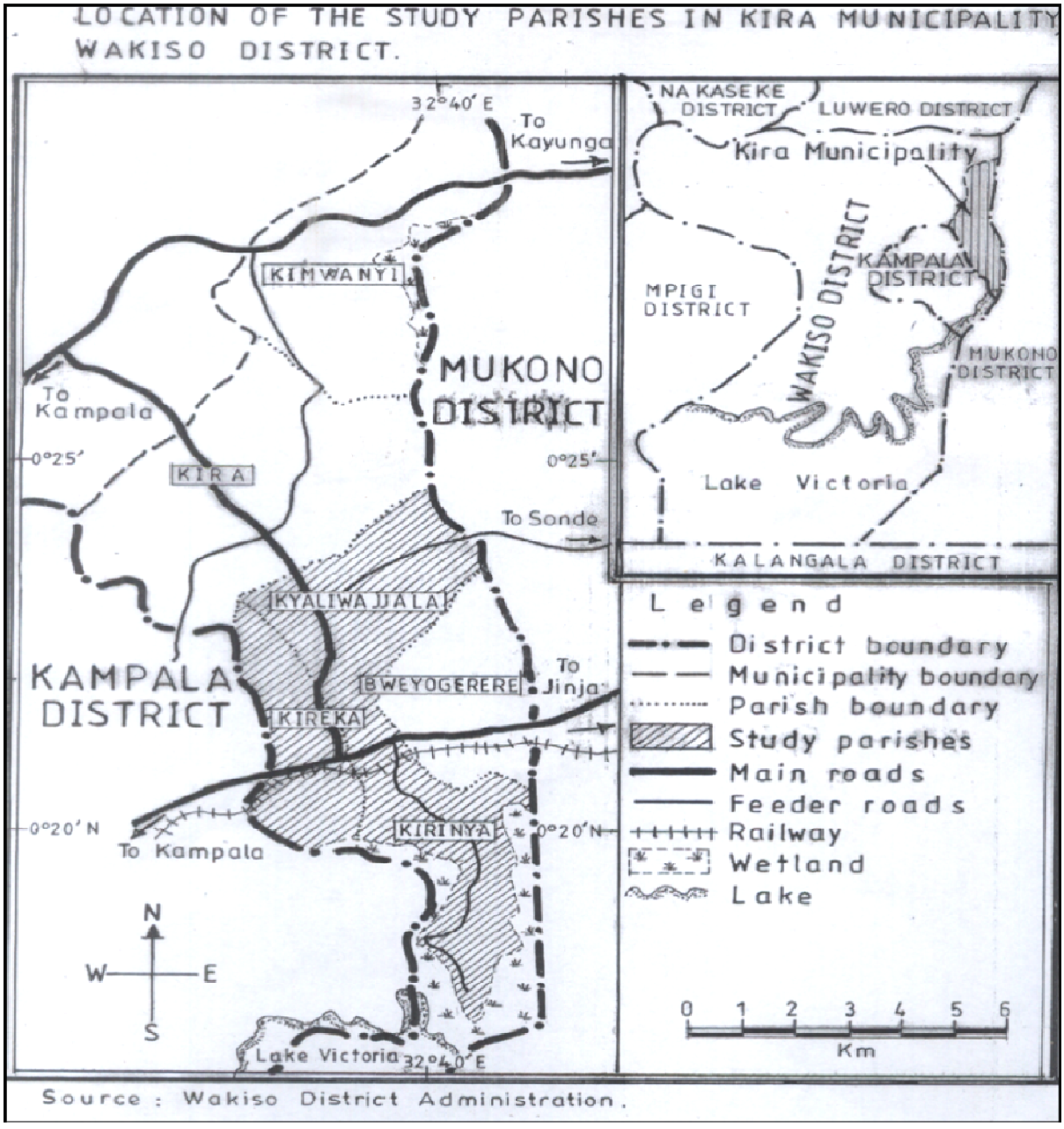
The Policy making organ is the Wakiso District Council and was first elected in March 2002. It is headed by the Local Council V Chairman who is supported by an Executive of 5 members, 5 Policy/Sectoral Committees which deliberate policy matters and make recommendations to the full Council of 33 Councillors. The Sectoral Committees include:

- Finance, Planning and General Purpose.
- Health and Environment.
- Social Services.
- Production, Marketing and Industry.
- Works and urban Planning.
- Education and Sports

The responsibility for solid waste management in the district therefore falls under the Health and Environment committee (Wakiso District portal, 2008).

There is also an office of the Resident District Commissioner (RDC), which represents the President in the District and ensures that both National and Local priorities are given due consideration and are implemented in an accountable manner. The district works hand in hand with the several Community Based Organizations, Civil Society Organizations, Non Government Organizations and members of the private sector to deliver services to the community (Wakiso District portal, 2008).

2.3.4 Kira Town Council



Map of Kira Town Council with the study area (three wards/parishes); Source: Urban Planning Department Kira Town Council

Kira town council is one of the three town councils in Wakiso District. It is located in the eastern part of the district about 13 kilometres from Kampala. The town Council is bounded by Kampala to the West and Nangabo sub-county to the North. From the East, Kira bounds Mukono District from the Namanve stream that drains South wards into Lake Victoria while to the north, the Nakiyanja and Nangobe streams that flows into Lwajjali River form the boundary. To the West, Kawooya and Kinawataka swamps form the boundary between Kampala and Kira. The majority of the population are Baganda by tribe.

Kira Town Council covers an area of approximately 98.83 square kilometres, approximately 10 kilometres from the Kampala city centre.

The vast areas of Kira Town Council are mainly arable land most of which is productive and cultivated (55%) and 20% is under natural vegetation cover of mainly wetland types (Kira Town Council (KTC), 2009). The rest of the area is a developed residential, commercial or industrial area especially in Kireka and Bweyogerere.

The landscape is mainly flat with sloping flat-topped hills in some areas. The valleys have some permanent streams, which are potential natural sources of water springs for livestock and can be protected to provide safe water sources for some residents.

According to the UBOS (2002), 71.2% of the population in Kira Town Council are employed in mainly in the formal sector and civil service. The majority of the people however, do not work in Kira but reside in the area and commute to Kampala for work. But a sizable proportion of the people in Kira are also engaged in Informal activity within the different sectors of the Town Council's economy.

The administrative structure of Kira is made up of two broad arms; the political and the management arms. The political arm is comprised of the Mayor who nominates the executive and is the head of the executive. The Council nominates the Speaker and Deputy Speaker. The Council is the highest policy making body and is chaired by the Speaker.

Kira Town Council is served by 24 elected Town Councillors serving the six wards that make up the Town. The wards are; Kira, Kimwanyi, Kyaliwajala, Kireka, Kirinya, and Bweyogerere.

The 2002 Uganda Population and Housing Census reported the population of Kira to stand at 67,222 males and 73,548 females as compared to the 1991 population figures of 27,181 males and 28,706 females. This implies a high population growth which can be explained by the continuous influx of people from Kampala City Council, willing to be their own landlords in neighbourhoods that are less congested and cheaper than in the city. The most populated ward in the Town Council is Kireka with a population of 54,008 while the least populated is Kimwanyi with 6,808 people as at the 2002 Uganda Population and Housing Census.

2.4 Waste management in the Ugandan context

In this section, an overview of waste management in Uganda is given, the waste management policy and regulation and, the solid waste problem in Wakiso District is also examined.

2.4.1 Overview of waste management in Uganda

Solid waste in Uganda is disposed of in several ways including; dumping, burying, burning, and landfilling. The most common method of waste management in Uganda's urban areas is "communal storage" while in rural areas, dumping in open places and in open pits are the most practiced (NEMA, 2007:276). This shows that the commonly used methods for waste management are environmentally unfriendly especially dumping which by 1999 was already the most widely practiced in Uganda (NEMA, 1999).

Other sources show a different picture though. One of the variables in the 2002 Uganda Population and Housing Census was about waste disposal methods used by households. The data revealed that using the garden for waste disposal was the most popular method with 40.2%, heaping 23.8%, using a pit 22.6%; Burning 8.2%, while using a skip bin was the least applied at 4.3% (UBOS, 2002). This data could have been influenced by the difference in population distribution between the urban and rural areas where the rural areas where agriculture is practiced, the larger numbers could have caused the percentage for garden use to be high.

The State of Environment Report for Uganda 2006/2007 notes that the rates of waste generation in the country vary due to "population, economic status of the population, geographical location, industrial growth, social habits, education level, season of the year and the extent of recycling operations" (NEMA, 2007).

Particularly in urban areas, there has been an increase in the number of agencies engaging in commercial solid waste collection. It is reported that there are over 20 private solid waste collection agencies providing this service in especially affluent residential and commercial areas at a fee (NEMA, 2007). Despite the involvement of the private sector, waste management has remained wanting, in the country because of the threats that it poses to the population and to the environment.

2.4.2 Threats posed by solid waste

In Uganda, solid waste management has been regarded as an important component of the environmental structure in human settlements (NEMA, 1999). However, solid waste management in Uganda has led to effects on the environment. Burning and burying of solid waste lead to air, water and soil pollution, while landfills, if not properly managed can also cause environmental problems among others, the pollution of ground water and surface water, land degradation and

poor general aesthetic quality of the surrounding environment (NEMA, 1999). There are many contributing factors to the escalation of the solid waste problem in the country today.

For instance improvement in communications has been perceived as carrying two opposing lines of effects as far as the environment in Uganda is concerned. On one hand, the significant improvement in communications especially the increase in the number of cell phone owners and internet subscribers will be instrumental in facilitating the transmission of environmental messages and thus aid in environmental education. On the other hand, the growth in cell phone use comes with a significant environmental problem of indiscriminate disposal of the non-biodegradable plastic phone-credit cards and indiscriminate disposal of scrap phones and their parts (NEMA, 2005). Although this improved communication can be a plus sign to solid waste management education in the country, it has already contributed to the complexity of the waste disposal and management problem.

The fact that urbanization in Uganda started not long ago, the issue of solid waste management had not received the deserved attention. Up to now, the authorities are grappling with ways to deal with the emergent problem of waste disposal.

The biggest landfill in Uganda is located at Kitezi in Wakiso District, a few kilometres from Kampala City. The Landfill, which is commonly referred to as "dumping site" is mainly used for disposal of waste from the Kampala City and other neighbouring towns. Kampala City Council (KCC) manages the landfill through private contractors. The condition of this landfill is reported to be so alarming that the residents whose houses are less than ten meters away from the landfill are being forced to relocate due to the health and sanitation threat that the landfill poses to them (Muwonge, 2008a).

A strong stench and dangerous fumes are carried by the wind up to as far as two kilometres radius from the site, while untreated leacheate gushes downstream into the residents' gardens. This situation has led the residents to take their complaints to NEMA which has consequently issued up to twenty six conditions to KCC on disposal of garbage. One of the conditions is for KCC to make sure that the complaints from the neighbouring residents regarding the operation of the landfill and its infrastructure are addressed immediately (Muwonge, 2008a). What is unfortunate is that there is still pessimism regarding the correction of the deteriorating condition of the landfill by the City Council authorities due to inadequate budgetary allocations towards the project.

2.4.3 Weaknesses in the solid waste management system

Uganda suffers indiscriminate dumping of solid waste by the public. According to a statement by the Uganda minister of water and environment (Maria Mutagamba), Uganda has been "relying on the goodwill of people to protect the environment, but this has not worked. An environment police will be ready by the end of this year". There is no policy in Uganda on waste sorting and because of this; all the waste generated is dumped together in the same container and place. Even at the landfill where the "cocktail waste" is transferred, there are no mechanisms to sort the waste.

The most worrying material that has had far-reaching effects on the environment and consequently a threat to the agricultural soils is polythene commonly referred to as *"Buveera"*.

Due to poor and threatening disposal mannerism in the country, government put a ban on the importation, manufacture and use of polythene materials of less than 30 microns during the Budget speech of 2007/2008 financial year. This however, has not since reduced the volume of polythene manufactured and used in the country. Consequently, NEMA has advocated for a stronger law that will ban polythene stretching from 30 to 100 microns (Muwonge, 2008b). The suggestion however, has been received with mixed feelings as the city traders who do business in some of these materials, are opposed to the move. They are instead of the view that emphasis should rather be put on recycling the used polythene into useful materials like plumbing conduits and other plastic materials. To the city traders, the problem lies in the absence of a proper waste management policy in the country (Muwonge, 2008b). There is a partnership venture dubbed "waste wise" that was recently launched to collect and recycle waste like polythene bags in Kampala. The venture under the theme "Together we make the Pearl of Africa pure once again" is spearheaded and funded by the Uganda Revenue Authority in partnership with CELTEL-Uganda (Now Zain) and NEMA (Tenywa, 2008).

One of the interventions in solid waste management has been from the Uganda Cleaner Production Centre that has tried to assist several companies to reduce on waste generation, by conserving raw materials, substituting toxic and dangerous materials, and recovering, recycling and re-using by-products, among others (NEMA, 2005). However, there is still a dire need for more interventions for sustainable solid waste management practices.

2.4.4 Waste management Policy and Regulation in Uganda

The responsibility for solid waste management in Uganda lies with local governments as specified in the Public Health Act 1964 and the Local Governments Act 1997 (Matovu, 2002, NEMA, 2007). According to NEMA (2005), there is a broad policy, legal and institutional framework for environmental management in place. However, though this framework has been in place for over ten years, there is still need for additional sectors or issue-specific policies especially solid waste management. The same is true for laws and regulations with regard to solid waste management in the country. Institutionally, the structure at local government level is still evolving. This means that the problems that prevail at the lower implementation and administrative levels have their roots in the absence of specific regulations in the national policy for environmental management. Therefore, although the local governments may have the power to come up with by-laws on any issue in their areas of jurisdiction, it may still be difficult for them to come up with such when there is no guiding policy at national level.

NEMA (2005) notes that, amidst weak institutional structures, little has been achieved in ensuring people's compliance with the range of environmental management policies and laws in Uganda.

As such, the policies and laws continue to suffer continuous violation at the hands of the citizenry.

Although Environmental Inspectors have been gazetted and trained to improve on enforcement, not much has been done to change the trend of environmental degradation and mismanagement. The police and judiciary are also being made aware of their roles in environmental management, particularly the enforcement of environmental laws, hoping that this will change the way Ugandans will interact with the environment (NEMA, 2005). The problem however, is that the policies are always made with little attention put on the mechanism of enforcement. As a result, misconceptions and confusion arise with regard to the institution with the responsibility to enforce the policies and regulations. This falters the implementation of the policies.

The policy making process is also quite slow, for example NEMA has advised government to formulate a national solid waste management policy to facilitate the development of appropriate laws to govern the management of solid waste, but not much has been done to that effect. NEMA has also identified the need to revise both the National Environment Management Policy and the National Environment Action Plan to accommodate emerging issues like solid waste management services (NEMA, 2005). One of the objectives for the suggested policy is to reduce, reuse and recycle materials and goods purchased. All these are suggestions in a bid to improve the waste disposal and management methods in the country, however, when such policies are delayed, the situation only gets more complex.

The people of Uganda are expected to participate in the protection of the environment and the resources there in, but without being convinced of the benefits this would bring to them (Ministry of Natural Resources, 1995). Because there is little appreciation for voluntary measures to protect the environment among the people, irresponsible methods of waste disposal have not been uncommon in the country and waste management has not been an exception. The National Environmental Act, 1995 places the responsibility for waste management on the person whose activities generate waste. However at the same time, the Local Governments Act, 1997 places the same responsibility on the Local government authorities. Such incongruence in policies and laws cause confusion when it comes to implementation. Actually, what happens is that due to the inadequate resources the different parties selectively interpret the policies and laws conveniently to play avoidance of responsibility thus beating the purpose of the policies and laws.

2.4.5 The solid waste problem in Wakiso district

Wakiso District is particularly faced with a challenge of how to effectively manage solid waste originating from within the district and from the Kampala City. Kampala which by 2002 had no policy on waste management bought a piece of land from a private individual within Wakiso District in 1992 and started using it as a landfill site. “KCC started dumping waste at this site without adequate facilities and without even consulting Wakiso District Council” (Matovu, 2002:1). As a result of haphazard waste disposal by Kampala City Council, several problems have resulted such as pollution of drinking water in surrounding settlements (by leacheate from the

garbage); fresh air pollution due to the stench; heavy use of the dusty road to the landfill site by lorries carrying solid waste usually not secured by nets, leading to pollution along the road side; and constant breakouts of respiratory infections, dysentery, cholera and malaria. In this way, the issue of haphazard solid waste disposal continued to affect the relationship between Wakiso District and Kampala City Council.

The people of Wakiso have also significantly contributed to the solid waste problem in the district. This has manifested through the reckless use and dumping of polythene bags *(buveera)*, as well as creation of illegal dumping sites. Polythene bags and plastic waste have consequently caused a big threat to human health and the environment. "Some residents use polythene bags as 'toilets' which are dumped in trenches, on the paths, garbage heaps, around homes and water sources leading to constant outbreaks of cholera, malaria, and typhoid" (Matovu, 2002:2).

2.5 Theoretical Framework

The amount of solid waste generated in an area usually rises with increase in population. The increase in population amidst economic and social development that comes with the demand for a higher and affluent standard of living creates the need for more production as there will be more demand for consumption (UNEP, 2007). By human nature, people have different and in some instances distinct ways of doing things. It is no wonder that people will dispose of waste in different ways including indiscriminate dumping. Such environmentally unconscious ways of disposal contribute to the growth of the solid waste problem in the world and particularly in developing countries. The view held by Cointreau-Levine and Coad (2000) that government has the responsibility to provide services to the citizens, including solid waste management, may be contestable. There may be questions like, to what extent does this responsibility go, and what is the implication of the extent of the magnitude of responsibility held by the government, on effectiveness of the service provision? Besides, the government may not be in position to shoulder the whole responsibility on its own.

In Uganda, it has been noted that the responsibility for provision of solid waste management services is in the hands of the local governments as per the Public Health Act 1964 and the Local Governments Act 1997 (Matovu, 2002). The local governments have continued to struggle with this responsibility and in many instances failed to meet it adequately. There is need to appreciate that it is the citizens, the individuals and the public that generate the waste, in the homes and commercial areas. Yes, the citizens pay taxes to the government and local governments on the understanding that these will provide the necessary services including solid waste management to the public. In the ideal situation, there would be no problem with that, but as the Uganda Minister for Water and Environment noted, depending on the good will of the people to protect the environment may not always work. Besides, this good-will needs to be cultivated and harvested through other means which are not laissez faire. A closer link between government and local governments on one side and the citizens/public on the other is highly recommended- need for collaboration between the authorities and the public. Whether in the meaning given by Oakley

and Marsden (1984) where people participate by being informed, after the basic decisions have been taken by the authorities; or in the meaning given by Black, et al (2002) linking collaboration to trust and knowledge among the different parties, collaboration (between the authorities and the public) is an important ingredient in the implementation of any development activity/program.

Participation through collaboration presents an opportunity to both the authorities and the public to create a synergy for successfully dealing with such problems as solid waste management. However, like Evans, (1996a) notes, the authorities will not always be trusted when it draws closer to the social organizations. There may be suspicion that the admission of the state will lead to the demise of the community especially in terms of their values and freedom. Therefore, it is the responsibility of the authorities to put up strategies to have the public unsuspiciously get involved in solid waste management and also appreciate that a collaborative relationship between them and the citizenry would make life better but not worse. For this to thrive, however, willingness and acceptance on the side of the public should precede.

People may have different options which may work for them, but turn out to be detrimental to the way the authorities carry out their responsibilities. Participation is capable of bringing the contradictions together so that they can be understood and lessons drawn from them. It could start with just face-value collaboration and it turns out to be complementarity, into embeddedness (Evans, 1996b) and could end up into a co productive structure (Ostrom, 1996). What matters is at what level the collaboration has reached and the direction it is taking and it is usually the public that determine this.

Good public participation programs are inclusive; they avoid a monologue and emphasize dialogue which becomes instrumental in contributing to success (USEPA, 1996). Fig. 1 summarizes these ideas in the simplest way possible.

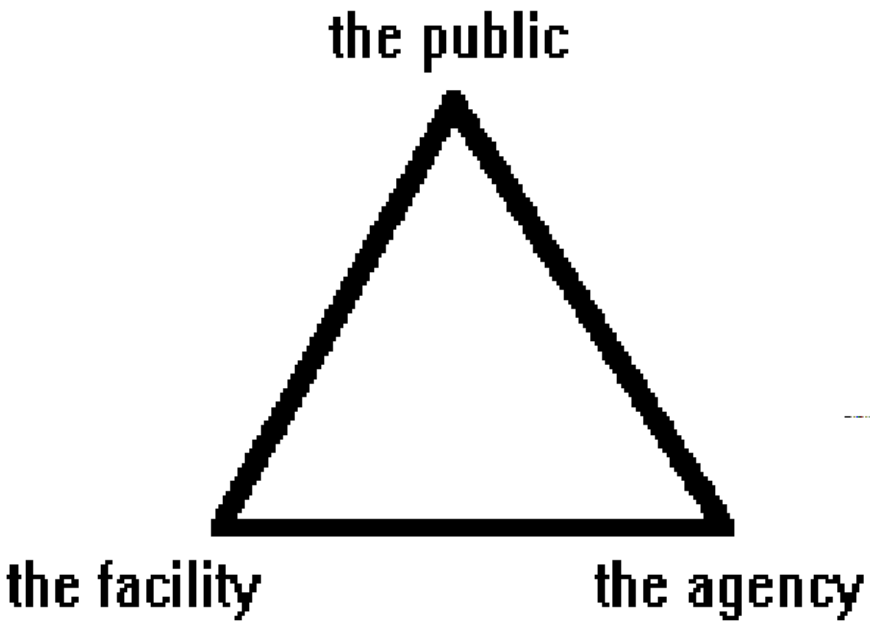


Figure 1: The Public Participation Triangle. Adopted from USEPA (1996)

As seen from the participation triangle, the issue in this case is solid waste management as a service represented as *the facility*. Government/Local Government (*the agency*) is a stake holder with responsibilities, and *the public* are the beneficiaries as well as stakeholders who have a role to play in the facility. This interactive link is desirable for success.
This study addresses the question whether such a link exists in solid waste management in Kira Town Council and how it exists if it does.

Chapter 3: Methodology

In this chapter, I present the methodology that I adopted for this study. The chapter describes a combination of quantitative and qualitative approaches to research, the research design, the data collection methods, sampling, data processing and analysis methods.

3.1 A combination of both Quantitative and Qualitative approaches

In this study I adopted a combination of both quantitative and qualitative methodologies to research. The objectives for this study (in chapter one) clearly show that the intention of this research was to explore the way the public engages in solid waste management, at what level and how the relationship between the local government and the public is with regard to solid waste management. Using a combined approach would therefore enable me to "collect numerous forms of data and examine them from various angles to construct a rich and meaningful picture of a complex, multifaceted situation" (Leedy and Ormrod, 2005:133).

The research questions that are listed under section **2.5** were divided into two parts. On one hand, the first two research questions were addressed by use of quantitative techniques. On the other hand, the last two research questions necessitated the use of qualitative techniques. This decision was based on the conviction that for this study to yield meaningful conclusions, it had to draw on the advantages of using both qualitative and quantitative methods as explained below.

Quantitative

Quantitative research is applauded for the fact that "the findings are generalisable and the data are objective"(Blanche et al., 2006). It was hoped that the findings from this study would help in reflecting what is happening in the whole of Kira Town Council. At the same time, it was important to have an amount of objectivity to dispel the concerns to the effect that qualitative research may be biased. Quantitative data and statistical analysis would also help in testing some hypotheses and increase on the validity of the findings from this study.

Qualitative

In this study, there was need for me to "dig deep" in order to get a complete understanding of the situation from the perspective of the stake holders in the solid waste management sector (Blanche et al., 2006). Making statistical conclusions could not suffice in unveiling the picture of solid waste management in Kira Town council from different perspectives. The perspective of the people could only be appreciated with the collection and analysis of qualitative data also. Qualitative research permits "understanding in context"(Blanche et al., 2006). In this study, I tried to understand whether there was any kind of collaborative relationship between the public and the

local administration (Town Council) in managing solid waste. The collaboration I was interested in was the public participation in solid waste management alongside the Town Council. Special focus was put on the challenges of involving the public in solid waste management. I was further interested in exploring whether there were any mechanisms put in place by Kira Town Council to enhance collaboration in solid waste management with the public.

3.2 Research design

As already discussed above, I employed both quantitative and qualitative methodologies. This research essentially took on a descriptive survey design, seeking to "describe phenomena accurately" (Blanche et al., 2006), not only using quantitative data but also qualitative data. This design also corresponds to what Bryman describes as Cross-sectional research design that aims at getting data from multiple cases at a given point in time so as to analyse relationships across a number of variables of interest (Bryman, 2004:42).

This study was based on such a design because; its quantification characteristic helps in consistent benchmarking (Bryman, 2004). However, cross-sectional studies usually lack internal validity (Bryman, 2004) and I tried to respond to this concern through the qualitative component of this study. In this study therefore, the qualitative data was used to enrich the descriptions generated by, and or from the quantitative data and thus build the picture of solid waste management in the study area, better. In doing so, aspects of a phenomenological study design to research were employed to guide qualitative data collection and analysis.

The rationale behind the combination was derived from the fact that qualitative research is not always explanatory only, but can also be used in constructing "rich descriptions and explanations of human phenomena" (Blanche et al., 2006). The focus of this study based on applied research; with the intention to generalize the findings of this study to a particular context under study so that conclusions to inform decision –making could be drawn.

Since I was interested in finding out the beliefs and perceptions of the people regarding solid waste management, phenomenology was a paramount component to inform this research's study design. My epistemological stand was interpretivism with inclination and intention to understand the way people "make sense of the world around them" and basing on that then I would also be able to understand the phenomenon (Bryman, 2004:13). This allows the researcher to interpret the people's interpretations in light of the related concepts and literature. Ontologically therefore, knowledge would be constructed from the researcher's interpretation of the peoples interpretations (Bryman, 2004).

3.3 Data collection methods

The methods for data collection were dependent on the required data for each specific research question. However, generally considering that this study took on combination of both qualitative

and quantitative methodology, I chose to use document review, observation, interview- structured and semi-structured, and Focus Group Discussions (Leedy and Ormrod, 2005). Depending on the kind of data that was required, I used the most appropriate data collection method to get the data from the different respondents. I therefore chose to use the different methods for different reasons.

3.3.1 Document Review

Document review is an unobtrusive data collection method which is non-reactive since documents cannot be influenced by the fact that they are being used (Robson, 2002). Organizations as well as government and in this case local government, produce many documents (Bryman, 2004). These documents can potentially be used to acquire both quantitative and qualitative data. I requested for permission and consequently documents so I could derive relevant information from them. Although I hoped to readily find, and access several documents like; annual reports; survey reports; planning documents and other relevant documents, I was only able to readily access the Town Council's Three-year Development plan for 2008/09-2010/11. This document, however, was not so deficient of the data that I had envisaged to gather from the several desired documents. It had very revealing information about solid waste management in Kira Town Council and the absence of other documents did not compromise the quality of the findings from this study to a worrying extent. Some of the data from this document formed a precursor to the interviews with Town Council Officers. I felt that this would allow for more meaningful reflection and triangulation of issues from the documents, in the interviews. This triangulation is usually necessary for purposes of examining information in documents, in light of other data sources, since documents may not be as objective as desired (Bryman, 2004:388).

3.3.2 Structured observation

A structured observation is "very systematic and enables the researcher to generate numerical data from the observations" (Cohen, Manion & Morrison, 2000:306). This being a study that is partly dependent on survey framework, it was hypothesised that the behaviour of the respondents would most likely be inferred; direct observation of people's behaviour with regard to their responses was therefore, done to check the accuracy of their responses (Bryman, 2004). Structured observation was particularly used with the help of an observation schedule as a data collection tool (Bryman, 2004).

Notably also, unobtrusive observation is non-participatory in the interest of being non-reactive and can be done in an informal way (Robson, 2002; Leedy and Ormrod, 2005), and that is why I decided to use it alongside the other methods.
Residents, traders and market vendors were observed, to gather data for this study.

3.3.3 Interview

One of the reasons for adopting a combination of qualitative and quantitative research techniques in this study was because the research questions required different types of data. Some of these data could be appropriately collected by use of structured interview while other data, by semi-structured interview. Interviews were used because of the ease at which they allow the collection of information regarding, facts, people's beliefs, feelings, motives, present and past behaviour as well as standards of behaviour (Leedy and Ormrod, 2005:146).

Structured interview

Structured interview, also referred to as standardized interview, is one of the methods of collecting data in a survey research (Cohen, Manion & Morrison, 2000; Bryman, 2004). Face-to-face structured interview was used in place of a self-completion questionnaire. The reason for this choice is that I anticipated that the literacy levels of the potential respondents would vary. Not all the potential respondents were expected to posses the skill of reading, comprehending and writing. Because of this, it would not be easy to look for such respondents who posses those skills and therefore, a face-to-face structured interview was preferred also for "standardization of both the asking of questions and the recording of answers" (Bryman, 2004:110). Since the interview instrument was to be translated into the local language, it was deemed easier to ask the respondents face-to-face than leaving them to write the answers themselves. Structured interview method was used to collect data from residents, traders and market vendors.

Semi-structured interview

Semi-structured interview was used to obtain qualitative data for this study. Qualitative data in form of attitudes, feelings and opinions would not be collected by use of the structured interview method but was rather collected separately through semi-structured interviewing. An interview guide, with a list of guiding questions was formulated with the intention to give the interviewee a wider scope within which to respond (Bryman, 2004). The semi-structured interview method was therefore, used because of its flexibility (yet with delimited generality) and allowance it gives to the interviewee in responding as they deem important (Bryman, 2004).

3.3.4 Focus Groups

Focus groups are basically group interviews (Bryman, 2004; Leedy and Ormrod, 2005). However, focus groups can be differentiated from group interviews. According to Bryman (2004), while focus groups concentrate on a particular theme, group interviews may take on a wider span, and that group interviews are done for purposes of saving time by interviewing a number of people simultaneously. He continues to note that the purpose of focus groups is to understand how people discuss an issue as "members of a group" (Bryman, 2004:346). In the focus group, attention is put on how the participants interact with each other than with the interviewer and it is

from the interaction of the participants that data emerge (Cohen, Manion & Morrison, 2000). In this study, focus groups were done for the category of people who engage privately and individually in solid waste collection from residences, markets and trading centres. This was intended to complement the qualitative data that was collected through semi-structured interview method.

3.4 Sampling

Cohen, Manion & Morrison (2000:93) argue that a sample size is in a way "determined by the style of the research". In a survey study, there would be need for a representative sample of the population for generalizability of the study findings, while in a purely phenomenological study, the sample would be smaller given the amount of data that can be collected qualitatively. In this study, which is a combination of quantitative and qualitative techniques, the sample was not necesarilly representative of the population it would be expected to be in a purely survey study.

3.4.1 Sample size

Data was collected by structured interview from 101 respondents. These comprised of residents, traders and market venders from three wards out of the six in the Town Council, which were randomly selected. 30 semi-structured interviews were also done with respondents who were purposively sampled considering their location and the information they were anticipated to possess. 10 semi-structured interviews were conducted in each of the three randomly selected wards. 3 focus group discussions (one from each ward) were done each comprising of 6 participants. 3 Town Council officials were interviewed in this study. Such a limited sample was used due to financial, time and manpower constraints (Cohen, Manion & Morrison 2000).

3.4.2 Sampling procedure

First of all, the names of the six wards in Kira Town Council were written on small pieces of papers and three wards were randomly selected for this study. The wards that were selected are Kireka/Naalya, Kirinya and Kyaliwajala. Kirinya and Kyaliwajala are dominantly residential areas with simple trading centers and market areas, while Kireka has both a planned residential estate at Naalya, some unplanned residential areas as well as two big markets and trading centers.

The procedure of reaching the individual respondents to make up the sample for this study was based on convenience sampling. However, effort was made to have the sample drawn from a dispersed area, to avoid getting the sample from one place. Much as structured interviews were conducted, it was not deemed viable to choose the sample by random sampling. This is because there there was no established data base or list of all the residents, traders and market venders in the Town Council thus making random sampling for individual respondents impossible.

Not all people who were contacted were willing to participate in the study by giving information that was required for the study. Some refused outrightly, while others feared that they might not have the required information. Those who feared incompetence to give the required information were people who had either not gone to school or those who had not attained any qualification in education. They seemed to imagine that the information required was academic and thought that it required educational competencies. Simplicitically however, the reason could also have been that they had never participated in any kind of research study before so they did not have a picture of how to go about the answering of questions. I therefore interviewed those respondents that were willing, and had some time to spare to answer the interview questions. This also justifies the use of convenience sampling procedure which was adopted, but while keeping in mind the fact that the sample had to be got from a spread area.

3.5 Data Processing and Analysis

The quantitative data from the structured interviews, was coded and a master sheet prepared before the beginning of data collection. After the data had been collected, I went through the data pieces/ structured interviews at the end of each day of data collection. This was for purposes of screening the data pieces and marking the codes on the different variables, to make the data ready to be entered into the master sheet using SPSS programme.
At the end of the data collection process, and when all the codes had been entered into the master sheet, data analysis was done using SPSS. Frequency tables were generated and crosstabulation was also made between relevant variables. I used the out put derived from SPSS to discuss the findings of this study.

On the other hand, qualitative data from the semi-structured interviews and focus groups, was edited every break of day to get the clear transcriptions of the interviewees' accounts. The notes were then typed on the computer, whereafter, emerging themes were identified and classification of the emerging themes done. The classification was continuosly edited in light of the emerging data from interviews, so that the most relevant themes could be constructed. When the final classification of the themes had been constructed, discussion of the findings was done with regard to the literature review and the data from documents reviewed.

Chapter 4: Empirical findings

This chapter presents the findings from the study following the different research questions. The data represented in this chapter was collected and processed using quantitative and qualitative techniques. The chapter first gives a summary of the respondents' characteristics in terms of whether they were residents or business people, and then goes on to present the empirical findings following through the research questions.

4.0 Socio-economic/demographic characteristics of respondents

101 respondents from the public were interviewed by structured interview instrument for quantitative data while another 30 were interviewed by semi-structured interview instrument for qualitative data. Two Town Council officials were also interviewed by semi-structured interview instrument.
All the quotes presented in this chapter are excerpts from the interview transcriptions from the data collection.

4.0.1 Respondents to structured interview

Number of respondents by ward

A total of 101 respondents were interviewed using a structured interview instrument, for quantitative data. The quantitative data was particularly to answer the first two research questions of this study. Table 1 represents the number of respondents from each ward, and shows that the variance between the numbers was minimised.

Table 10: Respondents by ward

N=101

Ward	Frequency	Percent	Valid Percent
Kireka	33	32.7	32.7
Kirinya	33	32.7	32.7
Kyaliwajala	35	34.7	34.7
Total	**101**	**100.0**	**100.0**

Respondent categories by gender

The major categories of respondents in this study were three (see table 2). Kira Town Council is largely a residential area although with numerous commercial centres and a few industries. It was therefore deliberate to have at least half of the total number of respondents sample to be drawn from the resident category. From a total sample of 101 respondents from whom quantitative data was gathered, 50 were residents while the rest were sampled from the market vendors, traders and others.

Table 11: Respondents by category and gender

N=101

		RESPONDENT				Total
		Resident	Market Vendor	Trader	Other	
SEX	Male	16	8	9	5	38
	Female	34	14	14	1	63
Total		**50**	**22**	**23**	**6**	**101**

The table above shows that in the major respondent categories, more female respondents were sampled than their male counterparts. However, this was not purposively done, but was due to the convenience sampling procedure that was adopted in this study. For different reasons, female respondents were more accessible and willing to give information as compared to the male who always seemed to be busy doing their own work.

From the identification data, it was also discovered that 67.3% of the respondents were actually tenants in Kira Town Council, either renting the residences where they stay, or the commercial premises where they operated/worked from. Only 33 respondents (32.7%) owned the residences or the commercial premises where they were found.

The "other" category included respondents who were interviewed neither as respondents nor fell in the other two categories. These were such as commercial water tap-attendant, metal fabricator, drug shop attendant, butcher, welder and cobbler.

Respondents' highest educational level

Figure 2 represents the educational level of the respondents with whom structured interviews were done. The majority 44 out of the 101 (43.6%) of respondents had secondary level as their highest education level while only 5 respondents had never attended school. The number of primary level respondents was also considerably high.

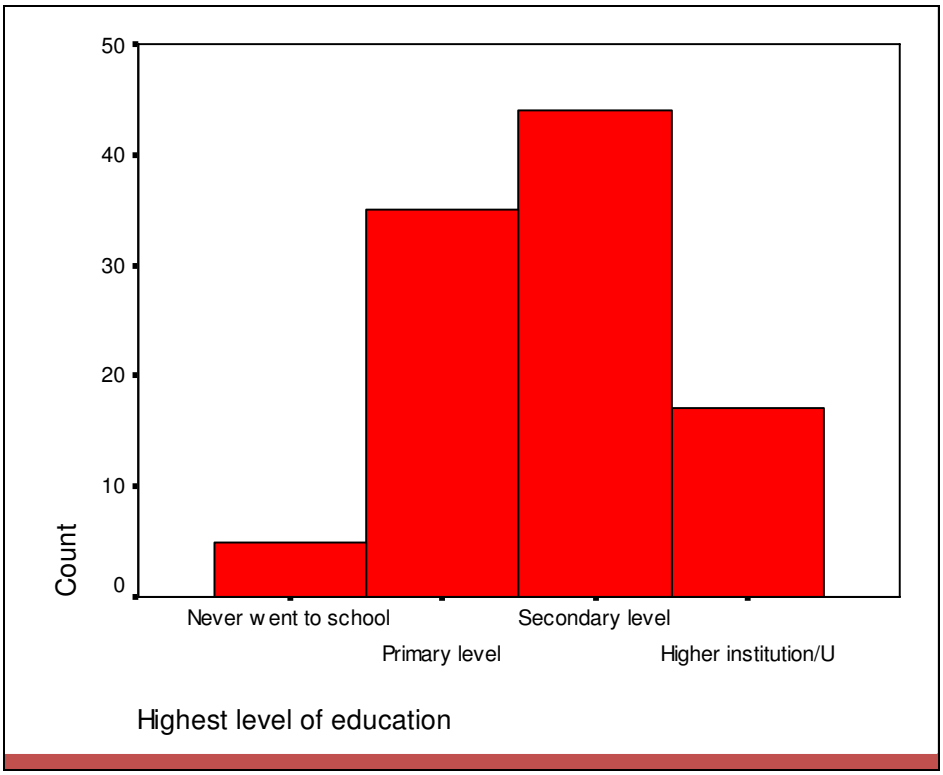


Figure 2: Respondents level of Education

4.0.2 Respondents to semi-structured interview

30 other respondents were sampled from the public, and semi-structured interviews were conducted with them for in-depth understanding of their attitudes and opinions toward solid waste management in the Town Council. 10 respondents were interviewed from each of the three wards.

16 out of the 30 interviewed were female, while 14 were male. The 30 respondents were interviewed at their premises, that is, their residences, stalls, shops and other premises where they operated their businesses. During the interview the surroundings were concurrently observed. Table 3 represents the number of respondents interviewed by semi-structured interview instrument from the different wards.

Table 12: Respondents by category and ward

N=101

		CATEGORY OF RESPONDENT				
		Resident	Market Vender	Trader	Other	**Total**
WARD	Kireka	3	4	3		**10**
	Kirinya	4	1	4	1	**10**
	Kyaliwajala	3	4	3		**10**
Total		**10**	**9**	**10**	**1**	**30**

From the town Council, three officers were interviewed (the Deputy Mayor, the Principle Town Clerk and the Town Council Health Inspector). Three Focus group discussions were also done, one from each ward with individuals who engaged in private collection of solid waste within their respective wards. Each Focus group had 6 participants.

This study therefore, involved a total of 152 respondents.

4.1 Ways of public participation in Solid Waste Management

4.1.1 Primary waste management

The respondents were asked whether they possessed and used waste containers in their homes (for residents), at their shops (for traders) and, at their stalls (for market vendors). This was asked to establish, at that level, whether the people bother to have their solid waste collected in containers. Table 4 represents the responses of the respondents from the three wards.

Table 13: Use of waste containers

N=101

Ward			Possession of waste containers: Yes	Possession of waste containers: No	Total
Kireka	Type of respondent	Resident	12	3	**15**
		Market Vendor	2	9	**11**
		Trader	4	1	**5**
		Others		2	**2**
Total			**18**	**15**	**33**
Kirinya	Type of respondent	Resident	10	11	**21**
		Market Vendor	2	1	**3**
		Trader	6	1	**7**
		Others	2		**2**
Total			**20**	**13**	**33**
Kyaliwajala	Type of respondent	Resident	9	5	**14**
		Market Vendor	7	1	**8**
		Trader	10	1	**11**
		Others	1	1	**2**
Total			**27**	**8**	**35**

In Kireka and Kyaliwajala, the residents who possessed and used waste containers were more than those who did not have or use them. However, in Kirinya, there were more residents who did not use waste containers to collect their solid waste, as compared to those who used them.

In Kireka, only two out of the eleven market vendors interviewed, had containers for their solid waste, while in Kirinya and Kyaliwajala, the majority of the market vendors had containers they used to collect their waste.

On the side of the traders, in all the three wards, the majority had waste containers. Out of the twenty three traders interviewed in this study, only three did not have waste containers at their premises. This data was in consonance with what was observed.

The respondents were also asked whether they tried to do any kind of solid waste sorting, simply by way of separating some types of waste items from the rest. This was to base on their own discretion of what types of waste they felt should not be mixed with other types for whatever reason. The responses to the question *"Do you sort the waste generated in your home/shop/stall/premises?"* are represented in table 5.

During the interview with the Town Council Health Inspector, although he jokingly stated that the first role that the people played was generating the waste, he also revealed that the people especially but not exclusively the residents, used "refuse pits" as way of managing their solid waste.

He also pointed out that while some people burn their solid waste others have responsibly made use of the private service providers whom they pay to dispose of the solid waste. Some of the private firms he mentioned are Gasia, Mr Nsubuga, Bin it and Spot clean.

Table 14: Waste sorting

N=101

Ward			**Whether waste is sorted**		**Total**
			Yes	**No**	
Kireka	Type of respondent	Resident	4	11	**15**
		Market Vendor	1	10	**11**
		Trader	3	2	**5**
		Other		2	**2**
Total			**8**	**25**	**33**
Kirinya	Type of respondent	Resident	12	9	**21**
		Market Vendor	2	1	**3**
		Trader	4	3	**7**
		Other		2	**2**
Total			**18**	**15**	**33**
Kyaliwajala	Type of respondent	Resident	9	5	**14**
		Market Vendor	2	6	**8**
		Trader	6	5	**11**
		Other	2		**2**
Total			**19**	**16**	**35**

From table 5 the findings indicate that the majority (55.4%) of the respondents do not sort their waste. All the waste is put together and disposed of without any separation. However, in Kirinya and Kyaliwajala wards a bigger number responded that they practiced waste sorting, as compared to Kireka where the biggest number of respondents responded "NO" to whether they sorted the waste generated in their premises.

When a cross tabulation is done for responses to whether one possessed a waste container and whether one sorted their waste with consideration to level of education, gives an interesting finding.
13 respondents who did not use waste containers claimed to sort their waste. Table 6 shows the cross tabulation between waste container possession, waste sorting and level of education of the respondents.

Table 15: Significance of educational level in use of waste container use and waste sorting

N=101

			Possession of waste containers		**Total**
Whether waste is sorted			Yes	No	
Yes	**Highest level of education**	Never went to school	1	1	**2**
		Primary level	12	2	**14**
		Secondary level	15	7	**22**
		Higher institution/University	4	3	**7**
Total			**32**	**13**	**45**
No	**Highest level of education**	Never went to school	1	2	**3**
		Primary level	11	10	**21**
		Secondary level	15	7	**22**
		Higher institution/University	6	4	**10**
Total			**33**	**23**	**56**

Considering the highest level of education of the respondents in relation to their use of waste containers as well as sorting waste, the data revealed that 34.3% of the primary level respondents both possessed waste containers and also did some sorting of the solid waste, while 28.6% of them neither possessed waste containers nor sorted their waste.

34.1% of the secondary level respondents had waste containers and also sorted their solid waste. 34.1% of the secondary level respondents possessed waste containers but did not engage in any kind of sorting, of their solid waste.

While 23.5% of the respondents with education from a higher institution of learning or University used waste containers and also sorted their solid waste, 35.3% of this respondent category possessed waste containers but did not sort their solid waste. On the other hand 23.5% of this category neither had waste containers nor sorted their waste at all.

In Kirinya ward, one of the residents there engaged in somewhat serious albeit not very formal, waste sorting exclusively for plastics (*see photo 1*). He explained that although he was relieving people of unwanted materials, he did not charge them any fee. On the other hand, people who know about his project in the neighbourhood seldom bring him the plastic waste but he does not pay them even though he sells it afterwards. The box below presents his views and opinions on waste sorting.

Box: Views of a respondent practicing plastic waste sorting in Kirinya (Source: Respondent Interview Transcriptions)

For me, I collect the solid plastic waste and sort it so that I can get some little money for myself. I do it on small scale, so I cannot call myself a businessman in waste sorting. What I do is I get some time and move around the dumping areas and pick the solid plastics that are dumped there. But also some people who know about this passion of mine bring the waste plastics to my home, but these are a few neighbours who have the good will, of which they are not so many.

When I collect them, I then sort the waste into four categories depending on their use as I was taught by the experts from the recycling industries.

I later sell the plastics to recycling companies who collect them from my home only when I alert them that I have collected enough. I sell these plastics to the companies in kilograms, and through this I can earn a living.

The challenge I have is that some people steal my scrap because I lack storage facilities and means to transport the waste to the people who recycle it as I have sorted them, because they also take time to come for the plastics after I have called them.

Sorting waste is good but due to the poor attitude that people have, they do not see it necessary to sort their waste out and get the right out of the many.

The people therefore, need to be sensitised about waste management, and specifically waste sorting, through seminars and other media like radios, television, posters and bill boards.

Photo 1: Plastic waste to be sorted for recycling (Source: Researcher 15th April 2009)

4.1.2 Waste disposal practices

Consideration for waste reuse before disposal

In order to establish the level of concern and effort by the public, in solid waste management, respondents were asked questions regarding their waste disposal mannerism and practices.

When asked whether there were any items from what would qualify as waste, that they reused, only 31.7% of the respondents indicated that they reused some items. The majority did not have any items they felt were reusable.
Those who responded "YES" to this question; were asked to specify the kind of items they reused. During the interviews, I requested some of the respondents to say what they used such items for.

The items they specified included;

Paper boxes which some used as waste containers (especially the traders in shops and merchandise stores)

Sacks (were mostly specified by traders and market vendors). Sacks usually are used for packing grain and serials but when they are empty, instead of disposing them off, some traders explained that they sold them to customers and used others to separate their cereals and grain for display in their shops. Some of the market vendors said they used the sacks to carry their merchandise from where they do the shopping to their final destinations and also for storage at the end of the day when they are closing.

Old banana leaves to cover bananas; these were specified by market vendors who reused them by covering yellow banana (plantain) to ripen before selling it to the customers.

Old clothes were also reused especially for cleaning (mopping the house) for the case of residents. In one of the residences, a respondent said that he used the old clothes for washing the car, while one trader said he used old clothes for making pillows. He would cut the clothes into small pieces which he stuffs in a casing to make pillows for sale.

Old Jerry cans and basins; these were reused as waste containers in some homes as well as by some traders who could dump in the waste which was not needed or peelings from the customers who needed to be helped out to remove the dirt so as to avoid going with it at home, for instance banana peelings, fish covers and potato peelings too.

Food left-over, banana and cassava peelings were reused as feeds for animals especially cattle. In some homes, such as these waste items were kept separately so that those who have cattle could pick them. One respondent, who was asked whether they sold their banana peelings, revealed that she had an understanding with the person for whom she kept these peelings. Every week, this lady was entitled to a litre of milk from the person who takes the peelings. She noted that deal was better than nothing after all, it saves her the burden of disposing of the waste and yet at the same time, she gets a litre of milk every week.
In some other households, these peelings were used as manure in the back yard gardens.

Empty plastic water, and soda- bottles and plastic tins; mineral water bottles and plastic tins are also reused after their initial purpose. These were said to be reused for different purposes. Some respondents said they used the plastic water bottles for buying paraffin and cooking oil for domestic use. The 2-litre empty soda bottles were said to be used for keeping drinking water in the refrigerators.
Plastic tins like those formally used for packaging cooking ingredients were retained by the respondents for the same purposes. Whenever they buy other ingredients in sachets or paper packaging, they would store such new items in the old empty tins. Others said, they used them for storing sugar in place of sugar-bowls since some could not afford the bowls.

Polythene bags; some respondents recounted that they used old polythene bags for carrying items from the market (instead of buying new ones each time they do shopping), while others said they used polythene bags for wrapping "*matooke*" (banana meal) for steaming.

Old shoe soles; there is one respondent who specified shoe soles as an item that he re-used. He said old shoe soles were used in mending shoes and he added that he goes out to dumping areas looking for such, for reuse.

Role players in solid waste disposal

The respondents were asked to reveal who takes the solid waste from their premises, for disposal. The responses by the interviewees are represented in the figure 3.

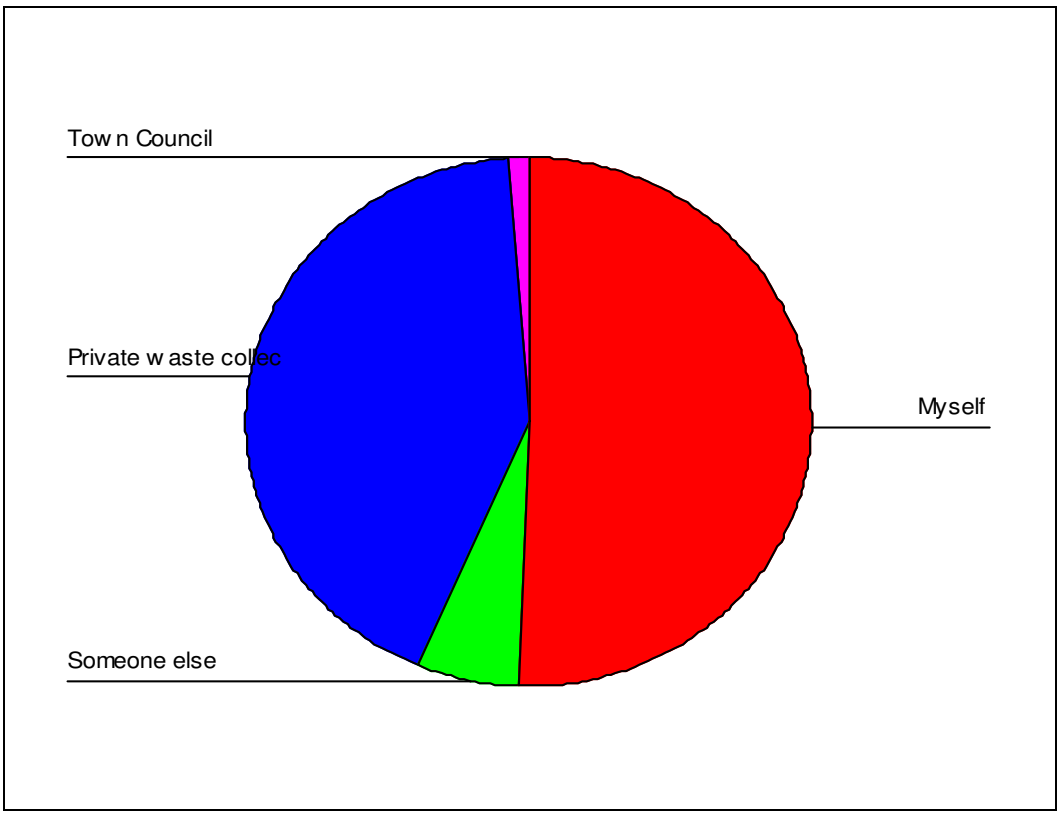


Figure 3: Responses on who takes the waste from the respondents' premises, for disposal (in %)

The biggest proportion of the respondents takes the solid waste for disposal by themselves. (*The response "myself" implied that the person who was interviewed is the one who carries the waste away by themselves. The response "someone else" implied that another person other than the one who was interviewed in a residence, or commercial premises, took the waste away for disposal.*)

A relatively big proportion on the other hand used a private waste collector to pick the waste from their premises at a fee. (*Private waste collectors encompass both those individuals who take it upon themselves to collect solid waste from domestic and commercial premises, to a collection centre/landfill/dumping site, as a way of earning a living; as well as registered commercial waste collection companies.*)
It is only a very small proportion that had their solid waste picked by the Town Council authorities for disposal.

On their part, the Town Council explained that they have only one truck which they use to collect solid waste from the most problematic areas. Because they do not have enough transport facilities, it is impossible for them to collect all the solid waste generated in the Town Council. The Town Clerk elaborated by saying;

> *"The problem now, is that we do not have an official landfill or dumping site for our Town Council. But we have communicated to Kampla City Council (KCC) who have a dumping site in Mukono to allow us also take our solid waste to their landfill. Even then, transport is a problem to us. The garbage is quite a volume and we have only one vehicle, so we are limited by transport facilities."*

The Deputy Mayor identified also concurred with the Town Clerk by declaring that,

> *"What we are doing now as a Town Council is to encourage the use of service providers who charge a fee for waste collection. For them, when they collect the waste, they can manage to transport it to other dumping areas like in Mukono (a neighbouring district). However, we have not yet streamlined the program to the level of us contracting them officially or even charging them for this service provision but for now, they are helping us to stand in the gap because we cannot as a Town Council manage to handle all the solid waste in our area."*

For purposes of establishing whether the respondents cared to know where the solid waste they generated was taken for disposal, they were asked to tell where this waste was taken. There were predetermined options (*developed during the pre-test of the structured interview instrument*) that the respondents had to respond to. Figure 4 presents the responses by category of respondents.

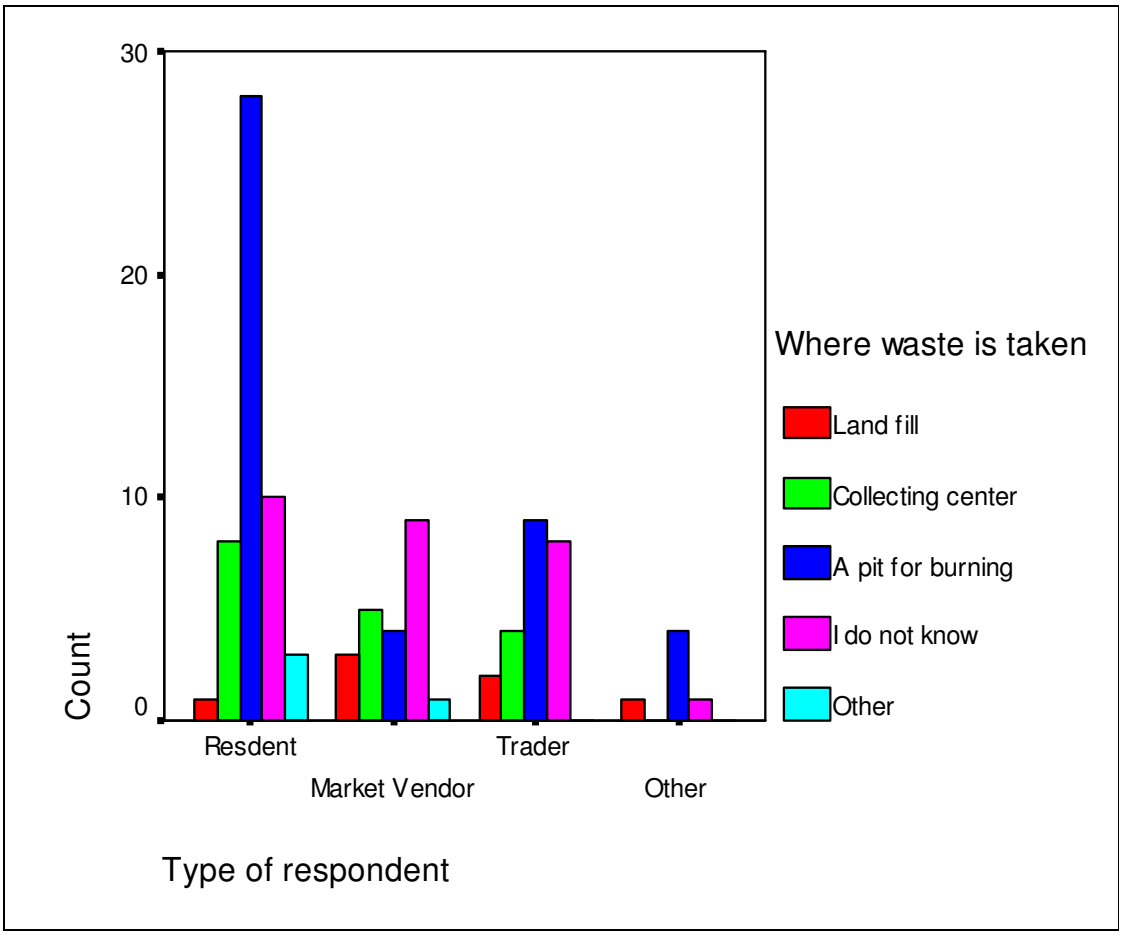


Figure 4: Respondents knowledge on where the waste is disposed of

The data shows that apart from the market vendors, in all the other respondent categories "pit-burning" was the most popular method of solid waste disposal. The biggest proportion of market vendors do not know where their waste is taken for disposal. Generally across the different respondent categories, a considerable proportion does not know where the solid waste is taken for disposal. Few respondents indicated that the waste is taken to a landfill for disposal.

The findings also show that 50 out of the 101 respondents interviewed using structured interview instrument, said they pay for solid waste collection while the rest said they did not pay. Those who did not pay are mainly those that take on pit-burning as a way of waste disposal, which does not require any payment because everyone does it for themselves.

Illegal dumping

A number of respondents expressed concern about indiscriminate illegal dumping practices by some people in the Town Council. For example one resident of Kyaliwajala revealed that;

> *"We were dumping waste at a nearby place but we were stopped by certain people though some other people have continuously dumped waste at the place. Many people give their waste to irresponsible or drunkard people who dump the waste wherever they want."*

A trader in Kireka also explained that;

> *"There is a vehicle that collects waste but people have decided to dump waste at a nearby bush. Since the area is residential, the tenants lack dumping space and resort to desolate land and bushes. I heard that rich people come in cars and dump sacks of waste at any place and drive off in their cars."*

From my own observation as I collected the data, there were so many areas where such indiscriminate illegal dumping of solid waste was done (*see photo 2*). To some people, any place that is not under activity was a potential dumping place. It was observed that people dumped waste along the paths, by the roadsides, in incomplete building structures, in bushes and in bare plots of land without any structures.

Photo 2: Illegal dumping site in Kireka (Source: Researcher, 17th April 2009)

The Deputy Mayor lamented about the solid waste disposal practices of the people in the Town Council. He revealed that,

> *"What is happening is that people put the waste in buveera (polythene bags) and wait for the rain to start falling and then they throw in the trenches so that the waste can flow with the running water. This is very dangerous. At least they should participate by burning their waste, they can also burry the waste or use the service providers."*

Voluntary public responsibility on proper solid waste disposal

A direct question was posed to the respondents to establish their practice when they found solid waste that they themselves have not generated. The question was very clear "*what do you do about waste you find outside your home/business premises?*" and two alternative responses were given "*pick it and put it in a nearby waste container*" and "*move on*". Only 43 out of the 101 respondents said that they pick such waste and put it in the proper disposal place. The other 58

respondents said they just move on for as long as that waste is not generated by them. Figure 5 represents the respondents practice by category.

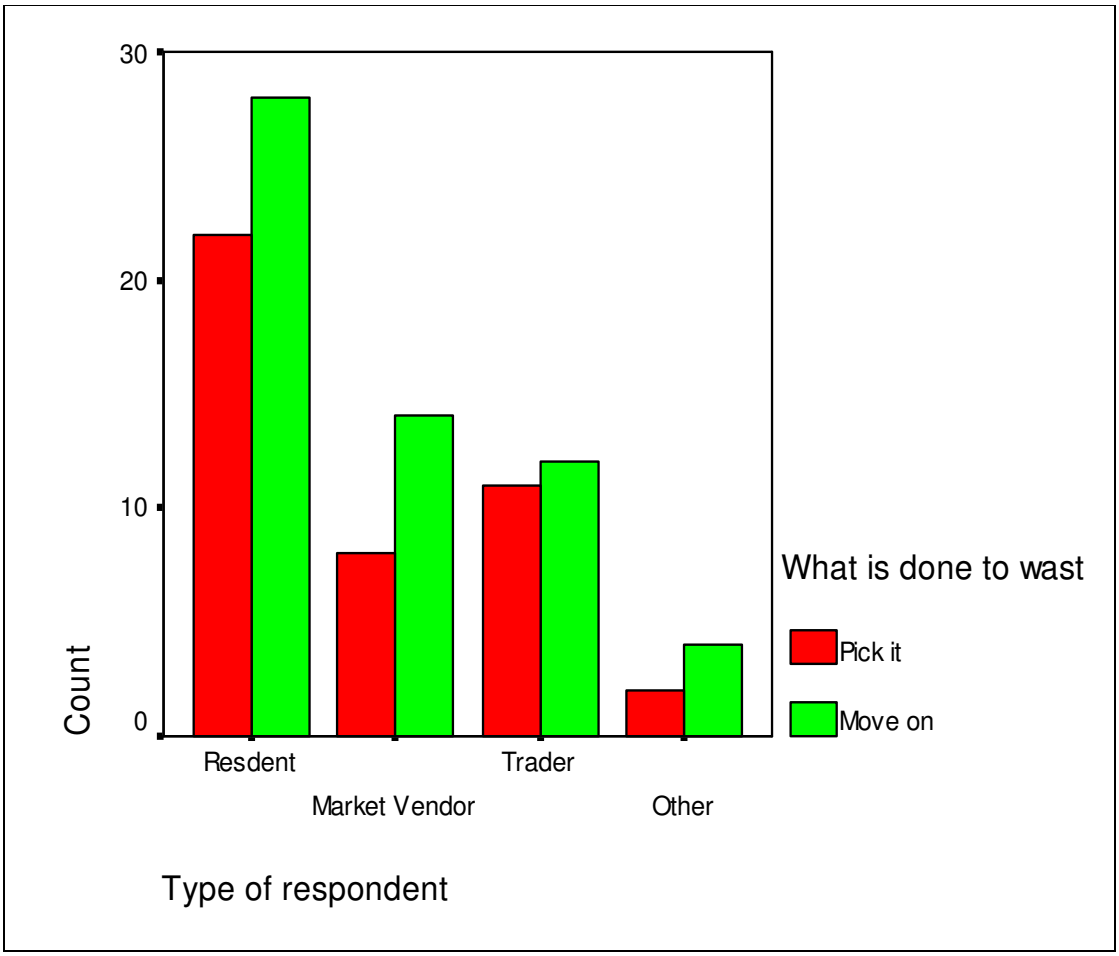


Figure 5: What the public does to waste outside their premises

4.2 How else the public can participate in Solid Waste Management

4.2.1 Possibility for waste reduction

A number of questions were posed to the respondents by structured interview to find out what they think they can alternatively do to manage solid waste better. The questions revolved around the possibility of waste reduction in terms of avoiding waste and item reuse, what they think about waste sorting and whether they think working together as members of the public and, with the Kira Town Council authorities was a welcome possibility.

The findings indicated that the majority (81.2%) of the respondents to the structured interview felt that it was not possible for them to reduce on the amount of waste they generated.
Only 19 respondents out of the 101 interviewed could think of some other ways of waste reduction. When these respondents were asked to state how they could reduce the amount of waste they generated, they mentioned ways like; reducing on the packaging from where the purchases are made, using the packaging materials over and over again to avoid more of them whenever purchases are made, by changing the types of foods bought, by sorting the waste so that the peelings can be given to farmers and the plastics given to those who need them for recycling, minimising on the use of papers and, cooking only an amount of food that the family will finish to avoid food left-over.
Table 7 represents the responses to the possibility of reducing the amount of waste generated

Table 16: Responses to whether it is possible to reduce on amount of waste generated

N=101

Is it is possible to reduce on the amount of waste generated	Frequency	Percent	Valid Percent
Yes	19	18.8	18.8
No	82	81.2	81.2
Total	**101**	**100.0**	**100.0**

The Town Council Health Inspector explained that the people in the Town Council could do something on solid waste reduction. In his own words he said,

> *"The community has a duty to reduce generation of refuse itself. Sometimes someone may buy a shirt from Kampala (city) with box paper but they can leave such package material behind and just carry the shirt."*

The issue of whether the respondents felt they could reduce the amount of waste they generate was followed up with a question to establish whether the respondents could identify some items they throw away (waste) but could still be reused. The intention was to establish whether there is room for the respondents to consider reuse of items as a way of reducing waste. The responses to this question are summarised in table 8.

Table 17: Respondents on whether there are reusable items not being reused

N=101

	Response	Frequency	Percent	Valid Percent
Reusable waste items not being reused	**Yes**	47	46.5	46.5
	No	54	53.5	53.5
Total		**101**	**100.0**	**100.0**

The findings show that 47 (46.5%) out of the 101 of the respondents could identify some items that are discarded of as waste but could be reused. The interviewees who responded "yes" to this question were requested to specify some of these items and they enumerated such items as; metals, empty sacks, plastic tins, polythene bags, empty plastic mineral water bottles, paper boxes and empty cooking oil jerry cans.

The Town Council Health Inspector was of the view that,

> *"It is a duty for the community members to reuse some of their waste like bottles, banana peelings-for animals. But the best thing to do is to sort the waste because over 70% of the waste is bio-degradable which we can compost, and then the plastics and others can be done away with."*

4.2.2 Significance of waste sorting to the respondents

A question was posed to the respondents on whether they think it helps to sort the waste they generate, before disposal is done. 90 (89.1%) of the respondents answered "yes" to this question and Only 11 (10.9%) respondents answered "no" implying that they probably saw no use in sorting the waste they generate. The respondents were not asked to explain their response but instead they were given a list of items to choose which ones they preferred should be sorted out of the rest or secluded specifically for recycling purposes. The list that was given to the respondents was generated from the instrument pre-test. The responses to this question are represented in figure 6. The most frequently mentioned item was hard plastics followed by metals though the

disparity in the frequency is substantial. The least mentioned item was paper, while a number of respondents had no idea on which of the items should be sorted for recycling.

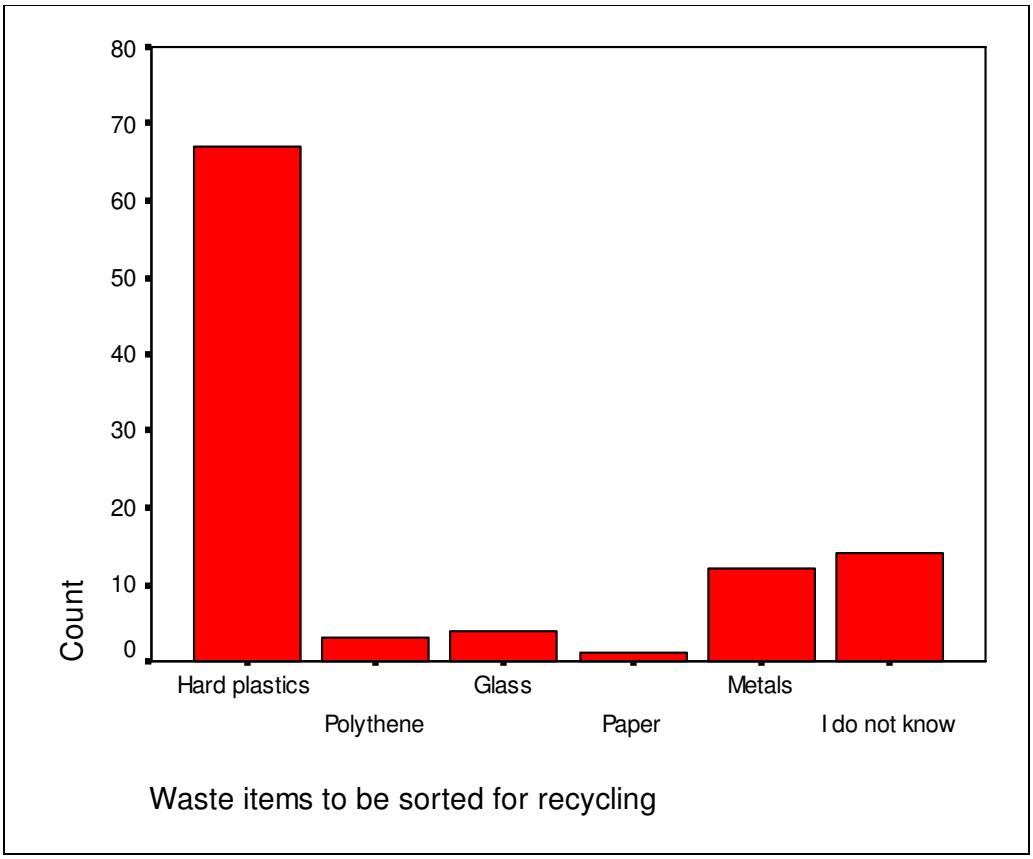


Figure 6: Respondents on the preferred items to sort for recycling

The Town Clerk of Kira Town Council held the view that the people can take advantage of waste and start making a living out of it especially the organic waste which can be used as manure. He said that as a Town Council;

> *"We are also trying to persuade the urban masses to consider coming up with business plans in waste management whereby they can collect the solid waste and sort-out the organic waste which they can improve on and sell to those on the outskirts who practice agriculture. They will be both earning and at the same time helping in solving the solid waste problem. This kind of arrangement is working in Mbarara District and it is progressing very well and those dealing in it are happy."*

According to the Town Council Health Inspector,

> *"It is also the duty of the community members to sort biodegradable waste from the non-biodegradables as an important step to improve refuse management."*

When asked the advantage of that, he said that there are some people who would be interested in the bio-degradable waste to use it in their gardens as manure and if the waste is sorted, it becomes easier for them to collect it and use it.

4.2.3 The place for commercialisation of waste collection

Further to establish what the respondents can do in solid waste management, they were asked whether if a waste collection fees were introduced, they would be willing to pay it. Their responses, which are represented in figure 7, revealed that 79 (78.2%) of the respondents are willing to pay waste collection fees if introduced in future, while 22 (21.8%) expressed unwillingness to pay.

However, when a cross tabulation is done between the responses on where the waste is taken for disposal, and the willingness by the respondents to pay for waste collection in future, the data are quite revealing (see table 9). The cross tabulation shows that most of the respondents who expressed unwillingness to pay for waste collection, were those who burn their own waste as a way of disposal.

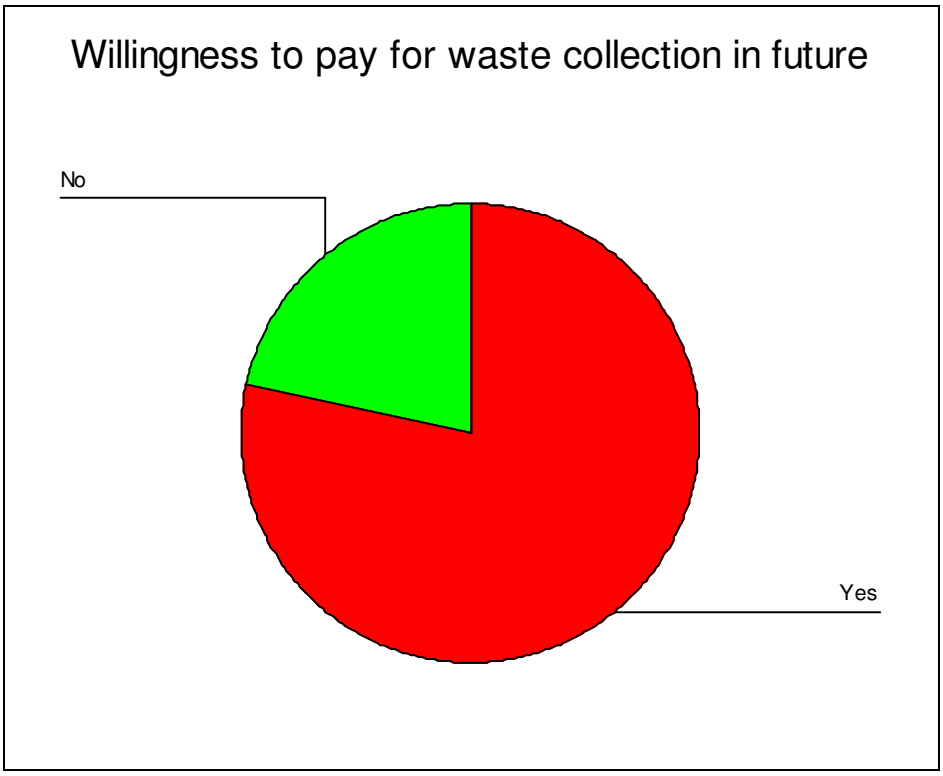


Figure 7: The respondent's willingness to pay waste collection fees in future (in %)

Table 18: Cross tabulation between where the waste is taken for disposal, and willingness to pay for waste collection fees in future

N=101

		Willingness to pay waste collection fees in future		Total
		Yes	**No**	
Where the waste is taken for disposal	Land fill	6	1	7
	Collecting centre	16	1	17
	A pit for burning	27	18	45
	I do not know	28		28
	Other	2	2	4
Total		**79**	**22**	**101**

4.2.4 People's views on collaboration on solid waste management

The respondents were asked whether they felt that it is important and helpful for them to collaborate with others on matters of solid waste management. However, the question was phrased in such a way that the respondent would respond in relation to collaboration with people in their category. That is; the residents in relation to collaborating with fellow residents, traders in relation to fellow traders and market vendors in relation to fellow market vendors.
From the data, 87.1% of the respondents expressed openness and willingness to work with others on solid waste management. The others who felt that that they would rather individually deal with their solid waste gave reasons like one of the residents from Naalya hosing estate said;

> "*People are very difficult, and they think differently. It is very difficult to arrive at an agreement on how to deal with solid waste. Some of them are just stubborn and do not care about what goes on, so for me I feel everyone should find their own way of dealing with their waste and everyone will be at peace"*

Another respondent from Kireka trading centre feared that;

> *"For me I generate a very small volume of waste from my shop, which I burn without incurring any cost but if we are to enter a collaboration, they will start charging everyone including me who has very little waste, yet I can handle my own waste"*

Apart from the willingness for collaboration between the members on the public side, the respondents were asked whether or not they felt that they could manage to handle their waste on their own without help from the Kira Town Council authorities. To this, the responses from the structured interviews showed that the bigger proportion of respondents (75.2%) felt that they could not on their own manage to deal with the waste generated.

The Town Council plans to formalise the waste collection fees in Kira. It was revealed that the Town Council is planning to enact a bye-law which will regulate the amount of money to be charged by the service providers for solid waste collection. The service providers were identified to be the individuals or firms that collect solid waste from the residences and townships at a fee. The Town Clerk noted that;

> *"We want to make sure that the amount is fair to both the urban rich and urban poor."*

4.3 Challenges of public participation in Solid Waste Management

4.3.1 Respondents' attitude toward the Town Council

Using the semi-structured interview instrument, respondents were asked to give their opinions on the relationship between them as the public and the Town Council authority. The opinions of the respondents show signs of averseness to participation by the public. Respondents had views such as the following;
A trader in Kyaliwajala said that;

> *"The town council has not yet come up to help us with anything about waste but since my landlord manages my waste free of charge yet the town council will charge me for the same services therefore I do not think it is necessary for the town council to come up and manage our waste."*

Yet another trader in Kyaliwajala bitterly complained about the apathy of the town Council, that;

> *"The town council has not done anything about waste, for example when a dog dies it is up to us to pay someone to bury it when the town council is just redundant. They claim that lockups are near the road but they do not care about the waste in our lockups, they only want to dismantle/demolish our lockups. The vehicle that collects waste requires us to pay money."*

A trader in Kireka expressed reservations about the way the Town Council came in to deal with solid waste. He lamented that;

> *"The town council has just given us a vehicle two weeks back. They only catered for the rich in fenced houses and neglected us the traders. It is just of recent that they have started collecting the waste."*

A Kireka resident also explained effect of charging waste collection fees, that;

> *"The town council fares are high, they charge a lot of money and thus some people find it costly to give the waste to private collectors which make them dump the waste at a place of their convenience."*

A market vendor in Kireka felt that it was useless to think of the Town Council in dealing with solid waste, in her own words, she said;

> *"The town council just 'milks' us, they do not help us in any way and they are just politicians who do not help us with waste. It is up to us to devise means of disposing of waste, say by getting a private waste collector. Even if we run to*

> *them concerning waste, they will only tell us that they are sending the vehicle to collect the waste but the vehicle will never come."*

However, there were some voices that seemed to appreciate that though their participation in solid waste management as the public was costly, it was the logical way to go. A resident from Kireka explained;

> *"I usually see vehicles from the town council that collects waste at a fee. People should pay because some other people dump nasty waste like human waste, pampers therefore because of that people should pay the persons carrying the waste. I do not agree with free waste collection because someone carrying the waste might catch a disease and because of that they need to be paid so as to be able to treat themselves in case of such eventualities."*

4.3.2 Town Council Officials' views

It was found out that some people are led into unsustainable ways of waste disposal because of their economic impairment. The Town Clerk and Town Council Health Inspector agreed that there are those who can afford to pay waste collection fees while there are those who cannot afford. They noted that those who cannot afford wait for night to fall and then carry their solid waste and dump it in places like trenches, by the roadside, along small paths, bushes and that some even dump the waste in the middle of the road. All that some people care about is that the waste is away from their environs regardless of where it is disposed of.

The Town council Health Inspector however noted that one of the major impediments to proper solid waste management in the Town Council was the uncooperative characters of the community members. He lamented that,

> *"People have become aggressive; they do not appreciate what the Town Council is doing. When they are advised to sort their waste, they do not listen.*
> *In a community like this, mobilization is hard because people leave home very early in the morning. When we go for mobilization, others lock up their gates and they refuse to open and yet they are the ones who carry buveera (polythene bags) full of garbage and dump them along the way as they go to work."*

He also identified resource constraints as a challenge. He said,

> *"We have a truck and a wheel loader which we think will ease the waste management in the Town Council. Since people dump in a "to whom it may concern" manner, the truck and wheel loader will be picking such waste from various areas. However, the truck cannot go to residential areas and yet the*

> *garbage is too much in residential areas. Of course one truck cannot collect all the garbage from all the residential areas due to the very large expanse."*

4.4 Prospects of public participation in Solid Waste Management

4.4.1 Future collaboration between the public and the Town Council

When asked whether it is necessary to work with the Town Council in managing waste, 93.1% of the respondents interviewed by structured interview instrument said it was necessary to work together with the Town Council. One of the respondents substantiated his response by elaborating that;

> *"If the Town Council does not help us, where will we dispose of the solid waste? We will always need the Town Council at least to give us where to dispose of the solid waste. On our own as members of the public, we cannot afford to secure land for solid waste disposal, it is impossible."*

The respondents echoed various thoughts on what the Town Council should do in future with regard to greater involvement of the public in solid waste management. The thoughts indicate different perspectives on what can make public participation better.

The Town Clerk on the side of the town Council noted that networking with the members of the public was to be emphasised and that efforts will be put in to nurture it. The Town Clerk brought out the fact that there are some good willed people in the community who just need to be mobilised and they can constructively contribute to the solid waste management programs. He said that on several occasions, such people have even donated fuel to the Town Council so that it can collect the solid waste heaps from some areas where solid waste is regularly dumped. He therefore promised that this program will be supported so that more members of the public are brought on board.

4.4.2 Need for formal waste collection and disposal facilities

Nine out of the thirty respondents interviewed using semi-structured interview instrument expressed need for the Town Council to provide for facilities that would help the public to take part in the management of solid waste. These sentiments were expressed through such responses as below;

A resident of Kirinya suggested that;

> *"The town council should gazette a specific area where people can dump waste say near a forest because this would prevent people from dumping waste at any place of their convenience. People would be dumping waste near the forest but not now because it is not gazetted.*"

One resident of Kireka had the opinion that;

> *"The town council can gazette dumping sites for people to dump waste and afterwards they should come, collect and dispose of that waste."*

Another resident of Kirinya diverted from the suggestion of a collecting centre and rather implored that;

> *"The town council should put up a vehicle for collecting waste but a collecting centre will not work as people will act irresponsibly."*

One trader in Kyaliwajala pleaded that;

> *"The town council should purchase and avail vehicles to collect the waste because this will be helpful even if is at a fee."*

Another suggestion from one resident about collection containers was that;

> *"The town council could bring a container for people to collect waste and later come to collect and disposed of. This would help because most people lack places where they can burn the waste and thus such people need to be helped."*

For a resident in Kyaliwajala, the distance to the collecting centre was the problem and she proposed that;

> *"The town council should put a container near us because the collecting centre is far from where we live. Even if it is at a fee I will pay."*

A market vendor in Kyaliwajala felt that it was the responsibility of the Town Council to provide solid waste management services. She argued that;

> *"The town council should come and help us because it is their responsibility, they should bring containers where we will collect the waste for them to come and take for disposal."*

The Deputy Mayor regretted that the Town Council had not yet secured a formal solid waste disposal area (landfill), but it was in the offing. He actually explained this position by saying,

> *"It is indeed our responsibility to manage the solid waste within the Town Council. That is why we have gone ahead to procure land for use as a landfill for solid waste. However, after we had procured the land, an Environmental Impact Assessment was carried out and unfortunately, it was declared that the land was in a wetland and it was seen as a source of water for the community around. This means that we cannot use this land for that purpose because the garbage produces leacheate which is dangerous to the health of the people. We are planning to buy another piece of land next year (2010)."*

4.4.3 Legal instrument

For some respondents, there was need for the town Council to use its authority to enact laws and regulations on solid waste management. There was an observed feeling among many respondents that the members of the public cannot be trusted when it comes to being responsible when it comes to waste management. They therefore proposed that the legal implement can be employed to handle those that may be insensitive to the norms of proper practice and force them to conform. Of the thirty interviewees, thirteen mentioned legal method as one of the ways to motivate the public to participate in solid waste management. Some of the opinions in the words of the interviewees are reported below.

A resident of Kirinya noted that;

> *"The town council needs to come up with laws and policies concerning waste disposal especially now that the place is developing and attracting more people."*

Another respondent, a trader in Kyaliwajala elaborated that;

> *"There should be a policy or law concerning waste because waste is dangerous since it can cause diseases. People may see that the laws are unfair but the end justifies the means."*

Several other respondents also had the same opinion and they had different perspectives to the same.
A trader in Kyaliwajala was quick to warn that;

> *"The town council should pass Laws on waste management, but sensitization should come first before the law."*

Another resident of Kireka explained that;

> *"The law should be put in place but this will work well when the Town Council gives us a collecting container. Even some people can dump the waste outside the container making the place dirty."*

Another resident of Kireka pointed out that;

> *"There should be laws regulated to stop people from dumping waste at any place because a child may pick something from the dumped waste, eat it and fall sick. Those who will look at the law badly are just doing it out of stupidity."*

One market vendor in Kireka was of the view that;

> *"The town council should enact and reinforce laws concerning waste management and at the same time collect the waste at a fair fee because this will reduce illegal dumping of waste."*

These opinions do not differ so much from each other. They can better be summarised in one of the suggestions by a resident of Kyaliwajala that;

> *"If a law is enacted concerning waste, people will start disposing of waste responsibly."*

About the legal option, the Town Council Health Inspector said,

> *"We are formulating a policy for the community to contribute some money to private firms to collect and then the town Council will take care of other garbage hips."*

He held the view that when the policy was in place, giving an alternative to the public on the acceptable structure for managing waste, than it could work as a basis for the law.

4.4.4 Awareness-raising

A number of people interviewed thought that one of the reasons why solid waste management is an issue in Kira Town Council is that people are not aware of the consequences of poor solid waste management and also are oblivious of the fact that they are responsible for the better management of the solid waste. Most of the respondents who were conscious of the need for awareness-raising were giving it as a complementary measure to others like the legal instrument and the use of waste containers. Nine out of the thirty people interviewed with semi-structured interview suggested that sensitisation was important for greater involvement of the public in solid

waste management. Their suggestions are reflected in some of the opinions of the respondents below;

A trader in Kirinya advised that;

> *"After the town council has come in, there should be sensitization about the containers/collecting centres so that people do not misuse them."*

This advice was targeted to the use of waste containers and collecting centres.

About the vehicles to collect the solid waste, a resident in Kirinya felt that;

> *"Sensitization of the community should be done before the vehicles so that the population get to know what to do."*

From Kyaliwajala, one resident reasoned that;

> *"Some people are ignorant about proper waste disposal so there is need for sensitization."*

Another resident of Kyaliwajala was concerned that;

> *"People handle waste in their own convenient ways, but it would be good if the town council sensitized people about proper waste management like it is done on some radio stations."*

However, a resident of Kireka had a totally different view about people's awareness. He argued instead that;

> *"There is need for mobilization of the community to clean the place and burn the waste that people have dumped like it was long ago when communities used to clean wells and dig roads. People dump waste knowingly not out of ignorance."*

The Town Council officials (the Town Clerk and the Town Council Health Inspector) in agreement revealed that there were plans for sensitisation of the public on issues to do with management of solid waste. They plan to educate the public on proper waste management practices and also the benefits that silently lie in the solid waste sub-sector. The public will be introduced to the different ways of making solid waste useful and economically profitable.

The Town Clerk also pointed out the plans to sensitise the public on the need for payment of some money for solid waste collection. This is however to be done after harmonising the fees to be charged so that the public is not taken advantage of by the solid waste service providers.

The Town Council Health Inspector said that they also plan to use youth groups for sensitisation and campaigns through sports, to promote refuse management.

4.4.5 Monetary instrument

While giving their opinions on what they think the Town Council should do for a better relationship with the public in solid waste management, ten out of the thirty respondents to the semi-structured interview identified issues to do with waste collection and disposal fees/charges.
One of the respondents' concerns was affordability of the fees to be charged by the Town Council for solid waste.

A resident of Kirinya was of the view that;

> *"The town council should come in to collect waste but the fee should be affordable."*

A trader in Kyaliwajala trading centre also suggested that,

> *"Since this is a trading centre, they can give us a collecting bin from which they can collect waste later at a very low fee say Uganda Shillings 200, but if it exceeds that I would rather burn it."*

However, others felt that it would be better if the solid waste could be collected from them free of charge.
One resident of Kyaliwajala lamented that;

> *"It would help us more if waste is collected free of charge since most people do not have money so they end up disposing waste at any place."*

This revelation was quite valid as the observations made during the data collection showed that people were in the habit of dumping solid waste in any place they found.

Photo 3: A resident of Kirinya carrying solid waste in a sack to unknown place for dumping (Source: Researcher, 15th April 2009)

Others felt that if the waste collection cannot be effected free of charge, then the cost should be low. A trader in Kireka said that;

> *"The town council should get a vehicle to collect waste even for people who do not have money or they should charge a relatively cheaper fee because people earn little money."*

Other respondents seemed to be concerned about the frequency of the waste collection due to the volumes of solid waste generated. For example, a market vendor in Kireka market demanded that;

> *"The town council needs to collect waste more often at least daily even at a relative price because people produce a lot of waste and they are willing to pay."*

A market vendor in Kirinya also complained that;

> *"The only problem is that the Town council delays to take the waste, making it a problem because waste starts to decompose and the whole environment starts to stink."*

The amount of money that the respondents were willing to pay was varied. All seemed to have their own individual preferences.
For example one resident of Kireka preferred that;

> *"The town council should charge us little money say 5,000/= per year for collecting waste."*

Another resident of Kireka (Kamuli Zone B) who added a legal backing to the fee that should be charged suggested that;

> *"People should pre pay for waste say 1,000/= monthly and then dump the waste at the collecting centres, for instance the way people pay for security fees. It should be made a law for every household to pay the waste collection fees."*

There is one resident of Kireka who indignantly demanded that;

> *"The town council should collect waste from us free of charge by vehicle."*

Chapter 5: Analysis

In this chapter, discussion of the empirical findings is done in light of the theoretical framework. The chapter is divided into three main parts. The first part discusses the level of public participation in solid waste management in Kira Town Council; the second part discusses the challenge of reaping public participation while the last part gives a discussion of the strategies for future public participation. The limitations to this study are outlined at the end of this chapter.

5.1 The level of public participation in Solid Waste Management in Kira Town Council

The current level of participation of the public in solid waste management in Kira Town Council is not negligible but at the same time, it has not been practically significant in reality. The current level of participation, though low, is useful for future planning and anticipation for more meaningful participation of the public in solid waste management in Kira Town Council.

5.1.1 The prevalent participation

The majority proportion of the public in Kira Town Council exhibited concern and an amount of sensitivity about solid waste. The findings show that the majority proportion of the respondents, possessed waste containers for their solid waste save for the market vendors in Kireka. It was established that particularly in Kireka, there was a private arrangement within the main market areas in such a way that it did not necessitate everyone to have a solid waste container. Kireka markets had an arrangement where every vendor contributed Uganda shillings 200 per day for cleaning including: sweeping, collection and disposal of solid waste from the market. Several vendors therefore, did not find it necessary to use waste containers yet they paid for cleaning of their premises. While in Kirinya, most of the residents there practiced “pit-burning” of the solid waste. It is in Kirinya where most residents took on disposal by burning at a waste pit. This could explain why most of them did not have waste containers because the waste is taken straight to the pit other than first kept in a container. The use of different materials also displays the innovativeness of the people in keeping the solid waste in one place before disposal.

Across the different wards in Kira Town Council, sorting of solid waste is less adopted. The findings revealed that even those who said they sorted their waste, many of them had already declared that they did not possess waste containers. It is not clear and quite unrealistic for one to sort waste without having it in a container. The participation of the public in as far as waste sorting is concerned seems to be at a low level. There seems to be little appreciation of the benefits of solid waste sorting. The people seemed to know that it helps to sort waste but few were practicing it. When there is no motivation for sorting of the waste, it is only taken to be

time-wasting to the people. Those who took time to do some sorting were mainly sorting out materials that can either be used as feeds for animals or for manure. Those who had a motivation in terms of economic benefits were seriously sorting the waste either for sale or for exchange with items that would otherwise be bought like milk. The knowledge base for recyclable items is also still low. There are even people who have no idea of any item that can be recycled. All the items on the list that was presented to the respondents during the interview were recyclable. Amazingly, people were more aware of plastics as a recyclable item. Only few people thought of other items like polythene, glass, paper and metals as recyclable items. It becomes difficult for people who lack information to fully participate in solid waste management. The Town Council plans to persuade the people to think of waste management related business ventures, but this would not even have been necessary if the people had the information about the benefits. The lack of information could be the constraint to public participation in solid waste management.

The level of item reuse is similarly low in Kira Town Council. Few people acknowledged that they have items they reuse before they think of disposal. The stimulus for this however was not really the consciousness to reduce the volume of waste generated. The people do not deliberately reuse items in order to reduce the solid waste volume but are rather pushed to reuse because they do not have much choice. They are constrained by the inability to afford acquisition of new items, so they take on reuse as a survival alternative. This may be a good place to start though with a change of attitude so that even in the midst of greater affluence which according to UNEP (2007) places demand impulse for more consumption. From the items that were that were mentioned, there is an impression that there may be many other items that can be reused and thereby reducing on the volumes of new solid waste generated.

The current level of voluntary responsibility for proper solid waste management is low but not negligible. The majority of the people do not seem to assume responsibility voluntarily for solid waste that is not generated by them. When waste is found outside their premises, people are not concerned about such solid waste. It seems they take the Town Council authority to have responsibility over such solid waste. Such areas as road sides, trenches and public open areas like play grounds and land reserves for the local government. Much as these areas belong to the public, because they are to be used for public interest, people do not show interest in voluntary care by way of picking up such waste and putting it in the rightful place. Even for those who may have the will may be limited by the facilities that can make such responsibility attainable. It may work well if and when there are waste bins for example within reach. People may feel that is so burdensome to carry waste for very long distances for the sake of being voluntarily responsible. It may only be realistic and easier if a waste bin is nearby so that it is not inconveniencing for someone to voluntarily engage in proper solid waste management.

5.1.2 Prospective participation

At the moment the most prominent players in solid waste management are the public. It was established that the people themselves and the private service providers (whether individual or

firms) played the biggest role in solid waste management. The Town Council authority plays a small part. Already this is indicative of positive future efforts from the public. The Town Council can play its technical, planning and organisational part while the public implement the best practices, guided by the Town Council structure. The will, among the public to work with the Town council on solid waste management is noticeable thus giving room for a collaborative relationship of complementarity as discussed by Evans (2006a).

The people still think that they cannot do anything to reduce the volume of solid waste they generate. Very few of the people interviewed could think of ways in which the waste they generate can be reduced. There is a clear indication that the people still lack knowledge and awareness on how they can deliberately reduce on solid waste. The few who explained how they could reduce on solid waste volumes mentioned very interesting and realistic ways. The ways they mentioned require a greater mastery of the people over their day-to-day decisions on consumption and expenditure. Although very few seem to possess the knowledge on waste reduction, it is a good starting ground so that the awareness can permeate among the entire public fraternity. A big proportion of the people acknowledge that there are several materials and items that they throw away as solid waste but which they can still use. The reasons why they do not reuse these items were beyond the scope of this study. However, the easiest explanation to why people still throw away what they can still reuse is that they can use something better. If they could be helped to appreciate the benefits of waste reduction through the different possible ways including waste reuse, the situation may be different.

5.2 The challenge of reaping public participation

5.2.1 Limited resources

The public know that it is the responsibility of the town Council authority to provide services to them, including solid waste management services. The irony is that though the public should take primary responsibility of managing their solid waste at a basic level, they want to see the Town Council come out with a plan and a structure that would help them to engage in the management of the waste. The way the public expect the town Council to show its responsibility is through the provision of waste management services like: transportation and disposal facilities. The Town Council is presently constrained by the absence of such facilities. The facilities have a financial implication and therefore require prior budgeting. The Town Council therefore has to keep on its toes in providing some services that motivate the public to participate constructively to the management of solid waste. The resource constraint on the part of the Kira Town Council is in a way limiting the level of public participation in solid waste management because what the Town Council contributes is what acts as a motivation for the public to engage in solid waste management.

5.2.2 Illegal dumping

There are traces of desperation when it comes to solid waste management and solid waste disposal in particular. People, especially those who have waste that by any reason cannot be burned and who cannot afford to pay for solid waste collection services, resort to indiscriminate dumping. The indiscriminate dumping is disguisedly done usually at night, though in some cases it could even be done during the day. Indiscriminate dumping of solid waste is seemingly becoming the order of the day as it is practiced by many people. There seems to be little care taken by people when it comes to where solid waste should be disposed of. The respondents revealed that for some people, any open place under no activity is taken to be a potential place for dumping of solid waste.

The fact that the Town Council purchased a vehicle to collect solid waste from dumping areas (illegal dumping areas), the people continuously dump their solid in such places where the truck picks the waste. Even when prohibitive notices are placed at these sites, the people continue to dump the waste there when they are not seen. The structure for enforcement is also weak in the sense that the vice is known but there is no one to make sure that the culprits are fined. The concerned community members do not have the authority to arrest and punish those who break the norms of proper solid waste management and this may explain why illegal solid waste dumping sites continue to be a common phenomenon. This is because the people do not have the mandate and besides, if the waste dumping site is not in one's plot of land, then one has no authority to rebuke anyone else dumping waste at such a site-it becomes a no man's land and therefore no one may have the audacity to exercise authority over it.

5.3. Strategies for future public participation

On one hand, Kira Town Council authority has strategies laid down to tackle the solid waste problem. On the other hand, the public also have their thoughts on what should be done to ensure that the people play a part in proper solid waste management. There is identification of what the roles and responsibilities of each side should be. This section discusses the proposals given in this regard.

5.3.1 Formal disposal facilities

Illegal dumping in Kira Town Council indicates deficiency in terms of formal place for solid waste disposal. The apparent lack of landfill space and facility in the Town Council could be one of the reasons behind the profound illegal dumping phenomenon. There being no legal place to dump the solid waste, people find solace in dumping at any open place where they can feel convenient to. The Town Council also seems to face a setback in deterring this illegal dumping because they would have to present an alternative place to the public, which is not available up to now. It is quite clear from the findings that the preferred type of waste management that is

convenient in Kira Town Council would be landfilling. However, this is only yet to be put in place leaving a dire need for such facilities at the moment. This means that there is little consideration for the first activities in the integrated strategy for solid waste management as outlined by USEPA (2002) but rather the last which is landfilling.

The people want waste bins (containers) stationed at strategic places so that they can dump their waste in such bins, so that the Town Council trucks can pick them when they are full and take the waste to landfills. Not all the people would manage to carry their solid waste by themselves to the landfill; some of them would rather pay a service provider to do that for them. The service providers on their part also need landfill facilities nearby and may be the amount they charge for solid waste collection could reduce. Either way, the people believe that the Town Council needs to come to their rescue by securing landfill facilities. Not only this but even the transport facilities that the people expect the Town Council to provide would be effective when there is a place to dispose of the waste. The way things are, waste management is quite expensive for both the Town Council and the public.

5.3.2 Legal instrument

Both the Town Council officials and the members of the public acknowledge that the legal instrument is a helpful other than a burdensome alternative in the management of solid waste in Kira Town Council. To some people, laws and regulations on solid waste management are long overdue. A number of people hold a view that some elements in the public can only do something right when there is a law for reference and a penalty when conformity is evaded. There is a belief that if one does something that is not against any law or regulation, then it is not wrong. This attitude seems to overshadowing the solid waste management practices in Kira Town Council. The impending law is also intended to harmonise the waste collection fees structure to ensure that neither the service providers nor the public are cheated in the process. From how it looks like, the law be received with welcome, by those who appreciate the need for enforcement of responsible solid waste management practices. The law therefore will introduce a legal fee for waste management. The dynamics of determining the amount that will be fair to all parties involved remains frail though. Without proper research and consultations the legal instruments may hit dead-ends especially if the majority look at its implications as being unfair and inconsiderate to them.

The justification for policies and laws on solid waste management is valid. There is concern about the dangers of uncontrolled dumping of solid waste as it makes the area prone to communicable diseases, and also the fact that the area is growing in terms of structural development and population. When the population continues to grow in the absence of laws regarding sub-sectoral issues like solid waste management, it may become impossible to reverse the environmental effects they may have caused.

5.3.3 Awareness-raising

It emerged that the public is either not conscious of or dissatisfied with the role played by the Kira Town Council in the management of solid waste. Most of them bitterly complained that the Town Council had not done anything while others acknowledged that the Town Council had tried to do something though they needed to do more. The first step they expect the Town Council to take is to openly come out on the issue of solid waste management. After that, the people expect the Town Council administration to embark on sensitisation of the public to raise their awareness on the dangers of the poor solid waste disposal practices which are common in the Town Council as well as on the proper ways of solid waste management. The people predict rightly that sensitisation should come prior to provision of landfill, waste bin and transportation facilities. Many people seem to practice poor disposal methods either because they are ignorant of the implications or because they lack an alternative. Sensitisation can be a process through which answers and solutions to this paradox may be found.

The Town Council authority has sensitisation of the public as part of the strategy to ensure greater public participation in solid waste management. As if sharing the precision of the people, the plan is to sensitise the public on the law as well as the fees to be aid for solid waste collection and management services. Sensitisation will most likely bring the Town Council authority and the people closer to form a synergy for solid waste management.

5.3.4 Monetary instrument

The willingness of the people to pay for waste collection and management is prominent. The people do not seem to have much reservation about paying for solid waste apart from the amount that may be charged. There was almost unanimous agreement among the respondents that it would be prudent to pay for waste collection in future. There are already a considerable proportion of people who pay for waste collection. Even those who do not pay for waste collection and management services including those who practice the cost-free pit-burning, expressed willingness to pay for solid waste collection in future.

The Town Council authorities have looked at the monetary instrument as one that can be effective when introduced within a legal framework. Introduction of the monetary instrument in this way together with sensitisation of the public to appreciate the rationale for its introduction, gives ground to potential participation of the public in a way. Sensitisation covers for the fears by the public of the closeness of the state like Evans (1996a) argues and at the same time forms a background for acceptance of waste collection fees. The waste collection fee could also work as an encouragement for waste reuse as a way of avoiding or at least minimising it on the side of the public.

5.4 Limitations

There are two major limitations to this study. They had an implication on the process of data collection although they did not compromise the quality of the findings of this study.

5.4.1 Resources

Mobilization of participants in the focus groups was problematic. It took me a long time to organise the focus group participants together in one place. The participants were from different zones in each ward. The biggest problem was that they did their solid waste collection at different times of the day and because they had a wide operational area they practically worked the whole day. Whenever they were requested to converge at a central place, several of them would demand that if they were to get off time from their work, they had to be paid an allowance to cover for their lost time. I tried to procrastinate hoping that they would finally accept to converge but it was not forthcoming. I had not envisaged such a cost when I was planning for data collection and because I did not have funds at that time, I had to wait until the end of the month April 2009 to use part of my salary to give an allowance to those who accepted to participate in the focus groups. Much as I wished to conduct more focus group discussions, I had to settle for only one in each ward because of financial resource constraints.

5.4.2 Time and timing

Time was another factor that affected the process of this study. My plan was to start data collection in January 2009 so that I would have enough time to process, analyse the data and write the thesis. However, this was not possible. Securing permission from the Town Council took some time; it was not until 20th February 2009 that I got a letter allowing me to start on data collection. Already I was working behind time, and by that time, my study leave had expired so I also had to be on duty. This dual responsibility led to my delay to complete data collection and later on thesis writing. Consequently the thesis could not be completed within the stipulated time.

5.4.3 Failure to interview the Mayor

It was my intention to interview the Mayor of Kira Town Council as the political head of the area. However, due to his very busy schedule, it was impossible to get him. It took me three weeks of trying and in the end; I had to resort to the Deputy Mayor who kindly accepted to take the interview. I feel that the views of the person of the Mayor would be very important in this study, considering his political and administrative position in the Town council. None the less, I hoped the views of the Deputy Mayor would suffice.

Chapter 6: Conclusions and Recommendations

This chapter presents the conclusive statements drawn from the discussion of the findings and then some recommendations to Kira Town Council on the way forward with regard to public participation in solid waste management.

6.1 Conclusions

The level of public participation in solid waste management at present in Kira Town Council is low. There is no structure that allows for a more synergistic relationship between the public and the Town Council authorities. The Town Council, being less than a decade old is more preoccupied with infrastructural projects at the moment leaving the solid waste management issue less attended to and with fewer resources for the venture. This has consequently given room for people to dispose of waste carelessly since the issue has not been practically adopted as a priority in the Town Council as yet. Everyone has the discretion to decide what best suits them as far as solid waste management is concerned.

Waste reduction through waste reuse is a primary function of the public at the stage of waste generation. In Kira Town Council, there has not been effort towards waste reduction. The people do not possess knowledge on the benefits to the environment and consequently sustainable development when the volume of waste is reduced. There is no appreciation of the fact that solid waste affects sustainable development. The required circumstances for effective solid waste reduction are not prevalent in Kira Town Council given the low level of social capital established among the people. The characteristic capitalistic and individualistic life style makes it harder for solid waste reduction to be collectively achieved. It leaves the Town Council with fewer alternatives for sustainable solid waste management, albeit waste reduction can also still be provoked.

Knowledge about the importance and benefits of sorting waste is one thing, and having knowledge on the recyclable waste material is another. People do realise that it is a good thing to sort solid waste so that not all of it is dumped together. The intention is to easy the management of the waste by having some of the waste items recycled. The knowledge base about recyclable items among the people of Kira Town Council is minor and very low. The people know little about recyclable items and this in itself forms a barrier to waste sorting. For one to embrace waste sorting, one needs to know which items to particularly sort-out, without this knowledge, it becomes useless and unlikely so to happen.

From the attitudes of the people, it is very clear that not all is lost. The future of sustainable solid waste management in the town Council is bright but only so if the potentials of the people to participate are delicately and purposively tapped. There is willingness by the public to participate.

They are ready to play their role in solid waste management, but as they unanimously agreed that they cannot mange on their own, they need the technical guidance of the authorities. Collaboration is thus very important for success of any project and solid waste management is not an exception. The willingness among the people to work together with one another and with the authorities for a common good is a starting point for a synergy which will move from just mere complementarity through embeddedness to a co-productive relationship which is the epitome of participation.

The time to act is now because if nothing is done immediately, the more time passes, the more complicated the solid waste management problem will get. The population is without doubt increasing day in day out and the impact on the environment is also becoming enormous. The damage on the environment is already noticeable in the Town Council as a result of the careless waste disposal practices. The situation calls for an immediate arrest as the only way to reverse the effects in future.

6.2 Recommendations

There are fertile prospects for public participation in solid waste management in Kira Town Council. The best way to do is by showing the people that they are worth by involving them in the initial planning stages. The people's ideas should be included in the initial deliberations and discussions so that they can see themselves as part of the decision-making structure. This is important because the people themselves have been responsible for both the good and bad practices at present and therefore for any change to be concrete there is need to involve the people right from the start by way of consultations. This will also help in taking the relationship between the public and the authorities to another level of mutual understanding and interdependence. With this, the operations will most likely be smooth and less costly both politically and financially.

Apart from involving the people is taking the initial decisions, the Town Council should strategically plan for sensitisation of the people. Several solutions may be brought at table and agreed upon. But just like the findings show, the people feel that the first step should be to sensitise the public about the whole issue of solid waste management. Although there is agreement that sensitisation should come prior to implementation of the solid waste management program, in actual sense, effective and meaningful sensitisation is planned when the whole program package is complete. That is when one can know what exactly to sensitise about and how. It is my suggestion therefore that sensitisation should not be done for the sake of it and basing on mere thought but after a common agreement on the program of solid waste management for purposes of being systematic and thorough.

The imminent bye-law by Kira Town Council on solid waste management with a specific focus on waste collection fees structure is one of those items that need to feature in the sensitization. This the Town Council may be already planning but the concern should also be on the basis for determination of the fees structure. This is a critical issue and the fact that it will come in form of

a law that will demand conformity; it requires utmost care on the side of the law makers. To be able to come out with an acceptable fees structure the Town Council authority should do a well planned and empirically supported consultation or survey that will ensure determination of a win-win financial legislation for solid waste collection and management.

The Town Council has been doing social networking with a few good-willed individuals. This is a good thing and thus a good base on which to launch a fully fledged campaign on networking. The potential for scaling up this venture should be explored and given attention because the Town council administration will need the members of the public and vice versa. There are people who posses or at least have access and control over useful resources that can be used for better solid waste management. Therefore social networking should be seriously considered as it will help in reaching cost effective ways of dealing with solid waste in the area. Since there are potential economic benefits that the Town Council is aware of that can be attained from business in solid waste, a plan to give elementary training to interested members of the public may be worthwhile with time. It will be a positive investment for future solid waste management which is community led other than led by the administration because in that way, it will be cheaper and yet sustainable. Just like the Town Council officials revealed that they have seen it successfully work in Mbarara District, I think it could even work better in Kira Town Council which is near metropolitan Kampala with all the necessary socio-economic advantages.

It is understandable that all local government units operate under meagre financial resources and thus have to set their priorities right. In most cases, solid waste management misses out in the strategic plans and consequently in the budget. The defence for this omission may be that waste management is not an economically rewarding investment and therefore not very much a priority. In the contemporary world today where the environment is at stake and where sustainable development is the way to go, it is high time that solid waste management was prioritised and budgeted for because it is one of the problems that have far- reaching effects on the environment when not mitigated before it gets overboard. It is therefore my suggestion that the Town Council deliberately includes solid waste management as a priority in the annual budgets.

I lastly implore the administration of Kira Town Council to target towards achieving communities of practice among the public segments. People are the hosts of indigenous knowledge and they can come up with various innovations in the management of solid waste in a sustainable way. The Town Council may need to plan to cover the knowledge gaps of the people with an ultimate aim of empowering, motivating and provoking them to constantly think of effective and efficient ways of solid waste management. The people should be helped to understand the different alternatives so that they can make their choices in an informed way so that their waste management practices are not harmful to others but rather sustainably acceptable both socially and environmentally. In this way, sustainable development will have transformed from mere rhetoric to practice.

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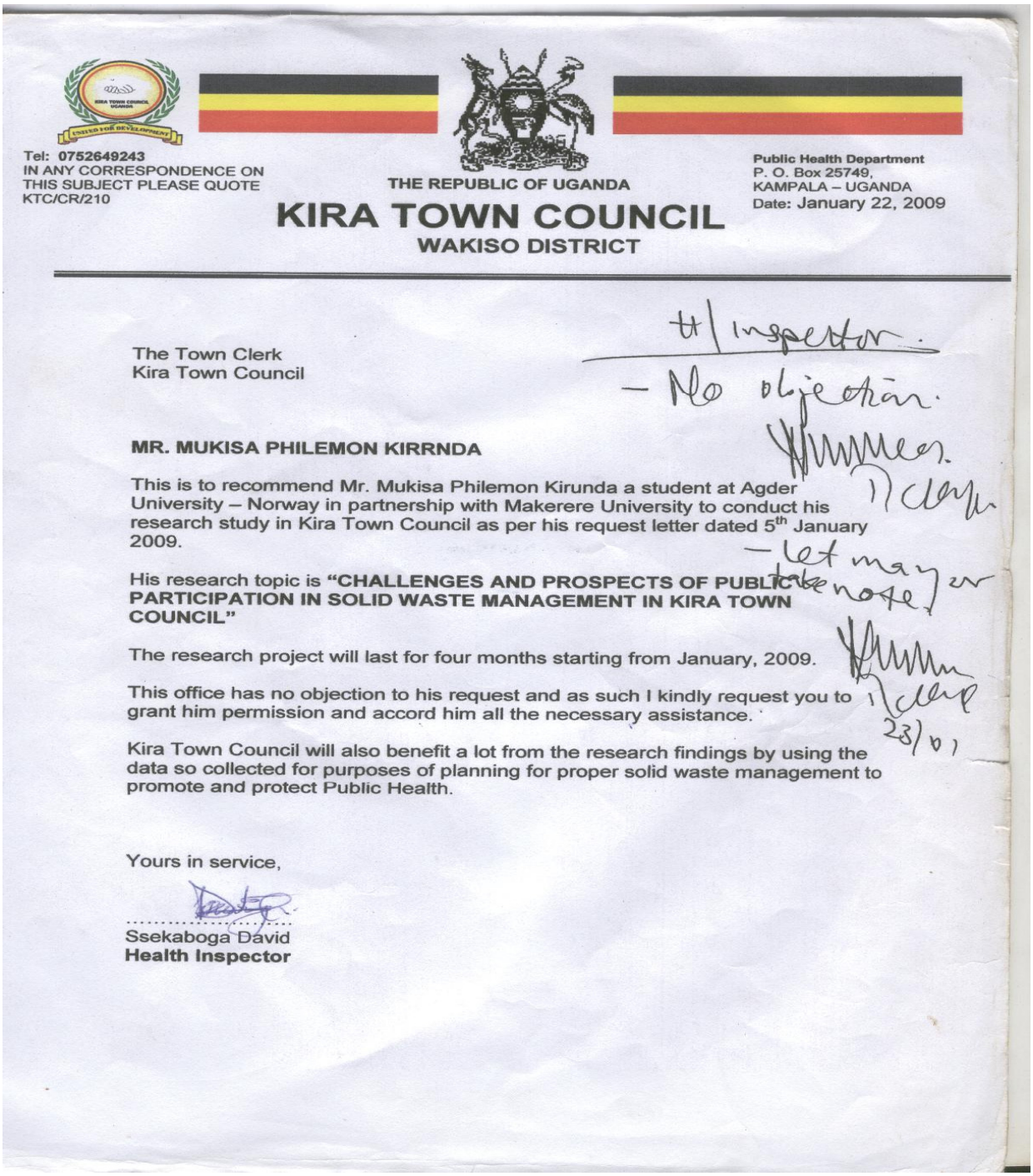
Appendices

Appendix 1: Letter of authorisation to carry out the study in Kira Town Council



Tel: 0752649243
IN ANY CORRESPONDENCE ON THIS SUBJECT PLEASE QUOTE
KTC/CR/210

THE REPUBLIC OF UGANDA

KIRA TOWN COUNCIL
WAKISO DISTRICT

Public Health Department
P. O. Box 25749,
KAMPALA – UGANDA
Date: January 22, 2009

H/Inspector.
– No objection.

The Town Clerk
Kira Town Council

MR. MUKISA PHILEMON KIRRNDA

This is to recommend Mr. Mukisa Philemon Kirunda a student at Agder University – Norway in partnership with Makerere University to conduct his research study in Kira Town Council as per his request letter dated 5th January 2009.

– Let mayor take note.

His research topic is **"CHALLENGES AND PROSPECTS OF PUBLIC PARTICIPATION IN SOLID WASTE MANAGEMENT IN KIRA TOWN COUNCIL"**

The research project will last for four months starting from January, 2009.

This office has no objection to his request and as such I kindly request you to grant him permission and accord him all the necessary assistance.

23/01

Kira Town Council will also benefit a lot from the research findings by using the data so collected for purposes of planning for proper solid waste management to promote and protect Public Health.

Yours in service,

.....
Ssekaboga David
Health Inspector

Appendix 2: Structured interview instrument for residents/traders and market vendors

STRUCTURED INTERVIEW FOR RESIDENTS/TRADERS AND MARKET VENDORS

PUBLIC PARTICIPATION IN SOLID WASTE MANAGEMENT IN KIRA TOWN COUNCIL

Dear respondent,
I am a student at the University of Agder- Norway pursuing a master's degree in Development Management. I am in my second year of study and as part of the requirements for the program; I have to conduct a research study. I am therefore carrying out a study into the challenges and prospects of public participation in solid waste management in Kira Town Council. I request you to allow me ask you some questions which you can answer as you feel. The information you will give will be treated confidentially and will be anonymously used for purposes of writing the research report, and will not be used for any other purpose. Thank you very much in advance.

Mukisa Philemon Kirunda
Researcher

PART I
IDENTIFICATION DATA

1. Type of Respondent.
a) Resident ☐
b) Market Vender ☐
c) Trader ☐
d) Other (specify)……
2. Premise Ownership.
a) Private owner ☐
b) Tenant ☐

3. Ward
a) Kireka ☐
b) Kirinya ☐
c) Kyaliwajala ☐
4. Sex.
a) Male ☐
b) Female ☐
5. Highest level of Education.
Never went to school ☐
Primary level ☐
Secondary Level ☐

Higher Institution/University level

PART II
ROLE PLAYED BY RESIDENTS IN SOLID WASTE MANAGEMENT

6. Do you have any waste containers in your home/shop/stall?
a) Yes ☐
b) No ☐

7. Do you sort the waste generated in your home/shop/stall?
a) Yes ☐
b) No ☐

8. Are there any items from your waste that you reuse?
a) Yes ☐
b) No ☐

Please Specify……..

9. Who takes the waste from your home/shop/stall for disposal?
a) Myself ☐
b) House keeper ☐
c) Someone else in the home ☐
d) Private waste collector ☐
e) Town council ☐

10. Do you pay for collection of waste from your home/shop/stall?
a) Yes ☐
b) No ☐

11. If yes, in your view, is the fee affordable?
a) Yes ☐
b) No ☐

12. Where is the waste taken for disposal?
a) Land fill ☐
b) Collecting center ☐
c) A pit for burning ☐
d) I do not know ☐
e) Other (Please specify)…….

13. How many times in a week is waste taken from your home/shop/stall for disposal?
a) Once ☐
b) Twice ☐

c) More than twice but not daily
d) Daily
e) I do not know

14. What do you do about waste you find outside your home/shop/stall?
a) Pick it and put it in a nearby waste container ☐
b) Move on ☐

PART III
ROLE THE RESIDENTS CAN PLAY IN SOLID WASTE MANAGEMENT

15. Do you think you can reduce on the amount of waste you generate in your home/shop/stall?
a) Yes ☐
b) No ☐
16. If yes, how?.....
17. Do you think there are some waste items which can be reused but you are not reusing?
a) Yes ☐
b) No ☐
Please Specify……
18. Do you think it helps to sort waste before disposing it of?
a) Yes ☐
b) No ☐

19. Which waste items do you think should be sorted for recycling?
a) Hard plastics ☐
b) Polythene ☐
c) Glass ☐
d) Paper ☐
e) Metals ☐
f) I do not know ☐

20. In future, are you willing to pay for collection of the waste that you generate in your home/shop/stall?
a) Yes ☐
b) No ☐
21. Do you think it is necessary for you to work together with other residents/traders/market vendors for better waste management?
a) Yes ☐
b) No ☐
22. Do you think it is necessary for you residents/traders/market vendors to work together with the Town Council in managing waste?
a) Yes ☐
b) No ☐

23. Do you think the residents/traders/market vendors are capable of managing the waste they generate without help from the Town Council?

a) Yes ☐

b) No ☐

Thank you very much for your time.

Appendix 3: Semi-structured interview instrument for residents, traders and market vendors

SEMI-STRUCTURED INTERVIEW FOR RESIDENTS, TRADERS AND MARKET VENDERS

PUBLIC PARTICIPATION IN SOLID WASTE MANAGEMENT IN KIRA TOWN COUNCIL

Dear respondent,

I am a student at the University of Agder- Norway pursuing a master's degree in Development Management. I am in my second year of study and as part of the requirements for the program; I have to conduct a research study. I am therefore carrying out a study into the challenges and prospects of public participation in solid waste management in Kira Town Council. I request you to allow me ask you some questions which you can answer as you feel. The information you will give will be treated confidentially and will be anonymously used for purposes of writing the research report, and will not be used for any other purpose. Thank you very much in advance.

Mukisa Philemon Kirunda
Researcher

PART I: IDENTIFICATION DATA

1. Type of Respondent.
2. Parish ……..
3. Sex.
4. Highest level of Education.

PART II: RESEARCH QUESTION ITEMS

a. Tell me about how you handle waste in your home/stall/shop. (*Probe: Is it the best way? How has it worked for you? Do you have any challenges in the way you handle waste?)*

b. What do you think you can start doing to improve on the way waste is handled in your home/ stall/shop? (Probe: *Will it require you to use more resources? What resources? Why have you not yet adopted these methods?*)

c. Tell me about the relationship between you and the Town Council Authorities in dealing with waste. (*Probe: Is the relationship direct or through a third party? Do you have any payment arrangements with the Town council or the third party for waste? Are there any reasons for difficulty to work with the Town Council on waste?*)

d. What do you think the Town council should do for a better relationship with the residents/market venders/traders in dealing with waste? (*Probe: Is there need for policies on waste? Laws? Sensitization?*)

Thank you very much for your time, and I want to reiterate that the information you have given will only be used for the purposes of this study and not anything else.

Appendix 4: Structured Observation instrument

STRUCTURED OBSERVATION

PUBLIC PARTICIPATION IN SOLID WASTE MANAGEMENT IN KIRA TOWN COUNCIL

Type of Respondent
a) Resident ☐
b) Market Vender ☐
c) Trader ☐

Parish ……..

5. Presence of waste containers
6.
7. Type of containers

8. Neatness of environment (All waste in containers/on the pit)

9. Evidence of sorting

10. Innovative disposal

Appendix 5: Focus Group guiding questions

ISSUES FOR DISCUSSION IN FOCUS GROUPS

1. Where is the waste got from (what kind of places)
2. How is the solid waste packaged, what is done about it before collection (how much volume)
3. Willingness by the people to pay for waste collection
4. Where is the waste taken (is it disposed of at acceptable places? How is the solid waste treated at the disposal sites-burned? Composited?)
5. What has been the role of the Town Council in solid waste management?
6. What more should be done by the Town Council in solid waste management?