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The Public –Private Sector Approach to Municipal Solid Waste Management. How does it Work in Makindye Division, Kampala District, Uganda?

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Declaration

I, MUGAGGA FRANK solemnly declare that the work presented in this thesis was written by me and that it has never been presented to any Institution for any academic award. Where other people's material has been used, due acknowledgement and appreciation has been extended.

…….

Mugagga Frank

Cover picture: Both private and KCC vehicles (white and green trucks respectively) are involved in the delivery of wastes to the Kiteezi landfill. On standby are scavengers waiting to salvage some of the items from the waste before it is disposed of.

Abstract

It has been argued that the partnering of public and private sectors lead to improvement and betterment in the delivery of municipal social services. The purpose of this study was therefore to find out if, how and why the involvement of the private sector has led to better municipal solid waste management in Kampala's Makindye Division. I try to analyze the roles and relationships between the public and private actors, the constraints hampering success and finally suggest mechanisms of bettering the partnership. A qualitative approach involving interviews, Focus Group Discussions, observations and photography was used to gather the necessary primary data, while reference to relevant literature provided me with the much needed secondary data. Key informants from the public sector included officials from Kampala City Council, Makindye Division and The National Environment Management Authority; while those from the formal private sector included the Director and field staff of HOMEKLIN Limited and DOT services Limited. The scavengers at the Kiteezi landfill were my informal private respondents. The Director of Urban Community in Development Association (a local Community Based Organization), the Local Council II Chairpersons together with some of the local community members of Katwe I and Luwafu parishes represented the civil society. The study was based on the Actor-Oriented Approach theory as well as on governance perspectives.

The study reveals that despite the lack of measures that ensure reduction, reuse and recycling of solid wastes by the respective actors, an improvement in the management of domestic solid wastes in Makindye Division has resulted from the partnership. Metal recycling and organic waste compositing is privately undertaken by a local Community Based Organization which is not in any way supported by the Division authority. The introduction of waste transfer points and smaller vehicles supplemented by the use of wheelbarrows has increased access to areas that were previously unreachable. Also the adherence to the collection schedule by HOMEKLIN Limited has greatly contributed to an efficient collection of waste from the medium to high income communities of Luwafu parish where there are numerous paying subscribers. However, the low commitment of Makindye Administration in ensuring that it meets its financial obligations of subsidizing waste collection in the low income areas, corruption and patronage of some Division Officials are hindering the success of the programme. This is particularly common in the low income areas of Katwe I parish. The study further reveals that despite being perceived as an ethnic and low caste activity, waste scavenging plays a very crucial role of recovering and reusing materials and ultimately reduce the amount of waste that is finally disposed of. However, the existing legislation does not recognize scavengers as important actors.

Much as it deals with a mixture of hazardous and non hazardous waste, the waste disposal operations of DOT Services Limited are meeting acceptable environmental standards. However, the absence of effluent gas monitoring and tapping equipment at the landfill is posing a potential environmental hazard.

The study makes a number of recommendations ranging from administrative overhauls at Makindye Division, waste management policy amendments in regard to reduction, recycling and reuse of materials together with the recognition of informal private waste collectors and scavengers, technical improvements by the private waste collectors and finally economic investments by the Division as a way of reducing dependence on central government remittances.

Dedication

I wish to dedicate this work to my late mum and late sister Berna who unfortunately have not lived to see the fruits of their encouragement and guidance. May the good lord rest their souls in eternal peace.

To my dad, words cannot fully describe what I feel for you. All your sacrifices and efforts in making sure that we as a family lived a healthy and satisfying life are the reasons why I have made it this far in education, Bravo dad!!

Lastly, to all my brothers and sisters, the moral and financial support that you always extended to me cannot pass unnoticed. It is my prayers that God almighty rewards abundantly.

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The success of my fieldwork was possible because of the following institutions and personalities; The Director of HOMEKLIN Limited, The Operations Manager of DOT Services limited, The KCC Landfill Engineer, The Makindye Division Planning Officer, The NEMA Effluent Inspector, The Director of UCODEA, The Local Council Chairpersons of Katwe I and Luwafu Parishes, the local communities in the above two parishes and the scavengers that I met at the landfill.

I salute all the institutions and individuals that I may have omitted. I also take responsibility for any mistakes and errors that may be detected in this document.

List of Acronyms

BOD	Biological Oxygen Demand
CBO	Community Based Organization
COD	Chemical Oxygen Demand
CCC	Central Collection Center
DFID	Department for International Development
DPHE	Department of Public Health and Environment
FGD	Focus Group Discussion
GoU	Government of Uganda
HIV/AIDS	Human Immune Virus / Acquired Immuno Deficiency Syndrome
HtH	House to House
ISWM	Integrated Solid Waste Management
KCC	Kampala City Council
KIFCOA	Kibuye Female Concern Association
LDP	Low Density Polyethylene
LGDP	Local Government Development Programme
MHLUD	Ministry of Lands, Housing and Urban Development
NASOMA	Nabisalu Solid Waste Management Association
NEMA	National Environment Management Authority
NES	National Environment Statute
NGO	Non Governmental Organization
PPP	Public-Private Partnership
RDF	Refuse Derived Fuels
SSS	Secretary for Social Services
SPSS	Statistical Package for Social Scientists
SWM	Solid Waste Management
UCODEA	Urban Community in Development Association
UNEP	United Nations Environment Programme
UNESC	United Nations Educational, Scientific and Cultural Organization
US $	United State Dollar
UPPC	Uganda printing and Publishing Corporation

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CHAPTER ONE

1.0 Introduction and Background to the Study

1.1 The Solid Waste Management Issues in Africa

Solid waste management systems are an essential component of the environmental infrastructure in human settlements. These systems encompass all the activities undertaken from the point of waste generation up to the final disposal. In most of Africa's urban areas, solid waste management is ultimately the responsibility of Municipal Councils, while among most of the rural populations the wastes are handled at the household level.

Thousands of tons of solid wastes are generated daily in Africa. Most of it ends up in open dumps and wetlands, contaminating surface and ground water and posing major health hazards.

Generation rates, available for selected cities and regions are approximately 0.5 kg per person per day. While this seems modest compared to the 1-2 kg per person per day generated in developed countries, most waste in Africa is not collected by Municipal Collection Systems, because of poor management, fiscal irresponsibility, equipment failure and/or inadequate waste management budgets.

Though, high and low-value recyclables are typically recovered and reused, these make up only a small proportion of the total waste stream. The majority of the waste (approximately 70%) is organic. In theory, this could be converted to compost or used to generate biogas, but in situations where rudimentary solid waste management systems barely function, it is difficult to promote innovation, even when it is potentially cost-effective to do so. In addition, hazardous and infectious materials are discarded along with general waste throughout the continent. This is especially a dangerous condition that complicates the waste management problem in Africa.

Throughout most of Sub Saharan Africa, solid waste generation exceeds collection capacity. This is in part due to rapid urban population growth: while only 35 percent of the sub Saharan population lives in urban areas, the urban population grew by 150 percent between 1970 and 1990. But the problem of growing demand is compounded by broken down collection trucks, program management and design. In west African cities,

as many as 70 percent of trucks are always out of service at any one time, and in 1999 the city of Harare failed to collect refuse from nearly all of its residents because only 7 of its 90 trucks were operational, Mbembe (1989).

In Ibadan, Nigeria, waste collection and disposal is frequently inadequate, with a preponderant proportion of the refuse generated remaining uncollected and with large parts of the city particularly the low income areas, receiving little or no attention. The onus is often on the local government to provide a service for solid waste management. However, the fundamental deficiency of this system is the government's failure to assume basic responsibility in raising sufficient funds to provide acceptable levels of service (IDRC 1999).

For health reasons, waste in tropical regions should be collected daily. This makes the challenges even more daunting. It is generally the city centre and the wealthier neighborhoods that receive service when it is available. In poorer areas, uncollected wastes accumulate at road sides, are burned by residents, or are disposed of in illegal dumps which blight neighborhoods and harm public health. Where present, manual street sweeping by municipal employees or shopkeepers may help reduce these effects in most public places. Unless more effective urban waste management programs and public water supply systems are put in place, outbreaks of cholera and typhoid become increasingly common.

Only a small amount of the region's waste is disposed of in sanitary landfills; most of it is deposited in open dumps or semi- controlled unlined landfills with no ground water protection, leachate control, or treatment systems. The larger dumps are located on the edges of cities, towns and villages, sometimes in marginal areas, such as wetlands, where ground water supplies are threatened. Moreover, these places are in many cases habitat for the majority of low income earners whose livelihood is based on wetland based activities such as craft making and brick making. Being breeding ground for animals such as, rats, flies and other disease vectors organisms, for example mosquitoes, these people further get predisposed to diseases. Also the smoke from burning refuse may be damaging to the health of nearby residents and the smell resulting from decomposition of the wastes pollutes the air, hence, degrading the quality of life in such neighborhoods.

While the recovery and reuse of materials is generally for personal use, there are also many professional waste pickers. They are seriously threatened by disease organisms, sharp objects and other hazards in the waste, especially since they lack protective equipment. The high level of reuse of non-organic waste reflects the high level of poverty in the region.

Separation and treatment of organic waste is very rare. Municipal composting programs exist in South African cities, but the very few large-scale facilities built elsewhere are no longer operational. Anaerobic digestion to produce methane is not widely applied, and where it is performed, it usually uses manure, not organic waste.

Municipal waste incinerators are too expensive for most countries and are not used. Moreover, they are generally not appropriate since most paper that can be reused from the waste stream is removed, leaving behind an organic waste that is too wet to burn. Some hospitals and municipalities have incinerators for medical waste, but these are often improperly operated.

1.2 Solid Waste Management in Uganda

With a high population and steady economic growth rates, accompanied by a reasonable level of industrialization, the rate at which solid wastes are generated in Uganda has steadily increased. This growth has not been accompanied by an equivalent increase in the capacity for managing the waste. For instance, the allocation of various resource inputs required by the Municipal Councils has not significantly increased. It is estimated that Kampala City Council spends US $ 3.4 million per year to remove only 40% of the total generated waste, (Matagi 2002). Solid waste management has therefore become one of the most pressing and challenging environmental problems in the country especially in urban centers.

Solid waste generation rates vary from one urban area to another due to factors such as economic status of the population, social habits, season of the year as well as the extent of salvage and recycling operations. In Kampala for example, the average solid waste generation rate is estimated to be 0.5 kg per capita per day, averaging 900 tonnes of waste per day, (KCC 2000).

Little documentation was produced in the 1970s and 1980s regarding solid waste management. However, according to available data, it is evident that during that period, pile ups were not such a big problem as in the 1990s. Whereas, much of the food consumed in urban areas comprised mainly of cereals with little if any residues, in recent periods it is estimated that banana peelings and other forms of organic matter account for 70-80% of waste generated in Kampala.

Generated wastes from households and commercial facilities are usually stored in storage bins for a day before being transferred to communal storage bins or skips (most common form of storage in many urban centers) which the Urban Authorities provide. In Kampala, some private waste collection agencies provide waste collection bins to their clients, mostly in the affluent residential areas, at a fee. However, only about 20% of the urban population in Kampala enjoys this service. Other communal storage facilities that are used in urban areas include stationary depots, enclosures and fixed storage bins. These are however not highly recommended because they enhance breeding of disease vectors due to the open nature of the containers; and they also require manual labor during collection, which brings collectors into direct contact with the disease vectors, (KCC 2000).

Vegetable waste can be treated and processed into manure which would save the country a lot of foreign currency used in importing chemical fertilizers. The technology for processing waste into manure is lacking in all urban centers. However, despite this situation, household solid waste containing a significant amount of organic materials has not gone unnoticed by farmers. Urban farmers in the areas within and those surrounding Kampala regularly make informal arrangements with the drivers of municipal waste trucks to have wastes dumped at or near their fields. Here they sort out inorganic objects and spread the remaining organic part directly over their fields or compost it into manure to be used in vegetable and flower gardens, tree nursery beds and crop gardens (bananas, maize and beans) all produced on a relatively small scale. Socio-economically, it is the middle to high income groups that mainly practice urban agriculture because, contrary to the low income areas, these places normally have relatively larger pieces of land over which they can undertake farming activities as compared to the low income areas which are ‘squeezed up’.

Figure 1: Use of organic waste as composit material. Rotten banana peelings are used as compost manure in a backyard garden. The peelings are kept in plastic bags for some time and when rotten, they are applied to the soil.

For recycling and reuse of the solid wastes, waste scavengers mainly concentrate on metallic food containers which are turned into children's playing toys, cooking stoves, kitchen utensils (such as, cooking pots, serving spoons, metallic plates etc), local measuring tins used in many retail shops; plastic wastes are collected and sold to recyclers, used plastic milk containers and some plastic bags are used by tree farmers as seedling pots.

Cardboards and hard paper are also sorted out and sold to agents who mainly target the paper recycling market/industry in neighboring Nairobi, the capital of Kenya (about 650 km away from Kampala).

Some informal waste pickers move from household to household collecting and buying used beverage and beer bottles (at a small fee) which they resale to the manufacturing companies. Also these companies, (notably, Century Bottling Company, a subsidiary of Coca Cola Company, Crown Beverages Limited, a subsidiary of Pepsi, Uganda

Breweries Limited and Nile Breweries Limited) encourage reuse of bottles by attaching a small fee per bottle which is refundable upon return or exchanged with another one of the same company when purchasing these products from any outlet countrywide.

Much of the plastic bags which are the dominant packaging material currently in use are not recycled because of the lack of the necessary technology to do so.

Up to the 1970s, dumping of refuse in landfills and covering them with soil to enhance rotting and decomposition was an efficient way of handling solid wastes in most urban centers since the population was still small and the refuse generated which comprised mainly agricultural-based household was biodegradable. The advent of polythene bags as the dominant packaging material coupled with rapid increase of urban populations has, however, rendered the hitherto simple and easy method of garbage disposal inappropriate. With the exception of Kampala city no other urban center in Uganda has an improved waste disposal ground. Currently, most urban centers dump their waste in open sand/mining pits, which are common in the proximity of urban centers.

1.3 The Solid Waste Management Policies, Laws and Regulations in Uganda

During the pre-colonial era, access to social services was governed by a democratic system of communal tenure under which all members of society had equal access rights. The official policy then was that it was an inalienable right of every member of the community to have access rights to services. Thereafter, at the turn of the last century, there came the disruptive era of the British colonial administration that introduced a series of complex laws and policies whose purpose was to regulate the indigenous people's relations with their environment. When Uganda gained independence in 1962, most basic aspects of the policies and laws governing the environment remained virtually intact. Among these was the Public Health Act of 1964 which mandated Urban Authorities with the overall responsibility of environmental management. Despite not emphasizing solid waste management (which by the way was not a an urban problem then), the Act promoted good health by empowering health workers to carry out inspections of public eating houses to ensure that health, hygiene and safety of workers and clients was achieved. The Act aimed at preventing and minimizing disease transmission resulting from unhygienic food handling practices. Moreover, such diseases were very common at the time.

Apart from the emphasizing the role of the public sector, this Act did not have clauses concerning the roles and relationships between and among the other stakeholders (local communities, the formal and informal private sectors) and how they impacted on the management of the environment.

1.3.1 The current policies regarding solid waste management in Uganda

Realizing that the old and outdated policies (such as The Public Health Act 1964) would not match the country's current social and economic trends and with the increasing national and global awareness, the government of Uganda took vigorous steps towards rationalizing the management of solid wastes. Emerging from a situation in the 1980s of virtual breakdown of both physical and institutional structures, major efforts were made to establish a new framework for solid waste management. This went hand in hand with the overall development towards the redefinition of the role of Government with the central government creating the enabling environment for action by local governments, communities and the private sector towards a serious concern about waste management.

Below are the current legislations that provide for the management of solid wastes in Uganda.

i) The Constitution of Republic of Uganda 1995

The Constitution is the supreme law and it provides for environmental protection and conservation. In its national objectives and directive principles of state policy, it provides that the state shall promote sustainable development and public awareness of the need to manage land, air, water resources in a balanced and sustainable manner for the present and future generations. In particular, the state is required to take all possible measures to prevent or minimize damage and destruction to land, air and water resources due to pollution or other causes.

Article 39 of the Constitution provides for an individual right to a clean and healthy environment. This provision is complemented by Article 50 which gives any person the right to take judicial action to redress the breach of a fundamental right, irrespective of whether the breach affects him or another person. Article 245, provides that parliament shall, by law, provide for measures intended: to protect and preserve the environment from abuse, pollution and degradation; to manage the environment for sustainable

development; and to promote environmental awareness. Below are some of the constitutional provisions that directly relate to solid waste management;

Paragraph II: The state shall be guided by the principle of decentralization of functions and powers to the people, to appropriate levels where they can best manage and direct their own affairs.

Paragraph IX: The state shall encourage private participation

Paragraph XV: The state shall recognize the significant role played by women in society.

Paragraph XIV: The state shall ensure that all Ugandans enjoy opportunities to clean and safe water

Paragraph XXVII (ii): The state shall take all practical measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution and other causes.

Article 245: The protection and preservation of the environment

ii) The National Environment Statute (NES), 1995

This Statute establishes the National Environment Management Authority (NEMA) as the overall body, charged with the management of environmental issues. In brief, the Authority in consultation with Lead Agencies is empowered to issue guidelines and prescribe measures and standards for the management and conservation of natural resources and the environment.

The National Environment Statute is contemplated as a coordinating Statute. Its provisions are carried out through cooperation between NEMA and other government agencies (Lead Agencies) through a system of consultation. Local authorities are considered Lead Agencies.

The Statute enables Local Administrations to be involved in the management of the environment. The statute creates District Environment Committees charged with the management of environmental issues at the district level. Environment Committees are

created at the lowest levels of local government structures to enable public participation in environmental decision making at those levels.

The Statute requires that the central government collaborates with the Local Governments in the management of local issues including among others, solid wastes. These issues are specifically selected because of their immediate relevance to the community and hence the need to involve local communities. In addition to these provisions relating to management, the statute contains important provisions on the control of pollution. The Statute provides for mechanisms to establish environmental standards. Standards for the control of pollution arising out of solid waste disposal are already in place

One of the key prerequisites of ensuring environmental quality is the ability to enforce the law. The Statute provides for a variety of mechanisms to ensure that the law is enforced. These mechanisms go beyond the traditional command and sanction approach of criminal law. They include the following; Environmental Easements, Environmental Restoration Orders, Awareness Raising, Licensing and Registration of Activities and Substances, Permits, the use of Economic and Social Incentives and lastly the application of Criminal Law in cases where the above fail, *NES 1995*

iii) The Local Governments Act, no 1 of 1997

This is an important Act for the enforcement of solid waste management law given the policy of Decentralization pursued by the Central Government. The Local Governments Act, no 1 of 1997 provides for the system of local governments which are based on the district and lower local governments and administrative units. This system provides for elected councils at each of the local level of government and an executive committee of each council, nominated by the Council Chairman. The following are the lower local government councils under the district: A Sub-County Council, City Division Council, A Municipal Council, A Municipal Division and Town Council. These councils have legislative powers. Under sections 39 and 41, the District Councils have the power to enact District Laws (Ordinances) while Urban, Sub-County, Division or Village Councils may in relation to their specified powers and functions make bye-laws consistent with National Statutes or the Constitution. At each level of the administrative unit, there is a

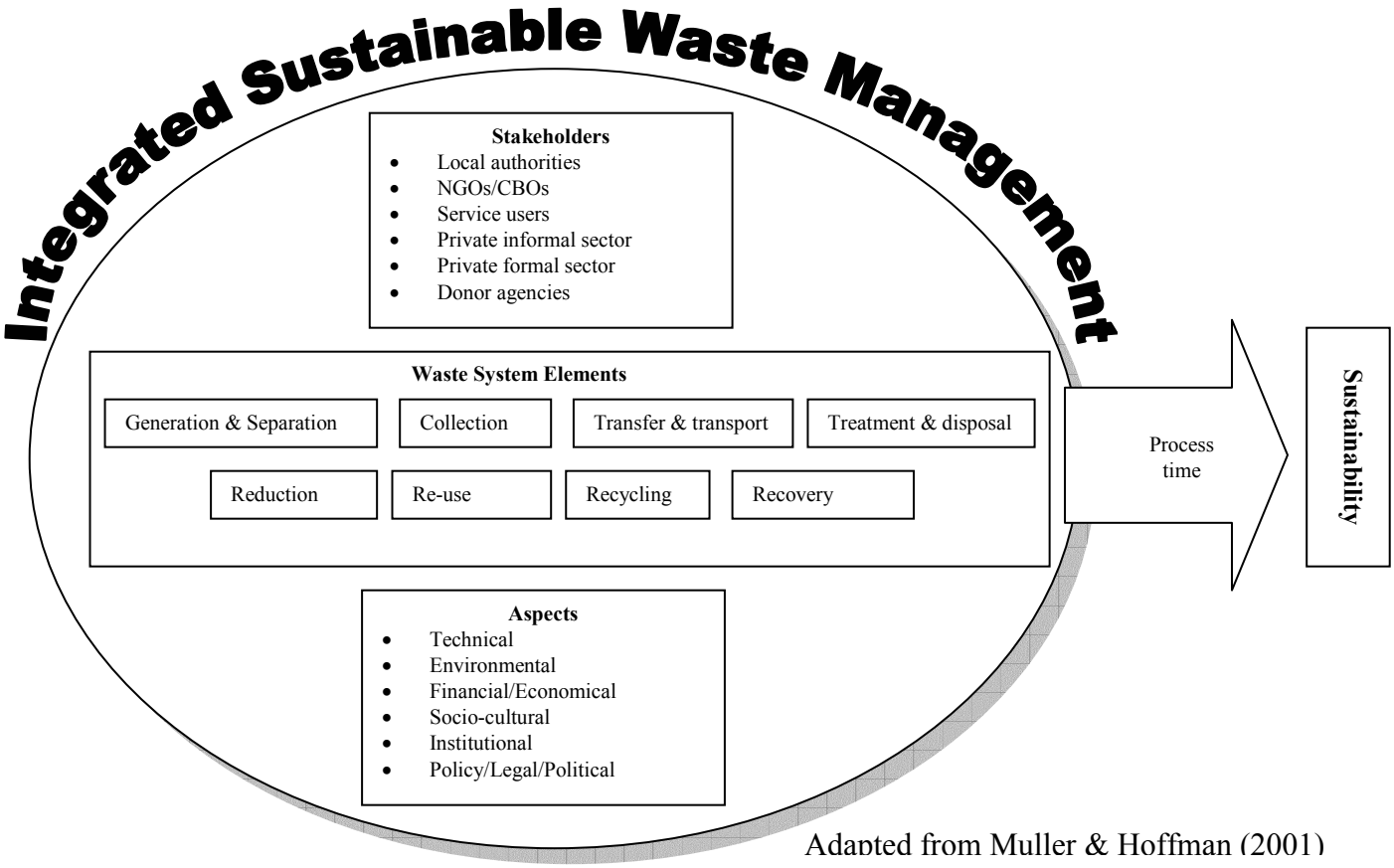
council and within the council is established an executive committee whose membership includes among others the Secretary for Production and Environment Protection. These committees have the responsibility of monitoring projects and other activities undertaken in the area by different actors including the Central Government*, Local Governments Act 1997, Act No 1 of 1997.*

iv) The KCC Solid Waste Management Ordinance, 2000

Made under sections 39 and 41 of the Local Governments Act, 1997 Act No 1 of 1997, this ordinance provides for the control, storage, collection, transportation, treatment, processing and disposal of solid wastes generated within Kampala District. It also provides for the establishment of solid waste disposal facilities for the generated waste within the city, the regulation of the development, construction, maintenance and operation of such facilities and for the connected matters. The ordinance further spells out the roles and responsibilities of all the stakeholders (including the local communities, the private collectors and the local authorities) in the management of solid waste. By empowering the private sector to participate in the provision of solid waste management services, the ordinance fulfils Paragraph IX of the Constitution of Uganda 1995.

However, the enforcement of these laws within Makindye Division is very weak. The communities have not been adequately sensitized and educated about the existence of such laws and what they are expected of. For instance, most of the respondents that I interviewed put the responsibility of managing solid waste to the Division Authorities. Some of them did not know that the Solid Waste Ordinance existed and what it implied as far as their role as stakeholders in the management of household wastes was concerned.

1.4 The Integrated Solid Waste Management Framework



Adapted from Muller & Hoffman (2001)

In order to better understand solid waste management systems, I adopted the Integrated Solid Waste Management Framework (ISWMF) developed by Muller and Hoffman (2001).

Their framework introduces the various actors who participate in solid waste management in developing countries, and begins by clarifying and defining their roles. In principle, these actors are part of every solid waste management system, both in developing and developed countries.

They point out that in most situations, few clear boundaries can be drawn between the formal and informal sector, both of which are involved in the collecting and recycling of waste materials. Many enterprises operate in a kind of 'grey zone', where characteristics of both `formal' and the `informal' sector apply. Furthermore, relatively strong commercial connections exist between the entrepreneurs in the chain (varying from waste-pickers, intermediate traders to manufacturers of recycled end-products) regardless of their status as formal or informal; the two sectors tend to operate in a symbiotic relationship, with the `informal' enterprise acting as supplier or sub-contractor to a

`formal' waste business or manufacturer. Also, competition for both materials and service contracts may exist between the entrepreneurs in the formal and informal sectors. Even the boundaries between the municipal government and the informal private waste sector may be blurred. For example, a common situation involves informal waste pickers working along with the municipal crew on collection vehicles. Also, informal waste collectors or recyclers may have organized themselves and receive exclusive rights to recover resources from municipal refuse.

1.4.1 Municipal governments

Local municipal governments have a role in the set-up and operation of waste management systems. Most urban authorities in both industrialized and developing countries receive their powers and obligations from a central government authority, with allocation of powers and responsibilities to protect the rights of the citizens, to provide services, and to serve the common good (Gidman et al. 1995). On one hand, they have to implement laws and regulations in order to fulfill their statutory obligations. On the other, a failure to provide a public service can result in those in power risking the wrath of their constituents, the ridicule of the international community, and (at least in the case of democratically elected officials) ultimately their ability to get elected and enjoy the privileges of public office. Local municipal governments, almost by definition, are charged with controlling living conditions and public health. Within this framework, urban authorities around the world traditionally interpret their mandate to include the delivery of services, including sanitation, waste removal, and disposal, within their political and geographic jurisdiction. This gives them formal responsibility for solid waste management; this responsibility is generally assigned to the Health or Sanitation Department, but in certain cases also to the department of Public Works or Engineering.
From the above discussion, the following characteristics can be noted of the public sector in fulfilling its responsibility for waste management systems:

- *Motivated by legal and political concerns, and sometimes by international prestige*
- *Performing activities because of its mandate and obligation, or because of the power and patronage they confer on the government, or its representatives*
- *Using public tax-generated resources and/or fees for services rendered*
- *Regulating or contracting with the private sector*

1.4.2 The formal private sector

The `formal private sector' is here understood to refer to private sector corporations, institutions, firms and individuals, operating registered and/or incorporated businesses with official business licenses, an organized labor force governed by labor laws, some degree of capital investment, and generally modern technology (Furedy 1990). In general, the defining characteristic of the formal private sector is that its main objective is to generate a profit on investments. Formal private companies are involved in wide-ranging activities in waste management systems, varying from waste collection, resource recovery, incineration and landfill operation.

They may participate in the waste management system in a number of ways, including:

- Entering into contracts paid by the municipality to perform collection, processing, disposal or cleaning services for compensation
- Purchasing the right to perform services and keep (all or part of) the income generated
- Entering into contracts with individuals or businesses for collection services
- Functioning as a purchaser of recovered materials from the municipality or the collector

Therefore, the following characteristics may be typical of the formal private sector in its participation in waste management systems:

- *Motivated by profit*
- *Performing activities because of their potential to generate income*
- *Using private resources*
- *Regulated and/or contracted by the municipal government*

1.4.3 The informal private sector

The term `informal private sector' refers to unregistered, unregulated, or casual activities carried out by individuals and/or family or community enterprises, that engage in value-adding activities on a small-scale with minimal capital input, using local materials and labor-intensive techniques (Furedy, 1990).

Informal activities, in contrast with the formal sector in waste collecting and recycling, are often driven by poverty, and are initiated personally and spontaneously (and sometimes haphazardly) in the struggle for survival (although some enterprises, especially the ones engaged in recycling activities, manage to make considerable profits). Consequently, the choice of materials to collect is in the first place determined by the

value of the waste materials, and in the second place, by their ease of extraction, handling, and transport. Paper, metals and plastics, usually collected from more wealthy residential or industrial areas, tend to attract more attention than organic or biodegradable materials, even though these materials are present in much smaller percentages than organic waste or manures.

In general, the informal sector consists of two types of activities; individuals and families performing activities which provide them with subsistence, and small businesses, operating in much the same way as their larger, registered counterparts, but without the benefit of official registration. The organization and structure of these recovery activities is generally opaque to outsiders. This is true not only for waste pickers and waste buyers, but also for other groups such as small enterprises recycling metals or plastics. In general waste work is done by religious or ethnic minorities, low castes or rural immigrants, who are looking for a way to generate subsistence income in an urban context.

The importance of the role played by the informal private sector in waste management systems in general and as partners for Municipalities in particular, is slowly achieving international recognition. While informal-sector activities vary according to sociocultural, religious and economic circumstances, some generalizations about gender roles are possible. The least sophisticated forms of labor, including collection of waste from the streets and dumps and primary sorting of the material fall to the women and children, most of whom work from home and do any handling or sorting in their homes or yards. Men are more likely to be involved in the processing or manufacturing of items, together with the selling of recovered items and materials.

In a number of cases, the private sector can operate more efficiently and cost effectively than the public sector in the delivery of waste services. For example, in Sao Paulo, Brazil, where the private sector provides services, the cost is approximately half of that in Rio de Janeiro. For comparable service areas, vehicle efficiency is 71 percent higher in Sao Paulo than in Rio, and labor efficiency 13 percent higher. In Buenos Aires, public collectors (which serve about 13 percent of the city) used 7.5 times more workers per 1,000 people served and 4.5 times as many workers per vehicle, than the private collectors. In Malaysia, the cost of contractor services averages 23 percent less (after taxes) than the cost of services provided by the municipalities. Most local authorities contract out between 10 and 80 percent of solid waste collection services, giving

contracts to between one and nine contractors through a well-defined competitive tender process, (Bartone et al 1991).

1.4.4 Community Based Organizations (CBOs)

The community and its representatives have a direct interest in waste management, as residents, service users and tax payers. Communities in the low-income areas generally receive marginal or no services in terms of public transport, electricity, drinking water, sanitation, drainage and waste removal.

These communities will sometimes take the initiative to organize themselves into Community Based Organizations (CBOs), with the direct goal of self-help and improving their living conditions. Such CBOs may receive external assistance in the form of technical and/or financial aid from different agencies. Sometimes these activities may also take the form of direct participation in waste management, such as feeding organic material directly to their stock. Usable materials, like bottles, are often reused by the members of the low-income community themselves.

Groups of citizens, including those from middle and high-income areas, may start CBOs aimed at improving the waste situation in their neighborhood. They may hire informal or formal waste collectors; they may make arrangements with local politicians for waste transfer points; they may start waste separation experiments and so on. Middle and high-income communities produce the more valuable waste and hence are attractive to low-income waste pickers, where they are often assisted by watchmen and domestic servants. Solving service problems in poorer areas is more likely to require intervention, since the materials have less value. CBOs mainly participate in primary waste collection systems, separation at source experiments, implementation and so on.

CBOs may also take a role in the actual provision of services, including operations and maintenance, and even in the construction of facilities. Thus CBOs play an important role in waste management systems and social development processes. Organized communities have a stronger voice than individuals and bring about improvements more easily. They can also be organized along lines of gender, age or religion.

1.4.5 Non-Governmental Organizations (NGOs)

The term NGO can refer to such diverse organizations as churches, universities, labor organizations, environmental organizations and lobbies. Sometimes even donor organizations can fall under this heading. Generally, Non-Governmental Organizations (NGOs) are intermediate organizations which are not directly and continuously involved in community projects. NGOs not only advocate they can also be involved in awareness raising, advocacy, and decision making. NGOs can act as intermediaries between grassroots initiatives (CBOs) and Municipal Governments, or serve the ideological, political, or represent interests of international organizations. They can advocate interests on a larger scale than the single community and provide support and advice to CBOs, and also to marginal groups in the society, such as waste pickers at dump sites and street children.

The role of NGOs as partner organizations in waste management systems ranges from serving as the umbrella organization under which CBOs operate, to providing a channel for donor financing. As partners, they can sometimes confer a degree of credibility and perspective on the informal sector in the eyes of the municipality.

1.5 Why Are Public Services Being Privatized?

Research on urban solid waste management in the developing world has largely developed from the concern for public sector reform. As noted by Cointreau (1994), most studies start by lamenting the failures of public servicing (too many workers, too few supervisors, few incentives for better performance and limited finance) and suggest different methods of privatization to circumvent these problems. In much of the available literature, the private sector is endowed with qualities such as political independence, economic rationality, efficiency, dynamism and innovation; qualities that make it measure up favorably to public sector enterprises, Sumithra (1999). Although it would be extremely naive to take these salutary effects for granted, reality shows there are many qualifications, for example, privatization became the political creed of the 1990s and its importance as a policy instrument must be accepted as a matter of fact. However, at the same time there was wide recognition that when responsibilities are passed on to the private sector, safeguards must be built in to ensure appropriate standards, achieve co-ordinated provision, ensure a competitive environment and avoid a monopoly control of

essential services by private providers which are not publicly accountable, and to minimize corruption and inequity (Cointreau and Levine 1994**;** Rondinelli & Iacono 1996; Burgess, Carmona, & Kolstee 1997). Therefore, privatization of service provision usually implies some kind of public–private arrangement. In such situations, the government retains some control, while saving on costs, and reducing political interference.

The discussion on the privatization of public services is closely connected to the debate on decentralization. Privatization places new and qualitatively different demands on governments, especially at the local level. In order to meet these new demands, local authorities need to be empowered, and this is what decentralization of authority seeks to establish. Besides these arguments, privatization and deregulation are part and parcel of a prevailing neo-liberal doctrine of market creation and reduction of state control. In fact, policies of privatization and decentralization were imposed on many developing countries as part of Structural Adjustment Programmes regardless of their actual political–economic situation. This implies that domestic political support for these reforms cannot always be taken for granted. The lack of political commitment is probably the most important reason why the implementation of privatization and decentralization policies is often fraught with difficulties and often progresses more slowly than anticipated (Burgess et al 1997).

1.5.1 The privatization process of Kampala's waste management

Uganda is among the countries that have officially adopted Decentralization and Privatization policies. These have profoundly affected the public service environment. In 1986 a system of Local Government was put into place based on the idea of empowering the people through the District Assemblies. One of its objectives was to bring many Departments directly under the jurisdiction of District Assemblies thereby severing the long vertical lines of control and enhancing responsiveness to local needs. As a result, the Department of Public Health and Environment (DPHE), formerly an autonomous agency handling the collection and disposal of solid and liquid wastes and environmental protection in Kampala City, came under Kampala City Council (KCC) supervision. However, the DPHE had neither its own budget, nor budgetary authority. The KCC controlled the size and spending of its budget and decided on policies and courses of

action. Major drawbacks of Solid Waste Management (SWM) in the city were the chronic financial problems due to inadequate funding and poor cost recovery.

In 1997, the DPHE's responsibilities were further decentralized by transferring day-to-day operations to the five Divisions (Makindye, Rubaga, Nakawa, Central and Kawempe) making up Kampala district. The Divisions were given some resources, especially personnel, vehicles and equipment to execute their new responsibilities. However, the exercise seems to have created more problems than it solved. The limited logistics available to the Divisions made servicing extremely sensitive to vehicle breakdown as each area used its equipment solely for work within its own jurisdiction, whereas previously the DPHE had used its fleet of vehicles and equipment as a pool which could be dispatched to the areas most in need. The DPHE frequently had to organize extra runs over the weekend to collect piled-up waste. In fact, the decentralization exercise within Kampala District had helped to further complicate an already highly complex and confusing division of SWM tasks and responsibilities.

The absence of sufficient funds for the local authorities to operate SWM services properly reinforced the argument for private sector involvement. The desire to move in this direction was already spelt out in various policy documents; including the influential World Bank sponsored Urban Environmental Sanitation Project (World Bank 1996). Remarkably enough, privatized services were already an accomplished fact and an accepted practice long before it became official policy. The faith in the private sector was confirmed by a 1999 pilot project set up by the KCC and a local private company (M/s Owino- Nabugabo Joint Venture) to collect solid wastes in certain areas of Makindye Division under franchise[1]. Makindye Division being one of the poorest Divisions with serious difficulties in service delivery including solid waste management and a relatively large number of low income areas (slums) was selected for the project. The success of this experiment marked the start of the DPHE's privatization campaign that was supposed to bring 80% of collection operations under private sector responsibility by 2002.

[1] The government awarded a finite term-zonal monopoly to this private firm for the delivery of solid waste collection services. The franchise award was made after a competitive process. The private firm recovered its costs and profit through direct charges to the households and establishments that were served. Government provided control over the tariff charged to the consumer through; a) development of adequate competition and control of price collusion or b)price regulation

1.5.2 The organization of domestic solid waste management in Kampala

Kampala is a fast growing and sprawling city with a population range of 1,202,544 permanent inhabitants (National Population and Housing Census, 2002) to an unofficial figure of around 2.3 million. There is also a sizeable group of transients that live in the city on a temporary basis (estimated to be 250,000). Prior to the privatization of SWM, the city's DPHE collected and disposed approximately 40% of the total volume of waste in a controlled fashion, while the remaining 60% was collected irregularly or not at all (KCC 2000). Although these figures are at most crude estimates, it is very obvious that collection performance, at least until recently, has been far from adequate.

SWM in Kampala is based on either the House-to-House (HtH) system or the Central Collection center (CCC) system; both are either run by the public sector or by private operators. The HtH system is a relatively new approach (started in the year 2001 after the successful completion of the 'Pilot Refuse Collection Service in Makindye Division' in the year 2000) and is mainly used in rich and some middle-income areas whilst the CCC system (which had been the only approach for a long time) is dominantly applied in low income areas. In some areas both systems are used concurrently.

Each area is served exclusively by one service provider, who is expected to collect and transport the waste to the official designated waste landfill in Kiteezi, a suburb of Kampala. In the CCC system, the District Authority normally provides the containers and bears all the costs. In the HtH system, residents are obliged to register with the DPHE or the accredited contactor and required to pay a user fee that varies between Uganda shillings 5, 000 (US $ 2.6) and Uganda shillings 20, 000 (US $10.7) per month depending on the size of their garbage bin and frequency of collection. In terms of relative importance, the CCC and HtH systems cover 70% and 30% of the areas actually receiving SWM services, respectively.

The solid waste management arrangement that materializes in a particular area depends on numerous factors, including wealth, physical characteristics, strength of community organization, and prevailing policy of the local authorities. Relating to the above, I identified the existing institutional arrangements in SWM within Makindye Division; and basing on this, 2 research localities (Luwafu and Katwe I parishes) were selected, each

representing a particular type of arrangement (a medium to high income area with the HtH collection system dominating and a low income area (where a combination of both the HtH and CCC systems are applied) respectively).

1.6 Statement of the Problem

The decline in municipal service delivery by National and Local Governments in many urban centers of developing countries has often been attributed to inequitable resource allocation, low revenue collection, low service coverage, mismanagement, corruption and lack of transparency and accountability. These coupled with the ever increasing urban growth and waste generation in Kampala have outstripped the city's capacity to provide adequate and efficient waste management resulting in gross urban decay and an increased involvement by city residents and other actors other than Kampala City Council in solid waste management.

It has also been argued that the privatization of urban services can be motivated by the following considerations; reducing the cost of public services to the consumers, relieving the financial and administrative burden on the government, satisfying unmet needs, increasing productivity and raising efficiency and promoting competition, adopting innovation and new technologies, maintaining the condition of equipment, improving responsiveness to cost control measures. However, one question still stands whether the involvement of the private sector in solid waste management in Kampala district has duly considered the above issues and therefore led to an improvement in the management of solid wastes in Uganda.

It was therefore upon the above issues that a study which investigates these issues was a worthy one with a view of describing the roles of the different stakeholders in the waste management and further identifying the prevailing constraints to effective public-private interventions in solid waste management on whose basis recommendations could be made.

1.7 Justification

Over the years, many solid waste management studies (including KCC (1994), KCC (2000), MLHUD (1993) and Matagi (2001)) have been conducted focusing on behavioral aspects, unplanned management and lack of organizational capacity within the solid

waste management sector of Kampala district. Outcomes of these research works have led to a number of changes in the approach to the management of solid wastes in Kampala of which collaboration between public and private actors has been promoted and implemented. However, despite these initiatives, solid waste management still remains and is increasingly becoming a very serious problem in Kampala district. This study with its focus on public- private interventions therefore tries to bridge some of the existing information gaps in the organization and collaboration between the different players. The information is particularly useful to the different stakeholders including planners, administrators, academics, private waste collectors and in one way or the other contributes to future policy interventions in solid waste management sector of Kampala city council and Uganda at large

1.8 General Objective of the Study

To find out if, how and why the intervention of the private sector has led to improvements in municipal solid waste management in Makindye Division, Kampala district.

1.8.1 Specific objectives

1. To ascertain the composition and amount of domestic solid wastes generated per person per day in both the low and medium to high income areas

2. To assess the current domestic solid waste storage, collection, transportation, reuse, reduction, recycle, recovery and disposal alternatives

3. To identify the roles and relationships between the public and private sectors in the management of solid waste in Makindye Division

4. To assess the respondents' attitude and awareness towards solid waste management

1.8.2 Research questions

The research questions were formulated in accordance with the specific objectives and are the following;

Amount and composition of the wastes:

- What is the mean amount of domestic solid waste generated per person per day in the high and low income socio-economic classes?
- What is the composition of generated domestic solid wastes?

Waste management practices:

- What are the current storage, collection, transportation and disposal alternatives available to the waste managers?
- Are there any material reduction, reuse, recycle and recovery initiatives being undertaken by the different waste management actors?

Roles and responsibilities:

- Do existing policies and laws recognize the role and contribution of the informal waste collectors to the overall waste management process?
- Does the public sector supervise and monitor the operations of the private waste managers? If so how?
- How affordable is the amount of money charged for domestic solid waste management services for the customers in the different socio-economic areas?
- Does the public sector offer any logistical support to the private companies?
- What are the operational problems faced by the private companies offering solid waste management services?

Attitude and awareness of the people:

- What is the attitude of the people towards solid wastes?
- Are they aware of the health dangers associated with poor domestic solid waste management?
- What is the people's attitude towards separating the biodegradable from non biodegradable solid waste?

1.9 Structure of the Thesis

This thesis is made up of nine chapters. In chapter one I introduce and give a general background the study topic. An overview of the African in relation to the global

perspectives concerning solid waste management is given. I later narrow down to Uganda and specifically Kampala district where a general picture concerning the organization of solid waste management is presented. Within this chapter, the integrated solid waste management framework (adapted from Muller and Hoffman) together with the issues and myths behind privatization of social services are also given. I conclude this chapter by stating the problem; I justify the need for this research and give the objectives and research questions under investigation.

In chapter two, the theories and concepts that were used are given. One of them is the Actor- oriented approach. Since the study focuses on the relationship between different actors including public, private and local communities and how these relationships affect the delivery of services to communities, this theory proved to be the most appropriate. It analyses the myths behind people's actions and tries to deconstruct the traditional cause-effect beliefs that many development agencies have traditionally thought of as being behind under development in many poor countries. The study's theoretical framework would not be satisfactory without the concept of governance. Since the public-private partnerships are implemented under a decentralized form of administration, then analysis using the concept of governance; which by the way not only defines the roles and responsibilities of leaders but also those being led came in handy. After all, the concept of governance looks at the all the domains of society namely; public, private (including formal and informal actors) and civil society. These happened to be the focus of the study.

The methods and actual techniques used in the collection, analysis and presentation of research findings are discussed in chapter three. The limitations encountered during the execution of field work, together with how I overcame some of them are also presented in this chapter. Chapter four gives the geographical setting, as well as the physical, social and economic profile of the study area. Of special interest is the socio-spatial segregation of the parishes in the study area. In chapters five, six, seven and eight, I present the research findings. I also discuss and give my own interpretation to some of the emerging issues. Each of the chapters is concluded with a summary of the issues arising. In chapter nine, I conclude and give recommendations. Within this chapter, I also make suggestions for potential future research areas in regard to waste management.

CHAPTER TWO

2.0 The Theoretical Framework

2.1 The Actor Oriented Approach

Following the so called 'impasse'[2] in development studies in the mid 1980s, considerable interest was directed towards resolving the theoretical and methodological shortcomings of existing structural and generic theories of development that espoused various forms of determinism, linearity and institutional hegemony[3]. They were also by large, people-less and obsessed with the self –organizing practices of those inhabiting, experiencing and transforming the contours and details of the social landscape.

Long (2001) argues that one way out of this impasse is to adopt an actor-oriented perspective that explores how social actors (both locals and external to particular arenas) are locked into a series of intertwined battles over resources, meanings and institutional legitimacy and control.

A cumulative effect of this increased interest in challenging existing orthodoxies in development and practices has been that Actor- oriented analysis and issues relating to conceptualization of agency and processes of social change have now moved to centre stage. This holds not only for academics researching social change and development, but also for policy actors and development practitioners in general. Indeed, the approach has recently been taken up by national and international bodies involved in the design, implementation and evaluation of specific policies, such as, the United Kingdom Department for International Development (DFID), the Nordic and Dutch Aid programmes, the World Bank, UNESCO, and many development NGOs.

Long (2001) presents an integrated presentation of the actor-oriented theory; whose concepts and practice that are philosophically grounded in a social constructionist view of change and continuity. It focuses on the making and remaking of society through the on going self- transforming actions and perceptions of a diverse and interlocked world of

[2] Situation in which no progress can be made or no advancement is possible.

[3] The capacity of a dominant group to exercise control, not through visible regulation or the deployment of force, but rather through the willing acquiescence of citizens to accept subordinate status by their acceptance of institutions that are unequal and unjust

actors. These emergent processes are complex, often ambivalent and highly contingent upon evolving conditions of different social arenas. They also entail networks of relations, resources and meanings at different levels of organization. They range from small scale interactional contexts, institutional domains in which actions, expectations and values are framed and contested to more global scenarios that shape human choices and potentialities at a distance but which are themselves the products of the extended chains and repercussions of social action and their impacts on both human and non human components.

The actor-oriented analysis explains how the meanings, purposes and powers associated with different modes of human agency intersect to shape the outcomes of emergent social forms. It also eschew all forms of essentialism and determinism that assume simple cause and effect happenings and those that are built upon the logic and universal laws of central tendencies. In other words, the actor-oriented analysis observes the complexity and interlocking of actors' practices and their intended and unintended outcomes that compose the constraining and enabling frameworks of social action.

The actor-oriented analysis further gives special attention to the question of lived experience, agency, issues of knowledge and power and to the need for developing theory from below.

It also critically assesses policy and implementation models and practices by challenging the orthodox assumptions concerning the efficacy of planned intervention and argues the necessity of viewing intervention as an on- going socially constructed and negotiated process that goes beyond the time/place forms of intervention.

In the field of development, there is need to get behind the myths, models and poses of development policy and institutions, as well as, the reification of local culture and knowledge to uncover the particulars of people's 'lived- in worlds'. That is, there is need to document the ways in which people steer or muddle their way through difficult scenarios, turning 'bad' into 'less bad' circumstances. Sociological explanations, therefore, require addressing both public concern and private dilemmas. The actor-oriented approach aims to precisely grasp these issues through a systematic ethnographic[4]

[4] Based on first-hand field work, ethnography employs participant observation and other qualitative methods to convey the inner life and texture of a particular social group or locality. It involves an intensive study of other cultures over an extended period of time

understanding of the 'social life' of development projects from conception to realization as well as the responses and lived experiences of the variously affected social actors.
Central elements of this ethnographic endeavor focus on the elucidation of internally-generated strategies and processes of change, the links between the 'small' worlds of local actors and the larger-scale 'global' phenomena and actors and the critical role played by diverse and often conflicting forms of human action and social consciousness in the making of development.

Furthermore, it is important to analyze how differential conceptions of power, influence, knowledge and efficacy shape the responses and strategies of the different actors. The actor –oriented perspective addresses the question of how far notions of agency, which differ according to the type of policy being promoted, can be imposed on local groups. Here, the application of concepts such as, *'stakeholder analysis', 'popular participation', 'targeting the poor'*, come into mind. Moreover, if the view of dealing not only with a multiplicity of social actors, but also with 'multiple realities' is taken; implying potentially conflicting social and normative interests and the diverse and discontinuous configuration of knowledge, then we must look closely at the issue of just whose interpretations or models prevail over those of others and in what circumstances. Furthermore, knowledge processes are embedded in social processes that imply aspects of power, authority and legitimization, and thus they are just likely to reflect and contribute to the conflict between social groups as they are to lead to the establishment of common perceptions, interests and intentionalities.
A more dynamic approach to the understanding of social change is needed which stresses the interplay and mutual determinism of 'inherent' and 'external' factors and relations and which recognizes the central role played by human action and consciousness. One advantage of the actor-oriented approach is that it begins with an interest in explaining differential responses to similar circumstances, even if the conditions appear relatively homogeneous. It assumes that the differential patterns that arise are in part the joint creation of actors themselves.
The actor oriented perspective is a very relevant approach to studies that involve analysis of the interplay of different stakeholders, the inherent power relations between them, the available options and constraints and therefore suits very well in my study of solid waste management.

2.2 Governance and Urban Solid Waste Management

The notion of governance in everyday language refers to the manner in which a government or a state governs the territory and people under its jurisdiction. However the current notion of governance transcends this traditional sense and sees governance as the task of running not only the government but any other public entity.

Land-mills and Serageldin (1991:14) refer to governance as 'the exercise of political power to manage a nation's affairs. It encompasses the state's institutional and structural arrangements, decision making processes and the implementation capacity and the relationship between government officials and the public'.

Although, governance so broadly defined clearly covers all aspects of the complex relationships between a government and its people, this definition still fails to highlight another aspect of governance, the role of civil society[5]. The current conceptualization of governance sees it as encompassing the totality of the frameworks and processes for exercising state power through official institutions and procedures, the relation between the exercise of these powers and society at large and the organs a society sets up to respond to the state and promote society's interests.

I adopted the Bratton and Rothchild's (1992) concept of governance, a relational concept emphasizing the nature of the interaction between the state and the social actors and those among the social actors.

Bratton and Van de Walle (1992) argued that the prominence of the question of governance in recent years is due to a multitude of factors including; a backdrop of economic malaise, indignation over internal repression, corruption and austerity, resentment of the state's unresponsiveness to popular demands, the collapse of the communist regimes in Europe and various donor pressures for political reform. In part, the desire for openness and accountability is reinforced by a new awareness of the linkages between economic development and democratic processes, (Mbembe 1989). This could be of crucial importance to urban governance in African cities, given the

[5] Refers to a form of self organization which allows for cooperation with the state whilst enabling individualism. It normally lies outside both the sphere of production and the state. In this study, I define civil society to include local community members and their leaders together with the local CBOs. The private sector is independently treated.

multiplicity of operators on the urban scene, including actors of the civil society who make urban life tick but whose efforts and contributions are often ignored or even impeded by the state.

At the risk of oversimplification, it is possible to see urban governance at the sub-national level in terms of a triadic relationship among central government including national institutions, local governments and civil society. Civil society includes the private sector, non governmental organizations and community based organizations.
The relationship between the state and the civil society is not an easy one, with civil society having gained in importance to some extent as a result of the failure of the state to perform its roles. Partly as a result of the failure of the public authorities to perform their duties, alternative systems of urban management, embedded in or part of civil society, have emerged or gained in importance, but with little encouragement from the authorities. The central and local governments show a lack of democracy, transparency, accountability and cooperation with the public in their operations and processes and in their relationship with civil society. Areas of the failure of the authorities include infrastructure investment and maintenance, provision of services, provision of shelter and land for development, management of the urban economy and the management of the environment. The problem of solid waste management is a major manifestation of this failure.

Waste management has importance in a governance perspective. High concentrations of economic activity in urban areas means that waste generated cannot be disposed of effectively on an individual basis. Solid waste can be considered as a public issue because its disposal on public or private land can cause nuisance or become an environmental or health hazard affecting society, although the private households and firms that generate wastes may consider themselves to have done their duty by removing wastes from their private domains.
Waste management benefits the whole community and any resident can enjoy the benefit of the service without diminishing anyone else's benefit. Thus, waste management stands squarely in the public domain as a public good and therefore citizens expect the governments responsible for waste management to act and keep the environment clean. Here, the division of power, responsibilities and resources between the government and

the relationships between levels of government and within these levels of government and the civil society become important.

Governance applied to waste management incorporates not only the formal structures of government but also the informal structures created by society. Such structures include Community Based Organizations, institutions and associations, as well as the ways formal and informal structures interact in the collection, transportation and disposal of waste. It involves intergovernmental relations, fiscal mobilizations and allocations, planning and citizen participation. The efficiency and effectiveness of delivery depend most importantly on managerial and organizational efficiency, accountability, legitimacy, responsiveness to the public, transparency in decision- making, pluralism of policy options and choices, *http://www.idrc.ca.en/en-9402-201-1-DO_TOPIC.html*

CHAPTER THREE

3.0 The Research Methods

3.1 Introduction

In this chapter, I present the methodology and approaches that were used in the collection and analysis of the data. I also highlight some of the constraints and limitations that were encountered in the field

A research method is a strategy of inquiry which moves from the underlying philosophical assumptions to research design and data collection. The choice of research methods influences the way in which the researcher collects and analyses data. Specific research methods also imply different skills, assumptions and research practices.

The task of the researcher is to uncover the nature of the social world through an understanding of how people act and give meaning to their lives. This is possible through interpretative approaches which are qualitative and inductive. Because of the above, my study uses qualitative methods which allow the acquisition of knowledge through interaction, observation and interviews because these are instrumental when understanding and analyzing people's actions, meanings and situations in specific contexts.

3.2 A Qualitative Research Approach, Why?

Qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings, such as "real world setting [where] the researcher does not attempt to manipulate the phenomenon of interest," Patton (2001:39). Qualitative research, broadly defined, means "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification" (Strauss and Corbin 1990:17) and instead, the kind of research that produces findings arrived from real-world settings where the "phenomenon of interest unfold naturally" (Patton 2001:39). Unlike quantitative researchers who seek causal determination, prediction, and generalization of findings, qualitative researchers instead seek illumination, understanding, and extrapolation to similar situations, (Hoepfl 1997).

Qualitative analysis results in a different type of knowledge than does quantitative inquiry because one party argues from the underlying philosophical nature of each paradigm, enjoying detailed interviewing and the other focuses on the apparent compatibility of the research methods, "enjoying the rewards of both numbers and words"(Glesne and Peshkin 1992:8). This means that such methods like interviews and observations are dominant in the naturalist (interpretive) paradigm and supplementary in the positive paradigm, where the use of survey serves in opposite order. Although it has been claimed by Winter (2000) that quantitative researchers attempt to disassociate themselves as much as possible from the research process, qualitative researchers have come to embrace their involvement and role within the research. Patton (2001) supports the notion of researcher's involvement and immersion into the research by discussing that the real world are subject to change and therefore, a qualitative researcher should be present during the changes to record an event after and before the change occurs.

Because of the above, my study employs the use of qualitative methods which allow the acquisition of knowledge through interaction, observation and interviews because these are instrumental when understanding and analyzing people's actions, meanings and situations in specific contexts.

3.3 Why Makindye Division?

Prior to the fieldwork, I conducted extensive literature searches about the five divisions making up Kampala district. I mainly focused was on their socio-economic status and whether Private-Public Partnerships in solid waste management had been established in these Divisions. I discovered that all the five divisions had some form of partnership. However, the decision of engaging Makindye was based on the following reasons;

*It was in Makindye Division that a pilot project aimed at testing the feasibility of Public –Private Partnerships for solid waste management in the whole of Kampala district was implemented, thereby, making it the first Division among the five making up Kampala to have experienced such changes of decentralization. As such, Makindye had more experience than any of the other four remaining Divisions. This pilot project (named, Pilot Refuse Collection Service in Makindye Division, contract No: MRW-04) was implemented in the year 2000 following the enactment of the new Solid Waste Management Ordinance for Kampala (2000), which devolved the powers and responsibility of managing solid wastes from the centre (KCC) to the lower councils

(Divisional councils). This ordinance also empowers the Divisions to make partnerships with private service providers.

*Makindye division has a mixture of both very low income neighborhoods and middle to high income areas. Since my study, was designed to look at the delivery of solid waste management services in both areas, then Makindye suitably qualified, hence the choice of Katwe I parish and Luwafu parish (low income area and middle to high income area respectively) both found within the Division.

However, my study would not be conclusive without looking at the final destination of the collected solid wastes. In the whole of Kampala there is only one landfill (Kiteezi landfill) that serves as the dumping ground for the wastes collected from all the five Divisions making up the district. At this landfill too, a Public- Private Partnership venture has been set up between KCC and a private company, DOT SERVICES LIMITED. Therefore, this company was included in the study with the aim of looking its operations, the problems it faces and what relationship exists between KCC and this company.

3.4 Sampling Techniques

Systematic, non probabilistic method of sampling was one of the techniques I used. This technique does not aim to establish a random sample or representative sample drawn from a population, but rather, to identify specific groups of people who either possess characteristics or live in circumstances relevant to the social phenomena being studied (key informants). The key informants for my study included the Local Council II Chairmen of both Luwafu and Katwe I parishes. These were selected because they are the local heads and leaders within these areas and therefore were to be a great source of information regarding the solid waste management situation in their areas. Others selected using this technique included the Director and 2 field employees (nominated for the interview by the Director) of HOMEKLIN Limited, the private company that has partnered with Makindye Division to undertake the collection of domestic solid wastes from the selected study areas. The Makindye Division Planning Officer, the National Environment Management Authority (NEMA) Effluent Inspector and the KCC landfill Engineer were the key informants from the Public sector, while, the Operations Manager of DOT SERVICES LIMITED represented this company at the landfill. Also included was the Director of UCODEA, a local CBO operating in study areas.

Basing on copies of household lists acquired from the local council II chairmen of Luwafu and Katwe II parishes, 15 households were randomly selected from each parish for the interviews and Focus Group Discussions. More respondents would have been taken on, but regarding the limited field work time of just 6 weeks at my disposal and the study mainly being qualitative, this sample was enough to generate the required information.

Using the snow balling method, I had one on one interviews with 3 informal waste pickers/scavengers found at the landfill. This was the most appropriate method for this category due to the fact that they had no form of administrative or organizational structure through which I could have accessed them.

Secondly, this category of people had not been included in the initial proposed scope, but, were later found to be important players and therefore had to be included as and when encountered at the landfill. The respondents nominated others whom they thought had the answers to the questions that themselves could not respond to; and since they were all working in the same area, locating the nominees was quite easy.

Table 1: Number of respondents by sector

Respondent	**Number**
Public sector	
KCC Landfill Engineer	1
Makindye Division Planning Officer	1
NEMA Effluent Inspector	1
Private sector (Formal)	
Director, HOMEKLIN Ltd	1
Field Workers of HOMEKLIN Ltd	2
Operations Manager, DOT Services Ltd	1
Private Sector (Informal)	
Waste scavengers at the landfill	3
Civil Society	
Director, UCODEA	1
Local Council II Chairman, Katwe I Parish	1
Local Council II Chairman, Luwafu Parish	1
Community representatives (Katwe I Parish)	15
Community representatives (Luwafu Parish)	15
Total	43

3.5 Sources of Data

This thesis like many others is based on two major sources of data; primary and secondary sources. Primary data was generated by use of formal and informal interviews which I conducted during field work. Interviews were conducted with informants from

the private companies (HOMEKLIN Limited and DOT SERVICES LIMITED), the Division Planning Officer, the KCC landfill Engineer, the NEMA Effluent Inspector, the Local Council II chairmen from the two parishes, The Director of UCODEA, some community members within the two parishes and waste scavengers at the landfill site. The interviews were supplemented with Focus Group Discussions that I held with some representatives from Katwe I and Luwafu parishes. Direct observation was employed as a verification tool to what I had gathered from the interviews and discussions. Photographs were also taken to serve as proof of the existence of particular phenomena.

Reference to published and unpublished material such as the Solid Waste Management Ordinance for Kampala (2000), The Pilot Refuse Collection Service in Makindye Division Project Evaluation Report (2000), The National Environment Management Statute (NES) (1995), The Local Governments Act (1997), The Constitution of the Republic of Uganda 1995, The Kampala Urban Study Report, Final Report (1993), journals, previous theses on my research topic, text books and a great deal of internet resources provided the much needed secondary data.

3.5.1 Primary sources

Primary sources can be described as 'a first hand testimony or direct evidence concerning a topic under investigation whose nature cannot be determined without reference to the topic and question it is meant to investigate' or 'primary sources are those items that are original to the problem under study'. The effectiveness of these sources depends on how appropriate the researcher designs his research questions and how he or she interacts with them. Vague questions, timing or scheduling of an interview, facial or body expression (as for face to face interviews), type of data capture and storage device all affect the quality of data to be gathered from primary sources.

a) Focus group discussions

Powell et al. (1996: 499), define a focus group as a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the research.

The main purpose of focus group discussion is to draw upon respondents' attitudes, feelings, beliefs, experiences and reactions which would not be feasible using other

methods, such as, observation, one-to-one interviewing, or questionnaire surveys. These attitudes, feelings and beliefs may be partially independent of a group or its social setting, but are more likely to be revealed through the social gathering and the interaction which a focus group entails. Compared to individual interviews, which aim to obtain individual attitudes, beliefs and feelings, focus groups elicit a multiplicity of views and emotional processes within a group context. The individual interview is easier for the researcher to control than a focus group in which participants may take the initiative. Compared to observation, a focus group enables the researcher to gain a larger amount of information in a shorter period of time. Observational methods tend to depend on waiting for things to happen, whereas the researcher follows an interview guide in a focus group. In this sense focus groups are not natural but organized events. Focus groups are particularly useful when there are power differences between the participants and decision-makers or professionals, when the everyday use of language and culture of particular groups is of interest, and when one wants to explore the degree of consensus on a given topic (Morgan & Kreuger 1993).

Basing on the parish household lists obtained from the Local council II (parish) chairmen's office, I randomly selected 15 households from each of the two parishes. Out of these, 5 households from each sample were selected for participation in the Focus Group Discussion leaving behind a total of 20 households for the interviews. With the help of the Chairmen of the two parishes, the heads of households were informed and mobilized before the day of the meeting. I conducted two separate meetings, one in each of the parishes.

However as Morgan (1988) put it:

''It is not always easy to identify the most appropriate participants for a focus group. If a group is too heterogeneous, whether in terms of gender or class, or in terms of professional and 'lay' perspectives, the differences between participants can make a considerable impact on their contributions. Alternatively, if a group is homogenous with regard to specific characteristics, diverse opinions and experiences may not be revealed. Participants need to feel comfortable with each other. Meeting with others whom they think of as possessing similar characteristics or levels of understanding about a given topic, will be more appealing than meeting with those who are perceived to be different''

Much as these two groups were selected and organized according to socio-economic status, the combination of men and women some of whom were coming from the same household, sometimes one being husband to the other, affected the free and full contribution of women especially those from Katwe I parish. The views of the men dominated over those of the women. However, more views were captured from the in-depth interviews that I conducted with individual respondents.

b) Interviews

An interview is a process in which researchers and participants engage in a conversation focused on questions related to a research study. The researcher often asks participants for their thoughts, opinions, perspectives or descriptions of specific experience, Kathleen and Lapan (2003).

Kathleen and Lapan (2003) further point out that, in qualitative research, interviews rely on developing a rapport with participants and discussing in detail aspects of the particular phenomenon being studied; and that, although researchers develop an interview guide, they do not necessarily use that guide as a standard protocol for each interview. Because, each participant is unique, each qualitative interview experience will also be unique, they conclude.

Accordingly, Mathers et al (1998) point out that,

'The quality of the data collected in each interview will depend on both the interview design and on the skill of the interviewer. For example, a poorly designed interview may include leading questions or questions that are not understood by the subject. A poor interviewer may consciously or unconsciously influence the responses that the subject makes. In either circumstance, the research findings will be influenced detrimentally'.

I prepared an interview guide containing open ended questions for the Local Council II chairmen of the two parishes, Makindye Division Planning Officer, The KCC Landfill Engineer, The Director of UCODEA, The Director of HOMEKLIN Limited, two Field Employees of HOMEKLIN Limited, The Operations Manager of DOT Services Limited and the remaining 20 households from the two parishes.

As pointed out earlier, I relied on the lists obtained from the offices of the Local Council II chairmen of both parishes and randomly selected the household respondents. With the help of a field assistant (who happened to be the Chairman's son), I was able to access all the selected households in Luwafu parish. For Katwe I parish, the Chairman of the parish, took me to all the selected households. After introducing me to the respondents, he would leave us to discuss and come back later after some time to pick me up for another destination.

Most interviews were conducted during the week days for those who were not working far away from their homes. For those who were not at home during the week, I had to conduct the interview over the weekend.

The advantage with this type of interviewing was that it allowed the questioning to be guided as I wanted, because I was able to clarify on some unclear questions that the respondents were finding hard to interprete and furthermore, I had chances of probing deeper in such circumstances were the responses were not clear.

The main disadvantage was that it took me a lot of time to accomplish one interview before embarking on another. In some cases, I had to limit the explanations from the respondents. This in one way or the other affected the overall quality of data obtained from such rushed interviews. Also some questions that the respondents regarded as being 'sensitive' (especially the one about their income and how much of it was being spent on waste management services) were not adequately responded to. This was because I had phrased the question in a way that called for disclosure of one's income. However, when I rephrased the question this time asking about how much they spent on waste management services per a given period, they gave me the responses that I had missed initially. I confirmed these figures through an interview with the Director of HOMEKLIN Limited from whom I got a copy of the summary of some of the customers' average monthly expenditure. To find out the general opinion of two communities about the cost of these services, I brought it up again during the Focus Group Discussions. Through this, I was finally able to answer my research question about the affordability of the waste management services within the two communities.

c) Observation

Not all qualitative data collection approaches require direct interaction with people. Observation is a technique that can be used when data collected through other means can be of limited value or are difficult to validate. For example, in interviews participants may be asked about how they behave in certain situations, but there is no guarantee that they actually do what they say they do. Observing them in those situations is more reliable: it is possible to see how they actually behave. Therefore, observation can also serve as a technique for verifying or nullifying information provided in face to face encounters, Mathers et al (1998).

Indeed, I could not easily ascertain whether, what I was being told was the reality out there or not. I therefore had to employ two techniques of observation namely;

Written descriptions: I recorded observations of people and or a situation during the interviews and Focus Group Discussions by taking note of what I had observed. This written description of observed events and situations had a limitation that sometimes I could miss out on some issues that were being raised from the discussion. However, I could always find a way of requesting the person raising the point to repeat it.

Photography: I took photographs of different phenomena that I felt would enhance my findings. These photographs include those showing the storage, collection, transportation, reuse, recycling and disposal of solid wastes.

3.5.2 Secondary sources

As pointed out earlier, secondary sources including text books, newspaper articles, journals, publications from KCC, The NES (1995), The Local Governments Act (1997), The Constitution of Uganda (1995), the KCC Solid Waste Management Ordinance (2000), previous research theses related to my study and internet resources provided me with a substantial amount of information.

However, one major limiting factor with this source of data was my inability to access copies of the agreements between the private companies and the Makindye Division Authorities, because, these were 'private documents.' I therefore had to rely on what I

was being told by my key informants. I was also able to acquire a copy of the Solid Waste Management Ordinance for Kampala District (2000). This document spells out the expected obligations, roles and responsibilities of all the stakeholders (public players, private players and communities) in the management of solid wastes in Kampala district. Together with the other sources already listed above, I was able to review the solid waste management policy issues being implemented in Uganda and Makindye Division in particular.

3.6 Data Analysis

Description of how data of particular research problems are analyzed is a principal component of research, demanding the researcher's knowledge and understanding of the subject matter, (Alston and Bowels, 1998).

Analysis of data provides a sense and meaning for the whole research process in general and the data collected during field work in particular. Taylor and Bogdan (1984) mention that in qualitative data analysis, researchers have their own approaches of how to make sense of data gathered through qualitative methods. The point is that, the analytical output need to be relevant and consistent.

I analyzed the data using an interpretative approach through which I relied on the patterns, categories and themes of responses that each question generated. These then formed the foundation of my descriptions.

3.7 Reliability and Validity

3.7.1 Reliability

Although the term 'Reliability' is a concept used for testing or evaluating quantitative research, the idea is most often used in all kinds of research. If we see the idea of testing as a way of information elicitation then the most important test of any qualitative study is its quality. A good qualitative study can help us "understand a situation that would otherwise be confusing", Eisner (1991:58). This relates to the concept of a good quality research when reliability is a concept to evaluate quality in quantitative study with a "purpose of explaining" while quality concept in qualitative study has the purpose of "generating understanding", (Stenbacka 2001:551). The difference in purposes of evaluating the quality of studies in quantitative and quantitative research is one of the

reasons that the concept of reliability is irrelevant in qualitative research. According to Stenbacka (2001:552), “the concept of reliability is even misleading in qualitative research. If a qualitative study is discussed with reliability as a criterion, the consequence is rather that the study is no good.”

On the other hand, Patton (2001) states that validity and reliability are two factors which any qualitative researcher should be concerned about while designing a study, analyzing results and judging the quality of the study. This corresponds to the question that “How can an inquirer persuade his or her audiences that the research findings of an inquiry are worth paying attention to?" Lincoln and Guba (1985:290). To answer the question, Healy and Perry (2000) assert that the quality of a study in each paradigm should be judged by its own paradigm's terms. For example, while the terms Reliability and Validity are essential criterion for quality in quantitative paradigms, in qualitative paradigms the terms Credibility, Neutrality or Confirmability, Consistency or Dependability and Applicability or Transferability are to be the essential criteria for quality, Lincoln and Guba (1985). To be more specific with the term of reliability in qualitative research, Lincoln and Guba (1985:300) use “dependability”, in qualitative research which closely corresponds to the notion of “reliability” in quantitative research. They further emphasize “inquiry audit” as one measure which might enhance the dependability of qualitative research. This can be used to examine both the process and the product of the research for consistency, (Hoepfl 1997). In the same vein, Clont (1992) and Seale (1999) endorse the concept of dependability with the concept of consistency or reliability in qualitative research. The consistency of data will be achieved when the steps of the research are verified through examination of such items as raw data, data reduction products, and process notes, Campbell (1996).

To ensure reliability in qualitative research, examination of trustworthiness is crucial. Seale (1999:226), while establishing good quality studies through reliability and validity in qualitative research, states that the “trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability.” When judging (testing) qualitative work, Strauss and Corbin (1990:250) suggest that the "usual canons of ‘good science’…require redefinition in order to fit the realities of qualitative research."

To widen the spectrum of conceptualization of reliability and revealing the congruence of reliability and validity in qualitative research, Lincoln and Guba (1985:316) states that: "Since there can be no validity without reliability, a demonstration of the former (validity) is sufficient to establish the latter (reliability)." Patton (2001), with regards to the researcher's ability and skill in any qualitative research, also states that reliability is a consequence of the validity in a study.

3.7.2 Validity

The concept of validity is described by a wide range of terms in qualitative studies. This concept is not a single, fixed or universal concept, but "rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies and projects", Winter (2000:1). Although some qualitative researchers have argued that the term validity is not applicable to qualitative research, at the same time, they have realized the need for some kind of qualifying checks or measures for their research. For example, Creswell & Miller (2000) suggest that the validity is affected by the researcher's perception and his/her choice of paradigm assumption. As a result, many researchers have developed their own concepts of validity and have often generated or adopted what they consider to be more appropriate terms, such as, quality, rigor and trustworthiness, Davies and Dodd (2002) ; Lincoln and Guba (1985); Mishler (2000) ; Seale(1999) and Stenbacka (2001).

The discussion of quality in qualitative research initiated from the concerns about validity and reliability in quantitative tradition which "involved substituting new term for words such as validity and reliability to reflect interpretivist [qualitative] conceptions", Seale (1999:465).

The issue of validity in qualitative research has not been disregarded by Stenbacka (2001) as she has for the issue of reliability in qualitative research. Instead, she argues that the concept of validity should be redefined for qualitative researches. Stenbacka (2001:551) describes the notion of reliability as one of the quality concepts in qualitative research which "needs to be solved in order to claim a study as part of proper research."

Lincoln and Guba (1985) argue that sustaining the trustworthiness of a research report depends on the issues, quantitatively, discussed as validity and reliability. The idea of discovering truth through measures of reliability and validity is replaced by the idea of

trustworthiness which is “defensible”, Johnson (1997:282) and establishing confidence in the findings, Lincoln and Guba, (1985).

3.7.3 How can validity and reliability be tested?

If the validity or trustworthiness can be maximized or tested then more “credible and defensible result,” may lead to generalizability which is one of the concepts suggested by Stenbacka (2001) as the structure for both doing and documenting high quality qualitative research. Therefore, the quality of a research is related to generalizability of the result and therefore to testing and increasing the validity or trustworthiness of the research.

In contrast, Patton (2001) observes that the degree to which an account is believed to be generalizable is a factor that clearly distinguishes between quantitative and qualitative research approaches. Although the ability to generalize findings to wider groups and circumstances is one of the most common tests of validity for quantitative research, Patton (2001) points out generalizability as one of the criteria for quality case studies depending on the case selected and studied. In this sense validity in quantitative research is very specific to the test to which it is applied – where triangulation methods are used in qualitative research. Triangulation is typically a strategy (test) for improving the validity and reliability of research or evaluation of findings.

Mathison (1988:13) elaborates this by saying:

> *‘’Triangulation has raised an important methodological issue in naturalistic and qualitative approaches to evaluation [in order to] control bias and establishing valid propositions because traditional scientific techniques are incompatible with this alternate epistemology.’’*

Patton (2001:247) advocates the use of triangulation by stating “triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both quantitative and qualitative approaches.”

In this view, Healy and Perry (2000) explicate on judging validity and reliability within the realism paradigm which relies on multiple perceptions about a single reality. They argue the involvement of triangulation of several data sources and their interpretations with those multiple perceptions in the realism paradigm.

In any qualitative research, the aim is to "engage in research that probes for deeper understanding rather than examining surface features”, Johnson (1995:4) and

constructivism may facilitate toward that aim. The constructivist notion, that reality is changing whether the observer wishes it or not (Hipps 1993), is an indication of multiple or possibly diverse constructions of reality. Constructivism values multiple realities that people have in their minds. Therefore, to acquire, reliable and diverse realities, multiple methods of searching or gathering data are in order. If this calls for the use of triangulation in the constructivism paradigm, then the use of investigators, method and data triangulations to record the construction of reality is appropriate, Johnson (1997).

An open-ended perspective in constructivism adheres with the notion of data triangulation by allowing participants in a research to assist the researcher in the research question as well as with the data collection. Engaging multiple methods, such as, observation, interviews and recordings leads to more valid, reliable and diverse construction of realities. To improve the analysis and understanding of constructionism, triangulation is a step taken by researchers to involve several investigators or peer researchers' interpretation of the data at different times or locations.

Thus, important points to be considered when ensuring that the results are more valid and reliable are the correspondence between the collected data and those that are meant to be represented by this data.

3.7.4 My strategy to ensure reliability and validity

In order to ensure that my results were as valid and reliable as possible, I continuously crosschecked and verified the collected data to ensure that it satisfied the stated research questions; and since each data collection technique had its strengths and weaknesses, triangulation became a very important strategy that I adopted. It involved the use of multiple data collection techniques such as, interviews, focus group discussions, observation, photographs as well as relying on both primary and secondary sources of data. Apart from the data collected from public officials (including those from Makindye Division, NEMA and KCC) and those from the private companies (HOMEKLIN Limited and DOT Services Limited), representatives from the communities (including community leaders and the general public) where the research was conducted were also involved in order to get balanced opinions and positions on the issues relating to solid waste management in the area. On the issues relating to the welfare of the employees of HOMEKLIN Limited, I separately interviewed the Director

and some of the field workers as a way of ensuring balanced opinions. However, as pointed out later, the interviewees were nominated by the Director and were not freely giving their stand points. In order to get the most out of these very valuable respondents, I supplemented the interviews with moving along with them during their field operations. Through this, I was able to observe and take photographs which I later used as evidence about the general welfare and working conditions of the field staff.

One would question why I relied on the statistics from the 1993 Kampala Urban Study report, KCC (2000) and Matagi (2001); These were independent studies carried out at different periods but came up with the same findings regarding what I needed (the composition and household solid waste generation rates in Kampala district). And since this specific objective was similar to mine, then it was pertinent that I adopt their findings in order to catch up with the limited time that I had for the fieldwork. However, despite all these efforts, I cannot claim that my study was totally credible without any flaws. Below are some of the limitations that I was aware of but could not totally eliminate.

3.8 General Limitations

Other than the specific setbacks pointed out with the different techniques that I used while undertaking this study, one general limitation was that during the design of the study, I had anticipated to include commercial markets within my coverage. This was however, not possible because, the company that I engaged (HOMEKLIN Limited) does not manage solid wastes from markets. Therefore, I had to redesign my scope without including markets.

Secondly, the nomination of specific interviewees by the Director of HOMEKLIN Limited compromised the amount of information that I may have obtained. During the interviews, these respondents acted as if they were the 'spokespersons' of the company and as such, tried to give it a good public image. They also perceived issues that related to their relationship with the administration as very sensitive and that if they were found out to have discussed them with me; they would easily lose their jobs.

Lastly, much as moving around with the chairman of Katwe I eased my access to the different households (and therefore the respondents); it was a hindrance to some extent because some people thought that I was involved in some kind of political mobilization. The fieldwork period (July to august 2005) coincided with the start of massive

recruitment of members into different political parties in preparation for the 2006 National Elections across the country. In fact, one respondent had this to say;

'Mr. Chairman even if you hire personnel from state house, you will not win over my heart to defect to the National Resistance Movement, I and my family belong to the Democratic Party.'

It took a lot of explanation from me to convince this respondent that our visit was not a political one. In fact, it was here that the 'Letter of Introduction' from NTNU helped in convincing this respondent to be interviewed.

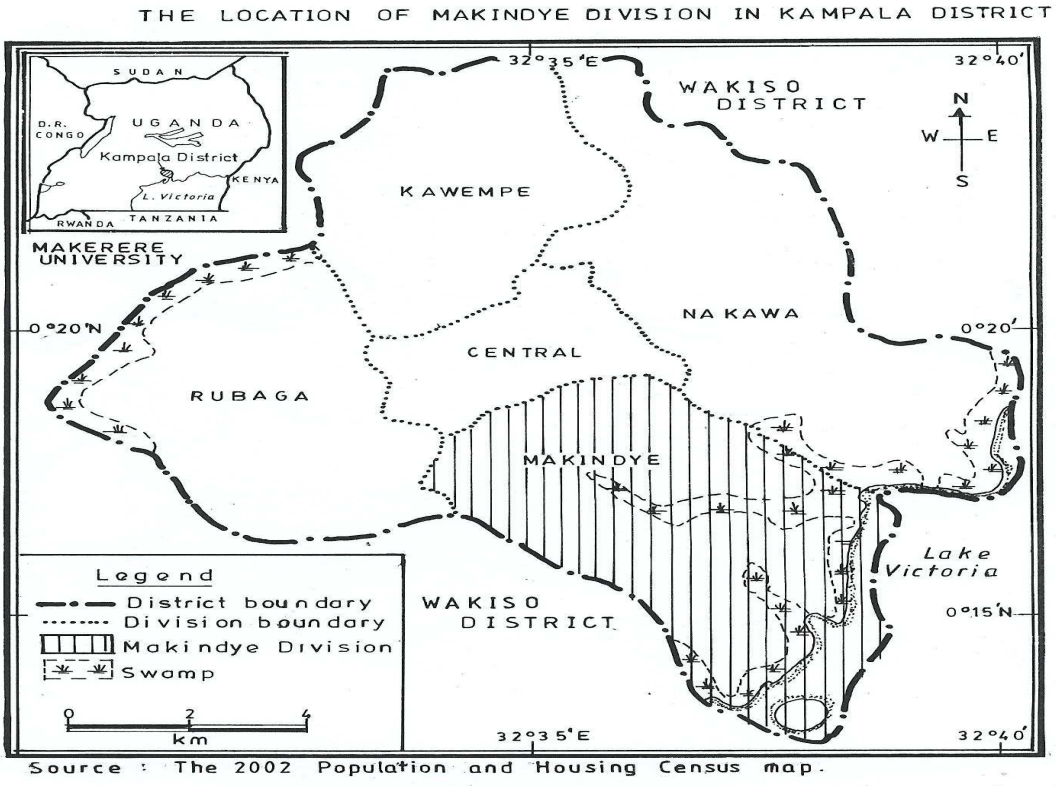
CHAPTER FOUR

4.0 The Study Area

4.1 Description of the Study Area

Makindye division is located in the south eastern part of Kampala district and is approximately 3 kilometers from the city centre. It lies between (32˚ 35’ and 32˚ 40’ E) and (0˚ 15’ and 0˚ 20’ N). In the north, it is bordered by Central Division and Rubaga Division in the North West, Lake Victoria and Mukono in the south and Nakawa Division in the North East. It covers a total area of 40770.80 hectares. The relief is characteristic of well developed slopes, comprising flat crest slopes, often merging into a long and gentle pediment, which is dissected by several valleys. These Valleys of varying gradients separate the steep slopes of Makindye division and form essential natural drains of the division comprising Kansanga wetland, Bunga- Kawuku wetland and Murchison Bay wetland.

Map 1

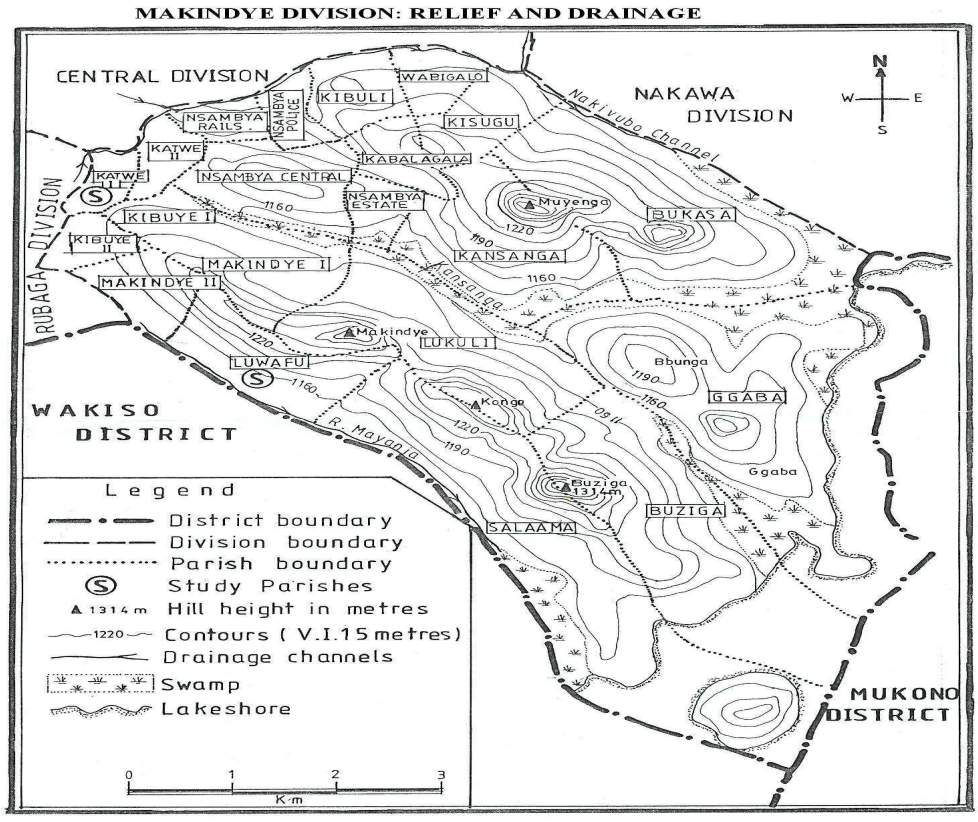


Source : The 2002 Population and Housing Census map.

The temperature of Makindye division like most other areas in Kampala district is considerably high, with an annual average of 21.9˚ C. the annual range is 2.4˚ C.

The division is mainly a residential area, housing 24% of the city population. It is a peri-urban area with small- scale industrial areas, leisure areas and several sub centers of commercial activity. The hilly tops of Buziga, Muyenga, Konge and Katuso are inhabited by medium to high income groups, while the low lying areas of Namuwongo, Wabigalo, Kibuye I and Kibuye II house the low income groups in poor living conditions. There is a high demand for services including housing, health care, waste management among other related amenities.

Map 2



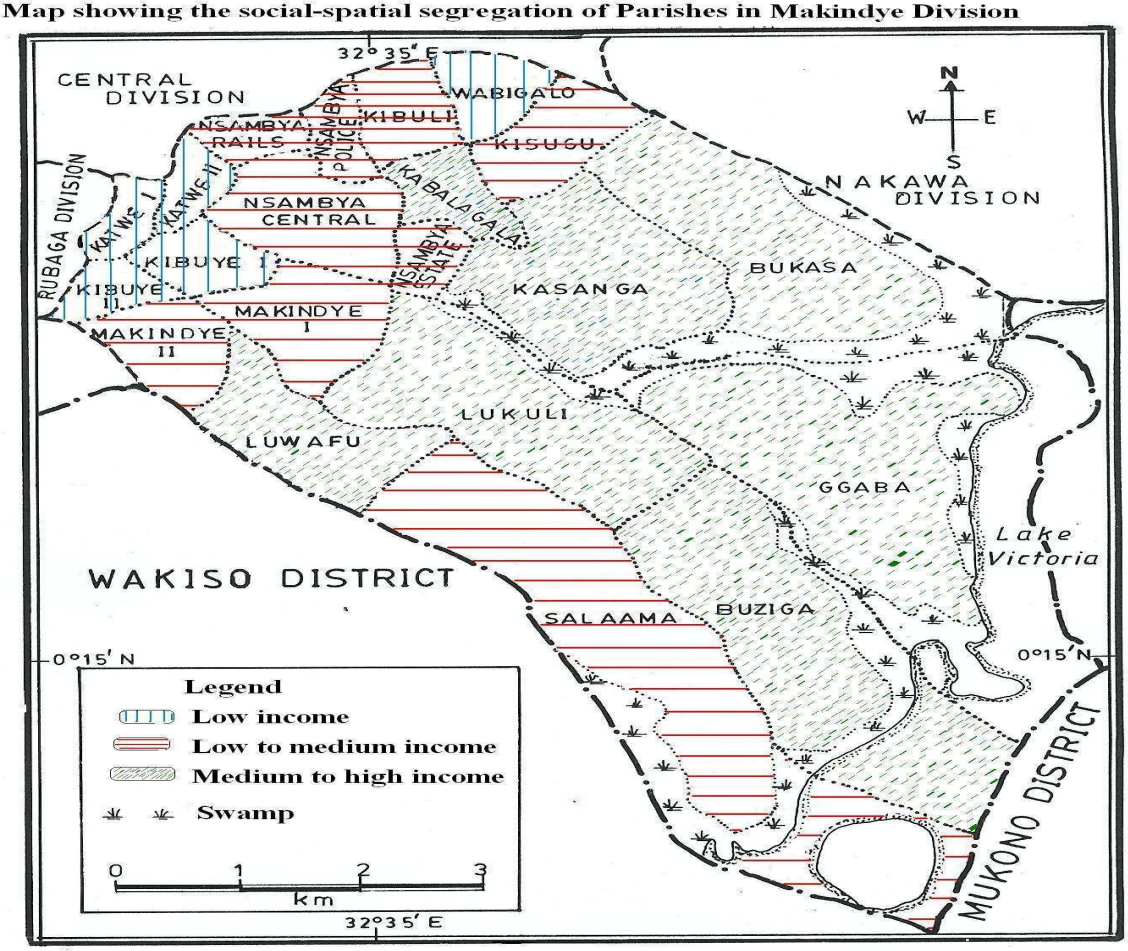
Source: Department of Geography, Makerere University, 2005

Makindye division is experiencing housing pressure due to high population among other factors. The population growth in the division was estimated at 5.2% per annum in 1991 while housing or construction growth was estimated at 1.8%. According to the 1991 population and housing census, the division had a total of 30,666 housing units available

to house 46,000 households. The construction growth rate of 1.8% per annum cannot cater for the high division population growth rate. This indicates that there is considerable pressure being placed on the existing housing infrastructure. This pressure is experienced in the areas of Namuwongo, Wabigalo, Kasanvu, Makindye I, Kibuye, Katwe and Nabutiti in Kansanga parish. A large number of households live in stores, go-downs and garages which are not designed for human occupancy. The problem is worsened by the lack of proper forecasting in terms of appropriate development policies to cater for future population growth hence appropriate policies.

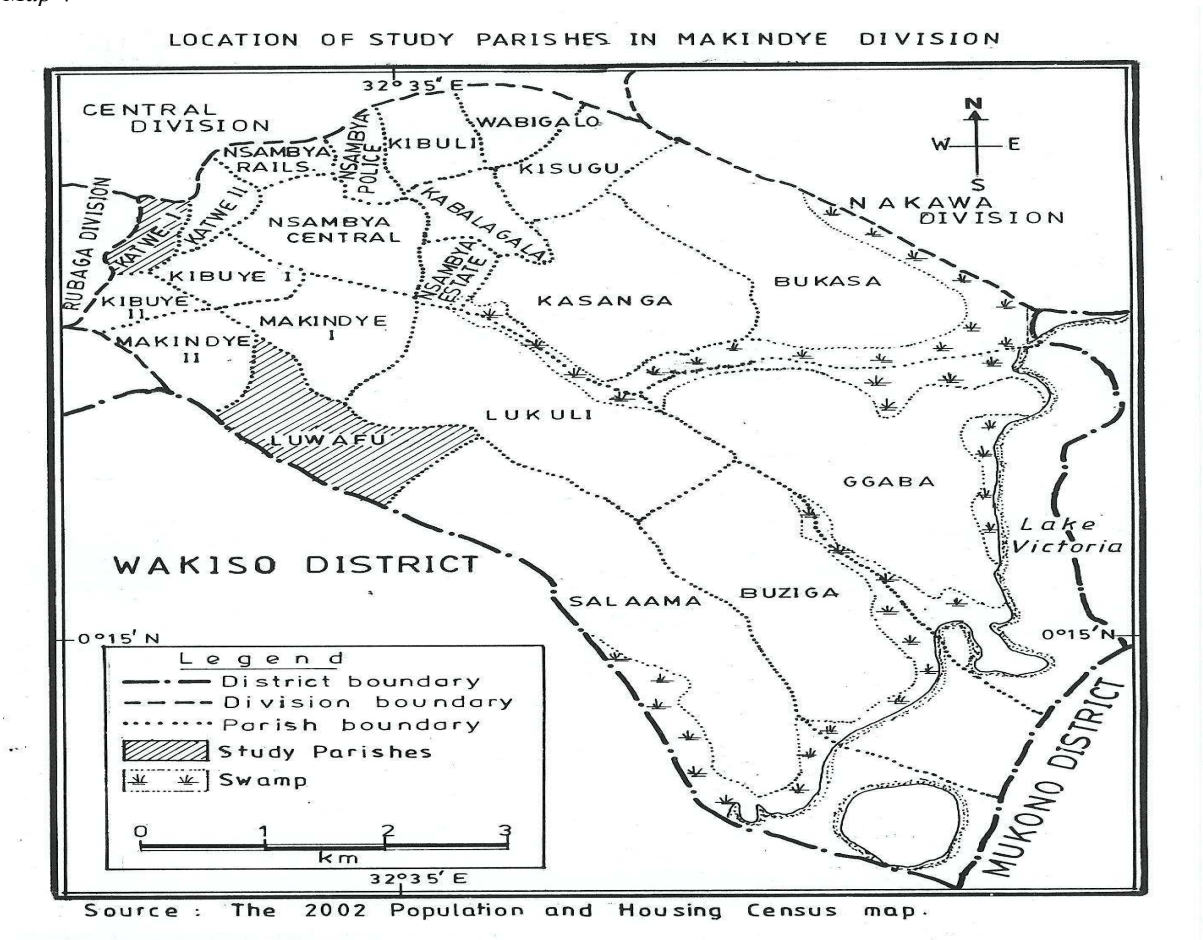
Map 3

Map showing the social-spatial segregation of Parishes in Makindye Division



Source: Data from the field

Map 4



4.2 Administration of the Division

Makindye division is a local authority at Local Council III level, with mandate to carry out its own planning and budgeting under the decentralization programme. It has 21 parishes namely; Nsambya Railways, Nsambya Central, Nsambya Estate, Makindye I, Makindye II, Kibuye I, Kibuye II, Kansanga, Kabalagala, Lukuli, Luwafu, Katwe I, Katwe II, Kibuli, Wabigalo, Bukasa, kisugu, Ggaba, Buziga and Salaama. These parishes are made up of 131 different villages called zones, which are the lowest administrative level. The division is made up of two main organs which are the policy making and the implementation organs.

The policy making organ of the division is called the Makindye Division Local Council (LC) III and consists of 47 elected councilors headed by a chairperson. Representation at the council is as follows;

LC III Chairperson 1, women representatives 15, persons with disabilities 2, youth representatives 2, directly elected representatives from the parishes 26 and Ex-officials (Opinion Leaders) 1.

The roles of the Council are to enact laws, certify consistency of village bye-laws with the National Constitution or any other law, collect local revenue and remit 50% of this to the district headquarters, retain 50% of the revenue and distribute the retained revenue as follows; 10% to parish councils and 25% to the village councils, determine expenditure on emoluments and allowances for councilors, formulate, approve and execute development plans, issue policy guidelines to parishes and villages.

The policy making organs at the lower level are the Parish and Village Councils. There are 21 parish councils and 131 village or zonal councils, each headed by an elected chairperson who is assisted by 9 other members or secretaries also directly elected.

The roles of these councils are to; oversee and implement policies and decisions made by the LCIII Council at the Division level, assist in the maintenance of law, order and security, initiate, encourage, support and participate in self help projects, serve as a communication channel between the Central Government, the LCIII and people in the area, form Parish or Zonal Development Committees which co-ordinate with the Division Authorities in matters concerning development and the supervision of the projects being implemented in their areas of jurisdiction, monitor the day to day administration of their areas and report to the LCIII council.

The implementing organ consists of appointed technical personnel headed by the Principal Town Clerk who is the Chief Administrative Officer of the Division. This organ operates within 8 departments namely; Administration, Finance, Engineering, Urban Planning and Land Management, Legal, Public Health and Environment, Education, Welfare and Community services.

4.3 Socio-Economic Status of the Division

The proximity of the Division to Lake Victoria has influenced the nature of activities being carried out. Its beautiful scenery makes it mainly residential with a lot of recreational and hotel facilities. It is mainly peri-urban with its community engaged in a

mixture of commercial trade (with petty trade dominating), small –scale industries, urban farming, fish business and small- scale service industries.

The following are evident in the Division;

Hotel facilities have been and continue to be constructed especially along the shores of Lake Victoria including; Speke Resort Munyonyo, Didi's Amusement Park, Ggaba Beach Hotel, Hotel International Muyenga and Grand Pearl Hotel. These offer conference, leisure and recreational facilities to both local and international guests. For instance, Speke Resort Munyonyo serves as the main venue for many Governmental and non governmental functions, such as, workshops and conferences.

Makindye Division is also having number of women groups engaged in poverty alleviation projects such as, urban agriculture including commercial mushroom growing, zero grazing, horticulture, poultry farming, fish farming and piggery. There are also groups involved in activities such as, commercial cultural entertainment, craft making; and a number of women have formed self-help groups in which members access soft loans which they use to improve their household incomes by investing the borrowed money into small businesses, especially, retail shops selling basic household products. These are locally called 'Nigina' and have become a household name all over the Division.

Most of the people in Makindye Division are engaged in retail businesses. They mainly operate in small rented shops along main roads and in markets. This kind of business is mainly vibrant in Kabalagala, Kansanga, Makindye I, Ggaba and Katwe I and II parishes.

The Division is poorly endowed with large-scale industrial estates except for the small scale ones located in Katwe, Muyenga (for example, The Muyenga Stone Quarry) and the numerous metal fabrication workshops located all over the Division mainly found in Katwe I and II, Kibuye and along major roads such as Ggaba road.

4.4 Demographic Information

Makindye Division has an average population density of 7,756 people per square kilometer. Various studies have identified rural-urban migration as the main factor behind

this high concentration of people within the Division. This kind of migration is fuelled by the fact that Makindye is in close proximity to the Capital City, Kampala, and because, it is a peri-urban area, people can afford the standards of living and can therefore be able to commute between their places of work (in the city centre) and their residences in Makindye. Kibuye I parish is the most densely populated area with an average density of 8,102 people per square kilometer, while Salama has the lowest population density (4727 people per square kilometer). The 2002 National Population and Housing Census attributes this disparity to the differences in the development pattern in which Kibuye I parish was identified to have registered more development in terms of basic physical infrastructure (especially low-cost housing) than any other parish in the Division and its close proximity to Entebbe-Kampala highway which is the main road leading to the city centre also acts as an attractant of the people to this parish.

According to the 2002 National Population and Housing census, the Division had a population of 301,090 persons at an annual growth rate of 5.2% as compared to the district average of 4.8%. This rate of growth calls for effective planning on the side of the Division Authorities in order to be able to efficiently deliver services to the people. However, this does not seem to be the case within Makindye as a good number of the people lack access to basic services such as, decent housing, clean water, health care and waste management.

4.5 Environmental Health

4.5.1 Sewerage and sanitation

Over 50% of the population stays in slums in poor housing structures, with inadequate ventilation. Most of the houses located in wetlands have poor latrine facilities leading to diarrhorreal diseases and cholera. By the 1991 Population and Housing Census, Makindye Division had 46,000 households, only 9% of those had water facilities and 79% shared toilet facilities. Pit latrines were and are still predominantly used in the areas of Salaama, Lukuli and Luwafu parishes. About 9% of these had water-borne toilets, 10% had their own pit latrines, 79% shared the latrines with a number of other users and 2% had no access to sanitation facilities at all according to the Kampala Urban study , Final Report part II (1994).

Nsambya Estate predominantly uses water borne sewerage systems connected to septic tanks,(although this is too old and requires replacement)while, Nsambya Railways and Police Lines have water borne systems connected to the Kampala city sewerage network. Muyenga Parish mainly has water borne sewerage systems connected to private septic tanks.

The situation in Wabigalo Parish has greatly changed since 1991 with the completion of the Namuwongo Low-cost Housing Project. The basic infrastructure elements provided by the project included improved piped water and most of the households have constructed either VIP latrines or water borne systems connected to on-site septic tanks and soak aways.

Pit latrines are predominant in the remaining densely populated parishes of Kibuye I, Katwe I, Katwe II and Makindye II. Since these parishes are densely populated and slummy, they face a particular problem of siting new pit latrines when the old ones are full due to lack of space; And because, of this, people resort to using plastic bags to dispose of their excreta at their easiest convenience targeting road sides and storm water drains. This phenomenon commonly known as the 'flying toilet' predisposes the people to a number of health risks including cholera and dysentery. For instance, according to Uganda's ministry of Health, between 1997 and 1999, there were a total of 5179 reported cases of cholera across the country of which 2047 were in Kampala District. Of these, 58 deaths were registered. The incidence of dysentery during 1999 was 56,734 cases of which 952 were in Kampala, while in the same year, typhoid incidence was 5871 (National) with Kampala accounting for 282 cases. Poor solid waste and sewage management within homes and public places was among the factors cited as big contributors to these high rates, *(http:// www.health.go.ug/health_stat.htm).*

4.5.2 Solid waste management

Waste collection and disposal is generally below acceptable standards and collection is highly irregular. This can be attributed to the old waste collection trucks which are often grounded in garages and the irregular cash releases for this activity from the Division Finance Department. As a result of this, people have resorted to dumping refuse in water drains or in public places such as road sides. Also because of the fear of late emptying of

the waste containers, land owners are reluctant to let their plots to be used for stationing communal collection waste containers. Some of the organic waste ends up in backyard gardens and is used as compost manure, used as animal feeds, burnt and buried or is left to decompose in open spaces. This littering of solid waste makes most of the streets within the Division unsightly and unsanitary. With an average per capita waste generation of 0.5 kgs per day, the population is incapacitated in terms of storing and disposing it properly. Relatedly, the Division is also overwhelmed by the amounts of solid wastes generated and the cost of disposing it off (Kampala Urban study 1994). In view of the above, the Division has privatized and contracted out waste management in some of the parishes to two private companies. They include HOMEKLIN Limited (which mainly operates within Luwafu, Salaama and Katwe I parishes) and BIN IT mainly in Muyenga, Kisugu, Buziga, Lukuli, Kansanga and Kabalagala parishes. These companies mainly concentrate on household solid waste management, while, the Division Public Health and Environment Department concentrates on commercial waste from the 9 legally operating markets within the Division including Kibuli, Namuwongo, Nsambya I, Nsambya II, Bunga, Kansanga, Kabalagala and Ggaba markets. Some Community Based Organizations have also partnered with the Division to supplement the efforts of the private waste collectors and include, NASOMA (Nabisalu Solid Waste Management Association), KIFCOA (Kibuye Female Concern Association) and UCODEA (Urban Community in Development).

4.6 Drainage

Although a big percentage of the Local Government Development Programme Funds and Alternative Service Delivery Funds have been spent on drainages, the majority of natural water drains in the division are all earth and not sand- pitched, the level of maintenance of the permanent flowing channels as well as the seasonal ones is poor; most of these drains are silted and covered with heavy vegetation and are therefore potential breeding grounds for mosquitoes and tsetse flies. During the heavy rains, some of them get over flown leading to displacement of settlements and disruption of economic activities.

4.7 Water Supply

The national water network in Makindye division is limited along road highways not accessible to slums. Most of the low-income population therefore depends on spring water. About 72% of households in Makindye division have access to piped water. Only 6% of the households in the division have in-house piped water, 66% of households have either yard taps on their properties or have access to neighbors' yard taps or draw water at public stand pipes.

Table 2: Percentage of households in Makindye served with piped water as in 2002

% of Households served	Parishes in the Division
0-20	Nil
21-30	Salaama, Lukuli
31-40	Luwafu
41-50	Katwe I, Bukasa, Kibuye
51-60	Nil
61-70	Buziga, Katwe II
71-80	Nsambya Central, Makindye I, Makindye II, Kansanga
81-90	Ggaba, Kisugu, Kibuli, Nsambya Estates, Kibuye II
91-100	Kabalagala, Nsambya Railways, Wabigalo

Source: Uganda National Population and Housing Census, 2002

At the moment, the percentage of parishes served with piped water has tremendously increased especially in the parishes of Salaama, Lukuli, Kisugu and Luwafu where water mains have been laid and installed. This improvement has been possible because of the intervention of the Local Government Development Programme (LGDP) with funding from the World Bank.

The slum upgrading project of Namuwongo in the 1980s in which a network of stand pipes was installed, led to an improvement in the water supply situation in the surrounding parishes of Police Lines, Nsambya Estates and Nsambya Railways, resulting in over 99% of the households in these parishes having access to stand pipe water. The other areas like Nsambya Central, Kabalagala, Kibuye II, kisugu, Bukasa and Buziga were served by private developers. Salaama, with its rural setting, is presently serviced from a water main running along Salaama road. The percentage of the households who

have access to piped water has increased to 60% and is expected to further improve with the extension of this same water main by The National Water and Sewerage Corporation. Bukasa is a low density residential area of peri urban character. About 42% of households have access to piped water while Kibuye I with a high population density has about 45% of households collecting water from unprotected springs that are speculated to be polluted. Makindye on the other hand, has had its water mains extended in all the zones under the LGDP initiative

CHAPTER FIVE

5.0 Domestic Solid Waste Generation and Composition

5.1 Introduction

Domestic solid wastes include garbage, refuse, trash and other materials or products including putrescible and non putrescible substances, organic and inorganic waste, combustible and non combustible waste and non hazardous waste, but do not include hazardous waste or human body parts, KCC (2000).

Domestic waste composition differs from country to country and from socio-economic area to another due to differences in consumables available, affordable and preferred by the different households. UNEP (1983) observed that differences in waste composition can also arise due to differences in waste separation, sorting and identification practices. It further observed that waste mass and volume are influenced by standards of living whereby higher income groups produce more low density wastes per capita than their low income counterparts which generate more high density solid wastes.

The objective covered in this chapter includes ascertaining the amount and composition of solid wastes generated per person per day in the low income and medium to high income areas.

5.2 Sources of Data

Data for this chapter was obtained from the findings of the 'Pilot Refuse Collection Service in Makindye Division Project Evaluation Report (2000).' This study was commissioned by KCC to assess the feasibility of a public-private partnership in solid waste management in Makindye Division. The methods used to obtain data for this study included questionnaire, interviews, observations and weighing of waste. Data on waste generated per person per day were obtained by weighing. Households were provided with 2 polyethylene bags of different colors (blue and black). Members of each household were requested to separate biodegradable from non biodegradable waste and keep them separately in the bags provided until the day of weighing. Those who could not comply with the request were assisted by research assistants on the day of weighing to sort and ensure that there was no mixing of the wastes. The samples were weighed thrice a week at alternating days for a period of 2 months.

The type of wastes generated by each household of known population and socio-economic class was analyzed to determine the amount of waste generated per person per day.

5.3 Results

The findings revealed that low income areas generated less amounts of solid wastes (0.46 kilograms) per person per day compared to the 0.64 kilograms generated from the medium to high income areas within Makindye Division. From these findings, a mean weight of 0.55 kilograms of solid waste per person per day was computed for the entire population of Makindye Division.

As for the composition of the generated solid waste, observations were made in 25 randomly selected households from both low income and medium to high income areas. The aim was to ascertain whether there were differences in the constituents of solid waste generated from the different localities. The study team categorized biodegradable waste as paper, fine material (flour from maize, millet, cassava, rice etc), organic mater of plant origin (like, bananas, cassava tubers, potato peels, fruit pods, seeds) and organic matter of animal origin (like bones, feathers, hairs, meat leftovers). The non biodegradable comprised plastics (like basins, cups, plates, toys, polyethylene bags, and cosmetic and food containers), dry batteries, metals and broken glass.

Table 3: Frequency of appearance of different components of domestic solid waste in the low and medium to high income areas in Makindye

Socio-economic area	Domestic waste components				
	Paper	Fine materials	Plant origin	Animal origin	Non biodegradable
Medium to High income	280	20	150	75	35
Low income	55	58	110	5	18

Source: KCC, 2000

Paper: This included ordinary writing papers, printed materials, newspapers and wrapping materials. The papers were more frequent in the medium to high income areas with a frequency of 280 compared to 55 in the low socio-economic areas. The frequency

of this waste is related to the level of affluence and literacy. The medium to high socio-economic class, which has a higher income, is capable of buying newspapers, goods wrapped in papers and a lot of scholastic materials which are discarded as waste compared to the other class.

Fine materials: This included charcoal stove ash, sweepings from houses and compounds and edible flour from maize, millet, to mention but a few. The low income areas generated more of this waste than the medium to high income areas. The study noted that most of the residents in the medium to high income areas use both charcoal stoves and electricity for cooking and thus, generate less ash compared to the low income areas which depend entirely on paraffin, firewood and charcoal stoves.

Organic matter of plant origin: Emphasis was put on food leftovers and by-products which include peels of bananas, cassava, potato, oranges and mangoes, cabbages, carrots, green paper, to mention but a few. This type of waste was more frequent in the medium to high income areas and less abundant in the low income areas. The reasons for this were that, since dry cereal products from beans, maize and rice were cheaper than the fresh foods, therefore, it was evident that the fresh food waste had to be more dominant in the medium to high income areas where their demand and affordability is higher. In fact, the study observed that, some households in the low income areas failed to raise such waste for weighing on a number of occasions. Some particular type of wastes like fruit remains of oranges, passion fruits, pawpaw and water melons were missing in the low income areas and more frequent in the high income areas.

Organic matter of animal origin: This included bones, hairs, feathers and meat leftovers. Like organic matter of plant origin, the study found out that the frequency of this type of waste decreased with the level of income. The medium to high income areas had a higher frequency than low income areas. Night scavenging by dogs was the reason attributed to this occurrence since most of the homesteads in the low income areas are not enclosed and therefore, these animals had easy access to the wastes.

Non biodegradable wastes: These included dry batteries, metals and plastics (like basins, cups, toys, polyethylene bags) and were found to be more frequent in the medium to high income areas than in the low income ones. Plastics, especially, polyethylene bags were very prominent in the medium to high income areas because, these people purchase a lot of packed materials and continuously discard plastic packs as waste after use. The continuous reuse of these plastics by the low income dwellers coupled with the low

purchasing power of packed materials contributed to the low frequency in this socio-economic class.

5.4 Discussion

Studies carried out by Matagi (2002) for the whole of Kampala district also revealed that the average waste generated per person per day was 0.55 kilograms. By performing statistical tests (students' T-tests) on the amount of solid waste generated from both the low income and medium to high income areas, Matagi (2000) found out that there was no significant difference in the mean weight of the solid wastes. The study therefore concluded that, type of locality did not influence the quantity of solid waste generation. Similar trends were found in Mexico City by Martin (2000), where low income areas generated about 2.6 kilograms of solid wastes per person per day, while, those in the middle income areas produced 2.7 kilograms per person per day, a figure, that he found out to be statistically indifferent.

Indeed from the discussion that I held with the Director of HOMEKLIN, he truly concurred with these findings despite the fact that the company had not carried out its own independent study to ascertain these figures. His arguments were based on the number of trips that the collection vehicles have to make per day in the different areas which was more or less the same.

Box 1

As you can see from these records for Katwe I parish, we made an average of three trips per day to Lufula LC I, Kasule LC I, Buligwanga LC I and Muwanga LC I; And for Luwafu parish, the zones of Kiruddu A, B, C and D, Bukejje A and B were also served on an average of three trips per day. This means that the amount of waste that we collect from these parishes is more or less the same.' Explanation by Director of HOMEKLIN while showing me the 'Vehicle Route Register[6]' for the period between April and June 2005.

From the solid waste composition results, I can infer that organic matter of animal and plant origin is the most frequent components in both socio-economic classes. I attribute this to the fact most of the people in Kampala, like many other cities of developing countries, depend mainly on fresh foods. This argument is also taken up by Martin (2000) when he points out that a much of the generated solid waste in developing countries'

[6] The daily routing of the collection vehicles is organized according to different zones within the company's area of operation and is recorded in this register by the field supervisor for easy monitoring.

cities contains about 70 to 80 % organic matter due to consuming of lots unprocessed fresh food that end up contributing to a high amount of organic waste. UNEP (1983) found out that, solid waste from the cities of Accra (Ghana) and Freetown (Sierra Leone) composed of 85.4 % and 60 % of vegetable and putrescible matter as compared to Berlin (Germany), London (Britain) and Washington (United States of America) which had 16 %, 17.6 % and 27.4 % organic waste respectively.

Ngategize et al (2000), also agree with these findings and go on to trace the changes in Kampala's solid waste composition from the 1970's to the present. They point out that between 1970 and 1980; most of the food consumed in Kampala comprised mainly cereals such as rice with little residues. This was due to the big number of Asians who were residing in the city then. After being expelled in 1979 by Dictator Idi Amin Dada, the then president of Uganda, the consumption patterns changed drastically to foods such as bananas that generate a lot of organic matter, a trend that has not changed since then.

As earlier presented, the study found out that a significant difference existed between the quantities of biodegradable and non degradable wastes generated from the two socio-economic areas. The medium to high income, areas were found to have more inorganic components especially plastic bags. NEMA (2001), trace the reasons behind this and point out that, during the 1970's and 1980's, paper bags were the dominant form of shopping bags, but the advent of the polyethylene bag in the 1990's, coupled with an increase in Kampala's population has greatly contributed to an increase in the proportion of plastic material that ends up in the solid waste stream.

Figure 2: Characteristics of solid waste from medium to high income areas. In the picture, solid waste from a medium to high income home is being burnt. Note the dominance of Plastic materials in this waste

5.5 Summary

The increasing population and its corresponding changing food consumption habits have greatly impacted on the amount and type of waste that is generated in Kampala district. This has been exhibited by the absolute dominance of organic waste in the low income areas, while the medium to high income generate more inorganic wastes.

This chapter has also demonstrated that much as medium to high income areas generate more waste than low income areas in absolute terms, there is no statistically significant difference in weight between solid wastes from the two socioeconomic areas. It has also revealed that plastic bags are a major inorganic waste that is generated from both areas though they are more prominent in the high income areas.

CHAPTER SIX

6.0 The Current Domestic Solid Waste Management Options

6.1 Introduction

Human activities create waste, and it is the way these wastes are handled, stored, collected, transported and disposed of that poses risks to the environment and to public health. In urban areas, especially in the rapidly urbanizing cities of the developing world, problems and issues of Municipal Solid Waste Management are of immediate importance. Typically, only between one to two thirds of the generated solid waste is collected. As a result, the uncollected waste is dumped indiscriminately along streets and in drains, thereby leading to floods and breeding of insects and rodent vectors which spread diseases. Furthermore, even collected waste is often disposed of in uncontrolled dumpsites and/or burnt, polluting water resources and air (Martin 2000).

Usually as the income of residents increase, part of the wealth is used to avoid exposure to the environmental problems within the vicinity of homes, but since waste generation also increases with increasing wealth, the problems are simply shifted elsewhere. Thus, even as environmental problems at the household or neighborhood level may recede in higher income areas, city-wide and regional environmental degradation due to a deficient SWM system remains or increases often having more impact in the low income neighborhoods .

This chapter presents and discusses the current solid waste management options being undertaken in Makindye Division. I start by giving an account of the storage, collection, transportation, recovery and end by presenting the disposal practices. Data for this chapter was obtained from primary sources through interviews, focus group discussions and observation.

6.2 The Current Domestic Solid Waste Storage Practices

6.2.1 Primary waste storage

Theoretically, various alternatives of storage items are available to the people including plastic bags, Low Density Polyethylene (LDP) bags, old metallic tins, specialized waste containers, paper boxes, just to mention a few. From the interviews that I held with the respondents from the two research areas, I found out that the majority of the households,

especially in Luwafu parish use gunny bags as their main primary storage facility. The reason is that under the contract between HOMEKLIN Limited and the Makindye Division Authorities, the private service provider is supposed to supply storage facilities to its clients. The costs of supplying these facilities are covered up within the fees that the clients have to pay for the waste removal services.

Box 2

'Using plastic bags does not only keep the waste protected from scavenging dogs, but also saves us a lot of time because the bags are easy to handle.'

Excerpt from one of the field employees of HOMEKLIN Limited

However, through observation, I found out that most of the households within Katwe I parish (a low income area), were using things such as, broken plastic basins, tins and LDP bags. When I probed the chairman of this parish as to why this was so, his response was that, his subjects were poor people who could not afford to pay for the facilities provided by the private company. In his own words, *'you cannot tell people to pay for waste storage containers when they do not have money for food.'* This sentiment was shared by the Director of HOMEKLIN Limited who told me that they find it too hard to make people from low income areas to pay for the waste containers.

6.2.2 Waste separation

According to the Director of HOMEKIN Limited, the agreement between his company and the Makindye Division Authorities stipulates that 'in order to facilitate sorting of the waste, HOMEKLIN Limited should provide all the necessary logistics to its clients at a fee that is deemed affordable'. Such logistics include among others, different waste storage containers for both biodegradable and non biodegradable solid wastes. However, because, of non compliance and failure to pay by some sections of the community who 'see' the amount charged per storage container as being high, the company is forced to provide just one storage container regardless of whether the clients can afford more than one or not. This failure to separate solid waste at the household level is affecting the whole solid waste management stream since it is practically impossible to do so at the landfill. However, my observation was that, even if the company was able to provide low cost containers to all its clients, it would not go a long way in solving the problem unless if all the operators in the remaining four Divisions namely Rubaga, Kawempe, Central

and Nakawa did the same. This is because no waste separation is done in these Divisions, yet they all use the same landfill (Kiteezi) as Makindye Division.

According to the KCC Landfill Engineer, both KCC and the private service providers have not done much to sensitize the people they serve about the benefits of sorting and separating waste. He specifically singled out KCC's Department of Public Health and Environmental Protection as having failed to fulfill its responsibility of public education and awareness creation. However, when I consulted the Makindye Division planner, he put the blame on the HOMEKLIN Limited, because, they have been mandated to offer waste management services to the public of which, public sensitization and education is part. Critically analyzing all these people's submissions leads to the conclusion that no one of them is willing to take up and perform their duties as stipulated in the agreement.

Figure 3: Examples of primary waste storage facilities used in Makindye Division. They include among others old plastic containers, LDP bags, and gunny bags. Here, unsorted waste had been picked from homes and piled on a road side ready to be loaded onto a collection vehicle

6.2.3 Secondary storage

Secondary storage involves keeping solid wastes generated from different households at a common or central point from where collection vehicles can pick it. Secondary storage facilities include stationary bunkers or masonry bins, and movable metallic skips. These facilities were provided by the KCC through Makindye Division, but, at the onset of the

private- public partnership, they were removed from residential areas and taken to market areas. The reasons behind this were;

a) Insufficient collection rates

During the feasibility study for the possibility of involving private waste collectors in the Division, it was found out that, primary facilities encouraged proper storage, while secondary storage promoted illicit dumping especially around the containers and so made it hard for the collection crew to work efficiently. The study pointed out that in cases where the collection crew failed to adhere to the timetable and the containers got filled up, people would resort to dumping the waste just around the waste containers making the surroundings filthy. It was therefore pertinent that primary storage is adopted.

b) Distance between sources of waste and the containers

The study further revealed that the distance between the location of the waste containers and the sources of wastes was in most cases so big that people ended up dumping the waste along the way, especially at night. The study team in its recommendations suggested the promotion and adoption of primary waste storage and timely collection as a way of reducing the illicit and indiscriminate dumping.

However, I noticed some form of secondary storage at various commercial houses accommodating more than one family. An interview with the proprietor of one these houses revealed that, this was the most convenient way of storing waste from such big number of waste generators located in the same place because, the collection crew does not spend a lot of time in getting to individual households, but, rather from a single point. The company had provided these people with LDP bags to store the waste. These bags were then kept centrally at one point from where the collection crew could pick the waste. Indeed, this arrangement was applauded by the one of the collecting crew who noted that they usually spend less time at that particular home as compared to other places where they have to go door to door picking the waste.

c) HOMEKLIN Limited's obligation

The agreement between HOMEKLIN Limited and the Division Authorities requires that this private company provides primary storage facilities to all the clients in its areas of operation. Because of this, it was therefore, not necessary for the Division to continue providing secondary storage facilities.

d) Market waste

Under the new arrangement, the Division Authorities retained the mandate to collect waste from all the markets within HOMEKLIN Limited's areas of operation. Initially, the company had been licensed to collect market waste as well. However, after sometime, the company realized that markets were generating a lot of waste yet the financial returns from the collection services were not feasible. Attempts by the company to have the Division Authorities subsidize this service failed and therefore, being a profit-oriented enterprise, they had to pull out of the markets leaving them under the service of the Division authorities. Since the containers belong the Division, it was logical for them to station them at the markets were they are operating.

Figure 4: Central waste collection centers in low income areas. LDP bags containing solid waste from a multi family dwelling in Katwe I parish. The waste is kept at a vantage location from where the collection crew later picks it up.

6.3 The Current Solid Waste Collection and Transportation Practices

6.3.1 The Waste collection arrangements

As earlier presented in chapter one, two main collection arrangements are being implemented in Makindye Division.

The House to House arrangement (where the collection vehicles move from home to another picking waste) is more prominent in the medium to high income areas. The reason for this is that, these areas are relatively well planned with wide road networks that can easily accommodate the collecting vehicles. From the focus group discussion that I held with some of the residents in Luwafu Parish, it was clear that they were very pleased with this arrangement as compared to the communal collection. This was because, they were not bothered about carrying the waste to the collection centers but rather wait for the crew at their homes.

Within the low income areas of Katwe I parish, both the House to House system and the Central Collection Center system are used. The choice of the approach is based on the accessibility of the area being served. In cases where the roads are too narrow to accommodate the collection vehicles, then the crews have to move from house to house collecting the wastes and then take it to a central station (transfer point) from where they load it onto the vehicle. To improve on speed, the workers are provided with wheel barrows onto which they load the waste and take it to the transfer point.

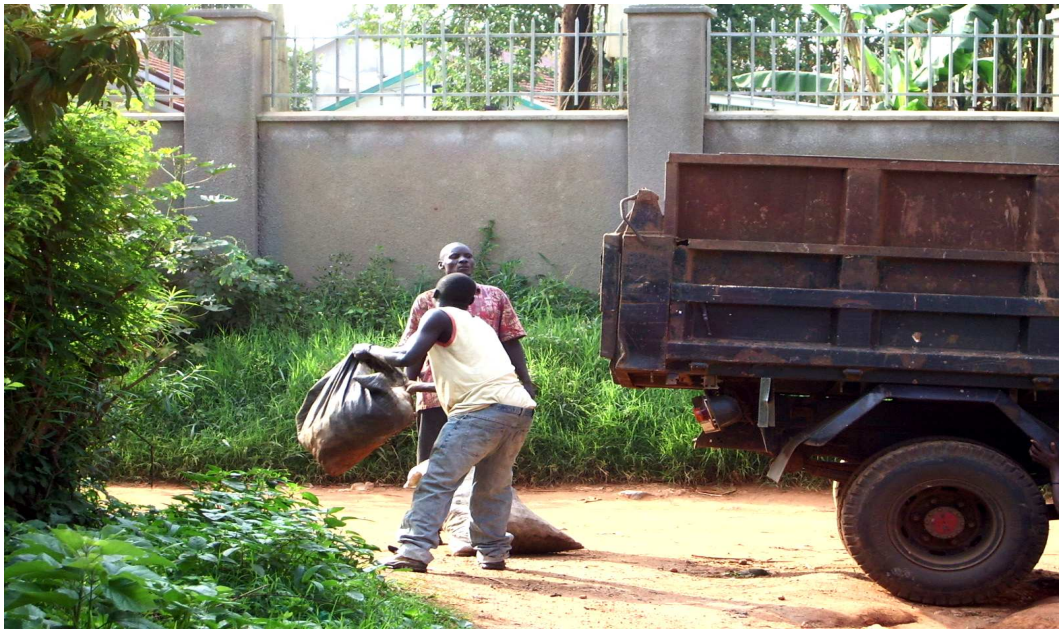


Figure 5: House to House collection in medium to high income areas. Field workers without protective gear loading waste collected from a medium to high income household in Luwafu parish.

Figure 6: Waste transfer points. A field worker piling plastic bags of waste collected from a low income neighborhood in Katwe I parish at a transfer point alongside the main road. From here it is loaded onto the collection vehicle.

From my observations, combining the two systems supplemented with the use of wheel barrows seemed to work very well because the workers could reach all places. However, a lot of time is lost when the workers walk to the inaccessible places. As a result, fewer places get served during a particular collection trip and this culminates into waste accumulating in the homes that are not reached. Once missed, the clients have to wait until the next round of collection which often falls after two days from the last schedule.

The waste having much organic components rots fast and gives off offensive odors that affect people's wellbeing.

6.3.2 The waste collection trucks

Because of the small roads in most of the parishes, the company resorted to using medium size collection vehicles. These trucks get filled up very fast forcing the collectors to make more than one trip per locality per day.

Another important aspect that I noticed is that, when the full gunny bags are brought to the trucks, they are emptied and taken back to the clients' homes. Bearing in mind that these trucks are not specialized for waste collection and therefore do not have provisions for covering the waste; it gets blown off the trucks as it is transported to the landfill. This leaves the places where the trucks pass dirty.

6.3.3 Protection of the collection crew

Related to collection, the crew were not protected and therefore were in contact with the waste *(refer to figures 5 and 6 above).* This exposes them to health risks associated with solid wastes. When I asked one of them as why he did not wear any protection, his response was that the overalls that were given to them were too heavy with very thick material and therefore uncomfortable. To me, this implied lack of awareness about the benefits of using protective gear when handling solid wastes. In fact, the company management had previously organized sensitization seminars for all its field workers and all of them conceded having attended but where just reluctant to comply with the clothing requirements.

6.4 Resource Reuse and Recovery Practices

Neither the Makindye Division Authority nor the private company is involved in any solid waste reuse and recovery projects. Reuse and recovery of materials is practiced by some private individuals and Community Based Organizations (CBOs).

6.4.1 Urban agriculture

As presented earlier, much of the waste from Makindye Division contains a high amount of organic matter. People having small backyard gardens often use this organic matter to

replenish their soils. This is more common in the medium to high areas where people have some excess land where they can practice agriculture.

Of critical importance to the farmers are banana peelings which they feed to zero grazed animals. People, especially in the low income areas sort out organic waste and sale it to urban farmers for an income. This ultimately reduces the amount of waste that has to be collected from such homesteads.

A Community Based Organization (CBO) called Urban Community Development (UCODEA) is involved in organic waste compositing. Registered members are given free compost to apply to their gardens, while non members have to pay a small fee. In this way, members have improved their household incomes, because, the proceeds are used to finance a Revolving Loan Fund in which members are given soft loans to start up small businesses. Some of this compost is applied to the Organization's floral nursery beds. The seedlings are potted using Low Density polyethylene (LDP) material that constitutes much of the inorganic part of the waste and are sold to the general public.

Figure 7: Use of Low Density Plastics in plant nurseries. LDP bags are extensively used in UCODEA's plant nurseries

6.4.2 Reuse and recycling of metal scrap

UCODEA is also involved in metal recycling. Scrap metal parts collected from motor vehicle garages and scrap yards are molded into energy saving stoves. They make

briquettes from organic waste which they sale alongside these stoves. The briquettes provide the energy for these stoves.

Figure 8: Waste as a resource. Banana peelings that were sorted from the rest of the waste in order to be fed to cows; And LDP bags containing metal scrap that some members of UCODEA had picked from a motor garage to be molded into energy saving stoves.

6.4.3 Collection of bottles as a business

Some people are involved in the collection of beverage and beer bottles which they resale to the manufacturing companies through agents. They move from place to place with both money and food items which they exchange for bottles depending on the preference of the bottle seller. Their main clients are house keepers, house wives and children who pick bottles from any place including waste containers of business establishments such as bars and retail shops.

6.4.4 Broken bottles as security items

In order to ensure security of their properties, people especially in the medium to high income areas fix broken bottles and glass on top of their security walls to deter would- be thieves and robbers from accessing their homes. However, because, this is practiced by relatively few people who can afford wall fences around their houses; it does not effectively contribute to the reduction of such waste that finally reaches the dumpsite. Trucks belonging to beverage and beer companies and or their agents are often seen carrying loads of broken bottles and glass destined for dumping at the landfill site in Kiteezi.

Figure 9: An example of hazardous waste at the Kiteezi landfill. B*roken beverage and beer bottles (hazardous waste) dumped along one of the access roads at the Kiteezi landfill*

6.4.5 Scavengers at the Landfill

As earlier presented, no recycling is performed by KCC or its partners. However, about 50 scavengers comprising mainly women and children are working at the landfill.

6.4.5.1 Scavenging and ethnicity

Most of the people involved in scavenging at the landfill were found to be *Batooro.*[7] This group of people originates from the mid western part of the country. They are socially regarded as a low caste group which in most cases migrates to Kampala City in such of informal and petty jobs. Their household jobs mainly include being house keepers and compound/farm attendants. The others with some limited capital engage in small capital businesses like street vending and hawking, while, the rest engage in the collection of used materials by moving from household to household. They, in most cases pay for the material through exchange with food materials which they purchase from markets. Their clients are mainly from low income and middle income areas where the residents are in most cases ready and willing to exchange some of their old household for food or money.

[7] This is one of the ethnic groups in Uganda. Over the years, this group has been associated with specializing in activities such as street vending, barter trade and scavenging of used materials from different establishments. Most of the urban elite society regards such activities as demeaning.

6.4.5.2 The internally displaced people

According to the interviews that I held with three scavengers, some of them originated from the war torn northern part of Uganda after being displaced by the civil war and ending up on the streets of Kampala City. The continuous harassment by the KCC law enforcement personnel, especially at night, forced them to vacate the streets and move to the landfill which they had turned into their new home. However, after seeing how the people they found at the landfill were salvaging the different items, they also took up scavenging as a source of livelihood.

6.4.5.3 The scavengers' main target items

From the incoming solid wastes the scavengers collect and sort out paper, scrap metal, cardboards and plastics which they sale to private middlemen and some local plastic recycling companies. The KCC Landfill Engineer estimated a daily removal of about 1 ton of waste by these scavengers.

Special interest is placed on packaging boxes which are sold to traders that take them to Nairobi, Kenya where large paper recycling plants exist. Also sorted out are plastic materials which are sold to local industries such as, Nile Plastics Limited, Mukwano Industries Limited and Nice House of Plastics Limited.

Figure 10: Scavengers at the landfill. They were waiting to salvage solid waste brought by a private waste collection truck. In the foreground are some of the marabou storks that feed on the organic waste

6.4.5.4 The contribution of marabou storks

The big population of marabou storks at the landfill also contributes to the removal of solid waste through feeding on the organic part of the waste. However, no thorough studies have been carried out quantify how much waste these birds remove.

6.4.6 Organization of the scavengers

The scavengers at the landfill are not having any form of organizational and leadership structures. Because of this, the contributions of these people to the overall solid waste management process are seldom seen by those in authority as they continuously harass them to leave the landfill site. This Lack of organizational structures and therefore no legal backing makes the life of these people even harder, because, they have no platform over which to channel their grievances and problems to the relevant Authorities.

Figure 11: Examples of materials that the scavengers salvage from the waste. Here paper boxes were sorted and piled along the main road leading to Kiteezi landfill. The picture also shows scavengers (in the background) at the landfill sorting out plastics from the rest of the waste. In the foreground is already sorted out plastic material

6.5 Disposal of Domestic Solid Waste in Makindye Division

In both study areas, households were found to have pits in their backyards and gardens where they dump and sometimes burn the waste. This I was told is because of the fact that sometimes the waste collectors do not pick the waste regularly and therefore, to avoid accumulation within the vicinity of the house, they have to dump it somewhere in the backyards. However, the main difference is that, much as most households in Luwafu

parish have their own private pits or disposal places, most settlements in Katwe I Parish have a common place where different households dump waste. According to the residents, the removal of KCC waste dumping skips under the new arrangement is the reason why they have devised such coping mechanisms. Section 34 (1) of the KCC Solid Waste Management Ordinance (2000) provides that *'disposal of solid wastes shall be by controlled sanitary landfill method'*, while, Section 17 of the same ordinance puts the responsibility of collecting solid wastes from all sources of generation into the hands of KCC or its appointed agents. However, according to the Director of HOMEKLIN Limited, the removal of the dumping skips by KCC was a very positive move because, '*it helped in reducing haphazard dumping and scattering of waste at these points by irresponsible people.'* In a nutshell, the introduction of central collection centers in Katwe I parish presents a challenge to HOMEKLIN Limited in that it has to make sure that the waste is picked on schedule. In fact, on one occasion, a collection truck had broken down, and therefore was not able to collect garbage on schedule; this resulted in heaps of uncollected solid waste gunny bags at the transfer points. The local leadership was instigated to petition the operations the company at the Division headquarters. The failure to collect wastes routinely has also encouraged illicit dumping. Some illegal dumping along roads and drainage channels was observed in Katwe I parish. This dumping is mainly done at night when no one is seeing. These channels become clogged, especially during the rainy season leading to blockage of storm water flow. Resulting out of this are floods, especially in the zones that are close to the Nakivubo drainage channel, which is the main storm water outlet in Kampala leading to Lake Victoria.

6.5.1 Disposal at the landfill

All the collected waste is transported and disposed at the official KCC sanitary landfill in Kiteezi. Operated by DOT SERVICES LIMITED, the landfill is a containment site planned and developed in two phases, each covering about 10 acres of land.

Using bulldozers and truck crawlers, the waste is spread and scattered in order to increase the availability of oxygen for aerobic decomposition. Where necessary, the waste is sprayed with insecticides, sometimes 3- 4 times a day in the rainy season or once a week to kill flies. The waste is then covered with soil, a remedy to control vermin and pests. An interview with the Operations Manager of DOT SERVICES LIMITED revealed that the

release of gases from the decomposing waste is not monitored due to lack of the necessary technology of doing so.

6.5.2 Leachate treatment

The landfill has a leachate treatment facility which operates by means of mechanical aeration to reduce the biological oxygen demand of the leachate.

The Operations Manager, DOT SERVICES LIMITED, put the average discharge of leachate to between 180 and 414 liters per minute in the dry and wet seasons respectively.

The sump/collection tank

The equalization tank

The bio treatment tank

The clarification tank

Figure 12: The different stages involved in the treatment of leachate at Kiteezi landfill. In the foreground of the clarification tank is the Kitetikka wetland into which the leachate is released after treatment

The interview that I held with the NEMA Effluent Inspector confirmed that indeed the leachate from the landfill was no longer a problem to the surrounding environment as compared to how it had been before the construction of the treatment facility. He specifically referred to an incidence in 1997 (before the construction of the treatment facility) in which a farmer down stream of the landfill lost over 200 heads of cattle due to

drinking water that had been contaminated by zinc sulphide (confirmed by tests carried out by the KCC veterinary doctor).

However, much as the liquid effluent is effectively managed and monitored, its gaseous counterpart is not. These gases are a potential source of fires that could devastate the whole landfill site including the leachate treatment plant. As per the initial plan, the landfill was supposed to be installed with gadgets to monitor gases. The reason of limited financial prowess by the Kampala City Council as given earlier is not satisfactory, because, this was supposedly a fully funded World Bank project which I believe would have taken care of all the components of the programme.

6.5.3 Hazardous solid waste disposal

Uganda is a signatory and has ratified the Basel Convention on the Control of Trans boundary Movements of Hazardous wastes and their Disposal. Through the National Environment Statute (1995), Uganda has also set local guidelines for the management of toxic and hazardous products. However despite these legal undertakings, the country is not adequately addressing its obligations, such as establishing a special facility where such waste can be dumped. Establishments like the main referral hospital at Mulago found in Kawempe Division and Uganda Batteries Limited found in Nakawa Division have incinerators which they use to burn the generated hazardous solid wastes. However, the ashes from the incinerated waste are also disposed of at Kiteezi landfill. This has greatly contributed to the high levels of toxicity of the leachate due to the dissolution of some of the toxic elements in water. The result is the high cost of treating the leachate that the operators of the leachate treatment facility have to incur before they can meet the standards set by NEMA. Again Makindye Division has a number of health centers and establishments of different classification. Through observation, I found out that none has a sound hazardous waste management disposal facility. This waste is combined with general household waste and disposed of at the same landfill.

Non biodegradable wastes such as broken beer bottles are dumped at the same landfill as biodegradable waste *(refer to figure 9 above).*

6.6 Summary

From this chapter, I have been able to demonstrate that differences exist in the main storage gadgets that are used in the two socio economic areas; with gunny bags (which are by the way provided by the company at a fee) dominating in the medium to high income areas, while, plastic basins, old tins and polyethylene bags (which are just picked from anywhere) dominate in the low income areas.

The inability of both the public and private partners to clearly understand their roles and responsibilities affects solid waste management in that the communities have not been adequately sensitized about the importance and relevance of waste separation, reduction, reuse and recycling at the household level. This has led to serious operational problems at the landfill.

The chapter has also revealed that the removal of secondary storage facilities from strategic points along the main streets within the Division greatly improved the general sanitation of the area. By adopting a central point from where the waste is stored, efficiency of the collection crew is greatly improved when working in multi dwelling households.

The combination of both House to House and Central Collection Centre systems, supplemented with transfer points have helped a great deal in accessing most of the areas, given the poor state of roads within the Division. However, the use of non specialized vehicles leads to waste (especially low density plastic bags) to be blown off the truck by wind as it is transported to the landfill. Also ignorance and non strict rules and regulations puts the collection crew at a risk of contracting diseases, because, they are reluctant to put on protective gear, yet it is provided by the company.

Despite the Division and HOMEKLIN Limited not being involved in waste recycling, Community Based Organizations such as UCODEA selectively composit and recycle organic and metallic waste respectively. The choice depends on the perceived economic value of the items. Some individuals depend on collecting beverage and beer bottles as their source of livelihood.

The scavengers at the landfill are not organized and are not legally recognized by the law; those involved are mainly minority low caste social groups of women and children or those displaced by the war in northern Uganda. Cardboards, hard paper boxes and plastics are the major targets for these informal waste managers.

While the inability to maintain collection schedules from transfer points and Central Collection Centers present challenges to the private company, most households in Makindye Division have backyard pits were they dispose the uncollected waste.

Much as the disposal of solid waste and leachate treatment meets the set standards by NEMA, the gases (such as methane) that result from the decomposition of this waste are not monitored and therefore present potential fire risks.

Some hazardous wastes are dumped alongside general waste despite Uganda being a signatory to a number of international conventions and having set up local regulations regarding the management of such waste.

CHAPTER SEVEN

7.0 The Roles and Relationships between the Private and Public Sectors

Municipal solid waste management is an essential public service which benefits all urban residents. It is not feasible to exclude those who do not pay, because, public cleanliness and the safe disposal of wastes are essential in public health and environmental protection. As a result of these characteristics, solid waste management is a public good for which local or metropolitan governments are typically responsible. This however, does not mean that the local government has to accomplish the tasks of solid waste service delivery entirely with its own staff, equipment and monies. In fact, this is where the role of the private sector comes into play, (Cointreau 1994).

In view of the above, this chapter analyses the roles and relationships between the different actors involved in the delivery of solid waste management services in Makindye Division. It specifically looks governance issues such as the legal, administrative, technical and socio-economic aspects and how they are influencing the delivery of municipal services.

7.1 The Law and the Informal Waste Collectors

None of the existing laws (as presented under section 1.3 of chapter 1) recognizes the important role played by the informal solid waste collectors and recyclers. In fact, section 20 (e) of the KCC Solid Waste Management Ordinance 2000 recognizes it as an offence for someone to collect, transport, remove or dispose refuse at a fee or other consideration without a valid permit. It is this clause that is often used when harassing and chasing waste scavengers off the landfill in Kiteezi. Bearing in mind the vast contribution that this sector offers to the overall reduction of the waste problem (as presented in chapter six) this clause stands out to be a hindrance.

Also cited is section 23 which gives residents the right to privately contract other waste collectors if they do not wish to use the Council's solid waste collection system or its appointed agents. However, much as it clearly states that these operators should be 'authorized by the Kampala City Council, most of them are not registered and operate informally. This, as pointed out by the Director of HOMEKLIN Limited, has created lots of problems to their smooth operation, because, being a profit-oriented company, they

miss out on a number of potential clients (in the medium to high income areas) who hire out individuals that pick the waste from their homes. Incidentally, some of these people end up dumping waste along roads and in drainage channels mainly at night when no one is seeing them. However, because, of the vigilance and commitment of the local administration, the communities have been mobilized to act as police on the look out for such dubious people. Many of the culprits face tough cash penalties together with making sure that the drainage or spots where they illicitly dump the wastes are cleaned and maintained for a period that the local council sees fit and adequate

7.2 Supervision, Monitoring and Evaluation

The Local Governments Act no 1 of 1997 provides for the establishment of the post of Secretary for Social Services (SSS) within local government structures. This is a political position filled by a directly elected local councilor. In collaboration with the Division Officer in charge of Public Health and Environment (who is an expert in the field), the Local Government Act no 1 of 1997 mandates the SSS to work hand in hand with lower councils (village and parish councils) to supervise, monitor and evaluate the progress of any projects that are being implemented within Makindye Division. In fact, chairpersons of the different villages head this committee within their areas of jurisdiction. This bottom - up arrangement is very effective because the activities within the whole Division including solid waste management are closely supervised and monitored from the lowest facet of the community, which is the village level and extends up to the highest level, the Division Council. As presented earlier (chapter 6, section 6.5), it was because of such an arrangement that at one time, the local leadership in Katwe I parish was able to petition the activities of HOMEKLIN Limited at the Division headquarters when it failed to collect garbage on schedule due to broken down collection trucks.

7.3 The Cost of Solid Waste Management Services

When commercializing the delivery of social services, the issue of user and service fees is of crucial importance. According to the Director of HOMEKLIN Limited, residents within the medium to high income areas pay an average of Uganda shillings 20, 000/= (equivalent to about 10.7 US Dollars) per month, while those in the low income areas have to part with about 5000 Uganda shillings (equivalent to about 2.6 US Dollars) per

month for waste collection services. There are two arrangements of payment being implemented; payment at the end of the month and payment on collection. The payment on collection arrangement is mainly practiced in the low income areas, while, most of the affluent residents receive their bills at the end of the month.

7.3.1 The situation in Katwe I Parish

Out of the 15 respondents that were interviewed in Katwe I parish, 12 expressed dissatisfaction with the amount that they pay. Given the fact that most of these people do not have stable incomes but rather engage in small business and petty jobs in the city centre, paying Uganda shillings 500/= each time the waste is collected was too much. An interviewee who operates a small retail shop had this to say;

Box 3

'As you can see from the stock in my shop, I barely get enough profit from selling the items. HOMEKLIN takes at least Uganda shillings 500 /= per week. This leaves me in a dilemma because I cannot save anything after spending the balance on buying food for my family. Things were different before HOMEKLIN came around. We would just take the garbage to the communal containers and the Division would take care of it without bothering us'

Despite the sentiments expressed by the respondents, the amount charged is modest bearing in mind the costs incurred in collecting and transporting the waste to the landfill. Moreover, this is a subsidized rate which was agreed upon after considering the economic constraints that low income earners in the country endure in order to survive. The reference to the times when waste collection where free is a manifestation of how people are not willing to directly pay for services. This is a very common perception not only in Makindye, but in Uganda as a whole where people demand services yet they are not willing or ready to pay for them. It was therefore not a surprise that someone who had a seemingly fair business complained about paying for waste collection.

7.3.2 The situation in Luwafu Parish

On the other hand, respondents in Luwafu parish, a medium to high income area, were satisfied with the rates that they pay. Most of them were ready and willing to pay as long

as the company met its obligations of collecting the wastes on schedule. One resident complained to the Director of HOMEKLIN about the failure of the field staff to collect waste from his home for a week and was vowing not to pay at the end of the month unless this anomaly was collected. Indeed, an impromptu visit to his home revealed that the waste had not been collected for at least a week. This forced the Director to instruct the financial controller to waiver off some of the expected amount from his bill as a way of maintaining the relationship, being that he was one of the most 'royal clients' who always paid up their bills on time.

7.4 Public Support

7.4.1 Subsidization of collection

Under the new arrangement, the Makindye Local council is supposed to offer logistical support to HOMEKLIN Limited. According to its Director, the Division is supposed to give them motor fuel that is to be used when serving low income areas. The amount of money that the company collects from such areas is tool little compared to the costs it incurs in collecting the wastes. Being a new venture, the Division Authorities agreed to subsidize such places with a view that after some period of time, they will also be able to sustain them selves like their counterparts in the high income areas. However, it always takes a lot of negotiation for the fuel allowances to be released to the company; and when given; it is not enough to offset the costs that may have been incurred. This often leads the company into undue expenses as they have to settle their bills with the fuel suppliers whether or not they have received the money from the council. The Makindye Division Planning Officer attributed this to the unreliable sources of income that the Division depends on.

Box 4

'The Division does not have any other sources of income apart from property taxes and licenses. The abolition of graduated tax by the central government worsened our situation since this used to be a major income source,' Makindye Division Planner

Indeed the abolition of graduated tax by the president has stalled the operations of many local governments in the country. This is because, in the decentralized form of

governance, service delivery depends much on locally generated revenues. For a division like Makindye which does not have its own investments, say real estates, and where private investors are also few, the abolition of graduated tax affected it so much. It has to wait for returns from the central government's ministry of finance. And when received, priority is given to other sectors such as, health, works and education. Otherwise, reliance on property taxes and trading licenses is not enough if services are to be delivered as and when required given the fact that solid waste management is not highly prioritized.

7.4.2 Leasing of collection vehicles

The Division was supposed to lease some of its waste collection vehicles to HOMEKLIN Limited to supplement what the company has. However, most of the vehicles are obsolete and therefore are not very useful to the company. In fact, according to the, Director of HOMEKLIN Limited, there was a proposal that the company incurs the cost of repairing some of the trucks so that they could use them. This proved to be too expensive that they had to give up on the arrangement.

7.5 Operational Problems Faced By the Different Actors

7.5.1 Untimely financial support from the Division

The Division Authorities do not timely fulfill their contractual obligations of financially supporting the private contractors. This as discussed earlier, leads to financial problems within the private sector.

7.5.2 Inaccessible areas

Much as they have devised strategies of accessing most of the areas regardless of the road conditions (refer to chapter six), this remains a serious problem because of the time lost and then ultimately the number of rounds and amount of waste that has to be collected by the waste collectors over a particular working period. Narrow and often un maintained roads are evident in most parts of the Division.

7.5.3 Conflicting legislation

The Director of HOMEKLIN Limited pointed out the unclear and conflicting laws as the other problems that affect their operations. He specifically referred to the KCC Solid

Waste Management Ordinance of 2000, citing section 23 which is often used by some of their potential clients to contract other individual collectors just simply because, they do not want to be bound by contract with the HOMEKLIN. *(Refer to section 7.1)*

7.5.4 Low publicity and sensitization

Thirdly, the low publicity and sensitization from the public sector at the onset of the project made it extremely hard for the private company to enforce compliance from the residents in both socio-economic areas. However, over time, this has ceased being a problem in the medium to high income areas, but a serious one in the low income areas.

7.5.5 Political interference

Political patronage and influence was cited as a serious problem that HOMEKLIN Limited faces as a company. In some areas local councilors give false reports about their operations because, of having lost out to the company during the privatization process. Though no particular case was cited and therefore no verification made, this is a clear indication of how politics is interfering with the smooth operation of the private –public partnership.

7.5.6 Expensive leachate treatment costs

The dumping of mixed inorganic and organic solid waste at the same landfill presents problems to the leachate treatment operators at Kiteezi landfill. This is because, the inorganic components of the waste contains toxic substances that require thorough treatment before they can be released into the wetland for further purification. This is costly because, it requires much more chemical reagents than would be the case if they where only organic solid wastes.

The leachate treatment plant was designed to handle a specific amount of leachate. However, during the wet season, a lot of leachate is produced from the decomposing waste because of rain water. This also requires longer treatment and retention time if the treated leachate is to meet the Environmental Standards set by The National Environment management Authority.

7.6 Summary

This chapter has demonstrated that Uganda has made strides in modifying and providing an enabling legal framework for the partnering of public and private actors at both the national and local levels of administration. This is as exhibited by the national constitution, the National Environment Statute, The local Government Act (which provides for the establishment of district Ordinances and bye laws) among others. However, the local communities have not been adequately sensitized about the existence of these legal documents and most importantly, their role and responsibilities in solid waste management. The lack of legal recognition of the role and responsibility of the informal private sector by all the laws also hampers the smooth operation of this important sector in waste management. Also the legal provision that allows local residents to enter into private contracts with individuals other than those licensed by the Authorities creates double standards, which are exploited by some dubious characters.

Despite political patronage in some areas, the Local Council system of administration provides a clearly defined framework through which the activities of the private actors are closely monitored and supervised.

The communities in the low income areas seem to be dissatisfied with the amount of money they pay for waste collection. This coupled with the intermittent financial support from the public sector, makes the operation of the private sector extremely hard in such areas. Finally, poor roads, mixed waste and natural elements such as, excessive rain during the wet season present some of the general problems that the Landfill Operators are facing in their day to day operations.

CHAPTER EIGHT

8.0 Attitude and Awareness towards Waste Management

8.1 Introduction

One of the goals and components of environmental education is to develop among the population a positive change of attitude. Attitude helps social groups and individuals to acquire a set of values and feeling of concern for the environment and the motivation to actively participate in its improvement and protection, NEMA (1998). Hoffman and Muller (2001), also point out that awareness helps social groups and individuals to acquire sensitivity to the total environment and its allied problems; because, unless, the public is willing to participate in solid waste management, strategies that are put in place will not succeed. Activities such as waste separation, recycling, transportation, treatment and disposal are likely to be successful only if the communities that generate the waste are fully involved in solid waste management programmes. This is because, community awareness directly or indirectly reduces waste management costs to urban authorities and private companies offering the services, improves the health conditions of the people and ultimately enhances environmental protection.

This chapter therefore tries to assess the respondents' attitudes and awareness towards solid waste management. In order to achieve this objective, questions focusing on the respondents' attitude towards the waste problem, awareness of the dangers associated with poor waste management and attitude towards separating biodegradable from non biodegradable waste were posed.

A combination of interviews, focus group discussions and observation were used to solicit information from the respondents.

8.2 Attitude towards Solid Wastes

Of the 20 community representatives that were interviewed, 70 % of those from the medium to high income areas responded positively that indeed solid waste presented a problem compared to 40 % of those from low income areas. The difference in response was attributed to the quantity of waste generated from each area. During the interviews, respondents from the low income areas pointed out that they generate low quantities of wastes and therefore, it was not as such a serious problem. Some even mentioned that

they have to accumulate the waste for at least four days before they can put it out for the collection crew to pick it up. Unable to quantify the amount of waste produced from each of these areas because, of time and financial constraints, I referred to the 'Pilot Refuse Collection Service in Makindye Division Project Evaluation Report of 2000', which found out that on average, 0.46 and 0.64 kilograms of waste per person per day are produced from the low income areas and medium to high income areas respectively. The reasons for this pattern of waste generation are discussed in chapter five. Those who acknowledged that solid waste was a problem were concerned about the lack of regular collection schedules by the service company. This they said led to an over accumulation of garbage within their homesteads. The waste then attracted flies and often gave off a foul smell that made staying at home uncomfortable. Some of them ended up burning the waste in their back yard waste pits, while others often took the bags containing the waste out of their homes and deposited them along the streets from where the collection vehicles would find them. The above actions present different perceptions and attitudes towards solid wastes.

Those in medium to high income areas seem to better understand the problems that poor solid waste management can present to a community and therefore take initiatives aimed at mitigating these problems. On the other hand, those in the low income areas do not seem to have adequate awareness about the dangers of poor solid waste management and therefore do not bother much about it being in their vicinity for a long time. In fact, when I observed the state of the surrounding environment, most of the homes had un maintained grass, the compounds were littered with rubbish, waste water was flowing every where and house flies were a common occurrence. To my amazement, the people were not bothered about these conditions. They went on to undertake activities such as frying snacks to be sold from their home kiosks and cooking food without any concern for hygiene. Here, I cannot hesitate to point out that, among other factors, the level of education has an influence on how people perceive scenarios. This is because, from the findings of the interviews, out of the total 10 respondents from the low income area, only 6 had been able to acquire primary level school education, 3 had gone up to secondary level, while only 1 had acquired some sort of tertiary training. On the other hand, at least all the respondents from the medium to high income area had studied beyond primary level, 3 had gone up to secondary while 7 were tertiary level graduates.

Table 4: The respondents' level of education

Level of education	Socio economic area	
	Low income	Medium to high income
Primary	6	0
Secondary	3	3
Tertiary	1	7

Source: field data (2005)

However, as Long (2001) put it, *'peoples' actions are shaped by the living conditions under which they operate',* it is also important to note that the lack of observance of regular collection schedules by the waste collection crew has forced people to devise coping mechanisms through which they can handle the waste (such as, storing the waste for longer periods, burning it and dumping it along streets and also learning to live with it). Therefore, if each of the responsible parties performed their roles as expected, then attitudes and perceptions will change accordingly.

Furthermore, the fact that most of the respondents from the low income areas were tenants who did not have their own land over which they could dig backyard waste pits also explains why they kept the waste inside their houses. Out the 5 respondents who owned land, 2 pointed out that it was too small to have provisions for such amenities.

8.3 Awareness about the Health Dangers Associated With Solid Waste

Despite having different attitudes about solid wastes in general, the respondents from both areas exhibited similarities in the level of awareness about the dangers associated with poor solid waste management. In general the following were their submissions;

*Wastes attract flies and rodents which transmit diseases like cholera and typhoid to human beings,

*the leachate from rotting solid wastes contaminates drinking water sources and

*smoke from the burning of waste causes cancer and pollutes the environment

When asked about how they got to know such information, the respondents (especially from the low income areas) attributed it to the local council leadership which in collaboration with HOMEKLIN Limited had often organized education and awareness campaigns/ seminars aimed at sensitizing them about the same subject. In fact as a way of

preventing such dangers, people in Luwafu and Katwe I parishes are involved in monthly voluntary waste clean up exercises. These exercises involve dredging drainage channels and water wells. These exercises are a success because of the massive mobilization and sensitization by the local leadership. They do this by putting up notices at all public notice boards within the parishes, together with moving door to door reminding the people. Further success of the exercise is attributed to the active involvement of HOMEKLIN Limited whose collection crew removes and transports the dredged material to the landfill for disposal. From these submissions, the people seem to be aware and are actively involved in community initiatives. However, a different situation exists at the household level within the low income parts of the Division. These people seemed to know what is required of them but exhibited an 'I don't care attitude.' Why?

8.3.1 Tenancy and occupancy of land

Most of the respondents in Katwe I parish do not own their own plots of land. They are mainly temporary tenants and squatters who are bound to move to another place any time. Because of this, their concern for environment is low since they do not have permanent attachments to the areas where they reside.

For instance, bye laws requiring each household to have waste pits and toilets were put in place within the areas of study. However, due to the low concern for a clean environment and the desire to make profits from the limited land, some landlords do not leave provisions for such facilities. This has made the implementation of the bye laws difficult. As a possible solution to this problem, the Division Council through the Department of Public Health and Environment inspects and certifies housing facilities that conform to this regulation before they can be occupied by tenants. This is backed up by periodical inspections in order to ensure compliance. However, much as this intervention seems to work in some of the places, there are areas where it has failed to achieve the intended results, why?

8.3.1.1 Corruption and bribery

Corruption as defined by United Nations (1990) involves behavior that deviates from the duties of a public role because of private regarding….. Pecuniary or status gains; or rules against the exercise of certain types of private-regarding influence. It encompasses

outright theft, embezzlement of funds, other appropriation of property, nepotism, favors to personal acquaintances and abuse of public authority and position to extort payments and privileges.

A discussion with one of the respondents who happened to be a landlord revealed that corruption and bribery was among the factors that had contributed to the lack of compliancy. He in fact, confessed to have been approached by one of the inspectors (a member of the local leadership) who wanted some money from him in order to give him a certificate of compliancy. However, knowing the likely consequences, this particular person did not comply and went on to construct the facilities as required by the law. In Uganda, corruption and bribery tendencies are very common. According to the findings of the Uganda Debt Network about corruption in Uganda, 200 billion Uganda shillings (equivalent to US dollars 40 million) is misused every year, leaving about 7.5 % of the budget unaccounted for, *IRINnews.org*. According the Corruption Perceptions Index[8] of 2005, Transparency International ranked Uganda as the 9th most corrupt country in the world together with, Philippines, Nepal, Libya, Guyana, Guatemala, Ecuador, Bolivia and Afghanistan, *http://ww1.transparency.org/cpi/2005/cpi2005_infocus.html* Indeed, cases of corruption are very evident in the Ugandan society as exemplified below;
Many government officials and heads of departments have either been forced to resign or have had their services terminated due to cases of corruption. For instance, government Ministers were impeached by parliament because of corruption, members of parliament who are the custodians of the law are also named in a number of corruption cases, such as, evading taxes on imported goods and under declaration of items in order to pay lesser taxes. Officials in charge of projects such as the Global Fund to Combat AIDS, Tuberculosis and Malaria are currently being investigated over corruption and bribery cases. Police and army personnel are also known to be corrupt. The Uganda Revenue Authority, a body in charge of collecting the country's revenue from taxes had its

[8] The Corruption Perceptions Index is a composite survey, reflecting the perceptions of business people and country analysts, both resident and non-resident. It draws on 16 different polls from 10 independent institutions. For a country to be included, it must feature in at least 3 polls. As a result, a number of countries – including some which could be among the most corrupt – miss out because of not having enough survey data.

administrative structures overhauled with the culprits being penalized and sacked because of massive corruption. Most recently, Kampala City Council was under investigation due to allegations of massive corruption and bribery over the award of tenders and projects within Kampala City. Evidence of massive irregularities was discovered by the probe committee and recommendations including the cancellation of the tenders and projects in question were made. The Office of the Inspector General of Government (IGG) was instituted to fight corruption and abuse of office in all sectors of government including the private and civil organizations. However, inadequate facilitation in terms of well-trained personnel, under paid workers and lack of support from politicians who happen to be among those under scrutiny by this office makes the work of the IGG difficult.

8.4 Attitude towards separating waste in Makindye Division

The success of any solid waste recycling and reuse strategy depends on the vigilance with which the generators of the waste are willing to sort it at the point of generation. This permits easy salvage and identification of items that can be reused and recycled, while saving time and costs of transportation, treatment and disposal of the waste. Waste separation is also bound to succeed if a market for the sorted out items exists, otherwise, there is often a risk of non compliance by waste generating communities in cases where, no economic value or direct reuse value exists for such items.

In order to get an insight of the people's attitude towards waste separation, I started by briefing the respondents about the advantages of separating the waste. These included among others, use of organic waste as compost, reuse of bottles and plastic containers for purposes other than those for which they were originally manufactured and the facilitation of plastic recycling. Others included prevention of soil pollution through removing items such as plastics and used batteries before disposing the waste. Also the prevention of underground water pollution by obnoxious leachate was cited as an advantage; and that burning of mixed waste heavily pollutes the air as compared to sorted waste.

Out of the 30 local community representatives from both the low income and the medium to high income areas, 26 (app. 67%) were willing to sort the waste, while, 4 (app. 33%) were not willing to sort the waste at all.

Those who were not willing cited lack of time, that waste sorting is a tedious exercise, lack of space where to put the waste containers, the cost of the containers was high,

therefore they could not afford more than one, some did not see any direct benefits from this exercise, while, to others, this was a very dirty piece of work. Others pointed out that even if they separated waste, it would be the recycling companies to benefit and not them, so they were asking for some incentives from these companies.

8.4.1 Technology and how it affects Waste Separation

Just as I pointed out at the beginning of this section, the success of any waste management strategy depends on a number of interplaying and often cross cutting issues, among which community participation comes out to be very important. The absence of big paper and plastic recycling companies in Uganda is contributing to the low morale of the people to undertake waste sorting, because, they do not 'see' adequate market for these items. One of the reasons why sorting of organic waste, especially, banana peelings is a success in Kampala, is because, of the ready market for these items. They are fed to animals, while others are composted and used as manure. A comparison with developed economies such as Norway can confirm this. Waste paper has a direct reuse and recyclable value that people are willing and ready to sort it out. The technology right from storage, collection, transportation, treatment and disposal exist in this country. But most of all, the communities themselves have developed a culture of social responsibility that makes the whole exercise of solid waste management a very easy and enjoyable task to perform. First of all, by rightly using the storage containers that are provided, the people make the work of the waste collectors very easy. They do this by ensuring that plastics, paper and mixed wastes are separately stored. This makes the work of those involved in recycling say paper or plastics easier and more cost effective, since they do not have to waste a lot of time sorting the waste.

In Makindye Division, many of the campaigns that the Authorities undertake emphasize environmental protection as the key importance of waste separation. However, people do not see any direct economic benefit from environmental protection. In fact, during one of the Focus Group Discussion sessions, one participant ignorantly said that,

'telling me that dumping plastics alongside other wastes pollutes the soil is a waste of time, because, there is nothing that I gain from the soil, after all, I am not a farmer and even then do not own land in Kampala.'

By observing the reaction from the rest of the group participants, I discovered that most of them were having similar sentiments; after all, all those who were not willing to sort the waste were later found out to be tenants. This implies that status of land occupancy and ownership has a bearing on the way people's attitude towards handling solid waste is shaped. Those with permanent occupancy tend to have a sense of belonging and therefore try to engage in activities that are deemed not only safe but also enhance their present and future livelihood, such as environmental protection through waste separation. Those who are temporary occupants feel insecure and are therefore compelled to act in ways that do not mind about the repercussions of their actions in future, hence, the laxity to sort wastes when argued by environmentalists. Their main interest is in getting economic benefits now and not later as is the case with environmental protection campaigns.

8.4.2 House keepers and children as important actors

The perception that waste is 'dirty' implies a lack of social responsibility. This is because, it is the people themselves who generate this waste and therefore should be able to handle it. Through observation, I was able to discover that much of the waste handling issues such as, storage are left to either the children or house keepers. This lack of responsibility on part of the adults also cripples efforts to adequately sort waste at the household level, because of being better informed than their young counterparts, they would handle the waste issue more amicably. Low income areas in Katwe I Parish which not only did not require the services of house keepers but could also not afford them had children as the main actors involved in the management of wastes within the households. Because of differences in socio-economic status, most some people in Luwafu parish employed house keepers. They are involved in all sorts of household chores including waste management. However, because, some of them are child laborers and who are at the same time illiterate, they also do not understand the importance of separating the waste. This fact is worsened by the fact that when it comes to sensitization and education of the people about good waste management practices, those involved (the Division Authority and HOMEKLIN Limited) target heads of households who as it turns out never indulge themselves in such activities at all. This not only wastes time of the organizers but also does not yield results, because of wrong targets.

8.4.3 The cost of storage containers

As already presented in chapter six, the cost of waste containers featured as a very contagious issue. This is because; people from the low income areas were not willing to pay for extra containers citing expense as the main reason for this. As Bratton and Rothchild (1992) observed, good governance does not only look at the way people are ruled, but also goes on to consider aspects of social accountability and transparency. In this way, governance looks at the ways in which the public, private and civil domains of society interact and how their relationship brings about societal continuity and prosperity. In the case of Makindye Division, there seems to be flaws in information transmission between and within the different actors, which are the local communities, the private service providers and the local council executive. According to the Landfill Engineer, an acceptable amount of money was agreed upon between HOMEKLIN Limited and representatives from the Division Administration. Despite having representatives at the Divisional council, the local people never got feedback through village meetings as is the case with most of the other issues. This created an information gap between the decision makers and the local people. The end result was general resentment of the resolutions to pay for the containers, especially in the low income areas of Katwe I parish. '*Much as the people may have lacked the money to pay for extra containers, it was rather the poor communication from the Authorities that is to blame for the boycott. With better communication and involvement, the people would have complied', Landfill Engineer.*

8.5 Summary

This chapter has portrayed that there is a difference in attitude towards solid wastes in the study areas. Generally, people from high income areas perceive waste as a problem, while their counterparts from the low income areas are not as such bothered. The lack of observance of waste collection schedules equally affects both areas.

People from both areas are aware of the health risks and dangers associated with poor waste management. However, those from the low income areas seem to be more reluctant to undertake measures aimed at preventing these risks. The participation of adults and heads of households in waste management is minimal, yet the children and housekeepers who take greater responsibility are left out when inviting participants in sensitization seminars and awareness campaigns.

Massive corruption as presented in the discussion and inadequate information flow are grossly affecting the relationship between the leaders and those they lead.

CHAPTER NINE

9.0 Summary, Conclusion and Recommendations

9.1 Introduction

This chapter summarizes the findings of the study. I relate the findings to the theory that I used and the extent to which the results address the research questions that the study aimed to answer. Based on the findings, I have made some recommendations whose intervention, I believe, will address the flaws that were discovered. I conclude by suggesting areas of potential further research that were identified but could not be handled.

The main goal of this study was to ascertain whether and how the intervention of the private sector has let to improvement of solid waste management in Kampala's Makindye Division. Attention was placed on the roles of the public and private actors as spelt out in the existing legal and institutional frameworks. Civil society and local community involvement and organization were also of critical importance. Related to the above, establishing the quantity and composition of the generated solid wastes became critical. Knowing this helps when designing appropriate management interventions. Such interventions include; reducing generation, reusing, recovering and recycling some of the waste. Beyond these interventions, having knowledge about the composition and amount of waste is instrumental in establishing storage, collection, transportation, treatment and disposal options that any waste manager is to adopt. The above formed the basis of my analysis about the prevailing partnership between Makindye Division Administration, the local community, HOMEKLIN Limited and DOT Services Limited.

9.2 Summary of Findings

On the whole, I can point out that the partnership between HOMEKLIN Limited and Makindye Division has greatly improved household waste management. This is justified by the following; there are fewer complaints from the local people with regard to the timing of collection of wastes from their homes; The removal of waste storage containers from the streets and alleys has also helped in improving their cleanliness because unscrupulous people are finding it hard to indiscriminately dump waste as it where before. Through constant education and awareness campaigns, the relationship between

the service providers and the local communities has also somehow improved; there is generally a positive change of attitude towards solid waste management by the local communities. However, some attitude problems still exist in the low income areas of the Division.

Despite the above achievements, there are some issues which are standing in the way of a would be bigger success. The issues surrounding solid waste management in Makindye Division can be categorized as political, technical, organizational, institutional, socio-economic, managerial and environmental (appendix 1).

Waste management within Makindye Division is being pursed following old, conventional and outdated 'end of pipe' strategies. The interventions on ground only address storage, collection, transportation, treatment and disposal of the generated waste. There are no policies aimed at promoting waste reduction, recycling and reuse (the 3 Rs) within households, yet these form the basis of modern global waste management. The continued production of cheap and readily available Low Density Polythene (LDP) material (sometimes given out free of charge by shop keepers) and the rural - urban influx of unprocessed food along with non consumable materials such as banana stems, maize stalks, non edible vegetable stems are some of the examples to justify the lack of the above policy. The situation is further worsened by the high urban population which competes for the limited space. Because of this land scarcity, groups of people who are engaged in the 3 Rs strategy such as organic compositing are finding it extremely hard to locate land from where they can practice. Moreover, such activities are not given priority by both those in Authority and landlords who mainly focus on the profitable business of urban housing.

The absence of a clear policy regarding household waste separation in the whole of Kampala District has negatively impacted on HOMEKIN Limited's efforts to introduce one in Makindye. In fact, it is partly because of this, that the Makindye Division Authority and HOMEKLIN Limited sometimes point figures at each other when issues concerning local community mobilization and education about such issues are mentioned. Since waste separation involves purchase of different storage facilities, the politicians at the Division are not willing to identify with this, because, they want to appease the electorate who voted them into office; while others have corrupt motives behind their direct involvement. The economic and time constraints are finally felt by the landfill operator, DOT Services Limited, which has to treat this mixed waste before disposing it.

Despite having representatives on the Division council, the local people especially in the low income areas seem to be lacking information regarding important decisions that are made. Those with access to such information are mainly heads of households who in many cases are not directly involved in the management of wastes within their homes. The children and house keepers are not included during information dissemination meetings, yet they are the major players at the household level.

Local politics and the inherent patronage of some leaders have also not helped the partnership to work as it should. Some local politicians intentionally decampaign certain programmes because of the desire to appease the electorate whom they take to be their political capital. For instance, the initial rejection of the proposal to pay for multiple waste storage and separation items was not because they were too expensive to be afforded by the people in Katwe I parish, it was rather due to misinformation by local politicians.

The poor road network in Makindye Division is also not helping the system to improve. The small sized trucks that were brought in as an intervention cannot accommodate a substantial amount of waste per round. The consequences include longer time periods and more money spent when collecting wastes. Given the low commitment of the Makindye Authority to honor its obligations of financially subsidizing the service in low income areas (which itself probably results from poor and intermittent financing from the central government), forces HOMEKLIN Limited to inadequately serve low income areas where subscribing customers are fewer than in high income areas.

Public aesthetics are compromised when wastes are not collected from the transfer stations as scheduled because they are located along main streets which are used by many people. Also the uncovered waste which blows off the trucks while in transit makes previously cleaned localities dirty. Relatedly, there are some managerial problems in regard to the protection of the collection crew. The management of HOMEKLIN Limited is reluctant to enforce measures aimed at protecting the crew yet it spent money on buying protective overalls for their staff.

Despite being very instrumental in waste management, informal waste collectors including scavengers at the landfill and those moving around homes and business establishments are not recognized by any existing policies. In fact, some of the policies (for example the Kampala District Solid Waste Management Ordinance of 2000) are applied when harassing them. The situation is worsened by the fact that scavenging is

mainly done by the urban society's minority/ low caste Batooro ethnic group and the internally displaced people who are not organized. And since these people are driven into scavenging by economic reasons, then the items they salvage are grossly determined by market availability. Items such as broken bottles which are in constant supply are not scavenged by these people simply because they have no local market. Uganda has no glass making or recycling industry.

Land filling as a solid waste disposal method is increasingly becoming more expensive. Nearby sources of soil material which is used to cover the waste have been exhausted. Because of this, sometimes the waste is not covered on a daily basis, yet this is a prerequisite when operating a sanitary landfill.

The operations of the landfill including solid waste disposal and the treatment of the resultant leachate generally meet the required standards set by NEMA. However, the disposal of mixed waste including hazardous ones at the same landfill is posing a great threat to the ecology of surrounding ecosystems. Also the failure to install effluent gas monitoring equipment is a major draw back. The fact that a big portion of the waste is organic implies that a lot of hydrocarbon compounds are generated during waste decomposition. These not only pose a potential fire risk at the landfill, but are also components of green house gases which contribute to global warming.

9.3 Linking Evidence to Theory

The evidence from this study clearly supports Norman Long's philosophy that stakeholders' actions and their inherent outcomes are grounded in the existing structures and situations. And that, also the actions, responses and strategies within and between different actors are shaped according to prevailing power relations.

The failure of the public sector to effectively deliver social services to its people has led to a situation where private actors (both formal and informal) come in to bridge this gap. However, the failure to clearly understand their roles and responsibilities has led to a situation where both the public and private actors point fingers at each other.

The issue of governance also features very prominently in the evidence that I gathered. For instance, it was revealed that households in the medium to high income areas receive preferential treatment from the private company as far as waste collection is concerned. This is a manifestation of governance inadequacies whereby the public sectors fails to timely honor and meet its obligations and responsibilities of financially supporting the

private sector in terms of service subsidization in low income areas. Moreover, governance according to Bratton and Rothchild (1992) is a relational concept which emphasizes the nature of interaction between and among public and private social actors. One aspect of this relationship was the requirement that the Division Authorities support HOMEKLIN Limited in delivering services to the disadvantaged areas of the Division. And being that on top of offering a service to the communities, HOMEKLIN Limited is primarily involved in waste management due to economic reasons of generating an income; its management feels justified to concentrate on trying to satisfy the needs and aspirations of their paying clients in the medium to high income areas.

The informal waste collectors are driven into this activity because of the prevailing poverty situation and are therefore not necessarily interested in environmental protection. This explains why they focus on certain items and leave out the others that do not have a market. For example, no attention is given to broken bottles that are dumped at the landfill despite being plenty and in constant supply from the beverage and beer producing companies.

Furthermore, the Actor-Oriented approach analyses how people muddle through difficult situations by turning bad situations into less or better ones. In reference to the scavengers and the informal waste collectors, the desire to escape from the poverty trap and improve their livelihood serves the main reason why they are involved in waste management. It is therefore not surprising that their activities are centered upon nothing else other than generating an income.

Also the failure by local representatives to effectively consult and involve the electorate on issues that affects them as a society has resulted into resentment of some of the development proposals that are presented to them. This is a clear manifestation of the inability of the development partners to understand people's lived in experiences, an important element that the proponents of Long Norman's theory advocate for. As an element of governance, the needs and aspirations of civil society are in fact more important than those of the private and public domains.

9.4 Conclusion

The involvement of the private sector (both formal and informal) has led to improvements in the management of domestic solid wastes compared to what the situation was like before. Success has mainly been brought about by the innovativeness of HOMEKLIN Limited including, the introduction of waste transfer stations and the use of smaller vehicles supplemented by wheel barrows which have increased access to places that were previously not served. Also despite a few isolated cases, the adherence to the waste collection schedule has improved waste collection in the medium to high income areas of the Division. Despite having to deal with mixed waste, the operators of the landfill (DOT Services Limited) are complying with the standards set by the National Environment Management Authority.

On the whole, the concentration on solid waste storage, collection, transportation and disposal without regarding the 3Rs is leading to more economic constraints that all the waste management stakeholders are facing.

Also, the exclusion and lack of recognition of the informal sector by the existing legislation (notably the KCC solid Waste management Ordinance 2000) is costing the partnership a possibility of greater success.

There are also problems with understanding what the roles of both the private and public sector in regard to sensitization and mobilization of the communities is concerned. Corruption and bribery, the irregular financial support from the public sector and political patronage are some of the other issues that are compromising the progressive success of the partnership.

The exclusion of children and house keepers in information meetings is another issue that is plaguing the system, since, they are very important actors.

9.5 Recommendations

Based on the findings of this study, the following recommendations should be considered as a way of ensuring an effective domestic solid waste management partnership programme in Makindye Division. I have categorized the recommendations into four groups namely; policy, technical, economic and administrative.

1. Policy recommendations

a. The KCC Solid Waste Management Ordinance (2000) should be amended to include clauses addressing household waste separation in the whole of Kampala District. This will help in enhancing the reuse, recycling and recovery of materials at the household level. The ultimate result will be reduced waste collection, transportation and disposal costs that are incurred by all the actors in waste management.

b. There is need to acknowledge and recognize the instrumental role played by the informal waste collectors. Provisions should be included in the existing policies so as to give these players a legal backing in as far as their activities are concerned. The scavengers should also form cooperative unions. Through these groups, they will be able to secure loans, receive business and health care training. The result will be enhanced dignity, improved incomes and ultimately better social recognition.

2. Technical recommendations

a. HOMEKLIN Limited needs to buy more collection vehicles to supplement its present fleet. This will improve on the speed and the areas served within a small time and ultimately reduce the public nuisance associated with uncollected waste. It also needs to equip each of the vehicles with a covering material (preferably using the locally made plastic liners) so as to prevent the waste from being blown off the trucks when in transit

b. There is need for KCC and its appointed agents to install effluent gas monitoring and controlling equipments at the landfill. Moreover, it was part of the original plan.

c. In order to enhance environmental protection and conservation, alternative sites for the disposal of hazardous wastes should be located. The disposal operations should follow acceptable methods and standards as stipulated in the existing legislation.

3. Economic recommendations

a. Using its mandate under the Local Government Act and the Decentralization Policy, KCC should attract investors interested in setting up paper and glass recycling industries. This will not only save the country large sums of foreign exchange lost to the processing industries in Nairobi, Kenya, but will also offer both formal and informal employment opportunities to the many jobless people. Evidence from Cairo in Egypt, Manila in

Philippines and Ibadan in Nigeria shows that industrial recycling of waste can be a profitable venture (IDRC 1999). Apart from achieving a cleaner environment, effective recycling of waste is a feasible strategy for employment creation, income generation and poverty alleviation. KCC through its various economic programs should therefore give priority to private initiatives and proposals to recycle wastes.

b. Makindye Division Authority needs to extend support to local community groups involved in the recycling of materials. Such support may not necessarily be monetary. It may include allocation of space from where they can carry out their activities. On top of what they are already involved in, the groups should focus more on the production of energy saving Refuse Derived Fuels (RDF) from the wastes. The RDFs do not require expensive investment and have ready market. This use will save many of Uganda's rural forests that are currently cut down to supply Kampala City with fuel wood and charcoal.

c. Makindye Division further needs to invest in income generating projects so that it can become more self sustaining. The reliance on remittances from the central government is not sustainable as exemplified by the Division's failure to meet its financial obligations as and when required. Potential areas of interest include real estate development, transport and heavy construction machinery which it may rent out to private constructors. The income from such ventures could be used to supplement the Division's budget.

4. Administrative recommendations

a. There is also need to establish frameworks through which local community representatives to the Makindye Division Assembly can become more accountable and responsive to the people they represent. This framework should focus on improving information flows between the authority and local people. Through this, the local communities will become part and parcel of the decisions that are made and so will be less resentful to new recommendations.

The involvement and participation of children and house keepers in information meetings needs to be given particular emphasis since they are very important actors at the household level.

b. Mechanisms aimed at separating politics from administration should be put in place. These will help in abating political patronage, corruption and lack of transparency of the local leaders.

c. Since health promotion through creation of awareness about the health risks associated with waste handling seems to have failed, then use of incentives and restrictive legislation should be the next option as a way of protecting HOMEKLIN Limited's field workers. However, for this to be effective, constant monitoring and sanctions by the administration have to be enforced.

9.6 Suggestions for Further Research

Much as I endeavored to cover most of the relevant aspects of the theme, solid waste management is too diverse to be exhausted in a single research. I am therefore making the following suggestions which I feel will enrich this field with more knowledge:

1. Feasibility studies about the possibility of tapping the emitted hydrocarbon compound gases should be financed and supported. Uganda is currently facing power shortage problems. Bio gas from these organic compounds could serve as an alternative source of energy for lighting and cooking.
2. Despite highlighting a few issues on the management of industrial and other hazardous wastes, my study concentrated on domestic solid waste management. I am therefore calling for more empirical studies on, for example, the management and impact of industrial effluent gases to the surrounding environments.

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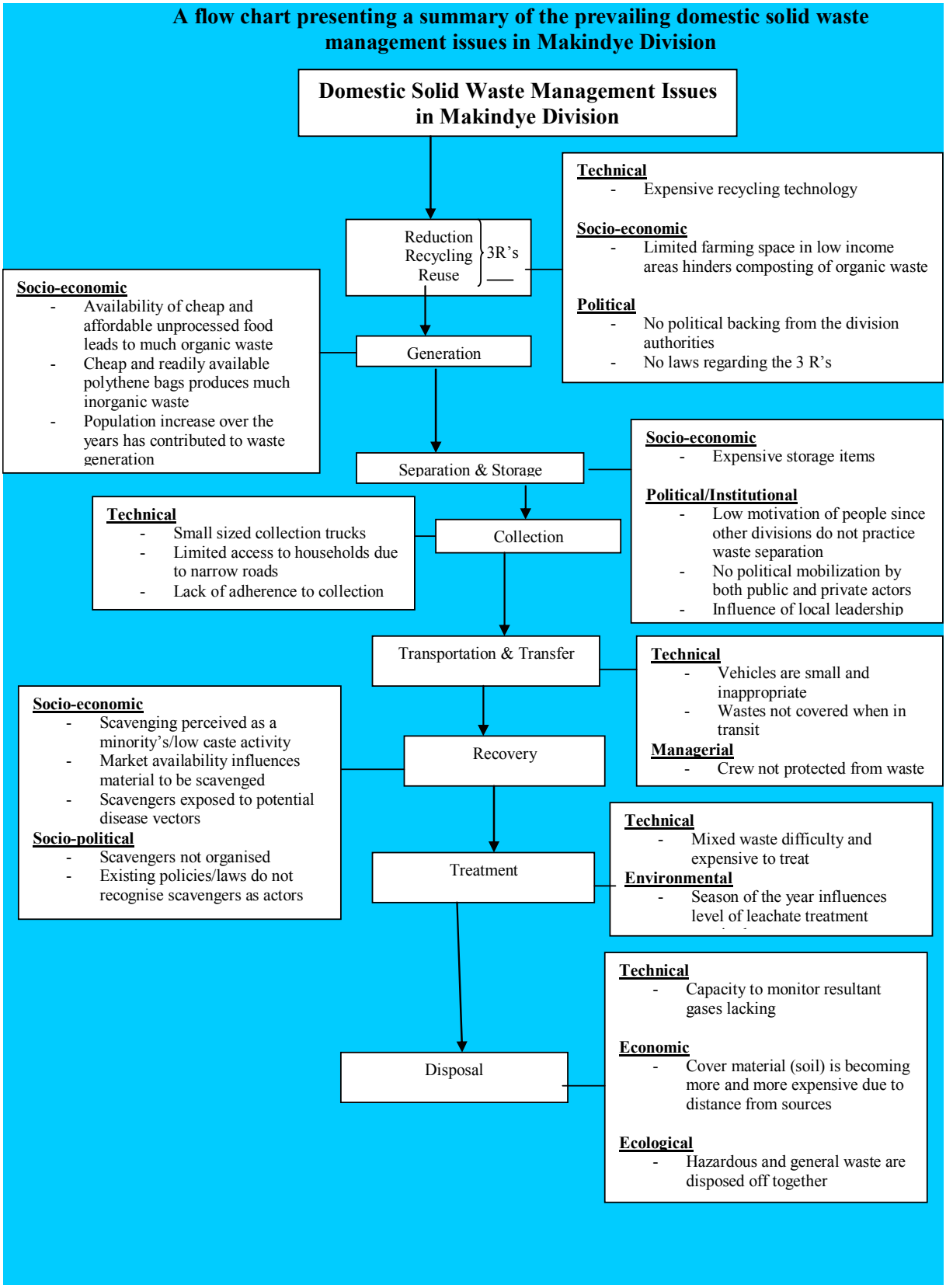
11.0 APPENDICES

Appendix i: Summary of solid waste management issues in Makindye Division



Appendix ii: Interview and Focus Group Discussion Guide

A: Political Aspects

1. What are the jurisdictions and role of the different players in municipal solid waste management?
2. How are the bye laws, ordinances and regulations in municipal solid waste management designed? Are they transparent, unambiguous and fair?
3. Do the policies and laws recognize the informal waste collectors as important stakeholders in solid waste management?

B: Institutional Aspects

1. Are the responsibilities and authority appropriately distributed between and within the different players?
2. Does the HOMEKLIN Limited receive pertinent support from Makindye Division Authority? If so, which areas of waste management are covered?

C: Social Aspects

1. How do people's attitudes as well as social economic characteristics influence waste management?
2. Are the people in the different socio economic areas aware of the dangers associated with improper solid waste management?
3. Are there any functional links between the community based waste management organizations, the private sector and the public sector?
4. How is scavenging perceived by society? Is it undertaken by particular groups of people?
5. What drives these people into scavenging and what are their main target items?

D: Financial Aspects

1. What portion of the Makindye Division budget does solid waste management account for?
2. Where does the Division Authority get solid waste management money from?
3. Is it from local budgets, loans from financial intermediaries, special central government grants or loans?

4. How are the finances monitored and their performance evaluated?

E: Technical Aspects

1. How are the technical facilities and equipment designed?
2. Are repairs and spares available to enhance maintenance?
3. Are the operation and performance characteristics of facilities and equipment adapted to local collection systems?
4. Are the disposal grounds/landfills carefully sited, correctly designed and well operated?

Appendix iii: Observation Checklist

1. How is the generated waste stored?
2. Is it sorted and separated?
3. Are the containers conveniently placed?
4. Are public collection points properly used and littering avoided?
5. How is the collected waste transported?
6. How is the recycled and composted waste utilized?
7. Do the landfill operations conform to acceptable environmental standards?
8. How is the resultant leachate handled and treated?