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**Thesis**

Sustainable private sector participation in municipal solid waste collection services: The case of Arua Municipal Council, Uganda

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UMD 6

## SUMMARY

In Uganda, the responsibility for solid waste management (SWM) lies with local authorities, hence the situation in Arua Municipal Council (AMC) is not an exception. Prior to decentralisation, AMC provided SWM services directly to all the areas in the Municipality. However, in 1997, Uganda adopted the decentralisation policy which transferred the day-to-day SWM operations from AMC to Division Councils. This resulted into the accumulation of waste in many parts of the Municipality, leading to wide public outcry. Hence waste collection services were extended to the private sector in 2001 on the premise that, service delivery can be improved and sustainability enhanced.

This study focused on the functioning of the privatised waste collection service delivery in AMC. The first part of the study provides insights into the current system of waste collection in AMC. The second part explores the concept of sustainability from the view points of three stakeholder groups; the Local authority as the service regulator, the private operator as the service provider and the citizens in households and commercial establishments as service users. The last part highlights the recommendations made by the respective stakeholders on how the current waste collection services can be made more sustainable.

The study was exploratory single case study embedded. The sample selection for service users was stratified random while for the private operator and workers and AMC staff, it was purposive. Different literatures were reviewed on privatisation and sustainable SWM based on the Integrated Sustainable Waste Management (ISWM) Model. Assessment indicators were then developed as an analytical tool in order to measure the sustainability of the waste services. The waste system is deemed sustainable if the technical, financial, social, environmental and institutional goals are achieved. Primary data collection methods involved open and closed-ended questionnaires which were administered on the service users while in-depth interviews were conducted with AMC staff, the private operator and workers. Observation and review of secondary data were also used. The findings were analysed both quantitatively and qualitatively aided by Microsoft Excel application and presented in form of tables, graphs, pie charts and figures.

The findings show that there are two systems of waste collection; door-to-door and communal system and there is only one private waste collection operator. The households in the medium and low income zones do not receive the collection services. The collection services are not sustainable because not all technical, financial, social, environmental and institutional goals as per the ISWM Model were achieved. However, the financial, social and environmental aspects are down played in comparison to the technical and institutional goals.

In order to make the delivery system sustainable a set of recommendations are formulated; availability of appropriate and sufficient equipments and facilities, mobilisation of financial resources, public education and awareness on sound SWM, waste segregation, regulatory framework on SWM, strengthening of the monitoring system, community involvement in SWM and encouraging competition among private waste collection operators.

**Keywords:** *sustainability, privatisation, municipal solid waste, collection services, Arua Municipal Council.*

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## **ABBREVIATIONS**

AMC	Arua Municipal Council
CBD	Central Business District
CBO	Community Based Organisation
CCW	City and Country Waste
DRC	Democratic Republic of Congo
IMF	International Monetary Fund
ISWM	Integrated Sustainable Waste Management
KCC	Kampala City Council
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
NGO	Non Governmental Organisation
PPP	Public-Private Partnerships
SAP	Structural Adjustment Programme
SD	Sustainable Development
SWM	Solid Waste Management
UNCHS	United National Centre for Human Settlements
WMD	Waste Management Department

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# CHAPTER ONE

## INTRODUCTION

### 1.0 Introduction

This study aims at exploring the sustainability of private sector participation in municipal solid waste (MSW) collection services with specific reference to Arua Municipal Council (AMC) in North Western Uganda. This Chapter highlights the background to the study, statement of the problem, research objective, research questions and scope of the study, justification of the study and structure of the thesis.

### 1.1 Back ground to the study

Waste generation is associated with and comes with human activities and as such, waste management is an issue, which should be shared by every individual, community, organisation or country worldwide. Depending on climate, life style and behavioural differences, level of industrialisation, available waste management programmers and economic incentives, the problem of waste generation and its management continues to be a major environmental problem in urban centres worldwide (Ecaat 2003). Cities in the developing world are confronted with a twin dilemma of rapid urban population growth which calls for increased demand for solid waste management (SWM) services and a traditional public sector that is resource constrained to effectively respond to these demands (Ahmed & Ali 2006). This trend of urban population growth has by-passed the capacity of many urban local authorities to provide effective and efficient SWM services, as manifested by inappropriate solid waste disposal practices such as indiscriminate open dumping and solid waste burning (Klundert & Anschutz 2000).

Municipal SWM constitutes one of the most crucial health and environmental challenges facing urban authorities of Sub Saharan Africa. This is because even though these urban authorities use 20-50 percent of their annual budgets in SWM, only 20-80 percent of solid waste is collected. The uncollected or illegally dumped wastes end up in open dumps and wetlands, leading to the contamination of surface and ground water and this constitutes a disaster for human health and the environment (Achankeng 2003; Mugagga 2006). In Kenyan City of Nairobi, 16 million tonnes of solid waste is generated daily but only 30 percent is collected by both the City authorities and individual residents leaving all the other 70 percent undisposed of (UN Habitat 2002). In Ibadan, Nigeria, the volume of solid waste has overwhelmed urban local administrator's capacity to plan for SWM with a large proportion of uncollected garbage hence it is not uncommon to find urban streets and roads practically blocked by solid waste (Mugagga 2006). This 'gap' between the daily solid waste generation and collection often leaves the authorities vulnerable to citizens' complaints (Bhuiyan 2010).

The major change that is evident in SWM in many urban local governments in the developing world is the increased involvement of the private sector. Private service delivery became inevitable due to the Structural Adjustment Programmes (SAPs) of the World Bank and the International Monetary Fund (IMF) in the

1980s and was reinforced by domestic changes especially widespread dissatisfaction with the inability of urban local authorities to provide their citizens with appropriate SWM services. Several authors refer to the belief that the private sector is endowed with attributes such as dynamism, economic rationality, efficiency and innovativeness, which can be combined with the public sector's custodianship of public interest in a public-private arrangement for achieving greater efficiency and effectiveness in solid waste service delivery in urban local authorities (Ahmed & Ali 2006; Post, Broekema & Obirih-Opareh 2003; Osborne 2000). They do however also indicate that, a critical review of private sector delivery is required since its performance in developing countries especially Sub Saharan Africa does not seem to reflect this optimism particularly in the context of local governments. According to Klundert & Lardinois (1995), the success of privatisation depends among others, on the extent of monitoring and control retained by the local authority. However, in the absence of strong public and/or private sector institutions, and an adequate regulatory framework, an unsystematic introduction of private service delivery in local governments could worsen infrastructure and service delivery and so unlikely to benefit the public client (Ndandiko 2006).

Uganda is a landlocked country, located in East Africa with Kampala as its capital. It is bordered by Sudan to the North, Democratic Republic of Congo (DRC) to the west, Rwanda and Tanzania to the south and Kenya to the East. It covers an area of 242,554 kilometres square, with an estimated population of 32,369,558 out of which 82 per cent lives below the poverty line and maternal mortality averages 750 per 100,000 live births, and infant mortality 105 in 1,000 live births. The under-five mortality rate is 174 per 1,000 live births compared to the national average of 134. The population having access to sanitation facilities and safe drinking water is 9 and 40 percent respectively (Index Mundi 2009; Wikipedia 2010).

The period between the 1960s and 1970s witnessed the nationalisation of much of the Ugandan economy. This trend was accelerated by the expulsion of the Asian community in 1970 since many of the departed Asians' properties fell into government's control (Uganda Information Portal 2010). Traditionally, like any other economy around the world, the central government, together with the local and urban authorities in Uganda, at their respective administrative levels, has been responsible for providing a wide and diverse range of infrastructure and public services to the citizenry. However, in the early 1990s, government adopted a policy of Private Sector Development in a bid to divest itself of Public Enterprises (PEs). This led to the enactment of the Public Enterprises Reform and Divestiture (PERD) Statute which came into force on October 8, 1993. This Statute established the Divestiture and Reform Implementation Committee (DRIC), responsible for implementing the Government's policy in accordance with the PERD Statute. The statute was amended in a bid to streamline and increase transparency in the process of divestiture and private sector participation. Consequently, many parastatals were privatised and this process also extended to public services/ facilities like the local markets, bus parks, slaughter houses, recreation centres and roads in return for service user fees. Additionally, private service contracts have been concluded for provision of essential services such as

solid waste collection, street parking management, street lighting maintenance, street repairs and their general cleanliness (Ndandiko 2006).

Uganda adopted the policy of decentralisation in 1997 and this profoundly affected the public service environment including SWM. This policy transferred the responsibility of the day-to-day SWM operations from City/Municipal Councils to City/Municipal Division Councils. In AMC where this study was carried out, this policy created more problems because the limited resources available to the Municipal Division Councils made servicing of refuse trucks extremely difficult. This resulted into the accumulation of solid waste in many parts of the Municipality, leading to wide public outcry. The absence of sufficient funds to effectively manage solid waste services led to decrease in service quality and this necessitated private sector involvement in SWM. Hence solid waste collection services were extended to the private sector in 2001 as a result of the fact that, AMC was incapable to provide adequate SWM services.

## **1.2 Statement of the problem**

The decline in Municipal SWM service delivery in many urban authorities of the developing world has often been associated with inequitable resource allocation, fiscal irresponsibility, equipment failure and poor programme management and design (Mugagga 2006). The provision of MSW service delivery is an expensive venture which poses a growing environmental challenge for urban local authorities in developing countries as evidenced by low service coverage and wide spread indiscriminate dumping of solid waste (Cointreau-Levine & Coad 2000).

In Arua, the insufficiency of funds coupled with the increasing urban growth and solid waste generation out stripped the AMC's capacity to provide adequate and efficient solid waste collection delivery. This led to a gradual degeneration in SWM in both the residential and commercial areas. Consequently, the provisions of solid waste collection services were extended to the private sector in 2001 on the premise that, service delivery and coverage can be improved and sustainability enhanced. However, despite this decision, AMC still experiences challenges in solid waste services delivery. The Municipality is characterised by careless and indiscriminate open dumping of garbage on streets, frequent cholera out breaks, blockage of drainage systems, filthy and unsanitary conditions and garbage odour (Daily Monitor 21 July 2006, p.10; Daily Monitor 17 December 2008 P.5). It is upon this scenario that; this study seeks to explore the sustainability of privatised solid waste collection services in AMC.

## **1.3 Research objective**

To explore in how far the privatised solid waste collection contributes to sustainable waste service delivery in Arua Municipal Council.

## **1.4 Main Research question**

How sustainable is the privatised solid waste collection service delivery in AMC?

### **1.4.1 Sub Research questions**

1. What is the current solid waste collection system in AMC?
2. How technically, financially, socially, environmentally and institutionally sustainable is the privatised solid waste collection service delivery in AMC?
3. How can the sustainability of privatised solid waste collection services be improved in AMC?

### **1.5 Scope of the study**

This study aimed at exploring the sustainability of privatised MSW collection services in AMC. It focused on the three dimensions of Integrated Sustainable Waste Management (ISWM); stakeholders, system elements and sustainability aspects. It was confined to three stakeholder groups namely; the Local authority (service regulator), citizens in households and commercial establishments of AMC (service users) and the private formal sector (service provider) involved in a public-private arrangement. As concerns the system elements, the study was restricted to collection of urban solid waste. It focused on the technical, financial, social, environmental and institutional aspects of sustainability.

### **1.6 Justification of the study**

The study findings will help policy makers in formulating policies and designing sustainable and appropriate methods for private sector solid waste collection service delivery in cities of the developing world.

The findings of this study will help raise awareness on issues pertaining to the sustainability of solid waste collection at community level. This awareness will help build initiatives for sustainable solid waste collection services in AMC.

The scholarship available on sustainability of privatisation of solid waste collection services in the context of AMC is far from adequate. This in-depth study is expected to bridge a research gap currently existing in this pressing field of global concern.

Finally, this study is a pre-requisite for the award of Master of Science Degree in Urban Management and Development.

### **1.7 Structure of the thesis**

**Chapter One** is the introductory Chapter and highlights the study back ground, statement of the problem, research objective, research questions, scope of the study, and justification of the study.

**Chapter Two** reviews literature on sustainable SWM based on the ISWM model and an investigation of literature related to privatisation of solid waste collection services. To enrich the existing knowledge derived from the literature, case studies were analysed to reinforce the study. This review enabled the development of the conceptual framework which forms the foundation for this research.

**Chapter Three** presents an overview of research methodology that the researcher used during the study. It highlights the research type and strategy, research design, study population, sampling techniques, data collection and analysis techniques and presentation of findings. It explores the research questions by further identifying variables and indicators. It also outlines the research constraints and limitations.

**Chapter Four** provides an overview of the current state of SWM in AMC. It begins with the background on SWM in Uganda and the legal provision for SWM. It then highlights the background to AMC, its demographic characteristics, the privatisation decision for SWM in AMC and insights into the current system of solid waste collection in AMC.

**Chapter Five** presents the study findings in relation to the research questions for all categories of respondents. These findings have been illustrated by means of tables, graphs, pie charts and figures.

**Chapter Six** presents the conclusions and recommendations based on the study findings and proposition of areas for further research.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This Chapter reviews the literature related to sustainable private sector participation in solid waste collection service delivery. It starts with a review of literature on sustainable SWM based on the ISWM model and an investigation of literature related to privatisation of solid waste collection services. To enrich the existing knowledge derived from the literature, case studies are analysed to reinforce the study. This review enabled the development of the conceptual framework which forms the foundation for this research.

#### 2.2 Sustainable service delivery

The 1980s according to Moningka (2000) were characterised by intensified debates about the environment. These debates resulted into the development of the concept of '*Sustainable Development*' (SD) in a bid to balance economic development and environmental conservation. However, the concept of SD was described more extensively by the World Commission for Environment and Development (WCED) in the "Brundtland report"<sup>1</sup> which defines SD as: "*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED 1987, p.43). However, Jabareen (2006 p.179) in contrast argues that, "the concept of SD lacks a comprehensive theoretical framework for understanding SD and its complexities due to its vague definition and lack of concensus over what should be sustained, hence it remains a confused topic, fraught with contradictions". Msiska (2007) mentions that the starting point for the provision of sustainable basic service delivery is leadership that has the political will and mind set to transform its nation. According to Msiska (2007), this type of leadership facilitates the development and implementation of economic frameworks and development strategies that 'do no harm' but rather empower every individual. In addition, it also develops cost recovery mechanisms for services that do not disadvantage consumers. World Health Organisation (2007) mentions that sustainable service delivery can only be achieved with a clear national strategy in which all stakeholders have roles to play in the financing, regulation and delivery of services. Carter, Tyrell & Howsam (1999) however argue that sustainability in the sense of continued delivery and uptake of services is threatened by numerous attitudinal, institutional and economic factors, and community participation approaches alone are no guarantee of success. Carter, Tyrell & Howsam (1999) further argue that the key to sustainability is that all stakeholders involved in the

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<sup>1</sup>The "Brundtland report" derived its name from Gro Harlem Brundtland, a Norwegian Labour Party leader who chaired the World Commission on the Environment and Development (WCED) which was set up by the UN General Assembly in 1983. The report was released in 1987 and was called, "*Our Common future*".

consumption/use, maintenance, cost recovery, and continuing support perceive it in their best interests to deliver high quality services.

### **2.3 Sustainable Solid Waste Management**

MSW according to Schubeler, Wehrel & Christen (1996 p.18) comprises refuse from households, non hazardous solid waste from industrial, commercial and institutional establishments, market waste, yard waste and street sweepings. According to Schubeler, Wehrel & Christen (1996, p.18), MSWM refers to “the collection, transfer, treatment, recycling, resource recovery and disposal of solid waste in urban areas”. According to Joseph (2006), sustainable SWM provides a comprehensive inter-disciplinary framework for addressing SWM challenges in the resource constrained urban authorities in developing countries where there is poor quality service delivery and high costs. Shekdar(2008) points that a variety of technologies have been devised and included in modern systems to globally re-orient SWM systems toward sustainability. Klundert & Lardinois (1995) and Grafakos & Baud (1999) argue that the need for sustainable SWM systems should encompass environmental, social and economic objectives. According to Chung & Lo (2003) sustainable SWM can be assessed in terms of environmental desirability, economic optimisation, social acceptability, equity and administrative diligence criteria. The above arguments are therefore in line with the ISWM which encompasses all the above aspects of sustainability.

#### **2.3.1 Integrated Sustainable Waste Management (ISWM)**

According to Klundert & Anschutz (2000), ‘sustainable’ in the ISWM context means, ‘appropriate to the local conditions’ from a technical, environmental, social, economic, institutional and political perspective and “capability of maintaining itself” over time without exhausting the resources it needs while ‘integrated’ implies the integration of different sustainability aspects, different options of collection and treatment at different habitat scales, different stakeholders, waste system and other urban systems. ISWM according to Klundert & Anschutz (2000) is a waste management system that best suits the society, economy and environment in a given location. Apart from technical or financial-economic aspect that characterises the conventional model of ISWM, the concept also considers the socio-cultural, environmental, institutional and political aspects that influence overall SWM sustainability. Shekdar (2008) mentions that ISWM involves selection and application of suitable techniques, technologies, management approaches, socio-economic conditions, operating environment and actions of urban authorities to achieve specific goals. Klundert & Anschutz (2000) further point that, ISWM differs from conventional approaches to waste management by upholding stakeholder participation and inclusion of waste prevention and resource recovery in addition to encouraging analysis of interactions with other urban systems and promotion of an integration of different habitat scales. Schubeler, Wehrel & Christen (1996) in support of the above

argument point that, the inter-related nature of SWM service problems and the active role of households call for an adaptation of sectorially integrated development approaches which depend, to a considerable extent on their cooperation and participation.

### **2.3.2 Principles of Integrated Sustainable Waste Management**

The concept of ISWM has four basic principles namely;

**Equity:** all beneficiaries are entitled to an appropriate waste management system due to environmental health concerns and this should go beyond ethical considerations.

**Effectiveness:** the extent to which the service objectives have been fulfilled in practice. The waste management model adopted should be capable of removing all the waste generated.

**Efficiency:** waste management should entail benefit maximisation, cost minimisation, resource optimisation and should consider issues of equity, effectiveness and sustainability. Efficiency is achieved when benefits that accrue from clean streets are balanced by all beneficiaries through their financial, labour, material, equipment or managerial contributions.

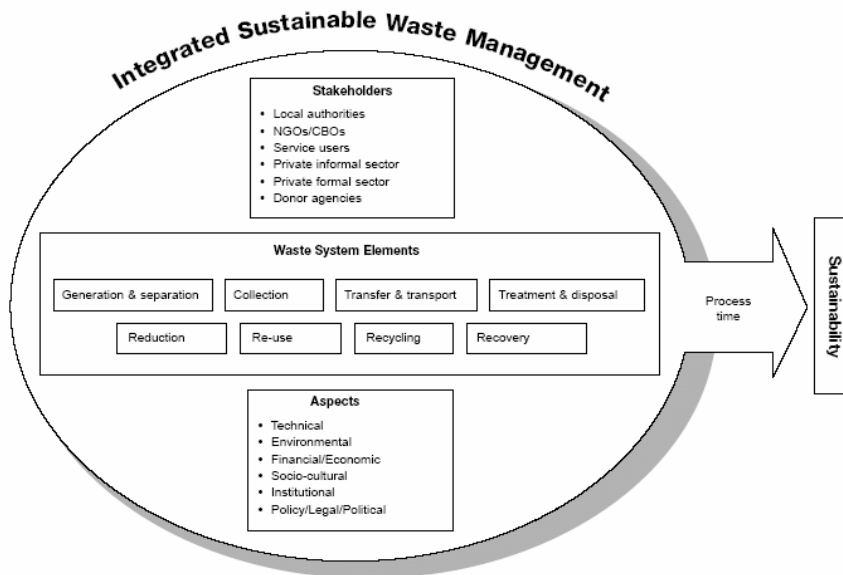
**Sustainability:** the waste management system is tailored to the local conditions and should be technically, environmentally, socially, economically, institutionally and politically feasible. The system should also have a self maintenance mechanism overtime while optimising the resources on which it depends (Klundert & Anschutz 2001, p.11).

### **2.3.3 The Dimensions of Integrated Sustainable Waste Management**

The ISWM has three main dimensions that necessitate integration namely; stakeholders, waste system elements and sustainability aspects (Klundert & Anschutz 2001). These dimensions are illustrated on the ISWM model in figure 1 below



**Figure 1: The ISWM Framework Model**



**Source:** Klundert & Anschutz (2001, p.14).

### 2.3.4 Stakeholders

Stakeholders according to Klundert & Anschutz (2001) are people and organisations that have various roles and interests in SWM and cooperate in its activities for a common interest. These include; informal sector waste pickers, itinerant waste buyers, waste material dealers, wholesalers, recycling enterprises and end user industries. Joseph (2006) argues that, the identification of stakeholders and their interests is paramount in coordinating their participation and involvement in various SWM activities. Kassim & Ali (2006) in agreement with Joseph (2006) point out that, stakeholders should be given the chance to contribute in designing and planning of SWM activities so as to increase their awareness and active involvement in SWM schemes. According to Schubeler, Wehrel & Christen (1996) and Klundert & Anschutz (2000), the stakeholders in relation to ISWM model include: National/Central government, Local authority/City council, service users, Non Governmental Organisations (NGOs)/Community Based Organisations (CBOs), Private informal sector, Private formal sector and Donor agencies. Klundert & Anschutz (2000) however mention that, with the exception from national/central government and local authority/city council, the rest of the stake holders are referred to as non state SWM actors.

### Box 1: Stakeholder platform and waste management: Swabhimana, Bangalore, India

*Swabhimana* which means 'self respect' was set up in 1995 by a group of active private environmental actors in the Bangalore, India for better co-ordination between citizens and the public agencies in the delivery of urban services. It consists of representatives from the municipality (Bangalore City Corporation), government agencies, NGOs and CBOs and resource persons. In the area of SWM, it aims at co-ordinating activities between various NGOs representing different stakeholder interests and the Bangalore City Corporation (BCC) and encouraging partnerships at the neighbourhood level for the environmentally friendly management of solid waste. Several cities in India Bangalore inclusive have a decentralised management system which extends to committees and councils at city, ward and block levels. *Swabhimana* has helped create awareness amongst the citizens to enhance the transparency and accountability of the functioning of these committees at the third tier of governance.

Through its member organisations, it has assisted a number of CBOs to start about 60 projects in separation at source, waste collection, recycling, composting, and environmental awareness-raising and other solid-waste related activities. Since April 2000, *Swabhimana* has actively assisted the BCC in initiating primary collection in 50 of the 100 Wards of the city through its staff. It has also trained all the municipal staff to take on the task of primary collection, and has helped the BCC in creating awareness on waste management.

**Source:** Klundert & Anschutz (2001. p.30).

### 2.3.5 Elements of Solid Waste Systems

Waste management systems should be considered as phases in the flow of materials from generation (source) up to the final treatment and disposal stage. It is a combination of various phases in the management of the flow of materials within the City and the region. ISWM recognises high profile elements namely; 'collection', 'transfer', and 'disposal' and treatment'. It also gives equal importance to the less well perceived elements of 'waste minimisation', 're-use' and 'recycling and composting' (Klundert & Anschutz 2001, p.13). However, this study only focuses on collection as an element of solid waste system.

There are various forms of waste collection practiced in developing countries. However, UNCHS (1988, pp.9-10) classifies them into four namely;

**Communal collection:** Under this system, householders discharge their wastes at pre-determined sites containing some form of communal storage facility, and refuse collection vehicles collect the wastes at frequent intervals, usually once a day. The frequency of communal storage distribution depends on the degree of community willingness to cooperate in its proper utilisation. This method prefers the use of portable containers for realisation of high labour and vehicle productivity. In addition, the distance between two containers should not exceed 200 metres. This method is relevant since it reduces considerably the number of waste collection sources.

**Block collection:** Under this system, a collection vehicle travels a pre-determined route scheduled by an urban authority at intervals, usually every two to three days and stops at selected sites. Upon hearing the bell, the house holders bring their refuse containers and hand them to the crew, after which the containers are emptied and returned to them. Under this method, no containers are left outside household premise or on communal land. However, its vehicle and labour productivity lies between low and medium.

**Kerbside collection:** In this system, the collection crew collects refuse containers which are deposited at the kerbside (entrance) at fixed and specific intervals, usually twice a week. This system requires a regular and well organised collection

service in order to enable householders leave out their wastes at appropriate times. This system is applicable in high income areas of developing countries due to the relatively high collection cost associated with it.

***Door-to door-collection:*** In this system, the collection crew enters each premise, takes out the container and sets it back after the waste is emptied into collection vehicles. This system offsets the non-involvement of householders by increased labour costs in accessing all premises. This method is only productive when collection is infrequent, especially once a week. However, although this method is common in developed countries, it is rarely practiced in developing countries. In addition, its intrusion on the privacy and security prevents its consideration as a collection option in some communities.

According to UNCHS (1988), while the above represent the basic methods of collection, the most productive and economical method from different countries in urban areas will be a combination of them.

### **2.3.6 Strategic aspects of Integrated Sustainable Waste Management**

According to (Klundert & Anschutz 2001, pp.13-14), the concept of ISWM distinguishes six lenses through which the existing waste system can be assessed and with which a new or expanded system can be planned. A brief review of case studies indicate the following experiences in relation to the strategic aspects of the ISWM:

***Technical performance aspects:*** these entail the visible practical execution and maintenance of all of the waste elements. It focuses on which equipment and facilities are in use and those for future use. It also focuses on how they are designed and their applicability. In addition, it also evaluates the cleanliness of the city on consistent basis. In Riruta, Nairobi, Kenya, the use of locally manufactured and maintained equipments promotes local resource use and knowledge (Babu 2008). In Kampala City Council (KCC), Uganda, critically unplanned settlements such as slums or low income areas, with poor road network are inaccessible by refuse collection vehicles leading to poor coverage of collection services in such areas (Ecaat 2003).

***Financial-economic aspects:*** these pertain to budgeting and cost accounting within the waste management system in relation to the local, regional, national and international economy. It also considers some salient issues such as; privatisation, cost recovery and cost reduction. In addition, the impact of environmental services on the economic activities is also considered. In Accra, Ghana, the solid waste system according to Post, Broekema & Obirih-Opareh (2003) remains highly dependent on extra local funding due to absence of cost-recovery mechanisms, arising from public resistance and inaccurate household data. This however contrasts with that of Chibesa (2006) and Babu (2008) who mention regular payment of fees, willingness to increase fees and affordability of fees by service users in Kitwe, Zambia and Riruta, Nairobi respectively. While in Dar es Salaam, Tanzania, less than 50 percent of the service charge is collected

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(Kassim & Ali 2006). However, the situation is worse in Thailand where the level of cost recovery is less than 0.2 percent (Suttibak & Nitivattananon 2005).

***Socio-cultural aspects:*** these focus on the influence that culture has on waste generation and management within households, businesses and institutions. It also considers waste management issues within the community such as; gender, ethnicity and the social conditions of waste workers. Suttibak & Nitivattananon (2005) mention high participation in SWM programmes in Thailand, with complaint mechanism exceeding 80 percent. This however differs from the studies in Hyderabad, India and Accra, Ghana, where the top down approach, neglects community participation on issues such as appropriate method of collection, affordability of collection charges and conceivable role in monitoring. This lack of participation kills their sense of commitment as they perceive the service as government's mandate. This is further worsened by unattractive labour conditions of the workers (Post, Broekema & Obirih-Opareh 2003). While in Chennai City, India, Srinivasan (2006) mentions that the private company, "Onyx", does not take on any casual (daily wage) employees, and all workers on its payroll are entitled to several benefits like pension fund, paid leave, bonuses. In addition, the company provides regular vaccines, uniforms, protective gear and washing facilities to all its workers and strictly enforces use of the same and manual handling of waste is prohibited. Training is also given to workers on safe driving, correct handling of equipment and any violation of safety procedures and protocol is taken seriously. In a related study, Aliani (2008) mentions that in the secondary cities and small towns in Asia and the Pacific, the provision of waste pickers with stable salaries, safer working conditions, uniforms and adequate equipment has contributed to improving the working conditions and the livelihood of the urban poor. Asase *et al.* (2009) point out that in 2006, a total of 267,000 tonnes of both residential (58%) and non-residential (42%) waste was managed in the city of London. In Chennai City, Srinivasan (2006) further mentions that the residents from different income groups in "Onyx" zones report less disparity among their neighbourhoods. However, in Kitwe, Zambia, solid waste collection is restricted to the CBD and affluent areas. In addition, the waste system is characterised by; absence of public forum to voice solid waste collection concerns, harassment of workers by dumpsite gangs and paltry working conditions of the workers (Chibesa 2006). In the City of Bangalore, India, informal female waste pickers encounter a number of challenges such as; competition for the sale of the materials recovered from wastes, prevention from entry into homes by households and displacement by some entrepreneurs with access to new technologies (Huysman 1994).

***Environmental aspects:*** these focus on the effects of waste management on land, water and air. This therefore calls for the need for; conservation of non-renewable resources, pollution control and public health concerns. According to Suttibak & Nitivattananon (2005), the collection efficiencies in 20 selected Municipalities in Thailand ranges from 80-100 percent. This however contrasts with the situation in Kitwe, Zambia, where absence of SWM bye law, weak monitoring mechanisms, illegal dumping and failure to cover vehicles during refuse transportation characterise the whole waste system (Chibesa 2006). Post, Broekema & Obirih-Opareh (2003) also observe similar situations in both Accra, Ghana and Hyderabad, India. In Riruta, Nairobi, absence of waste source separation, recycling, generation of obnoxious smell by garbage and presence of some

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unserviced pockets are evident (Babu 2008). However, in the secondary cities and small towns in Asia and the Pacific, Aliani (2008) mentions that about 70 to 80 per cent of the waste is composted.

***Institutional aspects:*** these entail the political and social structures that control and perform waste management; the division of roles and responsibilities. It also focuses on the organisational structures, procedures and methods entailed and consideration of the available institutional capacities and actors especially the private sector which could be brought on board. According to Babu (2008), SWM in Riruta, Nairobi is characterised by community participation in decision making through weekly meetings, partnerships with public, NGOs and CBOs and a clear understanding of roles and responsibilities by various departments. This situation however differs from that in Dhaka and Chittagong, Bangladesh, where the efficiency of waste delivery is affected by lack of coordination among different departments/ sections due to unnecessary delays (Bhuiyan 2010). In Thailand, Suttibak & Nitivattananon (2005) mention the percentage of trained staff in most of the municipalities as less than 25 percent and this affects the efficient operation and maintenance of landfill operations.

***Political/legal aspects:*** these address the boundary conditions in which the waste management system exists. In this aspect, goals and priorities are set, roles and jurisdictions are determined and in case the legal and regulatory framework is nonexistent, it is planned for.

The above aspects of ISWM have been developed into a number of principles which can act as guide lines to achieve an ISWM system.

### **2.3.7 Measuring sustainability of privatised services**

Dresner(2002) mentions that the concept of SD revolves around three pillars namely; economic, environmental and social development. According to Dresner (2002), the aim of the concept among others is to reveal how SD can address the problems of those living in poverty while at the same time dealing with economic growth. On the other hand, the environment should be considered when making central economic decisions, while SD should also promote social equity between and among generations. Baud & Post(2002, p.50) attempt to connect SWM with SD by operationalising three broad goals namely; ecological/environmental sustainability, socio-economic equality and improvement of health. With regard to ecological/environmental sustainability, SWM systems should work towards; minimisation of waste generated, maximisation of re-use and recycling of waste while the remaining waste should be disposed of in a controlled fashion in order not to exceed the capacity of local sinks. The socio-economic aspects according to Baud & Post (2002) include; financial feasibility and affordability for local authorities, consumers and entrepreneurs; employment opportunities that provide a living wage and a level of job security to SWM workers; legitimacy from the perspective of both the authorities (legal) and the public (social) and an effective monitoring process and the enforcement of standards. The Environmental health criteria include: greater effectiveness in achieving a clean urban environment, minimisation of occupational health hazards for waste workers and reduction of environmental health hazards to women and animals.

**Table 1: Principles of Integrated Sustainable Waste Management**

<b>Sustainability Aspect</b>	<b>Principles</b>
<b>Technical/ Operational</b>	<ul style="list-style-type: none"> <li>• Selection of technology on the basis of local availability of spare parts.</li> <li>• Selection of locally manufactured technology that is close to indigenous knowledge and practices.</li> <li>• Selection of durable and good quality technology that has a long life expectancy.</li> <li>• Adapt systems to the physical environment, topography and other physical requirements of the area.</li> <li>• Ensure optimum utilisation of equipments</li> <li>• Establish preventive maintenance procedures</li> </ul>
<b>Financial/ Economic</b>	<ul style="list-style-type: none"> <li>• Base financial and economic decisions on full knowledge, complete information and transparency in decision making.</li> <li>• Quantify system costs and benefits fully and in consultation with stake holders</li> <li>• Establish efficient systems.</li> <li>• Analyse the units of costs and revenue differently per waste element.</li> <li>• Set fees fairly transparently, and in consultative process</li> <li>• Identify all beneficiaries and spread responsibility for system financing and operations amongst them.</li> <li>• Match the capital and labour ratio to the needs and characteristics of the Municipality and define productivity of capital and labour in relation to the local context</li> <li>• Equity-make services financially accessible to every one</li> </ul>
<b>Social/ Cultural</b>	<ul style="list-style-type: none"> <li>• Provide services for all population.</li> <li>• Service should be adapted to demands and priorities of the user</li> <li>• Users are able to participate in decision making and monitoring</li> <li>• Use management models acceptable to the involved community</li> <li>• Promote safe and healthy working conditions</li> <li>• Employment generation should be maximised</li> <li>• Integration of informal sector</li> </ul>
<b>Environmental/ Public health</b>	<ul style="list-style-type: none"> <li>• Minimise negative impact on soil, air and water</li> <li>• Minimise the generation of waste by adapting 'clean technologies' etc</li> <li>• Maximise re-use and recycling and avoid loss of raw materials, energy and nutrients</li> <li>• Minimisation of public health risks</li> <li>• Dispose of remaining waste in a controlled manner, not exceeding the absorption capacity of local sinks.</li> <li>• Treat waste and recover resources as close to the source as possible.</li> </ul>
<b>Institutional/ Organisational</b>	<ul style="list-style-type: none"> <li>• Build capacities of operator and managers</li> <li>• Clearly define responsibilities</li> <li>• Representative, functional organisations in place.</li> <li>• Provide mechanisms for accountability and complaints</li> <li>• Provide mechanisms to involve all stakeholders in planning and implementation</li> <li>• Create an enabling environment for the private sector for waste service provision</li> <li>• Promote decentralisation of tasks, authority and finance</li> <li>• Encourage inter-sectoral cooperation and integration with other urban systems.</li> </ul>

**Source:** Klundert & Anschutz (2000), Lardinois & Klundert (1995), Hemelaar & Maksum (1996), Moreno *et al* (1999), Coffey (1996) and Schuebeler *et al* (1996).

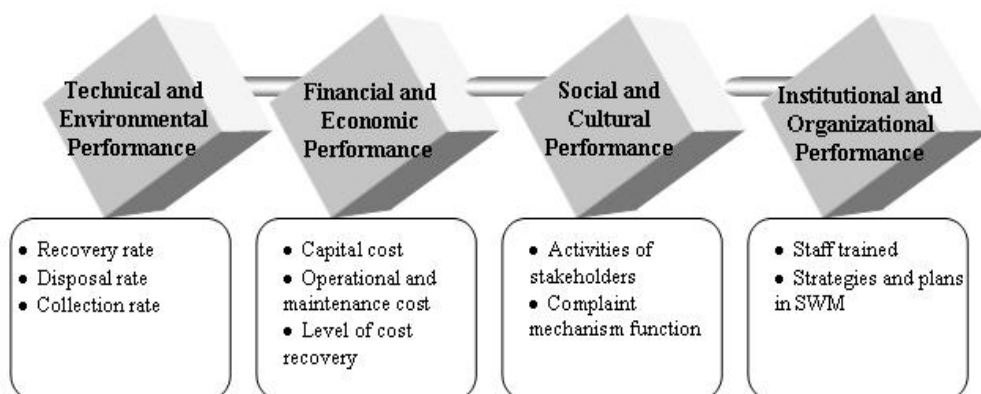
Klundert & Anschutz(2000) mention that ISWM can both be used as an assessment tool and to measuring sustainability of SWM. According to Klundert & Anschutz (2000) and Baud, Grafakos & Klundert (2001), in order to measure sustainability, a local authority should first establish standards or sustainable goals because these goals will guide the council in achieving sustainability. Klundert & Anschutz (2000) mention the steps that are taken when measuring the sustainability of the participation of the private sector in solid waste collection namely; identification of stakeholders, definition of sustainability goals, selection of indicators, development of indicators and application of indicators in the case study. An indicator is referred to as a variable that has the purpose of analysing the value of (and measure change in) a phenomenon or process (Klundert & Anschutz 2000, p.15).

Klundert & Anschutz (2000, p. 15) further recommend that the indicators be formulated at four levels namely;

- **Policy Level:** does a regulatory framework exist?
- **Organisational Level:** who carries out this policy and what arrangements exist among the stakeholders?
- **Operational Level:** how is the policy implemented in practice?
- **Performance Level:** the result of the policy? How is it being executed in practice?

Sustainability indicators are increasingly becoming recognised as a useful tool for policy making since they simplify, quantify analyse and communicate complex and complicated information by visualising the phenomena and highlighting their trends (Singh *et al.* 2009). Suttibak & Nitivattananon (2005 ) provide a set of performance indicators which encompass the overall Municipal SWM, namely; technical and environmental, financial and economic, social and cultural and institutional and organisational aspects. These indicators have been integrated with those translated from the ISWM principles in order to measure the sustainability of privatised solid waste collection service delivery in AMC. These indicators form the foundation for this study since they have been linked with the questionnaires in order to make them practical.

**Figure 2: Indicators for assessing the performance of SWM in Local Government Authorities**



**Source:** Suttibak & Nitivattananon (2005, p.77)

## 2.4 The Concept of private sector participation (privatisation) in service delivery

According to Osborne (2000), the 1990s have seen the establishment of public private partnerships (PPPs) as a key mechanism of public policy across the world. However, UN Habitat (2000) points that, the term “privatisation” has a “conceptual confusion or ambivalence” with regard to private sector involvement in municipal service delivery. Some local authorities understand it as ‘*contracting or leasing out*’ tasks and responsibilities to private sector firms while the Local government retains overall supervisory and regulatory control. Others understand it as ‘*commercialisation*’ of services by municipal departments or parastatals, and yet some understand it as total and complete ‘*transfer*’ of responsibilities for providing the service to private sector firms who set their own prices. Jaglin (2002) mentions that, *commercialisation* is a form of privatisation involving the transformation of a public body into a private company with public capital. Jaglin (2002) further mentions that, *commercialisation* denotes operation of enterprises on business-like principles to achieve efficiency and profitability. According to Lee (1997), in *contracting out*, government enters into contractual agreements with private operators to provide goods and services or to manage certain government activities; while in *transfer*, government assets are sold or transferred to private owners. However, privatisation according to Cointreau-Levine (1994 p.1) is “a reduction in government activity or ownership within a given service or industry”. Cointreau-Levine (1994) identifies the most common types of private sector participation in SWM as; contracting, concession, franchise and open competition. Cointreau-Levine (1994) further argues that, private sector participation is a possible opportunity but not a panacea. Lee (1997) mentions that, among the main modes of privatisation, contracting is considered viable, provided that, among other conditions, it is possible to adequately specify the outputs anticipated from the contract. Post, Broekema & Obirih-Opareh (2003) in agreement with Lee (1997) mention that, contracting is preferred in solid waste collection in developing countries due to its greatest potential in lowering solid waste collection costs. Post, Broekema & Obirih-Opareh (2003) however point that this form of privatisation is preferable in situations where contract periods are not too short and tendering procedures and contract specifications stimulate competition. However, Huysman *et al* (2004) differ with Cointreau-Levine (1994) since they argue that, privatisation does not only or always imply a reduction of government’s role or ownership but mainly a transformation towards strengthening and expansion of regulatory and monitoring responsibilities of public authorities, where the private sector assumes service provision role while the government performs a coordination and facilitation task.

Several authors consider privatisation as a necessary vehicle in service delivery. Cointreau-Levine (2000) argues that, privatisation brings in private sector investment and improves operational efficiency. The above argument is supported by Coad (2005) who points that, the private sector is more efficient, effective, increases coverage, has expertise and improves standards, reduces public sector administrative and operational duties, improves decision making and has access to capital. Klundert & Lardinois (1995) in agreement with the above scholars argue that, the private sector has faster response, higher service ethics and greater flexibility than the public sector. Klundert & Lardinois (1995) however point that

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the success of the above benefits arises from a mixture of public and private involvement, not private sector acting alone. Cointreau-Levine (1994) mentions that, efficiency gains can be realised from smaller, more efficient public sectors and a more dynamic private sector. Cointreau-Levine (1994) further mentions that, monitoring capability of local authorities is a pre-requisite to assure efficiency gains by privatisation. According to Lee (1997), one principal source of enthusiasm for privatisation comes from the promise of substantial cost savings. In Malaysia, a study of privatised waste collection services revealed that of a total of 17 Municipalities, 9 enjoyed some cost saving after privatisation (Sinha 1993). According to Mehta and Mehta (1994), the cost savings resulting from contracting out were found to range from 15 to 70 percent for a variety of municipal services in the city of Rajkot in Western India. In Jakarta, after refuse collection and transport services in 10 percent of the city's 261 sub districts were contracted out in 1988, one study found that the city had saved US\$100,000 in that year (Walker *et al.* 1992).

However, Warner (2008) on the contrary mentions that a 2002 survey in the United States found that, previously contracted work was brought back in house due to problems with service quality, lack of cost savings, internal process improvement and citizen support. Warner (2008) further mentions that a similar survey in Canada in the following year found exactly the same rank order of reasons for reverse privatisation. Schubeler, Wehrel & Christen (1996) however argue that, much as the profit orientation can drive the private sector under appropriate conditions to provide SWM services more effectively and at lower costs as compared to the public sector, its involvement does not guarantee effectiveness and low costs. According to Awortwi (2004), a study on private sector involvement in solid waste service provision in Ghana found almost no gains from the public-private arrangement. Contrary to the "efficient argument" by the above scholars, Lee (1997) argues that, a review of the privatisation experiences of a small number of Asian countries reveals that, the mobilisation of private investment is the dominant motivation for privatisation. Lee (1997) however admits that, the efficiency argument of the private sector in solid waste collection has been validated by some of the empirical evidence collected from several Asian countries. In Kuala Lumpur, private firms made more trips per day for each vehicle and collected more waste on each trip than public departments (Lee 1997). In Seoul, the private sector showed a markedly higher level of labour efficiency and vehicle efficiency in waste collection and transport (Kim 1991). In Malaysia, the results of a study of privatised rubbish collection services in 17 Municipalities showed that the level of collection was better with privatised services in 11 out of the 17 Municipalities (Sinha 1993).

A review of privatisation in other services also reveals criticisms from other scholars. According to Kirkpatrick, Parker & Zhang (2004), a study covering 110 African water utilities, including 14 private, found no significant difference between public and private operators in terms of cost. In a related study, Ndandiko (2006) reports that, a survey of 18 cities in Asia (including Manila and Jakarta), conducted by the Asian Development Bank (ADB) in 2004, established that private sector operators in the water sector, were performing significantly worse than most public sector operators on three indicators of coverage, investment, and leakage. The above arguments are further supported by Moreira & Seroa da Motta

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(2004) who point that, a study of about 4000 sanitation operations in Brazil found no significant difference between public and private operators in terms of the total variation in productivity. In Senegal, Nordtveit (2005) found that privatisation provided low quality service in education because the private partners wanted to make money and therefore cut costs.

Warner (2008) who concluded a research on “Reversing privatisation, rebalancing government reform: marketing, deliberation and planning” points that, privatisation (contracting out) of local government services which sky rocketed during the last decades of the 20<sup>th</sup> century failed to deliver adequately as regards efficiency, equity or voice criteria and this has resulted in to reversals in this trend especially in United Kingdom (UK) and Australia where compulsory competitive tendering has been abolished; while in New Zealand, the focus is on rebuilding of service delivery capacity of the internal government. Also in the United States (US), reverse privatisation trend is witnessed. Here, previously contracted services are being brought back by the local government. The implication of this reverse trend is aimed at structuring the market in a bid to enhance competition and reduce transaction costs of contracting.

#### **2.4.1 Private sector solid waste management experiences in Africa**

The shift towards privatisation of solid waste service delivery worked out in various forms in different countries in Africa. In Accra, Ghana, for instance, Post, Broekema & Obirih-Opareh (2003) mention that the privatisation reform that was on the political agenda since the early 1990s did not progress well. They mention various reasons such as; anti-private sector mood among the successive regimes which marginalised strong and vibrant private sector development, fear of offending and arousing strong populist and nationalist sentiments and worker protest respectively, uncertain political environment and fallacies of local administration. As a result, solid waste collection was far from adequate since the city’s Waste Management Department (WMD) was only able to collect approximately 60 percent of the total waste generated while the remaining 40 percent lay as mountains of uncollected garbage on the streets. When the collection services were privatised on a franchised basis to City and Country Waste (CCW), a joint Canadian-Ghanaian company, in 1999, the solid waste collection situation improved considerably. CCW was able to provide regular waste collection services (twice a day) to poor and high density populated areas and also managed to collect more than 95 percent of the user fees. On the other hand, Jomit (2009) observes that privatisation of solid waste services in Dar es Salaam, Tanzania took a completely different shape because the motivation to privatise solid waste collection services was propelled by the poor impression of the country. He argues that the mode of privatisation was unique in Dar es Salaam. Rather than foreign investors (companies), it was the local CBOs who were facilitated to provide waste collection services to the households. This kind of privatisation according to Jomit (2009) is noteworthy because it is built upon already existing structures and turned out to be a success because of the noticeable cleanliness of the city and the generated employment opportunities for the

residents. In contrast, Jomit (2009) mentions that, in Kenya, *Jacorossi International*, an Italian company was contracted to take over SWM services amidst wide spread protests. Hence the fear of job losses forced workers to the streets. In Nigeria, due to complaints of clandestine dumping by private contractors and desire to ease the commercialisation of its own operations, the Lagos State Waste Disposal Board (LSWDB) in 1991, revoked the license of private refuse haulers and declared its monopoly over service delivery (Cointreau-Levine 1994).

Privatisation of SWM can also have adverse effects on the economy since it, according to some authors threatens the sustainability of the informal sector involved in recovery, re-use and recycling of waste materials. Fahmi (2005) and Jomit (2009) mention that, in Cairo, Egypt, the *Zabaleen*, the traditional waste collectors, had created one of the world's most efficient resource recovery and waste recovery systems. Before the end of the Century, one third of Cairo's waste of approximately 3000 tonnes was handled by them. In addition, 85 percent of this waste was recycled through their self-owned and operated enterprises. Unfortunately, the sustainability of this intricate relationship between the *Zabaleen* community, the environment and their livelihood is jeopardised by privatisation of solid waste services through contracts with technology-intensive multinational corporations. This approach according to Fahmi (2005) threatens the sustainability of the garbage communities, the *Zabaleen*, by removing access to their chief economic asset, waste. He argues that, the situation is further exacerbated by an official policy of moving *Zabaleen* activities out of the city in a bid to transforming their neighbourhoods into cleaner and livable environments. This transfer would increase their travelling distances and costs of their services, thus creating new risks for the sustainability of their livelihoods. According to Jomit (2009), the number of job losses from this policy is estimated to be at 75,000. In Central Africa, Jomit (2009) points that the low level of industrialisation, particularly of the recycling sector provides little opportunities for informal waste activities.

#### **Box 2: Private waste collection in Bamako, Mali**

In Bamako, the municipal department (DSUVA) which was mandated to collect and dispose solid waste in the entire city failed to perform its duty. Hence in 1991, an NGO of young unemployed women graduates, called Cofesfa, was contracted by the Governate of the district to collect garbage in Medina-Coura area and to render health education service and this pilot project became a success.

The Government of Mali with assistance of the World Bank established an intermediate agency, called *Agence d'Execution de Travaux d'Interet Public pour l'Emploi* (AGETIPE), which was able to pay competitive package to a relatively small number of well-motivated staff to control private sector operations. Cofesfa received a second contract via this agency for the area of Djikoroni-Para and this improved the waste removal service considerably.

However, Cofesfa is not the only private agency in Bamako. In 1992 at least ten units were active in several neighbourhoods. However, there are still challenges at the municipal level since the municipality is neither adequately monitoring and controlling the activities of the private actors, nor providing secondary waste collection and adequate disposal services. The important lesson learned here is that, privatisation cannot compensate for the lack of an overall municipal waste management strategy or for the failure to have a complete oversight and accountability.

**Source:** Klundert & Lardinois (1995, p.17)

## 2.4.2 Pre conditions for successful private sector participation

The empirical studies reviewed above highlight the challenges that developing countries encounter in their endeavour to introduce private sector service delivery. The findings further imply that, the pre-requisites for the success of privatisation are generally missing. The pre-conditions or criteria for successful privatisation that can be drawn from the above review include; good governance, competition and an enabling legal and regulatory framework that clearly defines such arrangements Wegner (2005). Wegner (2005) mentions that in competitive sectors, efficiency gains, evidenced by improved performance of companies have been achieved across firms and countries, which in turn lead to the improvement in service quality delivery among private companies. According to the World Bank (2006), good governance manifested by sound financial management, an efficient civil service and administrative policy, voice and accountability, regulatory quality, rule of law and transparent operations that are relatively free of corruption all contribute to good delivery of public services. Bing *et al.* (2005) and Zhang (2005) argue that an adequate and enabling legal and regulatory framework streamlines the set up, implementation and outcomes of the privatisation process. According to Bing *et al.* (2005) and Zhang (2005), an enabling legal and regulatory framework clearly explains the changed roles by re-defining the role of government from producing and delivering services directly to facilitating and regulating private sector service provision. According to Institute of Public Private Partnerships-IP3 (2000), in the absence of an adequate and enabling legal and regulatory framework, disputes are likely to occur and service delivery delayed and/or impaired. Kuttner (1997) further mentions that the existence of a functioning legal and regulatory framework reduces opportunistic tendencies. In addition, Pongsiri (2002) points that an enabling and regulatory framework aligns the interest of partners and provides confidence to the private partners as it acts as a buffer against political interference from government bodies. According to Klundert & Lardinois (1995), the success of privatisation depends among others, on the extent of monitoring and control retained by the local authority. This argument is further supported by Post, Broekema & Obirih-Opareh (2003) who mention that privatisation needs the “guiding hand of the state” to become effective. According to Post, Broekema & Obirih-Opareh (2003), this can be achieved through specified contract performance measures, enforceable contract sanctions, and rigid performance monitoring and cost accountability. According to Lee (1997), the successful implementation of various modes of privatisation is predicted on some supportive institutional settings. Ndandiko (2006) in agreement with Lee (1997) mentions that privatisation needs strong public and/or private sector institutions for its success. Ndandiko (2006) further argues that, in the absence of strong public and/or private sector institutions, an unsystematic introduction of private service delivery could worsen infrastructure and service delivery and so unlikely to benefit the public client. Rondinelli(2004) mentions that the credibility and transparency of the procurement process as well as the capacity of the partners to execute their roles are also critical in the success of privatisation. According to Bennett, Grohmann & Gentry (1999), goal compatibility is a pre-condition for the success of privatisation because the public and private sectors must understand and respect

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each other's goals. Goal compatibility according to Henderson & McGloin (2004) is reflected by an appreciation that both the public and private sector share a common goal of reducing risk and increasing certainty.

### **2.4.3 ISWM principles and private sector participation in waste collection**

In an analysis of equity, efficiency, effectiveness and sustainability principles of ISWM for private waste collection, Post, Broekema & Obirih-Opareh (2003) mention that service efficiency can be measured in terms of revenue generation and cost savings while service effectiveness can be assessed in terms of reliability and frequency of collection. According to Lee (1997), efficiency can be assessed in terms of labour efficiency (quantity of waste collection) and vehicle efficiency (number of tons per trip per vehicle). Bartley (1996, p.743) further distinguishes between productive efficiency and allocative efficiency. According to Bartley (1996, p.743), 'productive efficiency refers to the operational performance of the service provider, measured by such factors as labour productivity and costs per ton while allocative efficiency is the extent to which charges cover the cost of the service'. Klundert & Lardinois (1995) mention that, equity can be achieved through provision of equivalent access to waste collection services to all strata of society regardless of economic, religious, racial, ethnic status (affiliations). Gidman *et al.*(1995) mention that equity can be achieved through cross-subsidisation in order to increase the access of the urban poor to basic infrastructure. This view is supported by Lee (1997) who mentions that cross subsidy is relevant for destitute social groups whose essential needs can be met only by subsidised services. The above scholars however point the need to identify the beneficiaries in order to avoid other citizens other than the poor from benefiting. According to Klundert & Anschutz (2001), sustainable waste management system should be technically, environmentally, socially, economically, institutionally and politically feasible.

## **2.5 Conceptual framework**

The Conceptual framework for this study is based on the ISWM model. This model with its three main dimensions namely; stakeholders, waste system elements and sustainability aspects provides a holistic framework that integrates the technical, financial, socio-cultural, environmental and institutional aspects that influence overall SWM sustainability.

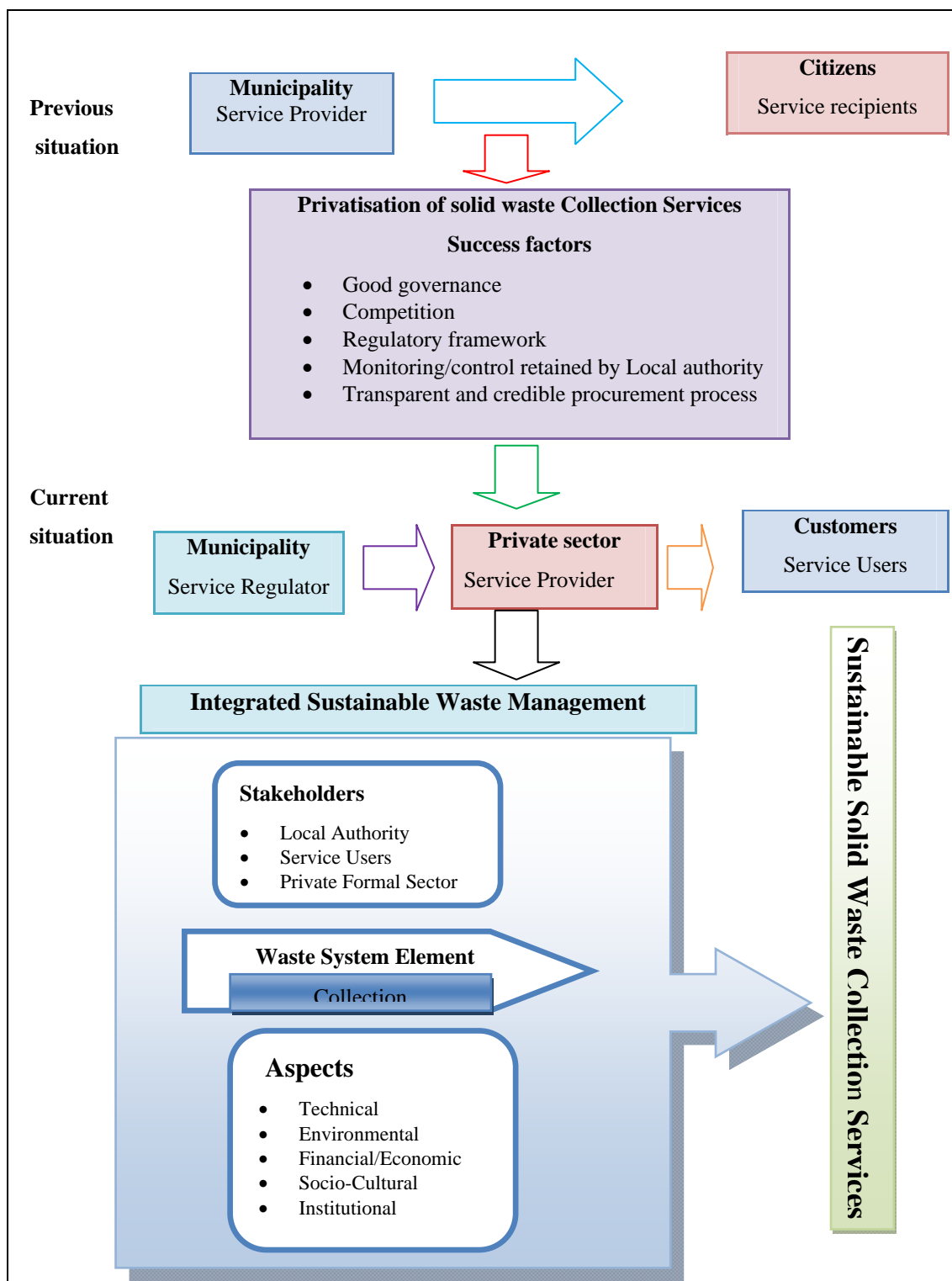
Previously, the responsibility for solid waste collection services to the citizens (recipients) was the mandate of the Local authority (AMC). However, as mentioned earlier, AMC failed to adequately provide effective solid waste collection service delivery to the citizens hence private sector involvement in form of public-private arrangement became inevitable in order to ensure efficient solid waste service delivery. In this case, AMC and the private sector assume the roles of service regulator and service provider respectively while citizens are the customers or service users of solid waste collection services.

However, the success of privatisation depends on; good governance, competition, an enabling regulatory framework, extent of monitoring and control retained by the Local authority and transparent and credible procurement process.

Based on the ISWM model, this study focused on three groups of stakeholders namely; Local authority (AMC) as the service regulator, private formal sector (private operator) as the service provider, citizens in households and commercial establishments as service users. As concerns the waste system element, this study was restricted to solid waste collection. It focused on the technical, financial, social, environmental and institutional aspects of sustainability. These aspects were linked to the concept of sustainability in order to achieve sustainable solid waste collection service delivery.

According to the ISWM, the sustainability of the privatised solid waste collection services is justified if the technical, financial/economic, social, environmental and institutional goals are achieved. This conceptual framework forms the basis of the Methodology Chapter which provides the research indicators from which the interview questions and questionnaires for this study were formulated.

**Figure 3: Conceptual framework for sustainable privatised solid waste collection service delivery**



Source: Developed by the Author based on the ISWM model (2001).

## **2.6 Literature review summary**

SWM is a universal concern for urban local authorities in both the developed and developing world. This is due to its significant role in promoting public health and safe guarding the environment, the economy and the society. However, there exists a discrepancy between the growing population and the increasing demand for solid waste collection services on one hand and the capacity of the local authorities to deliver these services on the other hand. As a result, many urban authorities involve the private sector in a public-private arrangement in order to improve solid waste service delivery and coverage and enhance sustainability. The literature reviewed above reveals the significant contributions (advantages) of privatisation in service delivery as well as its failures (disadvantages). The literature review further reveals that the success of privatisation depends on; good governance, competition, an enabling regulatory framework, extent of monitoring and control retained by the Local authority and transparent and credible procurement process.

One of the tools to guide sustainable SWM is through the ISWM model. The ISWM model with its three main dimensions namely; stakeholders, waste system elements and sustainability aspects provides a holistic framework that integrates the technical, financial, socio-cultural, environmental and institutional aspects that influence overall SWM sustainability. In addition, its guiding principles for each aspect of sustainability provide an impetus for developing indicators, which can be linked with the questionnaires in order to measure the sustainability of privatised solid waste collection service delivery. According to the ISWM model, the sustainability of private sector participation is justified if the technical, financial/economic, social, environmental and institutional goals are achieved. It is upon this model that, the conceptual framework for this study was developed. This conceptual framework forms the basis for the development of research indicators presented in the following Chapter.



## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODS**

#### **3.1 Introduction**

This Chapter presents an overview of the research methodology that was used during the study. It highlights the research type and strategy, research design, study population and sampling techniques, data collection, analysis and presentation of findings. It explores the research questions by further identifying the variables and indicators. Finally it presents the research constraints and limitations.

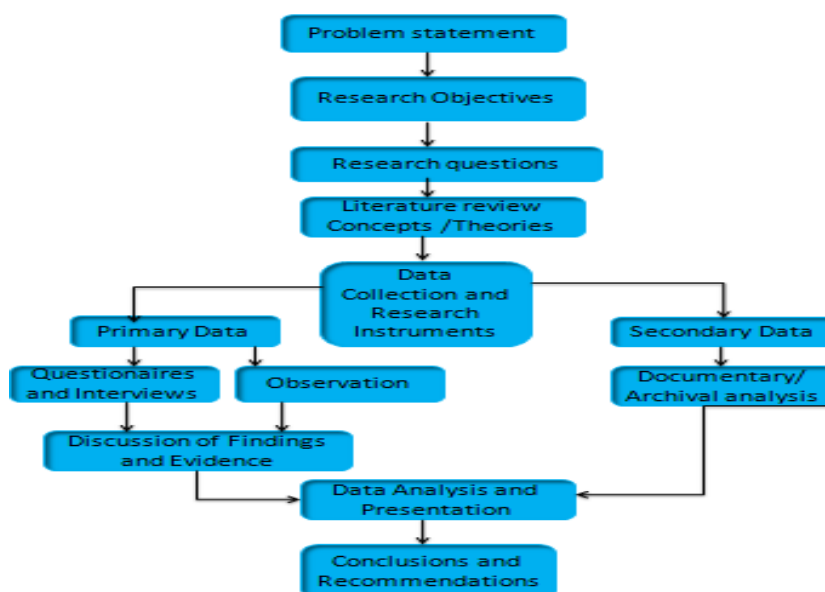
#### **3.2 Research type and Strategy**

The study was exploratory single case study embedded. A case study was used to explore the viewpoints of stakeholders on the sustainability of privatised solid waste collection services in AMC. The researcher used quantitative and qualitative methods both of which were complementary for the realisation of meaningful results. The case study was embedded because different groups were studied to generate a triangulated set of data.

#### **3.3 Research Design**

The research design provides guidance on the phases through which this study was conducted. It began with an identification of a problem and the subsequent formulation of research objectives and possible research questions. This led to identification of concepts and theories during the literature review and the eventual formulation of sustainability indicators which were linked to questionnaires and interview guides. This provided the scientific basis for testing the feasibility of this study. These stages are illustrated diagrammatically in Figure 4 below.

**Figure 4 : Research Design**



**Source:** Designed by the Author (2010).

### **3.4 Study population and sampling techniques**

The study population comprised the private owner, supervisor and selected number of waste collection workers; selected AMC staff and service users from households and commercial establishments. The selection of service users was through stratified random sampling. This method of sampling provides for selection of samples from various strata in society (Black 1993). AMC consists of three zones namely; the high income zone which comprises the town centre (Central Business District) where the main market, offices, whole sale shops, big retail shops, supermarkets, hotels and restaurants are located; the medium income zone (Mvara and Awindiri) where many small scale retail shops are located and the low income zone (River Oli) with a relatively large number of slums where the majority of the population in AMC resides. The people who reside in this zone are mainly those who earn their living through informal activities such as; small scale retail businesses, hawking, sale of metal scraps and craft making.

To ensure representation of the study population, the sample group was selected from a cross section of the socio-economic groups in AMC. In this study, 60 households were selected; 10 from high, 20 from medium and 30 from low income zones. The same sampling procedure was also used to select 40 commercial establishments; 10 from the high, 10 from the medium and 20 from the low income zones. The variation in the number of respondents was due to the population of the zones. The high income zone constitutes 12.2 percent of the total population; the medium zone 21.8 percent and the low income zone 66 percent (Uganda Bureau of Statistics 2007). The individual respondents were chosen with Sustainable Private Sector Participation in Municipal Solid Waste Collection Services: The Case of Arua Municipal Council, Uganda

the help of the private operator who provides the solid waste collection services. The selection of 4 AMC staff who are directly involved in regulating and monitoring solid waste collection activities namely; the Town Clerk, the Principal Town Health Inspector, Municipal Environment Officer and Community Development Officer was purposive. In the same way, the researcher also used purposive sampling to select the private owner, the supervisor and 4 workers.

**Table 2: Data collection strategy**

Category of respondents	Sample size	Sampling Techniques	Data type	Research Instrument
Households	60	Stratified, random	Primary	Questionnaire/Observation
Commercial establishments	40	Stratified, random	Primary	Questionnaire/Observation
Private operator and workers	06	Purposive	Primary/secondary	Interviews/Documentary review / Observation
AMC Staff	04	Purposive	Primary/secondary	Interviews/Documentary review/ Observation
Total	110	-	-	-

**Source:** Author (2010).

### 3.5 Data collection instruments

Data was collected from both primary and secondary sources.

The **primary sources** included;

**Questionnaires:** both open and closed-ended questionnaires were used to collect data from the service users from the households and commercial establishments on the sustainability of the privatised solid waste collection service delivery in AMC and their opinions on the improvement of the service.

**Interviews:** this was used to generate in-depth information from AMC staff who are directly involved in SWM and from the private owner, who provides the service, the supervisor and the waste collection workers. The researcher also used probing to obtain deeper information from the above category of respondents.

**Observation:** This was used to document the actual conditions and practices of SWM in AMC in order to corroborate the responses from interviews and questionnaire surveys in order to generate a triangulated data set.

**Secondary data:** This was mainly gathered from the review of different academic articles and books, internet, newspapers/magazines and previous studies on sustainability of privatised solid waste collection service delivery.

### **3.6 Validity**

The validity of this study was assured by use of triangulation technique and through designing appropriate questions for interviews and questionnaires. The researcher ensured that, both questions for the interview for the AMC staff, the private owner, the supervisor and the waste collection workers and questionnaires for the service users were framed based on the context of the developed indicators for the research questions.

### **3.7 Reliability**

To ensure collection of reliable data, the researcher designed the research instruments through an elaborate method which encompassed a series of revisions under the guidance of the study supervisor. It also involved carrying out a pre-test of the research instruments in order to eliminate vague, leading and ambiguous questions. All these were done to ensure that, high quality data collection instruments were used during the field work period.

### **3.8 Data analysis and presentation**

Data analysis encompassed the determination of key variables of the study by clustering the data into categories and organising it into themes. Descriptive analysis was done by quantifying the variables of interest in terms of their frequency of occurrence in accordance with the study objectives and research questions. The results were compared with the assessment indicators and the presentation of findings were in form of tables, graphs, pie charts and figures where appropriate and where necessary, quotes or excerpts were used to strengthen the interpretation.

**Table 3: Variables and indicators for sustainable private sector solid waste collection**

<b>Research question</b>	<b>Variables</b>	<b>Indicators</b>	<b>Data Sources</b>
Q.1. What is the current solid waste collection system in AMC?	<b>Solid waste collection system</b>	Forms of solid waste collection Solid waste collection services and facilities Number of households receiving the service Frequency of waste collection services	Interviews with AMC staff and the Private Owner Questionnaire -Service Users Observation
Q.2.How technically, financially, socially, environmentally and institutionally sustainable is the privatised solid waste collection service delivery in AMC?	<b>Technical sustainability</b>	Waste collection equipments designed according to the local situation (know how) Local availability of spare parts	Interview with AMC staff Observation
		Waste system operations are based on and adapted to local user needs Waste system operations based on physical characteristics of serviced areas.	Interview with the Private Owner and Supervisor Observation
		Appropriate and sufficient facilities (bins/containers) on streets and neighbourhood level	Questionnaire- Service Users Observation
		<b>Financial/Economic sustainability</b>	Regulation of fees rates Provision of economic incentives for the private operator Availability of waste collection budget Ability to sustain itself through service fee.
	Level of cost recovery Realise profitability from the waste collection service		Interview with the Private Owner
	Affordability Regular/Prompt payment of user fees Willingness to pay		Questionnaire- Service Users
	<b>Social/Cultural sustainability</b>	Awareness campaigns conducted Efforts to integrate informal sector activities Proper complaint services/complaints system Integration of former AMC workers Service coverage (spatial coverage)	Interview with AMC staff Secondary data Observation
		Provision of protective gear for the workers (gloves/respiratory masks/uniforms/gumboots). Medical checks/ immunisation provided for workers Good labour practices (minimum wage/side benefits/overtime/work breaks/hiring and termination of contracts). Provision of incentives for workers Security of workers Job satisfaction by workers	Interview with the Private Owner and Workers Observation Secondary data

		Satisfaction with waste collection services Household gender and sex roles relating to SWM Participation in setting the fees structure and service levels. Level of awareness on SWM	Questionnaire- Service Users
	<b>Environmental/ Public health sustainability</b>	SWM policies/bye-laws in place Enforcement of recycling and re use regulation Monitoring and control practices	Interview with AMC staff Observation Secondary data
		Vehicles covered during waste transportation Exhaust emissions during transportation Regular emptying / covering of waste bins Waste collection facilitates waste recovery, reuse and recycling.	Interview with the Private Owner and Supervisor Observation
		Separation of waste by service users Service users store waste in storage bags Waste system able to remove all the waste from the neighbourhood	Questionnaire- Service Users
	<b>Institutional/ legal sustainability</b>	Capacity building of private sector workers and supervisors Proper tender procedures Proper contract arrangements Penalties and incentives Sufficient contract periods for cost recovery.	Interview with AMC staff Secondary data/ contract documents Observation
		Sufficient skilled staff for SWM supervision Clear definition of responsibilities for supervisor in the contract	Interview with the Private Owner Observation
		Participation in private actor performance /activities/monitoring	Questionnaire- Service Users
Q.3. How can the sustainability of the privatised solid waste collection services be improved in AMC?	<b>Sustainable solid waste collection measures</b>	Policy changes Strategies Institutional/Financial arrangements	Interviews with AMC Staff and Private Owner. Questionnaire-Service users

**Source:** Designed by the Author (2010) based on various sources (refer to Chapter 2).

### 3.9 Research Time scale

The research time scale for this study is illustrated in Table 4 below.

**Table 4: Research Activity Schedule**

Activity (Event)	Dates			
	Feb-Jun	Jul	Aug	Sept
Hand in First draft proposal	Feb 15			
Thesis preparation and submission of Second draft proposal	Jun 21			
Presentation of research proposal(Colloquium 1)	Jun 24-25			
Final submission of research proposal		2		
Field work		5-30		
Presentation of research findings (Colloquium 2)			12-13	
Submission of first draft final thesis			30	
Submission of final thesis				13
Thesis defense				20-22

**Source:** Author based on the Thesis Handbook (2010).

### 3.10 Research constraints and limitations

The very short time frame assigned for fieldwork (5<sup>th</sup>-30<sup>th</sup> July 2010) presented limitation on the number of respondents that the researcher had to reach out to.

Proper assimilation and interpretation of questions and provision of responses in English posed some research challenges since not every respondent in AMC can express themselves in English. As such, the research questionnaires had to be interpreted in the local language in some instances.

Inadequate documentation on the field of SWM in AMC posed challenges in obtaining secondary data in some cases.

Reluctance by some target respondents (especially the waste collection workers) to answer some questions for the fear of being ‘‘victimised’’. However, this was mitigated by building rapport with the respondents and assuring them that the information provided will be treated with utmost confidentiality and shall only be used for academic purpose.

Some respondents exhibited research fatigue since many studies have recently been undertaken by different organisations in AMC. This was minimised by making (fixing) appointments with the respondents at their convenience and making call backs.

### **3.11 Summary**

This Chapter discussed the research methodology and the research instruments used to generate the research findings. It also discussed the research type and strategy adopted to collect the required data, research design, study population and sampling techniques, the study variables and indicators. Methods of data analysis have also been indicated, with the reliability and validity of study findings assured. Research time frame is also presented. The Chapter concludes with the research constraints and limitations.

The following Chapter provides an overview of the current state of SWM in the area of study (AMC).



## **CHAPTER FOUR**

### **THE LOCAL CONTEXT**

#### **4.1 Introduction**

This Chapter provides an overview of the current state of SWM in the area of study (AMC). It begins with the background on SWM in Uganda and the legal provision for SWM. It then highlights the background to AMC, its demographic characteristics, the privatisation decision for SWM in AMC and the insights into the current system of solid waste collection in AMC.

#### **4.2 Background on SWM in Uganda.**

In Uganda, the responsibility for SWM lies with local authorities. However, with high population and economic growth rates, accompanied by mushrooming of small scale industries, the rate of solid waste generation has surpassed the capacity of urban local authorities to effectively manage it. 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. Hence SWM has become one of the most pressing environmental challenges in urban authorities (Matovu 2002; Mugagga 2006). In some of Uganda's urban areas, the absence of sufficient funds for urban local authorities justified the need for private sector involvement in SWM. Mugagga (2006) mentions that in some urban areas of Uganda, the urban authority only plays a regulatory and monitoring role while in other areas, they play both the regulatory roles and provision of the SWM equipments.

The method of solid waste collection is either house to house or central collection centre system. In KCC, some private waste collection agencies provide bins to their clients, mostly in the affluent residential areas, at a fee. Other communal storage facilities that are used include; stationary depots, enclosures and fixed storage bins. However, despite the privatisation of SWM in most Uganda's urban areas, some areas do not access these SWM services. According to NEMA (2005), almost 80 percent of the households in KCC are not served because they are hardly accessed by its waste collection facility due to a combination of bad roads and absence of vehicle pass way. Ecaat (2003) also observes that the challenge related to poor collection and transportation is related to several causes that include; inefficient transportation systems and poor coverage of collection services due to poor roads and inaccessibility of some areas. However, Gombya & Mukunya (2004) point out that, many sources of solid waste are inaccessible especially in critically unplanned settlements such as slums or low income areas and thus largely affects their collection.

The methods of solid waste treatment in Uganda range from recycling, composting, incineration, landfill and ordinary burning (Mushabe 2002). Mawanda (1997) and Mugisha (1995) observe that recycling of solid waste is still very limited in Uganda's urban areas but admits that, the potential exists. Mawanda(1997) mentions that in KCC, it is the poor at times who engage in scavenging of the waste discarded by affluent groups. Similarly, in Kabale Municipality, Mugisha (1995) observes that some waste has been put to profitable use such as converting some waste to manure and animal feeds. Bamukwasha (1998) indicates that composting is being practiced in those areas where solid waste collection services have not reached and those homesteads that have big compounds.

Gombya & Mukunya (2004) observe that incineration is an inappropriate technology for developing countries like Uganda since it requires adequate financial start-up and operational capital and particular waste composition.

Bamukwasha (1998) observes burning as one of the methods of solid waste treatment. He points that, the burning of solid waste in KCC is done on small scale at household level as a way of reducing the amounts of garbage produced and that is common in dry season and where the city's collection services are insufficient. However, Mushabe (2002) observes that in KCC, refuse is at times burnt from collection sites and worse still, in the skips and at the land fill.

#### 4.3 Legal provisions for SWM in Uganda

Following the breakdown of both physical and institutional structures in the 1980's, major efforts were made to establish a new framework for SWM in Uganda. This initiative went concurrently with the overall development towards the re-definition of the role of government with the central government creating an enabling environment for action by local governments, communities and the private sector towards a serious concern about the environment (Mugagga 2006).

The legislations that provide for SWM in Uganda include the following;

***The Constitution of the Republic of Uganda 1995, CAP 1:*** this is the supreme law and it provides for environmental protection and conservation. In its national objectives and directive principles, 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*". 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.

***The Local Governments' Act, (1997) CAP 243:*** this Act provides for the system of local governments which are based on the District and Lower Local governments (City, Municipal and Town Councils) with legislative powers. The District Councils have power to enact ordinances while the City, Municipal and Town Councils may in relation to their specified functions make by-laws

consistent with the National Statutes or the Constitution. The Act also empowers the lower local governments to enforce the enacted bye-laws.

**The Public Health Act, CAP 281:** this Act mandates urban authorities with the overall responsibility of environmental management. It promotes good health for each citizen by empowering the health workers to carry out inspections in all public places. The Act further aims at preventing and minimising disease transmission resulting from unhygienic food handling practices.

**The National Environment Act, (1995) CAP 153:** this Act establishes the National Environment Management Authority (NEMA) as the overall body, charged with the management of environmental issues. The authority in consultation with lead agencies (such as Local governments) is empowered to issue guide lines and prescribe measures for the management and conservation of natural resources and the environment. The Act mandates the central government to collaborate with the local governments in the management of local environmental issues including among others, SWM through local environment committees in order to enable public participation in environmental decision making at those levels.

**Table 5: Legal framework for Solid Waste Management in Uganda**

Law/ regulation	Issuing Institution	Objective
The Constitution of the Republic of Uganda, (1995) CAP 1	Ministry of Justice and Constitutional Affairs	It offers every individual the right to live in a clean and healthy environment. It also expects citizens to create and protect a clean and healthy environment.
The Local Governments' Act, (1997) CAP 243	Ministry of Local Government	The Act mandates local authorities to manage solid waste and make bye laws to enforce SWM.
The Public Health Act, CAP 281	Ministry of Health	Mandates local authorities to abate any nuisance that may pose danger to the health of the individual in the community and to promote public health.
The National Environment Act, (1995) CAP 153	Ministry of Water and Environment	Provides guide lines for the storage, collection of residential, commercial and institutional solid waste and criteria for classification of solid waste disposal facilities and practices and Municipal waste landfills.

**Source:** Mugagga (2006)

#### 4.4 Background to Arua Municipal Council

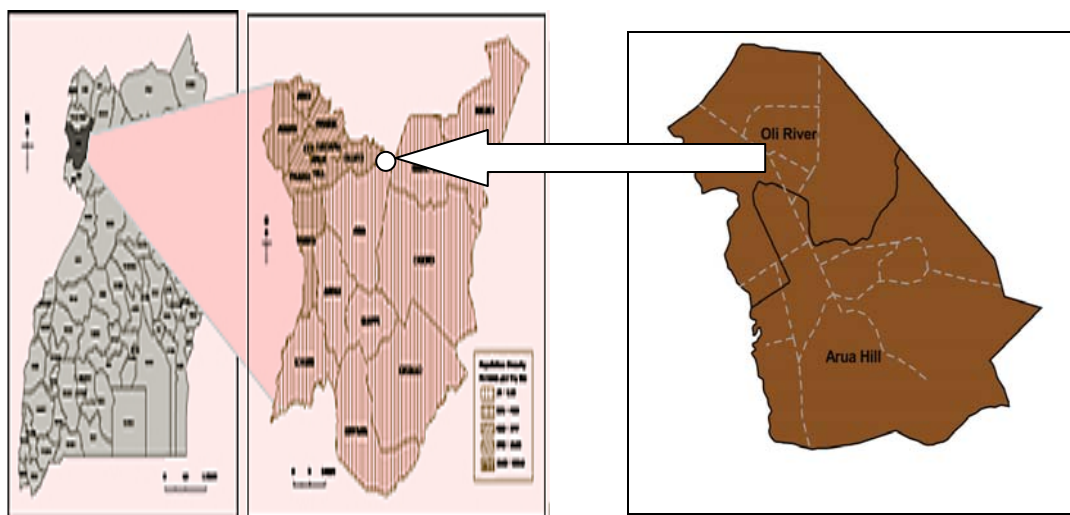
AMC lies on the North Western region of Uganda, located on latitude 03 01' North and 30 58' East, 1200 metres above sea level, surrounded by Ayivu County in Arua District. It is located 15 kilometres from the Democratic Republic of Congo (DRC) to the West, 75 kilometres from the Sudan to the North and 540 kilometres North West of Uganda's capital City Kampala. It covers an area of

10.5 square kilo metres. It is the largest civic, commercial and social coordinating centre as well as head quarter of the West Nile region.

The origin of AMC is directly linked with the time of the establishment of the colonial rule in Uganda. Arua Town became established on 14th June 1914 as an Administrative Centre under the charge of A.E Weather Head, the first District Commissioner to West Nile. In 1938, a Town Ship Authority was formed and in the following year, R. Thomson, a new District Commissioner established Arua Town Board.

During the 1945 African Chiefs/Heads Conference in Manchester (England), the Pan Africanism Association was formed and Arua was chosen as its head quarter in the independent Kingdom State of Lado<sup>2</sup>. It then grew to a Town Council and was later elevated to a Municipality in 1972 (Aikobua 2009).

**Map 1: Map of Uganda showing the location of Arua Municipal Council**



Source: Arua District Information Portal (2009).

Source: Uganda Bureau of Statistics (1992).

#### **4.5 Demographic characteristics**

According to the 2002 National Housing and Population Census, the population of AMC is nearly 44,000 (Uganda Bureau of Statistics 2007). The Municipality is divided into two Divisions, Arua Hill and River Oli. River Oli Division which consists of three Wards namely; Pangisa, Kenya and Tanganyika houses 66 percent of the population is predominantly a low income residential area. Arua Hill Division is also divided into three Wards namely; Bazaar, which is located within the CBD hosts 12.2 percent of the population and is a high income area. The other two Wards namely Mvara and Awindiri which host 21.8 percent of the population are middle income areas. The Municipality also has a floating

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<sup>2</sup> Ghanaian Kwame Nkrumah (Francis) became the Secretary and Kenya's First President Jomo Kenyatta (Johnston Kamau) became Assistant Secretary while the Agofe/ King Atabua was Chairman. This King is not recorded in African History. He was assassinated because he asked USSR (Russia) to raise the question of Lado Independence at the United Nations in 1947.

population of over 100,000 as it functions as a major centre which attracts many people from within and from neighbouring countries.

**Table 6: AMC population distribution by sex (as per the 2002 Census report)**

DIVISION	ARUA HILL DIVISION				DIVISION	RIVER OLI DIVISION			
Ward	No. of households	Male	Females	Total	Ward	No. of households	Male	Female	Total
Bazaar	794	2,573	2,812	5,385	Pangisa	1,686	4,703	4,996	9,699
Awindiri	837	2,989	3,013	6,002	Kenya	1,641	4,553	4,425	8,978
Mvara	545	1,721	1,871	3,592	Tanganyika	1,456	5,049	5,224	10,27
Sub Total	2,176	7,283	7,696	14,97		4,783	14,30	14,645	28,95
%Distribution on sex		48.6	51.4	100			49.4	50.6	100

Source: Uganda Bureau of Statistics (2007).

#### 4.6 The privatisation decision for SWM in Arua

Prior to the privatisation period, AMC provided solid waste collection services directly to all the areas under her jurisdiction. Previously, AMC collection trucks and equipments were put in a common pool which could be dispatched to areas most in need. However, the decentralisation policy adopted by Uganda in 1997 profoundly affected the public service environment (Mugagga 2006). In 1997, the responsibility of SWM was decentralised by transferring the day-to-day SWM operations from AMC to the two Division Councils (Arua Hill and River Oli). According to the arrangement, the two Division Councils were allocated some resources especially personnel, collection vehicles and equipments to execute their new responsibilities.

The decentralisation of SWM services seemed to have created more problems than it solved. This was because the limited logistics (narrow local revenue base) available to the Division Councils made servicing of refuse trucks extremely difficult, leading to frequent break downs as each Division used its equipment solely for solid waste services within her jurisdiction. This situation resulted into the accumulation of waste in many parts of the Municipality, leading to wide public outcry. Lack of sufficient funds for the Division Councils to effectively manage waste services necessitated private sector involvement in SWM.

The desire for privatisation of waste collection services in AMC started in 2000 when a pilot project was set up by AMC and a local private company, “*Mansons Enterprises*” to collect solid waste in River Oli Division. River Oli Division; being the poorest Division with serious difficulties in service delivery including SWM and with a relatively large number of slums, was selected to pilot the project. The success of this pilot project in terms of the noticeable cleanliness of

the Division led to the privatisation of solid waste collection services in AMC in 2001.

The investigations and observations reveal that from 2001 to 2005, ‘*Mansions enterprises*’ was the only private waste collection operator in AMC. However, in 2006, the firm lost the bid to ‘*AYED*’. The private operator is contracted through normal tendering process<sup>3</sup>. Under this arrangement, firms are invited to provide waste collection services through competitive bidding process but one contractor is only selected. The bids are then evaluated and the firm which meets the set evaluation criteria is awarded the contract. The contract period runs for 12 months (1year) which is considered too short. In the contract agreement, AMC invests in the capital (collection trucks), maintains the trucks and collects the fees while the private operator only loads the waste into the collection trucks, which are then brought to the land fill located 5 kilometres away from the Municipality. AMC has two collection trucks; 3 tonne collection truck procured in 2004 and 4 tonne truck donated by Ministry of Local government in 2009. The private operator is paid per trip of the waste loaded and the amount varies depending on the number of trips loaded in a particular month.

#### **4.7 The solid waste collection system in Arua**

Currently, there is only one private waste collection service provider, ‘*AYED*’ which is contracted to provide waste collection services in AMC. The contractor is now four years<sup>4</sup> in business since 2006. Initially, the firm was involved in road projects in Arua. The contractor has 22 employees who are involved in the day to day waste collection activities but lacks collection trucks. The firm only owns 8 hand carts and 10 wheel barrows. According to the Director AYED, the firm got involved in the waste collection activities because of the wide spread service users’ dissatisfaction with the former contractor’s waste collection services. Currently, AYED also engages in other fields of business such as construction works and maintenance of flower gardens in AMC. Investigations and observations reveal that AMC only zeroed on one private operator because of financial constraints. However, this private monopoly according to Cointreau-Levine (1994) does not make the private firm perform more efficiently because optimum efficiency does not occur when there are no opposing competitive forces.

In AMC, there are three departments responsible for monitoring SWM namely; Environment which has only one officer, Community Development with one

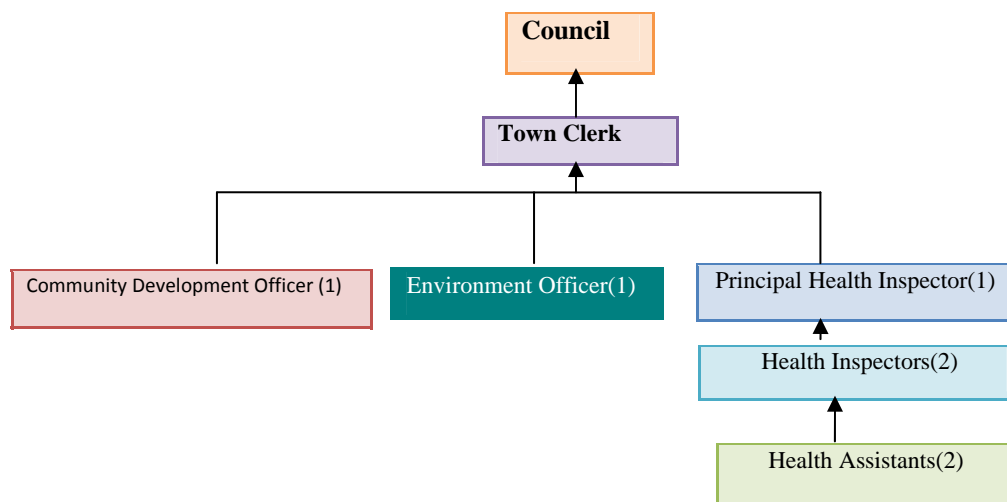
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<sup>3</sup> Normal tendering process is where tenders for the supply of goods, services and works for the Council are advertised and firms obtain contracts through competitive bidding process and are not favoured in any way.

<sup>4</sup> In AMC, it is a bit difficult to get a new contractor since many firms shun the activity. In addition, it requires previous experience in a related field which many firms lack, hence the old contractor usually has a comparative advantage over the new firms in getting the contract.

officer and Health which has 5 officers as illustrated in the figure below. The study findings reveal that the three departments are understaffed.

**Figure 5: Organogram for solid waste monitoring in AMC**



**Key**

→ = Hierarchy of authority.

**Source:** Designed by the author (2010).

Waste collection service in AMC is divided into two types, namely; communal collection (transfer points) and door-to-door collection.

**Communal collection system:** This method is used by service users in the medium and low income zones. In AMC, there are three communal collection sites and in each of the sites, four refuse skips are placed at accessible locations where business operators carry and dump their wastes for collection by the collection trucks. The observations reveal that the distance between the location of the refuse skips and sources of wastes is far from some service users that (500metres to 1kilometre), they end up dumping the waste along the way, especially at night. Further observations reveal that, in cases where the collection crew fails to adhere to the collection schedule and the skips get filled up, service users resort to dumping the waste just around the refuse skips. In such areas, it is common to see wastes in open drains or collection points littered with garbage. The waste collection workers usually complain about the littering habit among other service users.

*‘Some service users are not well behaved.....instead of disposing waste in the skips, they just throw away waste indiscriminately in open drains, on roads and even on previously cleaned areas. This habit complicates our work since we spend most of our time to get rid of such type of waste’.* (Interview with waste collection worker, July 2010).

**Photograph 1: Waste collection workers loading waste in a communal collection area**



Source: Author (personal observation during field work, July 2010)

**Door-to-door collection system:** This method applies to the high income zone, located around and in the Central Business District (CBD). The reason for this is that this zone is relatively well planned with wide road networks that can easily accommodate the collecting trucks. In this system, two collection trucks pass through the streets to be served, each run by 5 collection workers who unload the wastes from the bins and containers, put them in the collection trucks and return the containers to the owners. The solid wastes are usually kept in containers on the kerbside (entrance) before collection. The most common being used metal containers and plastic bags (*'Buvera'*) which the service users provide themselves.

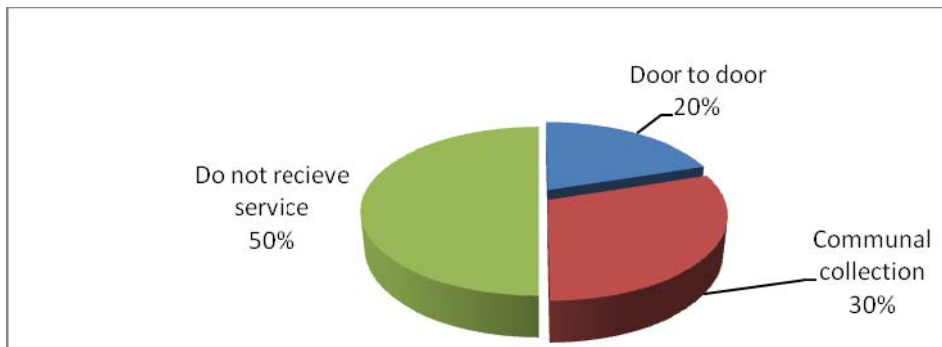
Door-to-door collection by handcarts and wheel barrows is normally practised in unplanned areas characterised by narrow roads and foot paths which cannot accommodate the collection trucks. By hand carts and wheel barrows, the waste is transferred to the collection points from where it is then emptied into the refuse collection trucks. A lot of time is lost when the crew approaches the inaccessible areas and as a result, fewer places get served during a particular collection trip because it is labour intensive. This culminates into waste accumulating in the areas that are not reached. Once missed, the service users have to wait until the next round of collection which often falls after two or three days from the last schedule.

In terms of the collection methods, 20 percent of the respondents (households and commercial establishments in the high income zone) report that they receive door-to-door service while 30 percent (commercial establishments in the medium and low income zones) put waste in a shared container/collection point system.

The chart below indicates that 50 percent of the respondents (households in the medium and low income zones) do not receive any service hence they dump their wastes illegally along the streets, open spaces and drainage channels. In addition, burning and burying of solid waste are reported to be the common waste disposal practices in these zones.



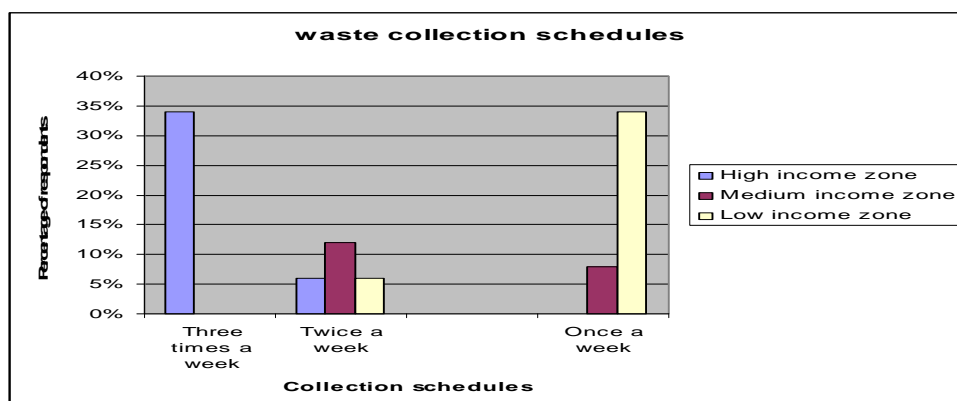
**Chart 1: Solid waste collection methods in AMC**



From the chart below, there is better service provision of waste collection services in the high income zone than in the middle and the low income zones. This is mainly attributed to the accessibility for the refuse collection trucks. The study findings reveal that 34 percent of the respondents report that they have a collection service scheduled three times a week, 24 percent receive twice a week, while 42 percent receive only once a week. All the respondents who receive waste collection service three times a week are only from the high income zone. Of the 24 percent who receive collection service twice a week, 6 percent are from the high income zone while 12 percent and 6 percent are from the medium and low income zones respectively. Of the 42 percent who receive collection services only once a week, 8 percent are from the medium income zone while 34 percent are from the low income zone. These services are reportedly unreliable.

The observations indicate that, in most cases, the collection schedule is not always followed, depending on the mechanical conditions of the collection trucks. Interview with the Municipal Environment Officer reveals that the above scenario is due to the private operator’s failure to adhere to the work operation strategies and practices as manifested by ineffective use of documented work plans for route planning, service scheduling and timing of cleaning services.

**Chart 2: Waste collection schedules in AMC**



**Photograph 2: Door-to-door collection workers using handcarts in AMC**



**Source: Author (personal observation during field work, July 2010)**

#### **4.8 Summary**

In Uganda, the responsibility for SWM lies with local authorities, hence the situation in AMC is not an exception. There are a number of legal provisions for SWM in Uganda, namely; the Constitution, the Local Governments' Act, the Public Health Act and the National Environment Act. These laws do not work well in Arua Municipality; hence there is a discrepancy between the increasing demand for waste collection services and the capacity of the Municipality to deliver these services. Uganda adopted the decentralisation policy in 1997 and this policy transferred the day-to-day SWM operations from AMC to the Municipal Divisions, which was revised. This policy resulted into the accumulation of waste in many parts of AMC, leading to wide public outcry. This situation was alleviated in 2001, when AMC involved the private sector in the provision of waste collection services. Currently, there are two waste collection methods in AMC namely; a door-to-door and a communal system. Since there is only one private firm currently operating in AMC, there is no optimum efficiency due to absence of competition which in the long run can negatively affect the sustainability of the system. The following Chapter will look at more detailed aspects of the sustainability of the overall waste collection system based on the view points of three stakeholder groups; the service regulator, the service provider and the service users.

## **CHAPTER FIVE**

### **RESEARCH FINDINGS AND ANALYSIS**

#### **5.1 Introduction**

This Chapter explores the sustainability of the privatised solid waste collection services from the view points of three stakeholder groups; the Local authority (AMC) as the service regulator, the private formal sector (private operator) as the service provider, the citizens in households and commercial establishments as service users. In the final part of the Chapter, attention will be paid to the recommendations made by the respective stakeholders on how the current solid waste collection services can be made more sustainable. It should be noted that, at different stakeholder levels, responsibilities for service users lie on the service regulator.

To provide answers, the view points from the stakeholders were collected by use of both primary and secondary data. Open and closed-ended questionnaires were used to collect data from 100 respondents including households (60%) and commercial establishments (40%). Findings of the Chapter are also based on in-depth interviews conducted with 4 selected AMC staff, the private owner, the supervisor and 4 selected waste collection workers. Observations during field visits are used to document the actual conditions and practices of SWM in AMC. Finally, secondary data is used to explore information from the available literature on what has been done previously in the SWM in AMC.

It should be noted that households in both the medium and low income zones do not receive waste collection services with exception of those in the high income zone. In addition households do not pay collection fees.

#### **5.2 The sustainability of privatised waste collection service delivery in AMC**

In this section, findings from the field are presented and discussed under specific variables and relevant indicators for each aspect of sustainability based on the ISWM Model. According to this Model, the sustainability of private sector participation is justified if the technical, financial/economic, social, environmental and institutional goals are achieved (justified).

##### **5.2.1 Technical sustainability**

The assessment indicators expected to determine the technical sustainability for the three stakeholders are presented in table 7 below.

**Table 7: Technical sustainability indicators**

Stakeholder	Indicator
Service regulator	Waste collection equipments designed according to the local situation (know how) Local availability of spare parts
Service provider	Waste system operations are based on and adapted to local user needs Waste system operations based on physical characteristics of serviced areas.
Service user	Appropriate and sufficient facilities (bins/containers) on streets and neighbourhood level

### *Service regulator*

The technical performance aspect of equipments and facilities is an essential component in the technical sustainability of waste management since it entails the practical execution and maintenance of all the waste elements. The study findings indicate that in AMC, waste collection equipments can be maintained locally at low costs. Currently, AMC owns 2 waste collection trucks; one with a capacity of 4 tonnes and the other with a capacity of 3 tonnes which have been assembled locally. In case of breakdown, AMC hires the services of local mechanics for repairing the collection trucks. This implies that the selection of waste management technology is close to the indigenous knowledge and practices, based on the local availability of spare parts.

### *Service provider*

The topography and characteristics of the service area is an essential aspect of the technical sustainability because it reflects on how easy or difficult it is for the private operator to serve the area. The investigations and observations reveal that in AMC, the waste system is adapted to local user needs and physical characteristics of the service area. In AMC, the service area is both planned and unplanned. In the planned areas, collection trucks are used which makes accessibility easier. In the unplanned areas, the movement of collection trucks is difficult hence, the waste collection workers use wheel barrows and hand carts (property of the private operator) which are manually operated and can be maneuvered within the narrow roads and foot paths. The collected waste is then brought and emptied in a standby truck parked along the street.

**Photograph 3: Locally manufactured and maintained waste collection equipments in AMC**



**Source: Author (personal observation during field work, July 2010)**

### *Service users*

The size, effectiveness, suitability, sufficiency, appropriateness and convenience of equipments and facilities committed to and used in SWM are essential aspects of the technical sustainability of the waste management system. The investigations and observations reveal that in AMC, there are only 20 refuse bins available for the service users to discard their waste. These bins are only installed along the streets in the high income zone (CBD) and none in the medium and low income zones. Further observations reveal that the bins are located 400 metres away from each other, which is far for the service users. In addition, some of the bins are installed too high for children to place their wastes. The limited number and coverage of the bins imply that the facilities are not appropriate and sufficient.

### **5.2.2 Financial/Economic sustainability**

The assessment indicators expected to determine the financial sustainability for the three stakeholders are presented in table 8 below.

**Table 8: Economic/Financial sustainability indicators**

<b>Stakeholder</b>	<b>Indicator</b>
<b>Service regulator</b>	Regulation /setting of fees rates Provision of economic incentives for the private operator Availability of waste collection budget Ability to sustain itself through service fee.
<b>Service provider</b>	Level of cost recovery Realise profitability from the waste collection service
<b>Service user</b>	Affordability Regular/Prompt payment of user fees Willingness to pay more fees

### *Service regulator*

AMC extended waste collection services to the private operator in 2001 as a result of the fact that the Council was incapable to provide adequate SWM services due

to financial constraints. The study findings indicate that since AMC collects the refuse collection fees, it has the prerogative to set and regulate fees rates. Documentary evidence reveals that AMC sets fees rates according to the income zones. The commercial establishments in the high income zone pay USShs. 20,000/=<sup>5</sup> to USShs. 30, 000/= per month, depending on the nature of the business while those in the medium and low income zones are charged between USShs.10, 000/= to USShs. 15,000/= per month as they are considered to be Grade two areas<sup>6</sup>.

The study findings show that 17.5 percent of the respondents pay collection fees of USShs.30, 000/= while only 7.5 percent pay collection fees of USShs.20, 000/=. 27.5 percent of the respondents pay collection fees of USShs.15, 000/= and of this, 15 percent are from the medium income zone while 12.5 percent are from the low income zone. 47.5 percent of the respondents report fees payment of USShs.10, 000/= and of this, 10 percent are from the medium income zone while 37.5 percent are from the low income zone. The findings show that most of the service users in the low income zone pay collection fees of USShs.10, 000/= implying the low level of income among the service users in this zone.

**Table 9: Payment of waste collection fees in AMC**

Amount of fees paid	Income zones			Total	Percentage (%)
	High income zone (CBD)	Medium income zone	Low income zone		
USShs.30,000/=	7 (17.5%)	-	-	7	17.5%
USShs.20,000/=	3 (7.5%)	-	-	3	7.5%
USShs.15,000/=	-	6 (15%)	5 (12.5%)	11	27.5%
USShs.10,000/=	-	4 (10%)	15 (37.5%)	19	47.5%
<b>Total</b>	<b>10 (25%)</b>	<b>10 (25%)</b>	<b>20 (50%)</b>	<b>40</b>	<b>100%</b>

As pointed out earlier, the households in the high income zone receive waste collection services but don't pay fees. This frequently leads to conflicts between the service users in the households and the commercial establishments since the latter bear all the service costs. This is because AMC has not yet designed a mechanism for collecting fees from the households.

*“In AMC, it is difficult to charge the households at the moment because the Council is still working out modalities of enforcing fee collection unlike in the commercial establishments where the fee is collected together with trade license”. (Interview with Municipal Environmental Officer, AMC, July, 2010).*

<sup>5</sup> According to the current exchange rate, USShs.30, 000/= (10 Euros); USShs.20, 000/= (7 Euros); USShs.15, 000/= (5 Euros) and USShs.10, 000= (3 Euros).

<sup>6</sup> Grade two areas are those located outside the Central Business District (CBD) of AMC.

The implication is that, AMC authorities have to find a practical mechanism for fee collection; the fee can be attached for example, to property tax. Alternatively, the fee collection can be contracted out to a private operator.

Further investigations and observations reveal that the Council does not provide any economic incentives such as loans to the private operator. This, according to Cointreau-Levine (1994), is essential to help firms in their initial stages since it provides them the start up capital so as to maintain their position in the market place. The absence of such incentives in AMC implies that the system does not create a viable economic environment for the private operator.

It is important to note that a key element of any sustainability criteria is that the cost of the service must be recovered from the service users. As is expected from any urban authority, AMC has SWM budget but the system remains highly dependent on extra local funding. The study findings show that on average, coverage by revenue only makes 42 percent, which implies that 58 percent of the expenditure needs to be covered by additional funds from the Municipal budget meant for other services such as; education, production, roads and community services; consequently, this will negatively affect service delivery in the above sectors.

**Table 10: AMC refuse collection fees performance from 2001-2010**

Financial Year	Expenditure(UShs)	Revenue (UShs)	Revenue as a % of total expenditure	Extra funding require as a % of total expenditure
2001/2002	6,600,000/=	3,000,000/=	45.5	54.5
2002/2003	7,780,000/=	3,500,000/=	45	55
2003/2004	9,880,000/=	4,000,000/=	40.5	59.5
2004/2005	10,357,000/=	4,500,000/=	43.4	56.6
2005/2006	12,850,000/=	5,000,000/=	38.9	61.1
2006/2007	13,025,000/=	5,500,000/=	42.2	57.8
2007/2008	14,585,000/=	6,000,000/=	41.1	58.9
2008/2009	15,550,000/=	6,500,000/=	41.8	58.2
2009/2010	17, 280,000=	7,000,000/=	40.5	59.5

**Source:** Secondary data (July 2010).

### *Service provider*

Cointreau-Levine (1994) mentions that the fundamental concern for the private sector is whether the delivery of service will “make” money. The contract agreement indicates that, the private operator is paid UShs.7, 000/= per trip for the 4 tonnes collection truck and UShs.5, 000/= per trip for the 3 tonnes collection truck (Annex 5); hence the private operator’s monthly payment ranges between

UShs.1, 000, 000/= to UShs.1, 400,000/= depending on the number of trips collected. The private firm's operational costs include; payment of waste workers' wages (UShs. 800, 000/= per month); repair of hand carts and wheel barrows (UShs.100, 000/= per month); provision of protective gear (UShs.300, 000/=) and office rent of UShs. 300,000/= per month, hence the private operator is unable to recover costs.

According to the Director of AYED, the company is sometimes 'forced' to obtain extra funds from other contracts that they undertake such as construction works so as to cover all the operational costs.

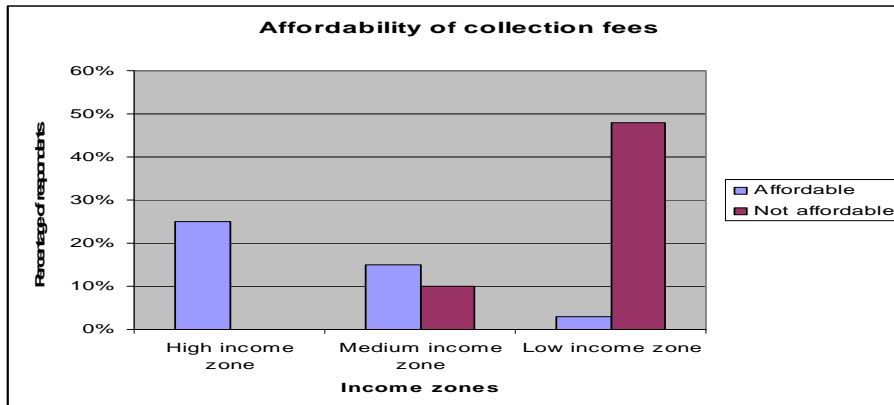
Asked why the firm still continues to provide the collection services despite incurring losses, the Director reports that since the firm undertakes other contracts with AMC such as construction works and flower garden maintenance, the firm wants to maintain its reputation so as to enable it get other contracts in future. This implies that since the private operator is unable to recover costs, the firm does not realise any profits. The study findings violate the principle of efficiency which advocates for benefit maximisation, cost minimisation and resource optimisation in waste management.

### *Service users*

Affordability is one of the cornerstones in the privatisation of SWM services. However, partnerships with the formal private sector may not always benefit the interest of the low income population because the user fees may sometimes be too high for them. The investigations and observations indicate that 43 percent of the respondents find the collection fees affordable while 57 percent find the fees unaffordable. The study findings further indicate that of the respondents who report the affordability of collection fees, 25 percent are from the high income zone, 15 percent from the medium income zone while only 3 percent are from the low income zone. The findings further indicate that of the respondents who do not find the fees affordable, only 10 percent are from the medium income zone while 47 percent are from the low income zone. This implies that most of the service users who find the fees affordable are from the high and the medium income zones since they can easily raise the collection fees unlike their counter parts in the low income zone.

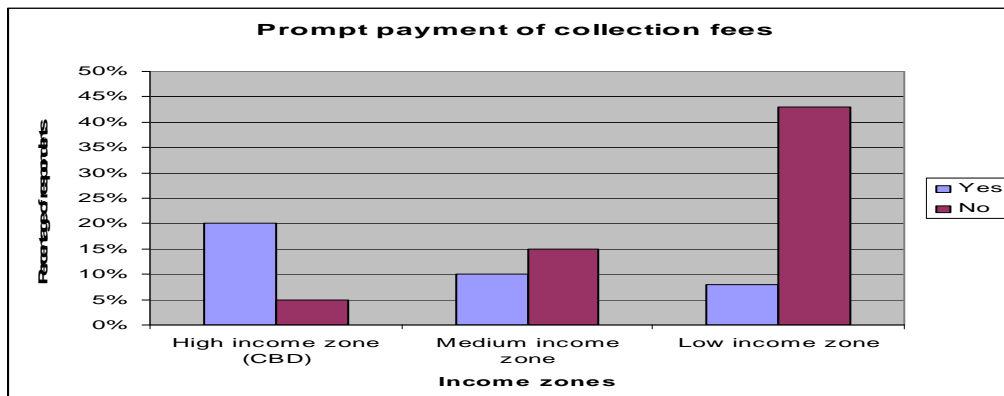


**Chart 3: Affordability of collection fees by service users**



As concerns the service users' ability to make prompt fees payment, only 37 percent of the respondents pay their refuse collection fees promptly (timely) while 63 percent of them do not pay their fees promptly. The study findings reveal that 20 percent of the respondents who pay their fees promptly are from the high income zone while 10 percent are from the medium income zone and only 7 percent are from the low income zone. On the other hand, only 5 percent of those who do not pay their fees promptly are from the high income zone while 15 percent and 43 percent are from the medium and the low income zones respectively. This implies that most of the respondents who pay their fees promptly are from the high income zone since they can afford the charges.

**Chart 4: Prompt payment of waste collection fees by service users in AMC**



As concerns the service users' willingness to pay more fees, only 30 percent of the respondents report that they are willing to pay if they are convinced that the service delivery level will improve while 70 percent are not willing to pay any extra fees. Further investigations indicate that only 22.5 percent of the respondents who report their willingness to pay more fees are from the high income zone while only 7.5 percent are from the medium income zone and none from the low income zone. On the other hand, only 2.5 percent of those who report their unwillingness to pay extra fees are from the high income zone while 17.5 percent and 50 percent

are from the medium and the low income zones respectively; implying that none of the respondents from the low income zone is willing to pay an extra fees for improvement of solid waste collection services. The service users' reluctance to pay extra fees implies the low level of waste service delivery in AMC.

**Table 11: Service users' willingness to pay more (extra) fees**

Willingness to pay extra fees	Income zones			Total	Percentage (%)
	High income zone (CBD)	Medium income zone	Low income zone		
Yes	9 (22.5%)	3 (7.5%)	-	12	30%
No	1 (2.5)	7 (17.5%)	20 (50%)	28	70%
<b>Total</b>	<b>10 (25%)</b>	<b>10 (25%)</b>	<b>20 (50%)</b>	<b>40</b>	<b>100%</b>

### 5.2.3 Social/Cultural sustainability

Under the Social/ Cultural aspect of sustainability, the assessment indicators expected from the three stakeholders are presented in table 12 below.

**Table 12: Social/Cultural sustainability indicators**

Stakeholder	Indicator
<b>Service regulator</b>	Awareness campaigns conducted Efforts to integrate informal sector activities Proper complaint services/complaints system Integration of former AMC workers Service coverage (spatial coverage)
<b>Service provider</b>	Provision of protective gear for the workers Medical checks/ Immunisation provided for workers Good labour practices Provision of incentives for workers Security of workers Job satisfaction by workers
<b>Service user</b>	Satisfaction with waste collection services Household gender and sex roles relating to SWM Participation in setting the fees structure and service levels. Level of awareness on private SWM

#### *Service regulator*

Environmental awareness is necessary because it enables the population to develop 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. The interview with the Town Clerk reveals that AMC has not done much on awareness

promotion. He singled out the Departments of Community Development and Public Health and Environmental Protection as having failed to fulfill their responsibility of public education and awareness creation. However, the interview with the Principal Town Health Inspector puts the blame on ‘‘AYED’’, because the firm is obliged to provide waste collection services to the service users of which, public sensitisation and education is a part. A critical analysis of the contract document between the AMC and the private operator faults AMC for failure to sensitise the public since the agreement does not stipulate awareness promotion as one of the obligations of the private operator. This implies that AMC has failed to promote environmental awareness as enshrined in Article 245 of the Constitution.

The informal sector is an important source of income for the poor in urban areas, hence urban governments need to recognise their contribution and develop partnerships with them. Much as the importance of the role played by the informal sector in SWM systems is achieving international recognition, this point cannot be taken into consideration because no informal waste collectors of for example; paper or plastics were found in the research area.

Further investigations and observations reveal that of the 15 former AMC workers, only one has been integrated into the current waste collection system. The other 14 former workers have reportedly taken other jobs outside the Municipality since AMC did not help them get other jobs.

In general, complaint mechanisms contribute to the accountability of the system because they provide people the mandate for giving their grievances and therefore ownership of the service. This mechanism is lacking in AMC as evidenced by lack of an official forum in which the service users can freely express their grievances and opinions on the quality of waste collection services and non involvement of service users in the setting of the collection fees. If AMC wants the service users to own the service, it is important that the Council sets a complaint mechanism so as to enable them air out their waste collection related problems.

Waste access to all citizens through privatisation without discrimination requires a close cooperation between the government, private sector and the citizens. The observation and investigations indicate that only part of the Municipality is served by the private operator’s waste collection services. The main areas receiving service are the high income zone (CBD) and the commercial establishments in the medium and low income zones while the households in both the medium and low income zones are not covered by the private waste collection services. This goes against the principle of equity which entitles all the beneficiaries to an appropriate waste management.

Interview with the Principal Town Health Inspector indicates that residents in the above areas dispose of their waste through burning and burying while others dump their wastes illegally along the streets, open spaces and drainage channels.

According to the Principal Town Health Inspector, the Council is keen to extend solid waste collection service areas but still lacks adequate facilities and logistics.

*“AMC would like to extend her waste collection service area but still has a problem of facilities, especially refuse collection trucks since the Council only has two at the moment”.* (Interview with Principal Town Health Inspector, AMC, July 2010).

### ***Service provider***

Health and safety of workers are important indicators in the measurement of waste collection service performance. This is because health is a human right and therefore, prevention of health impairments has to be prioritised over treatment through improvement in the occupational safety and health of the waste collection workers. The study findings reveal that the private operator provides protective gear (gloves/ masks/uniforms and gum boots) for the collection workers although some workers seldom wear them. This exposes them to health risks associated with wastes.

*“The overalls and gumboots that are given by the private operator are too heavy..... and the masks make some waste collection workers uncomfortable”.* (Interview with waste collection worker, July 2010).

This implies lack of awareness about the benefits of using protective gear when handling waste. An interview with the private operator indicates that the company organised sensitisation workshops for all the fieldworkers and all the respondents interviewed conceded having attended but were just reluctant to comply with the health and safety requirements. The private operator does not provide any medical checks ups and immunisation for the waste collection workers.

With regard to the security of the waste collection workers, all the respondents interviewed reveal that they are secure at the work place.

*“There is no insecurity at the work place..... except some notorious service users who sometimes provoke us by placing rubbish in a previously cleaned area but we always concentrate on our work”.* (Interview with waste collection worker, July 2010).

Employment and labour conditions of waste collection workers is an important indicator in the SWM performance. In AMC, all the waste collection workers are contract labourers and their remuneration is very low (Ushs.35, 000/= per month). The short duration of the service contract (12 Months) further implies that their

job is guaranteed for only that period. This means that they are not entitled to benefits such as pension, medical or retirement schemes. The interviews with the waste collection workers further reveal that no leaves/holidays are granted to them and in case of problems, no incentives are provided with exception of advances which are cut from their salaries. This implies that the labour conditions for the waste collection workers in AMC are very unattractive.

Employee motivation is an important management function for organisational performance and success. This is because it can lead to an increase in employees' performance which in turn leads to an increase in the overall organisational productivity levels since motivated employees are more productive. As far as job satisfaction is concerned, the respondents expressed mixed reactions; three (3) of the 4 waste workers interviewed reveal that they are not satisfied with their current job due to the meagre salaries that they earn and have ambitions for another job or further studies while only one is satisfied with the job.

*"If I get some money, I would like to go back to my former business of selling second hand clothes". (Interview with waste collector, July 2010).*

*"If I can get some money, I will go back to school to pursue my Higher School Certificate". (Interview with waste collector, July 2010).*

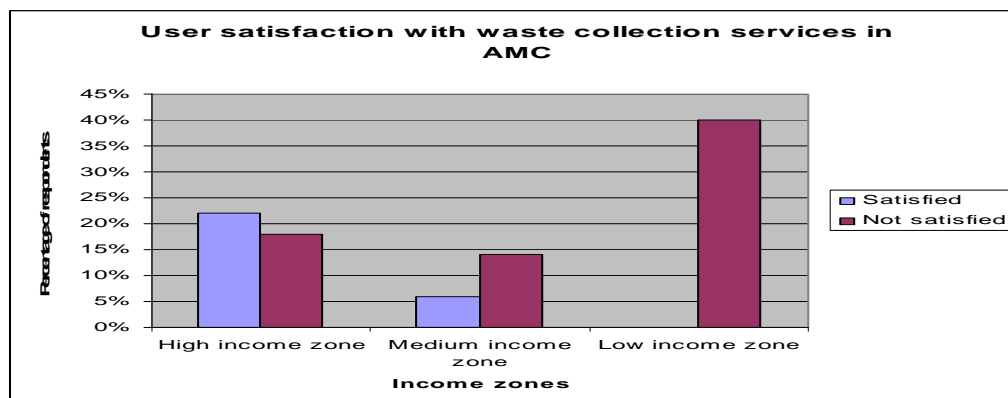
*"I am satisfied with the job and I will do it until death in case I have not mismanaged it because I don't have any dream of seeking for another one". (Interview with waste collector, July 2010).*

### **Service users**

The major issues that concern the service users as far as the degree of satisfaction with the waste collection service included general cleanliness of the service area, service quality and customer service. Service quality acceptability includes service schedule convenience and flexibility by the private operator while customer service quality encompasses issues pertinent to the private operator's interactions with the service users, especially when they present their complaints about the private operator's waste collection service.

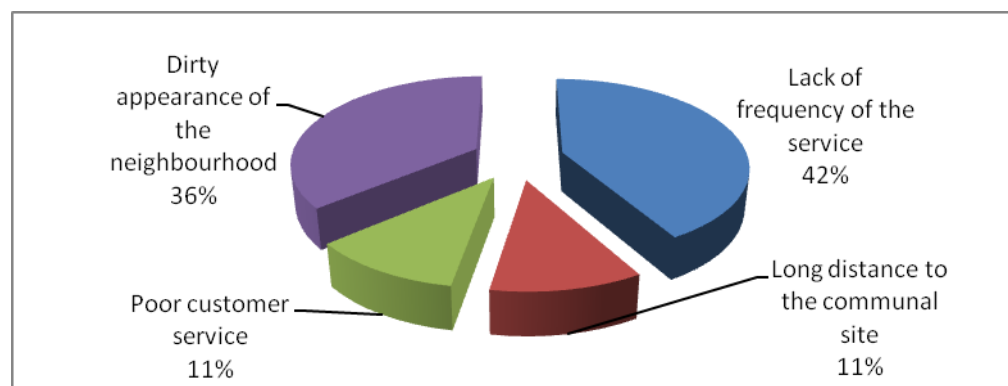
The study findings reveal that 72 percent of the respondents are not satisfied with the private operator's waste collection services while only 28 percent are satisfied as compared with the service before privatisation. The findings further reveal that of the 28 percent of the respondents who are satisfied with the collection services, 22 percent are from the high income zone while only 6 percent are from the medium income zone and none from the low income zone. 18 percent of those who are not satisfied with the collection services are from the high income zone while 14 percent and 40 percent are from the medium and the low income zones respectively.

**Chart 5: Service user satisfaction with waste collection services in AMC**



Further investigations and observations reveal various reasons for lack of user satisfaction with the private operator’s waste collection services; 42 percent of the respondents report lack of service frequency (especially the service users in the communal collection areas), 11 percent report long distance to the communal site, and 11 percent report poor customer service while 36 percent report dirty appearance of the neighbourhood. This implies that most service users are not satisfied with the collection services because of lack of service frequency. The investigations show that all the service users do not prefer the present private operator to continue with the waste collection service provision.

**Chart 6: Reasons for lack of user satisfaction with waste collection services**



Women’s involvement in SWM is paramount in ensuring a clean environment since women are often working at home and concerned with street and neighbourhood issues. The observations from all the income zones indicate that women have a recognised influence in SWM because it’s mostly they who clean and sweep their premises, and store garbage ready for door-to-door collection or take waste to the refuse skips incase of communal container system. However, in some cases, the disposing of wastes is usually carried out by shop attendants/ maids under the supervision of women.

Community participation through active involvement of the households as key stakeholders especially in designing and planning the SWM activities is an important aspect in the sustainability of waste collection services. The study findings reveal that service users in AMC do not participate in setting the fees structure and influencing the service delivery levels. This is because both the design and operation of waste collection in AMC are managed in a top-down manner. According to Kassim & Ali (2006), stakeholders should be given the chance to contribute in designing and planning of SWM activities so as to increase their awareness and active involvement in SWM schemes. The observations show that in AMC, the SWM plan was proposed without cooperation with the grass root communities; as such, a majority of the service users are not aware of their roles. Voice and accountability which contribute to good delivery of waste collection services is hardly existing(weak) and this therefore has negative impact on good governance, which is a pre-requisite for successful privatisation.

The investigations further reveal that most of the service users are not aware about the service provider and privatisation in general. It was observed that most service users are not aware if the service provider is from the private sector or from AMC. This implies that many of the service users are not aware of the new arrangements.

*“Due to the lack of awareness among the service users, most of them feel the solid waste collection service has to be provided free of charge as it used to be before privatisation”. (Interview with Community Development Officer, AMC, July 2010).*

## 5.2.4 Environmental/Public health sustainability

The assessment indicators expected to determine the environmental sustainability for the three stakeholders are presented in table 13 below.

**Table 13: Environmental sustainability indicators**

Stakeholder	Indicator
Service regulator	SWM policies/bye-laws in place Enforcement of recycling and re-use regulation Monitoring and control practices
Service provider	Vehicles covered during waste transportation Exhaust emissions during transportation Regular emptying / covering of waste bins Waste collection facilitates waste recovery, re-use and recycling.
Service user	Separation of waste by Service users Service users store waste in storage bags Waste system able to remove all waste from the neighbourhood

### ***Service regulator***

Bing *et al.* (2005) and Zhang (2005) mention that an adequate and enabling legal and regulatory framework at Municipal level streamlines the set up, implementation and outcomes of the privatisation process. However, the study findings indicate that much as the Local Governments' Act, CAP 243, mandates Lower Local Governments to make bye-laws, AMC has no specific bye-law or policy for privatisation of SWM in place hence the waste management activities in the Municipality are not regulated /guided. The absence of SWM bye-laws/policy has impaired waste collection service delivery as manifested by indiscriminate solid waste dumping along the streets and public open spaces.

According to Cointreau-Levine (1994), the monitoring capability of local authorities is a pre-requisite for the success of privatisation. Investigations and observations in AMC reveal that monitoring does take place but very irregularly. Further observations indicate that the private operator sometimes flouts contract specifications. The officials who are responsible for monitoring the quality of service delivery and sanctioning possible offenders are; the Community Development Officer, the Principal Town Health Inspector, 2 Health Inspectors, 2 Health Assistants and the Municipal Environment Officer, totalling to only 7 officers (refer to Figure 5 in Chapter 4). The Municipal Environment Officer has an extensive list of complaints such as; failure to cover refuse trucks during transportation; some waste collection workers not wearing protective gear and lack of medical checks/ immunisation of waste collection workers. However, official monitoring is exceptionally weak due to inadequate facilitation in form of transport (vehicles), fuel, allowances and understaffing. This situation is worsened by non-involvement of the community in the monitoring system. The National Environment Act, Cap 153 mandates Local governments to collaborate with the community in the management of local environmental issues including SWM through local environmental committees. Such committees are lacking in AMC. This implies that SWM activities at the lowest level are not closely monitored.

### ***Service provider***

The use of covered vehicles during waste transportation is an important aspect of the environmental and public health protection. Observations indicate that refuse collection trucks are not covered during transportation and are in most cases overloaded with refuse which are at the risk of falling off. Moreover, one of the collection trucks used is old (on use since 2004) and dilapidated and emits a lot of exhaust gases into the atmosphere. This hence contributes to littering and air pollution respectively.

Waste minimisation, re-use and recycling are important waste system elements in the ISWM. The bulk of waste materials produced in urban centres include a wide scope of recyclable materials whose value could be recovered. According to the Director of *AYED*, the absence of recycling enterprises or middle men in Arua kills the morale of the firm to undertake waste sorting or salvaging of valuable



waste. The company does not visualise any market niche for these items. In addition, the financial status of the private operator does not allow the firm to set up a recycling industry. This situation is also compounded by uncontrolled dumping which makes recycling unpractical. This lack of waste segregation by the private operator implies that the system of waste collection in AMC does not facilitate waste recovery, re-use and recycling (the 3Rs).

Regular emptying and covering of waste storage bins minimises the exposure of the crew members and the general public to the waste and littering of waste. In AMC, the waste bins along the streets are not covered and regularly emptied. In most cases, these wastes are exposed to rain, sun and wind, which results in littering and creation of unhygienic conditions as the leachate and ordour from the waste, poses a risk to public health, affects the aesthetics and causes pollution of the environment.

The principle of effectiveness requires that the waste management model adopted should be capable of removing all the waste generated. However, not all the households in AMC benefit from the private operator's waste collection services hence creating a scenario of serviced and un serviced areas within AMC. This implies that the waste system is unable to remove all waste from the neighbourhood.

**Photograph 4: Accumulated solid waste in one of the collection points of AMC**

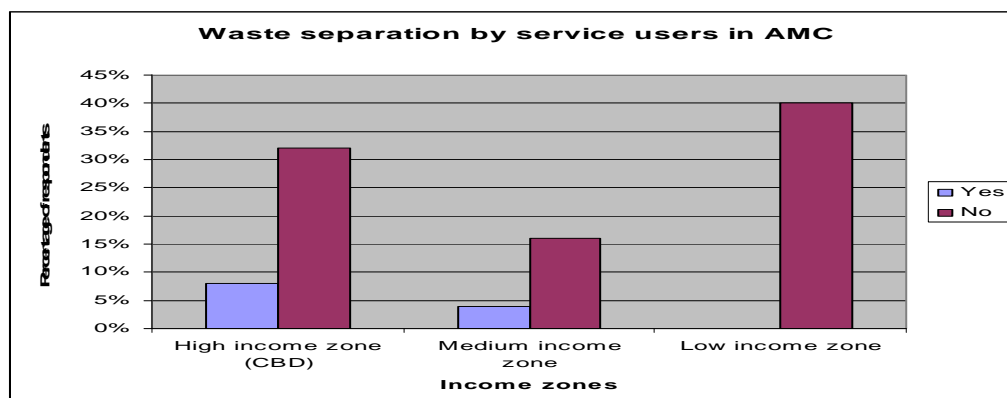


Source: Author (personal observation during field work, July 2010).

### *Service users*

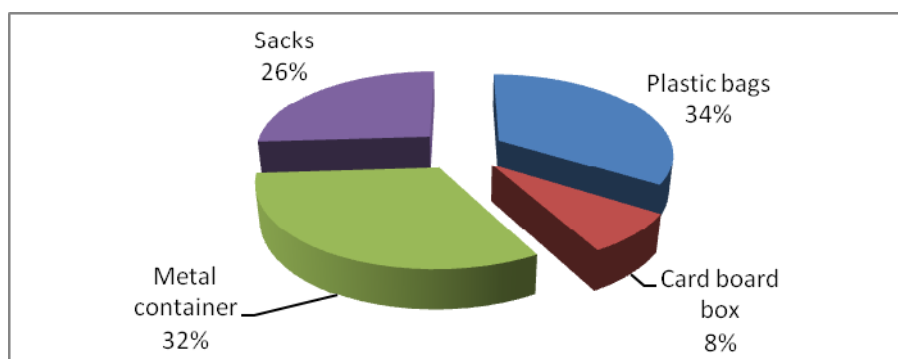
Waste segregation adds value to the waste which can be put to more productive use. The study findings indicate that only 12 percent of the respondents separate their waste prior to collection based on their own initiative. 88 percent do not separate their wastes. The study findings further reveal that 8 percent of the respondents who separate their waste are from the high income zone while only 4 percent are from the medium income zone. The separated waste is reportedly re-used for own household needs and others are taken by servants/maids since there are no informal waste actors in AMC. 32 percent of those who do not separate their waste are from the high income zone while 16 percent and 40 percent are from the medium and the low income zones respectively. This failure to separate waste at the service user level is reportedly affecting the whole SWM system in AMC since it is practically impossible to do so at the waste disposal site.

**Chart 7: Waste separation by service users in AMC**



The use of proper waste storage facilities is relevant for environmental and public health protection. The study findings reveal that 34 percent of the respondents store their wastes in plastic bags, 32 percent in metal containers, 26 percent in sacks<sup>7</sup> and only 8 percent in cardboard boxes. The investigations and observations show that the metal containers and cardboard boxes used are durable with fitted lids, able to prevent odour and leachate flow from waste and these are mainly used in the high and the medium income zones. The sacks on the other hand are used in the low income zone. The sacks are usually small, old and leaking and not adequate for solid waste storage, so have to be emptied immediately when full because they are not hygienic. This implies that the low income zone (the poor) have less access to plastic bags and metal containers than the higher and medium income zones. Further investigations reveal that the service users store their waste based on their own initiative since the contract agreement does not oblige the private operator to provide waste storage containers for them.

**Chart 8: Waste storage by service users prior to collection**



<sup>7</sup> Sacks are bags that are made of sisal fibres. They are commonly used by tobacco companies such as British American Tobacco (BAT) for storing cured tobacco before transportation to the factory for processing.

**Photograph 5: Uncovered AMC refuse Trucks**



**Source: Author (personal observation during field work, July 2010)**

**Photograph 6: A litter bin along one of the streets in the CBD**



**Source: Author (personal observation during field work, July 2010)**

### 5.2.5 Institutional/ Legal sustainability

The assessment indicators expected to determine the institutional sustainability for the three stakeholders are presented in table 14 below.

**Table 14: Institutional sustainability indicators**

<b>Stakeholder</b>	<b>Indicator</b>
<b>Service regulator</b>	Capacity building of private sector workers and supervisors Proper tender procedures Proper contract arrangements Penalties and incentives Sufficient contract periods for cost recovery.
<b>Service provider</b>	Sufficient skilled staff for SWM supervision Clear definition of responsibilities for supervisor in the contract
<b>Service user</b>	Participation in private actor performance /activities/monitoring

### ***Service regulator***

Capacity building is important in improving the technical and managerial capacity of private operators in SWM. It enables them in preparing work operation strategies and practices. Investigations show that AMC in partnership with “*Deutscher Entwicklungsdienst*” (DED)<sup>8</sup> or German Development Service, a German organisation, undertook capacity building to support developments in SWM between 2007 and 2009. The workshops focused on; partnership building, roles of different stakeholders in SWM, compositing, contract management, developing action plans for waste management, health and safety precautions and landfill management. Documentary evidence reveals that 10 one-week capacity building trainings were organised between 2007 and 2009.

*“A close cooperation between AMC and DED, was developed through which capacity building workshops which elaborated on SWM strategy were organised for AMC authorities, the private sector waste workers and supervisors. These workshops have helped to develop a long overdue strategy for SWM for AMC”.*  
*(Interview with Town Clerk, AMC, July 2010).*

According to Rondinelli (2004), the credibility and transparency of the procurement process is critical in the success of privatisation. Documentary evidence reveals proper tender procedures and contract arrangements but there is only one contractor. The interview with the Town Clerk reveals that the private waste collection operator is selected through a competitive tendering process that usually takes place annually.

Investigations and contract agreements further indicate specified contract conditions, service delivery standards and obligations between AMC. However, a critical analysis of the contract agreement reveals some loopholes since it does not specify the penalties and incentives (Annex 5).

Further investigations reveal that the contract period is insufficient for cost recovery since it only runs for one year (12 Months) which is too short.

### ***Service provider***

The technical expertise and experience of the private operator is an important element that influences the contractor’s performance. The investigations and

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<sup>8</sup>The German Development Service (DED) is one of the leading European development services for personnel cooperation. It was founded in 1963. Since then more than 15 000 DED Experts have committed themselves to improve the living conditions of people in Africa, Asia and Latin America. Almost 1 000 DED Experts are currently working in 45 countries. Their aims are to fight poverty, promote a self-determined, sustainable development and to preserve natural resources.

observations reveal that currently, the private operator employs 22 workers, out of whom 18 are involved in waste collection and street lane sweeping, 1(one) works as a manager while 3 work as supervisors in each of the three waste collection points. A critical look at the profile of the private operator's workers shows that some employees are formally trained in the field of public health and environmental protection; each of the three supervisors holds a Certificate in Public and Environmental Health while the manager holds a Bachelor's degree in Environmental Health.

Further documentary evidence from the contract document reveals a clear definition of roles for the supervisor. These roles include; ensuring that refuse is properly loaded into the refuse trucks; street lane sweeping is carried out on a regular, daily basis and ensuring the de-silting of culverts, road surfaces, side drains and off-shoots (Annex 5).

### ***Service users***

The investigations reveal that service user participation has been painfully neglected in the waste collection service delivery in AMC. Community meetings that could have provided avenues to for example discuss the most appropriate methods of collection or conceivable role in monitoring the service are non-existent. This non-involvement of the service users in the waste collection activities can discourage them to develop a sense of ownership (commitment) for SWM in their areas and therefore continue to view the service as a public responsibility.

## **5.3 Improved sustainability of waste collection services**

Stakeholders were asked to voice recommendations for the most urgent concerns regarding the service. The following were the recommendations of the three groups of stakeholders on how the current system of privatised waste collection services can be made more sustainable.

### **5.3.1 Service regulator**

The Town Clerk recommended the need for SWM bye-laws pressuring service providers and users to be put in place and be reinforced regularly in order to guide the SWM operations in AMC.

The Principal Town Health Inspector recommended the need to extend waste collection services to all areas especially the households in the medium and low income zones of AMC through contracting more waste collection private operators and obliging all the households to pay for the collection services.

The Municipal Environment Officer recommended for adequate facilitation such as vehicles, fuel, allowances and recruitment of more staff in order to ensure effective monitoring of waste collection activities. This will help to put the private operator and the urban residents under strict surveillance, albeit especially with

respect to the welfare of its labourers and indiscriminate waste dumping respectively.

### 5.3.2 Service provider

The service provider recommended that AMC should fully privatise the waste collection services including the provision of vehicles by the private operator ('*full privatisation*'). This he argues will enable the firm to take full control of SWM activities in the Municipality.

The service provider further recommended for continuous sensitisation of the service users by AMC. He considers the awareness level of the residents as poor. The majority of the service users do not know about the service provider and the changes which have taken place in the solid waste collection service delivery in AMC.

### 5.3.3 Service users

The service users recommended for their participation/ involvement in SWM activities.

*"We would like to be involved in SWM activities of AMC especially in the planning for waste collection in our community". (Correspondence with a service user, July 2010).*

The service users also recommended for procurement of more refuse collection trucks and creation of more communal dumping sites. This according to them will lead to timeliness and frequency in waste collection and reduce inconveniences which occur as a result of breakdown of refuse trucks and long distance to the communal containers respectively.

## 5.4 Summary

The current system of solid waste collection in AMC includes the door-to-door and communal collection which is provided only by one private operator, AYED.

With regard to the perspective of the **service regulator** on the sustainability of the privatised waste collection services, technically; the solid waste collection equipments can be maintained locally at low costs by hiring the services of local mechanics. Financially, AMC has SWM budget but the system is not self sustaining since it remains highly dependent on extra local funding, from the Municipal budget meant for other services such as; education, production, roads and community services, consequently negatively affecting service delivery in the above sectors. Socially, waste collection services do not cover the entire

Municipality since they are only restricted to the high income zone and commercial establishments in the medium and low income zones; complaint mechanisms and awareness promotion are lacking. Environmentally, AMC has no SWM bye-law or policy and waste collection monitoring is very irregular and exceptionally weak. Institutionally, AMC in partnership with DED, undertook capacity building in SWM but lacks human resources. There are proper tender procedures and contract arrangements. There is only one contractor, hence no competition. In addition, the contract period is insufficient for cost recovery.

From the perspective of the **service provider**; technically, the waste system is adapted to the physical characteristic of the area. Financially, the system does not create a viable economic environment for the private operator since the firm neither recovers costs nor makes profits. Socially, the private operator provides protective gear to the waste collection workers but medical checks ups and immunisation are lacking; all the waste collection workers are temporary and not entitled to benefits such as pension, medical or retirement schemes. Environmentally, refuse collection trucks are not covered during transportation hence contributing to air pollution and littering. The system does not facilitate waste recovery, re-use and recycling. Institutionally, the private operator has skilled staff for waste collection supervision and the contract document reveals a clear definition of roles for the supervisor.

From the **service users'** perspective; technically, the facilities are not appropriate and sufficient due to the limited number and coverage of the bins available for service users to discard their waste. Financially, only 43 percent of the respondents find the collection fees affordable; 37 percent pay their fees promptly and only 30 percent are willing to pay more fees. Socially, the service users do not participate in setting the fees structure and waste collection service delivery levels and are not aware of the background of their service provider. Environmentally, a minority of the service users separate and store their wastes based on their own initiative and the waste system is unable to remove all the waste from the neighbourhood. Institutionally, user participation has been neglected in the waste collection services because both the design and operation of waste collection are managed in a top-down manner.

As concerns the recommendations for improved sustainability of privatised waste collection services in AMC, the service regulator recommended for enactment of SWM bye-laws; extension of waste collection services to all areas and facilitation of AMC officials for effective monitoring of solid waste collection activities.

The service provider recommended for the *'full privatisation'* of SWM activities and continuous sensitisation of the service users by AMC.

The service users recommended for their participation/ involvement in SWM activities and provision of more refuse collection trucks and creation of more communal dumping sites.

Finally, the researcher's analysis from this Chapter indicates the following salient issues;

*The service regulator* (AMC) wants to increase its authority by laws, monitoring and authority but lacks legislations (bye-laws) for back up.

**The service provider** is supposed to deliver services but service quality is still low.

*The service users* want to have a large share in terms of service delivery but service coverage is still limited.



## **CHAPTER SIX**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **6.1 Introduction**

This study focused on the functioning of the privatised solid waste collection service delivery in AMC. The first part of the study provides insights into the current system of solid waste collection in AMC. The second part explores the concept of sustainability from the view points of three stakeholder groups; the Local authority (AMC) as the service regulator, the private formal sector (private operator) as the service provider and the citizens in households and commercial establishments as service users in relation to the ISWM Model. The last part highlights the recommendations made by the respective stakeholders on how the current solid waste collection services can be made more sustainable. In this final part of the Chapter, answers will be given to the research questions posed in Chapter One. The findings presented in the previous Chapter are discussed in relation to the research questions. It also reflects on the literature that was cited in Chapter 2. The conclusions, recommendations and areas for further research are presented.

#### **6.2 Answers to research questions**

Based on the results of the analysis, the following conclusions were drawn:

##### ***6.2.1 What is the current solid waste collection system in AMC?***

The study findings reveal that there are two systems of solid waste collection in AMC, namely; door-to-door collection and communal system. The door-to-door collection system is used in the high income zone (CBD) while the communal system is applied in the commercial establishments of the medium and the low income zones. In the planned areas of the high income zone, the waste collectors use refuse collection trucks while in the unplanned areas, handcarts and wheel barrows are used, which makes the process a bit longer hence labour intensive and time consuming. The study findings also reveal that there is only one private waste service provider in AMC.

##### ***6.2.2 How technically, financially, socially, environmentally and institutionally sustainable is the privatised solid waste collection service delivery in AMC?***

In assessing the technical, financial, social, environmental and institutional sustainability of the privatised solid waste collection services in AMC, the researcher discussed and presented the findings from the field by considering

specific variables and relevant assessment indicators formulated for each aspect of sustainability based on the ISWM Model.

Technically, the service is not sustainable. This is because the limited number and coverage of the bins available for service users to discard their waste imply that the facilities are not appropriate and sufficient.

Financially, the privatised waste collection services are not sustainable. This is because the collection system is not self sustaining since it remains highly dependent (58%) on extra local funding. In addition, the private operator does not realise profits hence the system does not create a viable economic environment for the private operator. 57 percent of the respondents find the collection fees unaffordable, 36 percent pay their collection fees promptly and only 30 percent are willing to pay more fees for improvement of waste collection services.

Socially, the services are not sustainable. The collection system is restricted to the high income zone and the commercial establishments in the medium and low income zones. Complaint mechanisms and awareness promotion are lacking. Medical checks ups and immunisation are not provided for the waste collection workers. The waste collection workers are not entitled to benefits such as pension, medical or retirement schemes since they are temporary and their remuneration levels are very low, hence their working conditions are very unattractive. The service users do not participate in setting the fees structure and service delivery levels because both the design and operation of waste collection are managed in a top-down manner. As such, they are not aware about their service providers.

Environmentally, the service is not sustainable. There is no SWM bye-law or policy to guide the SWM operations and monitoring is very irregular and exceptionally weak. The waste system is unable to remove all the waste from the neighbourhood. The refuse collection trucks are not covered during transportation hence contributing to littering and air pollution and the waste system does not facilitate waste recovery, re-use and recycling.

Institutionally, the system is not sustainable since the contract period is not sufficient for cost recovery and the presence of one contractor does not result in to efficiency gains due to absence of competition. In addition, user participation has been neglected due to absence of community meetings for discussing the most appropriate methods of waste collection in their areas. In addition, their conceivable role in monitoring the service is non-existent

In general, the privatised solid waste collection services in AMC are not sustainable because not all technical, financial, social, environmental and institutional goals as per the ISWM Model were achieved

**Table 15: Sustainability Outcome Matrix**

Sustainability Goals	Stakeholder Level	Assessment Indicators	Outcomes
<b>Technical</b>	AMC <b>Service Regulator</b>	Waste collection equipments designed according to the local situation (know how). Local availability of spare parts	+  + +
	Private Operator <b>Service Provider</b>	Waste system operations based on physical characteristics of serviced areas Waste collection operations are tailored to local user needs	+  ++
	Households/Commercial establishments <b>Service Users</b>	Appropriate and sufficient facilities (bins/containers) on streets and neighbourhood level	--
<b>Financial/ Economic</b>	AMC <b>Service Regulator</b>	Regulation of fees rates Provision of economic incentives for the private operator Availability of waste collection budget Ability to sustain itself through service fee.	++  --  +  --
	Private Operator <b>Service Provider</b>	Level of cost recovery Realise profitability from the waste collection service	--  --
	Households/Commercial establishments  Service Users	Affordability Regular/Prompt payment of user fees Willingness to pay	+  -  -
<b>Social</b>	AMC <b>Service Regulator</b>	Awareness campaigns conducted Efforts to integrate informal sector activities Proper complaint services/complaints system Integration of former AMC workers Service coverage (spatial coverage)	--  --  --  -  --
	Private Operator <b>Service Provider</b>	Provision of protective gear for the workers Medical checks/ immunisation provided for workers Good labour practices Provision of incentives for workers Security of workers Job satisfaction by workers	++  --  --  --  --  ++  --
	Households/Commercial establishments  Service Users	Satisfaction with waste collection services Household gender and sex roles relating to SWM Participation in setting the fees structure and service levels. Level of awareness on SWM	+  ++

			--
			--
<b>Environmental</b>	AMC <b>Service Regulator</b>	SWM policies/bye-laws in place Enforcement of recycling and re use regulation Monitoring and control practices	-- -- --
	Private Operator <b>Service Provider</b>	Vehicles covered during waste transportation Exhaust emissions during transportation Regular emptying of waste bins Covering of waste bins Waste collection facilitates waste recovery re-use and recycling (3Rs).	-- -- -- -- --
	Households/Commercial establishments Service Users	Separation of waste by service users Service users store waste in storage bags Waste system able to remove all waste from the neighbourhood	+ + --
<b>Institutional</b>	AMC <b>Service Regulator</b>	Capacity building of private sector workers and supervisors Proper tender procedures Proper contract arrangements Penalties and incentives Sufficient contract periods for cost recovery.	+ ++ + -- --
	Private Operator <b>Service Provider</b>	Sufficient skilled staff for SWM supervision Clear definition of responsibilities for supervisor in the contract	++ ++
	Households/Commercial establishments <b>Service Users</b>	Participation in private actor performance /activities/monitoring	--

**Source:** Designed by the Author (2010) based on various sources (refer to Chapter 2).

### Key

++ = Very positive

+ = Positive

-- =Very negative

- =Negative

Table 15 above provides a summary of the study findings as compared to the sustainability assessment indicators in Chapter 3. The outcomes from the table indicate that in terms of sustainability; the financial, social and environmental

aspects are down played in comparison to the technical and institutional goals. The financial, social and environmental aspects require much more control (management) because they are wider (they involve the public) than the technical and institutional aspects which are more in house. This does not mean that they are easier to achieve.

What is most striking from the above matrix in terms of the different aspects of sustainability include the following:

In the technical aspect of sustainability, most of the outcomes are positive with exception of provision of appropriate and sufficient facilities on streets and neighbourhood level. This responsibility lies on the service regulator. This is the best performed aspect of sustainability as per the outcome matrix. However, since one of the indicators was not achieved, it does not qualify to be technically sustainable.

Financially, most of the outcomes are very negative with exceptions of availability of waste collection budget, regulation of fees rates and affordability. Much as the unfulfilled indicators are in different stakeholder levels, the service regulator bears all the blame since they fall under its domain.

Socially, most of the outcomes are very negative with exceptions of provision of protective gear, security of workers, satisfaction of workers and household gender and sex roles which are both very positive and positive. These out comes fault both the service regulator and provider. However, the service provider takes a lion's share of the blame since the responsibility of most of the unachieved indicators lies on the service regulator.

Environmentally, the outcomes are very negative with exceptions of those fulfilled by the service users on their own initiative such as waste separation and storage which are positive. The outcomes fault both the service regulator and service provider for failure to completely execute their respective obligations. This is the worst performed aspect of sustainability as per the outcome matrix.

Institutionally, most of the outcomes are very positive with exceptions of lack of penalties and incentives, short contract period and lack of service user participation which are very negative. The responsibility lies on the service regulator.

In general, the outcome matrix reveals that in terms of performance, the sustainability goals can be arranged as technical, institutional, financial, social and environmental.

### **6.3 Reflections on the Literature**

Chapter two involved a review of literature on sustainable SWM based on the ISWM model and an investigation of literature related to privatisation of solid waste collection services. To enrich the existing knowledge derived from the literature, case studies were analysed to reinforce the study. This review enabled the development of the conceptual framework which forms the foundation for this research.

Klundert & Anschutz (2001, p.11) mention the basic principles of the ISWM as; equity, efficiency, effectiveness and sustainability.

The study findings show that the waste collection services in AMC are not equitably provided. According to Klundert & Anschutz (2001), all beneficiaries are entitled to an appropriate waste management system. Klundert & Lardinois (1995) point that this principle can be achieved through provision of equivalent access to waste collection services to all strata of society regardless of economic, religious, racial, ethnic status (affiliations). However, the study findings show that 50 percent of the respondents do not receive waste collection services. The collection services are restricted to the high income zone and the commercial establishments of the medium and low income zones while their household counter parts do not receive these services. This goes against the principle of equity.

Concerning the principle of effectiveness, the study findings differ from the literature. According to Klundert & Anschutz (2001), the waste management model adopted should be capable of removing all the waste generated. According to Post, Broekema & Obirih-Opareh (2003), service effectiveness can be assessed in terms of reliability and frequency of collection. In terms of frequency of collection, the study findings reveal that 34 percent of the respondents receive collection service three times a week (high income zone) 24 percent receive twice a week, while 42 percent receive only once a week (mostly the low income group). In terms of reliability, services in the low income zone are reportedly unreliable. The study findings show that the waste system is unable to remove all waste from the neighbourhood, hence are not effective.

In terms of efficiency, Klundert & Anschutz (2001) mention that waste management should entail benefit maximisation, cost minimisation and resource optimisation. According to Post, Broekema & Obirih-Opareh (2003) service efficiency can be measured in terms of revenue generation and cost savings. The study findings are in disagreement with this principle. In AMC, the collection system is not self sustaining and remains highly dependent on extra local funding. The study findings show that on average, the annual waste collection service in AMC is far 58 percent dependent on extra local funding.

According to Klundert & Anschutz (2001), sustainable waste management system should be technically, environmentally, socially, economically, institutionally and politically feasible. However, the study findings reveal that the waste system is not sustainable due to the absence of waste recovery, re-use and recycling; in equity in service provision and absence of financially viable services.

Concerning the strategic aspects of the ISWM, the following are the study findings in relation to the experiences of other cities cited in the literature.

Technically, the study findings are in agreement with that of Babu (2008) who mentions the use of locally manufactured and maintained equipments in Riruta, Nairobi, Kenya. This is due to the local availability of spare parts for the waste collection equipments in AMC. The findings are also in agreement with that of Ecaat (2003) who mentions that critically unplanned settlements such as slums or

low income areas, with poor road network in KCC, Uganda, are inaccessible by refuse collection vehicles leading to poor coverage of collection services in such areas. In the unplanned areas of the high income zone of AMC, hand carts and wheel barrows are used for door-to-door collection which is a bit slower.

Financially, the study findings are in agreement with that of Post, Broekema & Obirih-Opareh (2003) who point out that the solid waste system in Accra, Ghana, remains highly dependent on extra local funding due to absence of cost-recovery mechanisms since in AMC, 58 percent of the waste collection services are dependent on extra local funding. The findings disagree with that of Chibesa (2006) and Babu (2008) who mention regular payment of fees, willingness to increase fees and affordability of fees by service users in Kitwe, Zambia and Riruta, Nairobi respectively. This is because in AMC, only 37 percent of the respondents pay their fees promptly/regularly while 30 percent are willing to pay more fees and 43 percent find the collection fees affordable.

Socially; the investigations and observations contrast with that of Suttibak & Nitivattananon (2005) who mention high participation in SWM programmes in Thailand, with complaint mechanism exceeding 80 percent. However, in AMC, the complaint mechanism is lacking. The researcher feels that the findings agree with that of Post, Broekema & Obirih-Opareh (2003) in Hyderabad, India and Accra, Ghana, where the top down approach, neglects community participation. The study findings further contrast with that of Srinivasan (2006) and Aliani (2008) who mention that in Chennai City, India and the secondary cities and small towns in Asia and the Pacific respectively; all the private company's workers are on its payroll and are entitled to several benefits like pension fund, paid leave and bonuses. In AMC, the waste collection workers are not entitled to such benefits and their working conditions are very unattractive. The study findings are further in agreement with that of Chibesa (2006) who mentions that in Kitwe, Zambia, waste collection is restricted to the CBD and affluent areas. In AMC, the waste collection services do not also cover the entire Municipality since it is restricted to the high income zone and the commercial establishments in the medium and low income zones.

Environmentally; the investigations and observations are in agreement with that of Chibesa (2006) and Post, Broekema & Obirih-Opareh (2003) who mention that in Kitwe, Zambia and Accra, Ghana and Hyderabad, India respectively, the waste collection systems are characterised by absence of SWM bye laws, weak monitoring mechanisms and failure to cover vehicles during transportation. The study findings are in further agreement with that of Babu (2008) who mentions absence of waste source separation and recycling in Riruta, Nairobi. The study findings however disagree with that of Aliani (2008) who mentions that about 70 to 80 percent of the waste in the secondary cities and small towns in Asia and the Pacific is composted. In AMC, composting is unheard of.

Institutionally; the study findings contrast with that of Babu (2008), who mentions that the SWM in Riruta, Nairobi is characterised by service user participation in decision making through weekly meetings. In AMC, such meetings are non-existent.

Several authors consider privatisation as a necessary vehicle in service delivery. Cointreau-Levine (2000) argues that, privatisation brings in private sector investment and improves operational efficiency. Coad (2005) in support of the above points that, the private sector is more efficient, effective, increases coverage, has expertise and improves standards, and has access to capital.

Empirical evidences from the Asian cities validate why private contractors collect solid waste more efficiently than the public sector. In Kuala Lumpur, Lee (1997) mentions that private firms made more trips per day for each vehicle and collected more waste on each trip than public departments. In Seoul, the private sector showed a markedly higher level of labour efficiency and vehicle efficiency in waste collection and transport (Kim 1991). In Malaysia, the results of a study of privatised rubbish collection services in 17 Municipalities showed that the level of collection was better with privatised services in 11 out of the 17 Municipalities (Sinha 1993).

According to Lee (1997), one principal source of enthusiasm for privatisation comes from the promise of substantial savings. In Malaysia, a study of privatised waste collection services revealed that of a total of 17 municipalities, 9 enjoyed some cost savings after privatisation (Sinha 1993). According to Mehta and Mehta (1994), the cost savings resulting from contracting out were found to range from 15 to 70 percent for a variety of municipal services in the city of Rajkot in Western India. Walker *et al.* (1992) mentions that in Jakarta, after refuse collection and transport services in 10 percent of the city's 261 sub districts were contracted out in 1988, one study found that the city had saved US\$100,000 in that year. These findings clearly indicate that local authorities from the selected Asia cities find privatised urban services substantially cheaper.

Empirical evidences from selected African cities show a contrary scenario in relation to that of the Asian cities. A study on private sector involvement in solid waste service provision in Ghana found almost no gains from the public-private arrangement (Awortwi 2004). A study covering 110 African water utilities, including 14 private, found no significant difference between public and private operators in terms of cost (Kirkpatrick, Parker & Zhang 2004). In Senegal, privatisation provided low quality service in education because the private partners wanted to make money and therefore cut costs (Nordtveit 2005).

The study findings are different from the case studies in the following ways;

Economies of scale of larger cities as in the Asian countries, is required for the success of privatisation while in AMC as in most of the African cities, financial issues play a part. In AMC, the collection service is 58 percent dependent on extra local funding.

Additionally, technology is necessary for the sustainability of the privatised service delivery. In the Asian cities such as Jakarta, more sophisticated facilities and techniques such as solid waste transfer stations and waste recycling centres exist (Walker, *et al.* 1992). In AMC, the absence of recycling industry in Arua kills the morale of the firm to undertake waste sorting or salvaging of valuable waste.



In relation to African cities, the findings differ from that of Jomit (2009) who found that in Dar es Salaam, Tanzania, the mode of privatisation was unique because small local CBOs were facilitated to provide waste collection services to the households. According to Jomit (2009), this kind of privatisation is noteworthy because it is built upon already existing structures. In AMC, the grass root structures are non-existent since the service users are not involved in the planning and designing the SWM activities.

A critical reflection on the literature reveals that the following issues are missing with regard to the findings of the study:

Many of the studies focus on big cities and not on medium and small scale cities. Therefore, research on small and medium cities is required.

The study findings are contrary to most of the sustainability indicators cited in the literature. Hence there is need to develop a model which specifically caters for the interests of small cities.

In addition, the financial position of the private operator is missing as one of the indicators in the financial aspects of sustainability. As pointed by Cointreau-Levine (1994), the fundamental concern for the private sector is whether the delivery of the service will “*make*” money. The ISWM should incorporate the private operator’s financial status as an indicator such that a private operator does not rely on the city government for support in form of equipment or financial assistance in their initial stages or when he fails to collect waste because of equipment failure.

The study findings contrast with the pre-conditions for successful privatisation cited in the literature. According to (Bing *et al.* 2005 & Zhang 2005), an enabling regulatory framework is required to streamline the set up, implementation and outcomes of the privatisation process. The situation in AMC is jeopardised by the absence of SWM bye-laws. Competition according to Wegner (2005) is necessary for efficiency gains since it leads to improvement in service quality among private companies. This is lacking in AMC due to private monopoly in waste collection service provision. According to Klundert & Lardinois (1995), the extent of monitoring and control retained by the Local authority is an important pre-requisite for the success of privatisation. In AMC, the monitoring is irregular and weak due to inadequate logistics and under staffing. The World Bank (2006) mentions good governance as a pre-requisite for successful privatisation. In AMC, voice and accountability which contribute to good delivery of waste collection services is hardly existing (weak) and this therefore has negative impact on good governance. According to Rondinelli (2004), the credibility and transparency of the procurement process is critical in the success of privatisation. In AMC, the private operator is selected through a competitive tendering process but there is only one contractor which does not result in to efficiency gains.

#### **6.4 Recommendations**

Given the fact that the privatised solid waste collection service delivery in AMC is not sustainable, the following recommendations are proposed in order to make the delivery system sustainable:

## ***Technical sustainability***

### **Availability of appropriate and sufficient equipments and facilities**

In order to make SWM activities technically sustainable in AMC, there is need to avail appropriate and sufficient equipments and facilities such as bins/containers which should be convenient and accessible to all stakeholders on all streets and neighbourhood level. This will enable the service users to discard their waste with ease. The facilities should not be too high for children to place their waste.

Since the available waste collection trucks in AMC are inadequate (only 2 in number) and one is not in good operational state, there is need to acquire more collection trucks. This will alleviate the challenge of inadequate routine collection services in AMC.

## ***Financial sustainability***

### **Mobilisation of financial resources**

In order to support SWM programs and make them sustainable, waste collection fees should be paid by all the households and commercial establishments in AMC. The fees will help in ensuring that those who generate waste bear the cost to control it. It is advisable that the collection fees should be levied in consultation with the service users, bearing in mind the socio-economic conditions prevailing among the different stakeholder groups.

## ***Social sustainability***

### **Public education and awareness on sound SWM**

There is an urgent need for awareness creation among key stakeholders in order to bring about change in SWM practices. Such awareness programs should target, among others, AMC, the private operator as well as communities that are directly responsible for waste generation. Awareness programs should be carried out to sensitise people on the values of proper waste disposal and sound waste management as well as dangers associated with improper waste disposal and to perceive waste management not as a responsibility for AMC alone but as a collective effort of all key players. Such awareness would hopefully lead to initiation of community action on SWM. The awareness program should emphasise approaches that seek to equip the communities with skills and knowledge for use of wastes for income generating activities.

## *Environmental sustainability*

### **Waste segregation/separation**

A large proportion of the wastes generated in AMC is biodegradable and can be re-used hence an effort should be channelled towards putting these wastes to more productive use. It is therefore recommended that, segregation of waste be embarked upon in order to add value on the waste. This calls for the establishment of a market for recycling products. Waste segregation should take place at the point of its generation such as at the residential and commercial premises levels. There is need to develop appropriate technologies locally for waste recycling, composting as well as development of low cost incinerators in order to increase the entrepreneurial abilities of the service users. To further popularise and appreciate the concept of use of wastes, there is need to promote affordable and community based demonstration/pilot projects to demonstrate waste sorting, recycling, composting and other benefits that can accrue from converting waste to positive use. This should be undertaken by the Local government (AMC). In case AMC is unable to undertake it, then it should partner with big NGOs. Alternatively, the national government should take it over. The sorting should be between bio-degradable and non biodegradable waste. Biodegradable materials can be re-used to make compost to improve soil fertility or as animal feed especially the peelings of food stuff. The non biodegradable wastes although less in composition than biodegradable wastes could also be re-used to reduce the quantity of wastes to be disposed for example, tins and bottles can be re-used as storage containers in homes for storing food or wastes.

### **Regulatory framework on SWM**

In order for any SWM plan to work, it must be backed by legislative measures which will help to enforce the decisions that have been made. Bye-laws on SWM should be put in place and enforced to ensure proper waste management in AMC. Strict law enforcement is needed in the area of indiscriminate open dumping of waste on streets. The law enforcement personnel need to be availed with the necessary knowledge, skills and management support to enforce the law. In order for this to work effectively, AMC should be in position to enforce the laws as the situation demands.

### **Strengthening of the monitoring system**

AMC needs to introduce a more stringent monitoring and enforcement policy by adequate facilitation of the monitoring officials. The system should empower the officials to have a better grip on private operator. It should also entail the measurement of the private operator's performance based on the conditions specified on the contract agreement. The monitoring system should entail the aspect of community involvement through formation of monitoring committees consisting of say 10-15 members in each neighbourhood. This innovation could improve the quality of solid waste collection monitoring in AMC.

## *Institutional sustainability*

### **Community involvement in SWM**

There is need to deliberately create community based institutional frameworks for waste management in order to create local interest through participation in waste management. Such a framework should involve stakeholders at all levels and the interventions must be developed within the context of the financial and technical feasibility, taking into account the socio-economic status of the concerned communities. Regular self-help communal cleaning programs should be instituted at specified intervals or dates to give an opportunity for the community to clean up their areas but also to inculcate a spirit of environmental care and conservation among the residents.

### **Encouraging competition among private waste collection operators**

Since one private operator is currently providing waste service collection services in AMC, the coverage and service delivery level is very low. This therefore calls for engagement of more than one private operator in order to ensure competition. In a competitive environment, private firms perform more efficiently and this will enhance the quality of waste collection service delivery in AMC.

## **6.5 Areas for further Research**

The researcher acknowledges and emphasises that the study is not exhaustive and it does not claim to have covered all aspects of sustainable SWM. Future researchers should focus on the following:

- Community participation in sustainable SWM in urban areas.
- Management of faecal matter in urban areas.
- Medical and industrial waste management in urban areas.
- A comparative analysis of sustainability of SWM in more urban authorities.

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## ANNEX 1

### **Interview Guide for Arua Municipal Council staff (Town Clerk, Principal Town Health Inspector, Municipal Environment Officer and Community Development Officer)**

#### **A. General information**

**Title**.....

**Department**.....

#### **B. Current Solid Waste Collection System**

1. Can you briefly explain about the way in which solid waste system was organized in AMC before the extension of the collection services to the private sector?
2. When was it privatised and what factors led to the privatisation? (When/How was the privatisation made?-history to come to a privatised system).
3. Can you describe the system of solid waste collection currently applied by the Private Operator in AMC? (description of collection service but also of disposal)
4. What kind of solid waste collection services and facilities does the Private Operator provide in AMC?
5. Does AMC promote waste recovery, reuse and recycling? If yes, in what ways?
6. Is waste sorting being carried out in AMC? By whom? (informal sector involvement)

#### **C. Sustainability of the privatised solid waste collection service delivery:**

##### **Technical Sustainability**

7. What kinds of equipments are used for waste collection activities in AMC?
8. Have these equipments been designed according to the local know how? (Deriving from?)
9. Is the equipment property of the private contractor or AMC?
10. Are their spare parts locally available?
11. Any problems faced in terms of maintenance?
12. How many tons of waste is transported per vehicle trip/day?

### **Financial/Economic Sustainability**

13. Does AMC raise her own funds for SWM via fees or taxes?
14. Who determines the fees rate? On which basis? Are fees rates the same for commercial and residential users?
15. Does AMC provide economic incentives such as loans to the private operator? If yes, example (case) Is it a onetime event or policy?
16. Does AMC have a separate budget lines for waste management? Are these budget lines guaranteed or are competing with other services?
17. Who collects the fees? Are the fees collected regularly? What are the financial/time implications for a fee collection?

### **Social/Cultural Sustainability**

18. Does AMC conduct awareness campaigns/sensitisation on solid waste activities? In what ways? Which target group?
19. Has AMC made efforts to integrate informal sector activities in to the formal SWM activities? In what way-case box if applicable
20. Has AMC ever conducted any capacity building for the private sector workers and supervisors? And internally for AMC staff on privatisation?
21. Is there any complaint mechanism (public platform) for the general public to express their grievances on missed collection or illegal dumping? Is the complaint mechanism functioning well?
22. Were the former AMC waste collection workers integrated in to the private operator's solid waste collection activities?
23. Do solid waste collection services cover all households and commercial enterprises? If no, how is solid waste managed in areas that are not serviced by the private operator? Which particular areas are left out and why?

### **Environmental Sustainability**

24. Does AMC have any bye laws for SWM? On what/
25. Do these bye-laws have any severe sanctions?
26. Does AMC enforce any local regulations supporting recycling and re use?
27. Do you face any challenges in enforcing these regulations? If yes, what challenges?
28. How do you address these challenges?
29. What are the monitoring and control practices of solid waste collection services in AMC?

30. What is the current point of view regarding disposal (open dumping?)

### **Institutional Sustainability**

31. How is the tender for solid waste collection services awarded to the Private Operator? –description of the tendering system
32. What conditions are entailed in the contract agreement between the AMC and the Private Operator? What are the incentives and penalties entailed?
33. Is the contract period sufficient for the Private Operator to recover costs?
34. Is there sufficient skilled staff for SWM monitoring in AMC?
35. What kind of monitoring system? How often?
36. Which indicators are used to (tonnage/cleanliness)
37. How is the transfer of solid waste from collection points to final disposal carried out?

### **D. The future of the privatised solid waste collection services**

38. Is the privatised system more convenient/sustainable/more financially viable than the previous system and why?
39. What challenges do you encounter in providing sustainable solid waste collection services in AMC?
40. How can the system of privatised solid waste collection services in AMC be made more sustainable?

**Thanks for your cooperation.**

## ANNEX 2

### **Interview Guide for the Private Operator and the Supervisor**

#### **A. General information**

Age.....

Sex.....

#### **B. Current Solid Waste Collection System**

1. What kind of solid waste collection services and facilities do you provide in AMC?
2. Can you describe the system of solid waste collection you are currently applying in AMC?
3. Do you promote waste recovery, reuse and recycling? If yes, in what ways?
4. Is the waste sorted before collection?

#### **C. Sustainability of the privatised solid waste collection service delivery**

##### **Technical Sustainability**

5. Are waste collection activities tailored to local user needs? In what ways?
6. Are your waste collection services based on the physical characteristics of serviced areas?
7. From where is the equipment /spare parts/-trucks are they imported?-taxes
8. Any problems regarding maintenance?

##### **Financial/Economic Sustainability**

9. Do the solid waste collection charges cover your service costs? If not, how do you meet solid collection costs?
10. What are the investment and operational costs of waste collection?-what are your investments?
11. How much do is your monthly revenue and expenditure on waste operations?
12. How is the user fee collected?

##### **Social/cultural Sustainability**

13. How many employees work in your company?
14. How many of these are specifically engaged in solid waste collection activities?
15. Are they permanent or temporary employees of the company?
16. What happened to the former AMC workers?
17. Has there been any solid waste collection training conducted for these employees?
18. How much wages do you pay to your employees?

19. Are these employees provided with protective clothing?
20. Are immunisation/medical checkups conducted for these workers?
21. Do you provide incentives for your workers? If yes, what form of incentives/benefits do you provide them?-side fringe benefits –pension, holidays
22. Are the workers secure during solid waste collection?
23. Has this solid waste collection activity created a sustainable livelihood for you?
24. Does your solid waste collection service cover all households and commercial enterprises? If no, how is solid waste managed in areas that are not serviced by you? Which particular areas are left out and why?
25. Is the service frequent? What role do users have in the collection service?

### **Environmental Sustainability**

26. Do you cover the refuse trucks during the transportation of waste to the dumping site?
27. Do the refuse trucks emit exhaust fumes during transportation?
28. Do you cover the refuse containers/bins along the streets?
29. How often are these bins emptied?
30. Do you separate waste before disposal?
31. Does your waste collection method facilitate waste recovery?

### **Institutional Sustainability**

32. How was the tender for solid waste collection services awarded to your company? –copy of the contract.
33. What conditions are entailed in the contract agreement between the AMC and your company?
34. What were your investments? Is the contract period sufficient for your company to recover costs?
35. Does the contract provide for clear definition of responsibilities for the supervisor? In what ways?

### **The future of privatised solid waste collection services**

36. What challenges do you encounter in providing sustainable solid waste collection services in AMC?
37. How can the system of privatised solid waste collection services be made more sustainable?

**Thanks for your cooperation.**



## **ANNEX 3**

### **Interview Guide for waste collection workers**

1. How long have you worked with the private company?
2. What was your previous job?
3. What solid waste collection activities are you engaged in?
4. Does the company employ you permanently or casually?
5. Has the company ever conducted any solid waste collection training for you?
6. How much wages does the company pay you?-what is your salary?
7. Does the company provide you with protective clothing?
8. Does the company subject you to immunisation/medical checkups?
9. Does the company provide any incentives for you? If yes, what form of incentives does the company provide for you?-holidays, pension
10. Are you secure /discriminated during solid waste collection?
11. Are you satisfied with your job? Would you like to continue doing it?-dream of another job-future perspective
12. Do you segregate/recover valuable materials-yes, what type of materials? What do you do with it/price?

**Thanks for your cooperation.**

## ANNEX 4

### Questionnaire for households/commercial establishments (service users).

This questionnaire forms part of research instrument for Master’s Program Thesis in Urban Management and Development entitled “**Sustainable Private sector participation in Municipal Solid Waste Collection Services in Uganda; The case of Arua Municipal Council**”. You have been selected as a key respondent because of your unique and extra ordinary experience and knowledge in solid waste management. Your input is considered very valuable in this survey. The information provided will be treated with utmost confidentiality and shall only be used for academic purpose.

**This questionnaire will take 30-45 minutes to answer. Please, from questions 1-43, answer the questions by ticking or circling the number that best indicates an opinion you mostly agree with. Kindly ensure that you complete each section of the instrument**

#### A. Back ground information

1	Street/Cell				
2	Sex				
	(1).Male	(2).Female			
3	Age				
	(1).Below18years	(2.)18 – 35years	(3).36 –45years	(4) 46-64 years	(5). 65+years
4	Religion				
	1.Protestant	2.Moslem	3. Catholic	4. SDA	5. Others(specify)
5	Highest level of education attained				
	1.Primary	2.Secondary	3.Tertiary	4. University	5.Others(specify)

## B. Current Solid Waste Collection System

6	Who collects your domestic/ commercial waste?				
	(1).Municipal Council	(2).Community Group	(3).Private Operator	(4).Informal Collector	(5).Other (Specify)
7	What system of waste collection is being used in your household/commercial premises?				
	(1).Door to door collection	(2).garbage collector	(3).collection from communal container,	(4).from streets and dustbins by private operator	(5).Other(s) specify)
8	What solid waste services and facilities are offered by the private operator?				
	(1).Door to door collection services	(2).Street sweeping	(3).Awareness creation	(4).Provision of Storage containers/bins	(5).Others (specify)
9	How do you dispose your waste?				
	(1) .Burning	(2).Throw on the road side/back yard/open drain	(3).Householder member puts it in the container/bin	(4).Burying	(5).Other (specify).

## C. Sustainability of the privatised solid waste collection service delivery

### Technical Sustainability

10	How many litter bins are there in your household/business premises				
	(1).None	(2).Only one	(3). Two	(4). More than two	
11	Do you face infrequency of services due to truck breakdown				
	(1).Yes	(2) .No			
12	Is the collection equipment sufficient?				
	(1).Yes	(2) .No			

### Financial/Economic Sustainability

13	How much do you pay for solid waste collection services?				
	(1).None	(2).Ushs.5,000=	(3).Ushs.10,000=	(4).Ushs.15,000=	5.More than Ushs.15,000=
14	How do you rate the refuse collection fee?				
	(1).High	(2).Enough	(3).Low	(4).don't know	
15	How do you pay for your waste collection?				
	(1).Through the land lord	(2).Together with license	(3).Direct to Municipal council	(4).Other (specify)	
16	Do you pay your refuse collection fee promptly?				
	(1).Yes	(2).No	(3).Sometimes		
17	Are you willing to pay (more) fees for improvement of solid waste collection services?				
	(1).Yes	(2).No			

### Social/cultural Sustainability

18	How many times is the solid waste collected from your household/business premises?				
	(1).Daily	(2) More than once a week	(3).Twice a week	(4).Three times a week	5.Other (specify)
19	At what time is your waste normally collected?				
	(1).Morning	(2).Day time	(3).Evening	(4).No specific time	5.Other (specify)
20	Does the solid waste collection service cover everybody in your neighbourhood?				
	(1).Yes	(2).No	(3). I don't know		
21	Do you participate in keeping your environment clean?				
	(1).Yes	(2).No			

22	Are the waste collection services in your household/commercial premises reliable?				
	(1).Yes	(2).No	3. Other (specify)		
23	If no, what problem is your area facing due to irregular waste collection?				
	(1) Dirty neighbourhood	(2).Bad reputation of the area	(3).Spread of diseases	(4).Unhealthy environment	5.Other (specify)
24	How far do you walk before disposing your garbage?				
	(1).Less than 50 metres	(2).50-100 metres	(3).200-300 metres	(4).500 metres	5. More than 500 metres
25	Is the service accessible for you/are there enough collection points?				
	(1).Yes	(2).No			
26	Are you satisfied with the private operator's waste collection services?				
	(1).Yes	(2).No			
27	If no, please, select the most appropriate reason				
	(1).Unreliable service	(2).Long distance to the communal site	3.Dirty appearance of the neighbourhood	4.Lack of frequency of the service	5.Others (specify)
28	Do women take a specific role in keeping neighbourhood clean/managing street cleanliness?				
	(1) Yes	(2) .No	(3).I don't know		
29	If no, why?				
	(1).Cultural reasons	(2).Inferiority complex	(3).Lack of participation	(4).Others (explain)	
30	Do you influence fees structure and service delivery levels through some form of participation?				
	(1).Yes	(2).No			
31	If yes, what forms of participation are entailed?				
	(1).Community	(2).Public	(3).Local	4.Others(specify)	

	meetings	meetings	Council meetings		
32	Who encouraged you to participate?				
	(1).Municipal Council	(2).Private operator	3. LCI Chairma n	4. Land Lord	4.Others(specify

33	Have you ever complained when your waste was not collected?				
	(1) Yes	(2) .No			
34	If yes, to whom do you complain?				
	(1).Municipal Council	(2).Private operator	3. LCI Chairman	4. Land Lord	5.Others(specify
35	Was action taken?				
	(1).Yes	(2).No			
36	Are you aware of the Municipal Council bye-laws on SWM?				
	(1).Yes	(2).No			
37	If yes, are you aware of its contents?				
	(1).Yes	(2).No			
38	If yes, how did you get to know about the bye laws?				
	(1).Community meetings	(2).Area Councillors	3. Radio programmes	4. Private operator	

### **Environmental Sustainability**

39	Do you separate your waste before storing it for collection?			
	(1) Yes	(2)No		
40	If yes, why?			
	(1)It is expected from me by others	(2)I earn some money from it	(3)To conserve the environment	(4)Others(specify)

41	If no, why?				
	(1)Time consuming	(2)Waste of time	(3)Lack of cooperation with the private operator	(4)I don't know how to do it	(5)Others(specify)
42	How do you store waste in the house/ business premises?				
	(1)Garbage bin provided by private operator	(2) Plastic bag	(3)Card board box	(4) Metal container	(5)Others(specify)
43	Do you know what happens to the collected waste?				
	(1)Yes	(2)No			

**For questions 44-46, please use the spaces provided**

44. Would you be willing to pay more attention to separation and recovery in the future?.....

45. What kind of support would be helpful in this? .....

**D. Institutional Sustainability**

46. Do you participate in monitoring the performance of the Private operator's activities? .....

If yes, in which ways? .....

47. In what ways can the community contribute towards the sustainability of solid waste collection services in AMC?.....  
.....  
.....  
.....

**Thanks for your cooperation**

## ANNEX 5

### Contract agreement between Arua Municipal Council and Private waste collection Operator (AYED)



THE REPUBLIC OF UGANDA

ARUA MUNICIPAL COUNCIL

P O BOX 27, ARUA

#### CONTRACT AGREEMENT FOR REFUSE LOADING

##### ARTICLE 1: INTRODUCTION

This Agreement is made this day 30<sup>th</sup> of June 2008 between **AYIVU YOUTH EFFORT FOR DEVELOPMENT P.O.Box 1183 Arua**, hereby called the (Contractor/tenderer) on one part and **ARUA MUNICIPAL COUNCIL**, the procuring and disposing entity on other part for Refuse Loading at **UGX 7,000/= for the big truck/UGX 5000/= for the small truck per trip.**

##### ARTICLE II: GOVERNMENT

The **ARUA MUNICIPAL COUNCIL AND DISPOSING ENTITY** agrees to undertake the following: -

- (i) To contract out services to the Contractor who has been awarded contract by the Contract Committee and when the services are required.
- (ii) No works or services shall be carried out without a local purchase order (LPO) indicating the work to be done or goods to be supplied with its costs.
- (iii) The Environment Officer shall be responsible for supervision, Certification and Recommendation of works.
- (iv) The contractor shall be paid only after the verification of the agreed value of services rendered.
- (v) To enter into this agreement with only a Contractor who has been awarded the Contract by the Contracts Committee of the procuring and disposing entity.



- (vi) To take all necessary precaution to keep payment voucher of the Contractor in Safe Custody.

### **ARTICLE III: CONTRACTOR**

The Contractor agrees to comply with the following: -

- (i) To render services to the Institution with specific requirements and standards as specified below:
  - (a) Sweep all the roads in Arua Municipal Council
  - (b) Desilting of culverts, road surfaces, side drains and off shoots.
  - (c) Creation of offshoots where necessary
  - (d) Any other related road works.
- (ii) To have Tender award before entering into this agreement with the Council.
- (iii) To note that all queries about Orders, Payments, vouchers and any other related issues to this contract be directed to the Town Clerk, Arua Municipal Council.
- (iv) To continue honouring this obligation of rendering services until this contract is terminated as per Article (iv) below or no longer valid as per Article (v) and or when the Council is not certified with the service being rendered during the period.

### **ARTICLE V: TERMINATIONS**

This agreement will be terminated by giving Notice of 30 days in writing on both sides. It is further agreed that the failure to comply with this Article may call for a legal action to be taken against the party that fails to give notice before terminating this Agreement.

### **ARTICLE V: VALIDITY**

This agreement will be valid within the Financial Year (beginning from date of offer of the tender) i.e. from date of offer to **30<sup>th</sup> June 2009** and there shall be not changes in the sum agreed upon.

I hereby confirm acceptance of the terms and conditions set out in the above Contract, by signing I duplicate copies of this contract where indicated below and initialling every page.

CHAIRPERSON  
AYTVU YOUTH EFFORT FOR DEVT  
(A.Y.E.D)  
P O BOX 1183 ARUA, UG.  
Tel:..... Date:.....

Signed: .....

Date: 11/27/2008

**CONTRACTOR**

Signed: .....

Date: 10/7/2008

**Jobile Cornelius**

**FOR: TOWN CLERK/ARUA MUNICIPAL COUNCIL**

- Cc Mayor/Arua Municipal Council
- Cc Senior Assistant Town Clerk/River Oli Division ✓
- Cc Senior Assistant Town Clerk/Arua Hill Division
- Cc Procurement and Disposal Unit/Arua Municipal Council
- Cc All Heads of Departments/Arua Municipal Council