**UGANDA MANAGEMENT INSTITUTE**

**FACTORS AFFECTING PERFORMANCE OF SOLID WASTE**

**MANAGEMENT IN RUBIRIZI TOWN COUNCIL,**

**RUBIRIZI DISTRICT**

**BY**

**KETTY KASHEMEIRE**

**REG.NO:14/MMSPAM/34/073**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF CIVIL SERVICE, PUBLIC**

**ADMINISTRATION AND GOVERNANCE IN PARTIAL FULFILMENT OF THE**

**REQUIREMENTS FOR THE AWARD OF MASTERS DEGREE IN**

**MANAGEMENT STUDIES (PUBLIC ADMINISTRATION) OF**

**UGANDA MANAGEMENT INSTITUTE**

**FEBRUARY 2018**

# DECLARATION

I hereby declare that this dissertation is my original work and has not been presented for any other study program in any other university.


Signature:…………………………… ……………………………..

Ketty    Kashemeire          Date

# APPROVAL

This is to certify that this work has been done under our supervision and submitted for examination with our approval.


Signature:

……………………………….                    …………………………

Supervisor                                                          Date

Dr. Edgar Mwesigye

Senior Consultant Uganda Management Institute (UMI)


Signature:          ……………………………          ………………………..

Mr. Wilfred Lugemoi Bongomin                    Date

Consultant Uganda Management Institute (UMI)

## DEDICATION

I dedicate this work to my family for their encouragement and desire for hard work that encouraged.

# ACKNOWLEDGEMENT

I am greatly indebted to several people whose great support in the entire research process was valuable to me. The successful completion of this work was due to the professional support and patient guidance of my supervisors, Dr. Edgar Mwesigye and Mr. Wilfred Lugemoi Bongomin who tirelessly encouraged and gave me all the guidance every time I needed it.

I am really grateful to my colleagues of the Master's Degree in Management Studies of UMI for their support throughout this programme. The discussions we had are highly appreciated. Finally, thanks to the people who participated in this study. Without whose help I would not have been able to write this dissertation.

I thank all and may God bless them.

# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# LIST OF ACRONYMS AND ABBREVIATIONS

CVI          : Content Validity Index

DV           : Dependent valuable

EPR          : Extended Producer Responsibility

IV           : Independent variable

LG           : Local government

SAQs         : Self-administered questionnaires

SPSS         : Scientific Package for Social Sciences

UMI          : Uganda Management Institute

USA          : United States of America

SWM          : Solid Waste Management

# ABSTRACT

This study was about the factors affecting Solid Waste Management (SWM) in Rubirizi Town Council. The study used three objectives namely; (a) to establish the effect of planning on SWM in Rubirizi Town Council, (b) to establish whether administration of laws significantly affects SWM in Rubirizi Town Council and (c) to establish the effect of monitoring and evaluation on SWM in Rubirizi Town Council. The study used a cross sectional case study design. Mixed methods involving qualitative and quantitative methods were used to gather data from a sample of 100 respondents consisting of residents, technical staff and politicians. While aiming at selecting technical staff and local leaders to be enrolled into the study, purposive sampling was used. While conducting quantitative data analysis, descriptive statistics in which frequencies and percentages were reported were used. Also, for inferential statistics Spearman correlation ( *rho* ) was used. Findings revealed that planning accounts for 39.8% change in SWM, administration of laws accounts for 45.4% change in SWM and monitoring and evaluation accounts for 50.3% change in SWM. Thus, it concluded that poor planning, administration of laws and monitoring and evaluation affected SWM in Rubirizi Town Council. It is recommended that Rubirizi Town Council take more consideration in these three variables if it is to enhance its SWM by implementing the recommendations made in this study. This study focused on three factors affecting SWM in Rubirizi Town Council which included planning, administration of laws and monitoring/evaluation. Thus, other areas of study should look at other factors such as SWM activities attitude towards SWM and funding.

**CHAPTER ONE**

**INTRODUCTION**

**1.1     Introduction**

This research is centered on factors affecting Solid Waste Management (SWM) in Rubirizi Town Council, Rubirizi District. The factors affecting performance of SWM are the independent variable (IV) while SWM is the dependent valuable (DV). This chapter presents the historical background, theoretical background, conceptual background and contextual background. The chapter presents the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, hypothesis, conceptual framework, significance of the study, justification of the study, scope of the study and operational definition.

**1.1     Background to the Study**

This section presents the background to the study that the study as an overview upon which the study was conducted. This included the historical background, theoretical background, conceptual background and contextual background.

**1.1.1   Historical background**

SWM is strongly influenced by the time of the year, traditions and personal income. Individuals with more income generate more solid waste than lower income earners; equally, people concerned with the environment generate less solid waste (Al-Jarrah & Abu-Qdais, 2006). SWM at both the global level and national level has attracted a lot of concern in some countries while in others a lot still needs to be done to manage it properly. SWM has  evolved

over time, in response to two important factors: first from the desire to protect public health, followed much later by the desire to protect the environment.

From the beginning of a depression, to the Second World War, various state laws and court rulings prohibited certain disposal practices in USA. For instance, in 1943, United States Supreme Court, up held a lower court ruling requiring New York City to cease its disposal of its Municipal Waste at sea (Hickman et al, 2010).

In 1930's Califonia passed laws prohibiting disposal within 20 miles off the shore. While these actions may have helped remove refuse from the waters near America's shores, they did not address the real question "What is the best way to manage solid waste?" Barbalance and Roberta (2010). Subsequent to industrialization together with sustained urban growth of large population centers in England, waste was found to fill up the cities (Herbert, 2007).

The Koreans' governments Extended Producer Responsibility (EPR) necessitates all the manufacturers and producers to recycle end products from their factories and industries. In 2008, there were 69,213 plastic products that were recycled. Alson in a period of four years (2006-2010), there were 3,200 new jobs by the EPR system (Manomaivibool, 2009)

In India, subjects about SWM have remained neglected for so long (Zubbrug, 2007). Rapid increase in population growth and improvement of quality of life especially in developing countries aggravated a problem of SWM. Urban areas in Nigeria have been shown to be facing the challenge in which piles of solid waste have accumulated in the environment; this is because of pressure as a result of population growth and spontaneous urbanization and industrialization (Barbalance & Roberta, 2010). In Tanzania-Dar es Salaam, it has been reported that collection of solid waste is being hindered by poor infrastructure and equipment and management arrangements, which have not adequately coordinated the interventions of the different actors (Zurbrug, 2013).

Uganda as a country has a SWM challenges that need to be properly planned for, if we are to have a clean country. Kampala is being taken over by garbage and the city in a few years the city will turn into a vast slum (Warning & Assessment, 2011).

Urbanization is slowly but surely growing faster in Uganda. In the recent years, the levels of urbanization in Uganda have been rising rapidly. In 2001, 11.3% of the population was living in urban areas but increased to 12% in 2002 and it was estimated at 15 percent in 2009 (National Development Plan, 2015). Many of our urban areas equally have a lot of solid waste that is not properly planned for, for disposal through, sanitary landfill, incinerated in incineration plants, open dumping, recycling and open burning (Urban Indicators, 2014).

Rubirizi Town Council is no exception as far as the waste management challenges are concerned. Some of these challenges are, poor supervision, poor drainage, lack of refuse dumping site, inadequate funding and awareness. Records go on to show that in spite of injecting in funds to cub garbage, it is still the number one short step to achieving a clean and well desired town council (Grorial & Mao, 2014). It was, therefore, necessary to look at factors affecting the improvement of SWM, in Rubirizi Town Council.

### Theoretical background

This study was underpinned by the systems theory advanced in 1920 by Bertalnffy, which states that holistic approaches are desirable to implement changes that are effective within a given system (Thyberg & Tonjes, 2015). The theory is chosen to guide this study because upon analysis of SWM, it provides a picture that is complete that represents as the possibility management of the whole solid waste system (Klang, Vikman & Brattebo, 2010) in order to evaluate the consequences of factors that affect it. With the aim of addressing the SWM problem, a systems analysis assessing factors affecting SWM not only various components but also all components of SWM and thus the analysis should put emphasis on

the environmental, economic as well as the social system components (Anestina, Adetola & Odafe, 2014). With this intention in mind, a management framework is necessary for planning, administration of laws and monitoring and evaluating waste systems was thus developed for the management of SWM.

The systems theory highlights the necessity to look at factors affecting improvement of SWM to ensure that all links of the SWM environmental, economic, and social system components as in this case, planning, administration of laws and monitoring/evaluation, are fully supported to guarantee successful SWM in urban areas (Thyberg & Tonjes, 2015). It takes into account the different needs of various functional areas of urban areas to ensure that each of them is viably strong to achieve the set objectives. Top urban planners should see to it that urban areas are helped to stay clean and free from solid waste, through involvement of all stakeholders. Such stakeholders that provide strategic plans for clean urban areas include town residents, civil society organizations and politicians.

The systems theory, prescribes that the body is made of organs such as the heart, the liver and the alimentary canal. All the functions must be considered as a whole if the body is to function efficiently (Klang, Vikman & Brattebo, 2010). The systems theory was used to explain how solid waste could be managed with the support of all the other related environmental, economic, and social system components, hence urban planners should focus on the role played by each component in the whole SWM rather than focusing on each part in isolation.

Rubirizi Town Council can apply a systems theory if solid waste is to be properly managed. By looking at how solid waste is planned for, through finance, human resource structural plan and the different actors within the different environmental, economic, and social system components, proper solid management arises. This has to work hand in hand with relevant

4

laws to enforce proper management of solid waste and lastly, monitoring and evaluation to ensure that all the measures in place are working according to laid out plans should be effected.

**Conceptual background**

In the conceptualization of this research study, factors affecting performance of solid waste were independent valuables and these included planning, administration of laws and monitoring and evaluation (Wang, Lin & Lin, 2012; McAllister, 2015). SWM was the dependent valuable that included clean environment, disease free town, economic gains recycling, re-useable, repair and waste dumping (McAllister, 2015).

Under this study, planning was regarded as the the act of researching, analyzing, anticipating and influencing change in our society (Graham, 2018). Also, planners are involved in making decisions about land use proposals and other types of developments. In making decisions, planners have to balance the needs of communities and the environment. In this particular study, planning will be in terms of financial rresources, structural plan and human resources as observed in the conceptual framework.

Besides, monitoring/ evaluation systems so far has been recently defined as the ability of measured project activities to provide users of the system access to quality and accurate information that can be used for organizational learning and decision making (NASAMBU, 2016).

Solid waste management (SWM) itself has been generally referred to as the responsibility of manufacturing industry to reduce their resource use as well as to recall, for recycling, waste materials which result from their products (Maruna, Milovanovic Rodic, & Colic, 2018) .

The general public is also a waste producer. One of the principal reasons behind charging schemes for waste collection from households is to engender public awareness of the amounts of waste they create. This, in turn, is based on the principle of shared responsibility, as the strategy for waste management (Maruna et al., 2018).

Hitherto, town planners were considered as positive drivers for promotion of a clean urban area with limited solid waste, but these have to be supported by many factors to be able to work efficiently (Medina, 2011). In addition, support and maximum participation from urban residents would add value to SWM (Zerbock, 2009). Most town residents have done more to increase solid waste and less to minimize it leaving a huge gap of how best this can be managed (Zurbrucc, 2009). Often people are known to place the waste in sacks or polythene bags and dump it near roads. Apart from the risk of stepping on it, such waste also pollutes the air when it gets rotten and it begins to attract flies (Groria & Mao, 2014).

**Contextual back ground**

According WaterAid (2011), most people in Ugandan urban centers are beginning to believe that stringent radical measures are needed for proper disposal of solid waste in a given town council is to be achieved. Generation of Solid waste in urban areas seem to be on increase in spite of different laws and measures both nationally and at local levels to keep towns and our environments uncontaminated (Okot-Okumu & Nyenje, 2011; Natamba, 2014; Komakech, 2014).

In Rubirizi Town Council, concern has been raised about the situation of SWM (Rubirizi Town Council, 2014). The Health Inspector also noted the increase of garbage and the need for town agents to be involved in mobilizing the people in order to improve sanitation. He suggested that there should be provision of gumboots, gloves and wheel barrows in order to ease the work for the cleaners (Rubirizi Technical Planning Committee, 2014).

There is no doubt SWM is still a challenge in Rubirizi Town Council as further evidenced by the elected leaders of the town council. The secretary social services asked why garbage collection has stalled for about two weeks despite the fact that the town council had a tractor, for that cause the town clerk informed members that petty cash to pay workers was not available which had led to the absconding workers (Rubirizi Town Council, 2014).

In Rubirizi Town Council, the situation is no different from many other Ugandan urban areas. Groria and Mao (2014) also showed that most residents were not satisfied with the cleanliness of their town. While majority of the respondents (86%) said there was a cleaning exercise. The general perception about the level of cleanliness is that it does not benefit the council. Cleanliness of the town and market areas was rated at only 4.6/10. Streets and roads were rated at 4.4/10 (Groria and Mao, 2014).

### Statement of the Problem

Rural-urban migration is on an increase in Uganda as more people move in anticipation to better their lives. The urban growth population rate currently stands at 5.9 percent per annum (National Development Plan, 2015). The Government of Uganda fully supports urban migration.

Government has also created Town Councils Subject to article 167 of the constitution of Uganda and in Local Government Act (Local Government Act, Cap 243 section 79). As such it is mandated that a given town council's responsibility is to plan while overseeing developments taking place within its jurisdiction. As the population increases, so does the generation of solid waste in urbanized areas.

In Rubirizi Town Council, solid waste remains a huge challenge and a nightmare. There is poor supervision, poor drainage, lack of refuse dumping site, inadequate funding and

awareness. There is evidence that despite the provision of funds to cub garbage spill over it is still the councils' number one short step to achieving a clean and well desired town (Groria & Mao, 2014). Many interventions such as, garbage collection by porters, budget allocation for the exercise, use of a tractor, emphasis on re use, has been instituted and also continuous sensitization programmes have been put in place. In addition by-laws on hygiene and sanitation have been enacted and sanitation days instituted. Here all stakeholders clean their town.

Despite the above interventions, solid wastes remain littered all over the town. You can hardly fail to see Solid waste when you approach Rubirizi Town Council. The study had to critically examine the factors affecting performance of SWM.

**Purpose of the Study**

The purpose of the study was to examine the factors that led to increased SWM in Rubirizi Town Council.

**Objectives of the Study**

The study was guided by the following objectives

a) To establish the effect of planning on SWM in Rubirizi Town Council.

b) To establish whether administration of laws significantly affects SWM in Rubirizi Town Council.

c) To establish the effect of monitoring and evaluation on SWM in Rubirizi Town Council.

**Research Questions**

The study sought answers to the following research questions

a) Is there a positive significant effect of planning on SWM in Rubirizi Town Council?

b) Does administration of laws positively and significantly affect SWM in Rubirizi Town Council?

c) Is there a positive significant effect of monitoring and evaluation on SWM in Rubirizi Town Council?

**Research Hypotheses**

The study tested the following hypotheses

a) There is a positive significant effect of planning on SWM in Rubirizi Town Council.

b) The administration of laws positively and significantly affects to SWM in Rubirizi Town Council.

c) There is a positive significant effect of monitoring and evaluation on SWM in Rubirizi Town Council.

**Conceptual Framework**

In the conceptualization of the variables of the study, factors were the independent valuable and these included planning, administration of laws and monitoring/evaluation. SWM was the dependent valuable that included recycling of waste, repair re use, sustainable home consumption

**Independent Variable (IV)**

**Factors affecting performance**

**Dependent Variable (DV)**

**Solid Waste Management**

**Planning**
- ➢ Financial Resources
- ➢ Structural Plan
- ➢ Human Resources

**Administration of laws**
- ➢ National laws & Policies
- ➢ Ordinances/By - laws
- ➢ Enforcement
- ➢ Sentencing and fines

**Monitoring/evaluation**
- ➢ Efficiency &Effectiveness
- ➢ Relevancy& Impact
- ➢ Sustainability

- ➢ Solid waste collection
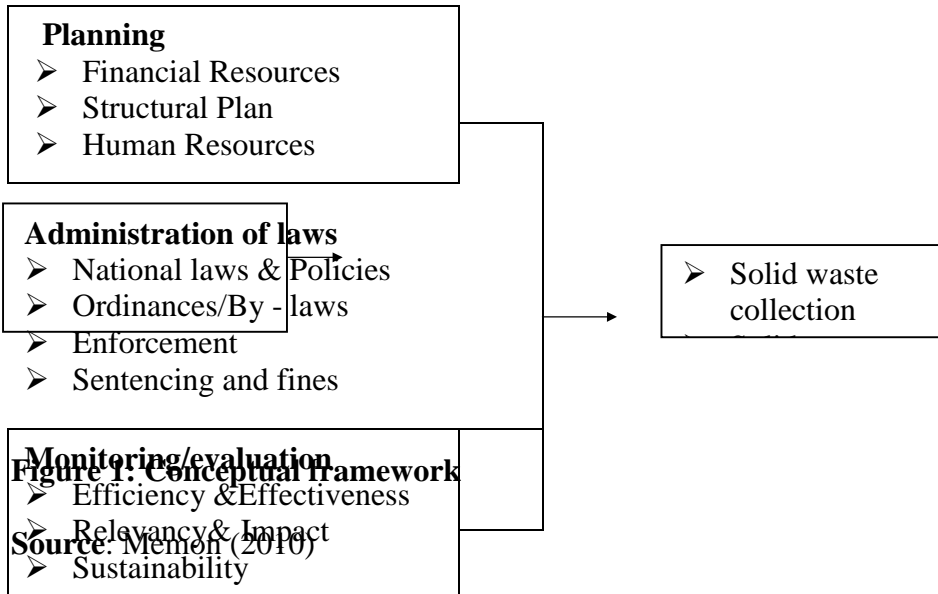
**Figure 1: Conceptual framework**

**Source**: Memon (2010)

Solid Waste Management (SWM) is influenced by interplay of the factors affecting the performance. Such factors include planning, administration of laws and monitoring/evaluation (Memon, 2010). Besides, according to the systems theory advanced by Von Ludwing and adapted by Klang et al (2010) and Theberg and Tonjes (2015), the interaction between factors affecting the performance aggregate to impact on Solid Waste Management. These factors can cause a change in SWM. This study conceptualized that when there is proper planning strategies in place, there is high SWM and vice versa. Also, with authentic implementation of administration of laws there may be limited indiscriminate disposal of solid waste and vice versa may be the case. Furthermore, when monitoring/ evaluation is poor, residents tend dispose of solid waste aimlessly and vice versa.

Generally, this study depended on a presupposition that the SWM can either improve or decline depending on the context and nature of planning, administration of laws and

monitoring/evaluation to which the residents are exposed. It is against this interaction that study investigated the effect of factors of performance on SWM.

### Significance of the Study

Looking at factors affecting performance of SWM in Rubirizi Town Council should go a long way to help the Urban Council of Rubirizi Town Council on how better they can improve on management of solid waste bearing in mind they are already trying to manage it.

As Rubirizi Town council is endowed with various crater lakes, it is believed that this research may go a long way to help various governmental organizations, development partners, in looking at how best the waters from these lakes could be made clean for public consumption at a low cost, when Solid waste is managed and water contamination is at low levels.

The study is going to be relevant for law makers, policy makers, both at the national and local level (National Environmental Management Authority, Ministry of Health, District and Local Councils) for a better and clean environment, for both the present and the coming generation.

The academia world should also take keen interest in this study for referencing purposes in future, for further research or re investigations and hypothesis formulation. Solid waste generators are also a target in this research. Their active involvement will go a long way in solving some of the problems of waste management. Garbage has become an environmental concern if not properly disposed of. Furthermore garbage pilling is one of the major causes of flooding we are witnessing and therefore, this study is coming in at a well desired time.

### Justification of the Study

Various studies have been conducted in urban centers of Uganda about solid waste management. A study which was conducted in Kampla by Kinobe (2015) to assess Urban Solid Waste Logistics Systems revealed low resource allocation to SWM. Also, Komakech

et al (2014) in a study conducted in Kampala to establish characterization of municipal waste reported uncontrolled disposal. In a case study conducted by Natamba (2014) within urban regions in Kyazanga Town Council, Lwengo District, Uganda reported low emphasis on SWM. Also, Okot-Okumu and Nyenje (2011) in their study revealed poor concern by town councils in handling municipal waste despite decentralization in Uganda. The study conducted by WaterAid (2011) in Bwaise II Parish revealed that the residents were lowly involved in SWM. None of these studies were in Rubirizi Town and more so did not focus on factors affecting solid waste management, which rendered this study different from those already conducted.

The study may be very unique and in its own category because many Urban Councils have done much regarding management of solid waste, some even spending too heavily on SWM, but have not critically looked at the factors affecting their performance of this solid waste they are so much trying to manage.

Already, Rubirizi town council is struggling with SWM. The survey also showed that most residents are not satisfied with the cleanliness of their town. Although the majority of respondents (86%) said there was a cleaning exercise, the general perception about the level of cleanliness is that it does not benefit the council. Cleanliness of the town and market areas was rated at only 4.6/10. Streets and roads were rated at 4.4/10 (Groria & Mao, 2014).

### Scope of the Study

In this section, there were three areas considered viz; the geographical scope, content scope and time scope.

### Geographical Scope

The study took place in Rubirizi Town Council which is located in Rubirizi District. The district has 11 lower local governments, two town councils. Rubirizi District was carved out

of former greater Bushenyi District. Rubirizi town council can be approached through Bushenyi-Kasese highway. Rubirizi District borders with a number of districts: Kamwenge district, Kasese district, Bushenyi District, Ibanda District, Buhweju District, Rukungiri to the northeast, to the north, to the south, to the east, to the southeast, the southwest respectively. Rubirizi district also boarders with the Democratic Republic of the Congo in the west. The coordinates of Rubirizi district include 00 16S, 30 06E.

**Content Scope**

There were two variables that the researcher considered in this study. The independent variable were factors affecting performance of solid waste that includes; planning, administration of laws, monitoring/evaluation, while the dependent valuable was SWM, which included clean environment, disease free town, recycling and reusable economic gain. Planning focused on financial resources, structural plan and human resources. Administration of laws focused on national laws and policies, by-laws, enforcement including sentencing and fines. In addition, the process of monitoring and evaluation with the principal focus on efficiency, effectiveness, relevancy, impact as well as sustainability of SWM iwas of paramount concern in this study. Also, SWM focused on solid waste collection, solid waste treating and solid waste disposal.

**Time Scope**

The time considered for the study was from 2010, when the town council was inaugurated up to 2014. During this period concern were raised about poor solid waste management in Rubirizi Town Council.

# CHAPTER TWO

# LITERATURE REVIEW

## Introduction

The chapter presents the literature review. It is divided into five major sections. The first section presents the theoretical review. The second section presents a review on planning and SWM. The third section presents a review on administration of laws in relation to SWM. The fourth section presents a review on monitoring and evaluation and SWM. The last section is a summary of the literature

## Theoretical Review

The systems theory was advanced by a scientist by the names of Von Ludwig in 1920. Having studied the human body, his outcome was that the body was made up of many parts, including but not limited to, the heart, the liver and the elementary canal (Klang et al, 2010). His conclusion was that all these must be active in order for the whole body to function perfectly. This theory was adopted in this research to explain how planning and SWM needs a systems theory to work effectively (Thyberg & Tonjes, 2015).

In planning, there is need for financial resource mobilization and how it is budgeted is a key factor in SWM (Anestina et al, 2014). Planning as a variable when properly effected, needs not to work in isolation but also there is need for administration of tough laws to help restrict solid waste bad practices, these should include national laws and policies, ordinances and by laws prosecution, sentencing (McAllister, 2015).

Laws can limit solid waste generation, help observe and conserve the environment through responsible dumping and cleanliness (Wang et al, 2012). Lastly as much as the two can do a

good job, it cannot achieve much without bringing in monitoring and evaluation as another variable that the other two need in order to help manage solid waste (Hoornweg, Thomas & Keshav, 2009). There is need for SWM which leads to a town free of diseases, economic gains especially if recycling if looked at in terms of money and lastly increased development partners. Such factors affect the performance of SWM (Geography, 2009).

SWM in Rubirizi Town Council will very much depend on how financial, structural and human resources are planned, especially, how revenue in enhanced and mobilized, after acquiring that revenue, then how it is budgeted also helps in SWM. A lot of money has to be portioned in this area if waste is to be better managed.

The achievement of SWM depends entirely factors affecting its performance. These include the human capital is an important resource as well as monitoring and evaluation. Planning, administration of laws, monitoring and evaluation can all combine to make whole systems theory in Rubirizi Town Council.

### Planning and SWM

According to studies conducted by Venkatshwaran (2010) as well as UNCEA (2010), it was reported that poor SWM was found to be interrelated diseases like plague and cholera to poor SWM. Also, in regard to Hanks cited in Hoornweg et al (2009), the United States Public Health Service identified 22 human diseases that are linked to improper SWM.

According to Kelseva and Mbuligwe (2011), it was envisioned that good governance permits low income groups to impact policy and resource allocation. This means that SWM would have enough resources to cover its volume. Furthermore, they go on to say that in many cities within the developing world, remedial measures have been regarded as abstract in that even

the efforts put in are usually uncoordinated or adhoc and the limited available resources invested in this sector normally are inadequate.

Planning, in Rubirizi Town Council should look at the possibility of less expensive options in SWM and set out to find them because resources will always be inadequate. It also very evident that resource allocations do not normally favour good planning practices of SWM (Parthan et al, 2012). There is need for human resources, to identify alternative technologies to be able to handle SWM.

New technologies are rapidly superseding analog appliances, leading the disposal of solid waste in landfills despite potentially their adverse effect on the environment (Deranar, et al, 2012). There is need for human resources, to identify alternative technologies to be able to handle SWM.

The identification of suitable technologies needs a well trained and equipped human resource to be on the staring wheel which unfortunately is yet to be fulfilled in developing countries, Uganda included. This can only be achieved by building capacities to support, implement and sensitize extended producer responsibility. Therefore, Rubirizi Town Council should identify gaps to equip its human resource capacity.

The Health Inspector highlighted poor drainage, lack of refuse dumping site, inadequate funding for some activities like general cleaning days as the obstacles faced by the town council and presented a work plan for second quarter. Records go on to show that in spite of injecting in funds to curb garbage, it is still their number one short step to achieving a clean and well desired town (Rubirizi Town Council records, 2010). Literature available in Rubirizi Town Council, show that improved drainage systems, creating dumping site and sanitation days among others are in plans and SWM is yet to be achieved.

It is more important to look at factors affecting performance of SWM and then, why solid waste is increasing instead of decreasing. The SWM systems are reported not to always be given high priority by the local and national policy makers and planners. Other issues with more social and political urgency may take precedence and leave little budget for SWM issues (Zarate, Slotnick, & Ramos, 2008).

Solid waste can best be managed when resources are available and are distributed adequately. When there is a structural plan in place for Rubirizi Town Council and the required human resources are well enumerated and motivated, working towards the achievement of SWM can be a reality. However, it has been observed that Rubirizi town council is struggling with funds to properly manage solid waste (Rubirizi Town Council records, 2014).

Henry et al (2010) maintained that in developing countries the solid waste produced by burgeoning cities, is overwhelming local governments and national governments alike. Limited resources they maintain result in a perpetuation and aggravation of inequalities already being experienced by the vulnerable population (Sekono, 2010).

Consistent thorough planning is a central issue in SWM. There is no way planning can take place without resource planning to manage better solid waste, there are many areas to look at that include; payment of workers that such as planners and porters, transportation and dumping (Henry et al, 2010).

According to a Local Government Handbook, the physical planning act section 9, declares the whole country a planning area and provides for, structures at all levels to oversee physical planning (Loughlin, Hendriks, & Lidström, 2012). This is good enough to show us that SWM should be properly planned for most especially the dumping site, so that urban towns have separated well gazette dumping sites.

Solid waste may not be easily carried out in unplanned settlements due to lack of space for, refuse containers and waste burial, narrow road ways and steep gradients. Besides, the unsurfaced roads could be a challenge in that some collection vehicles cannot manage to reach the collection coupled with lack of alternative arrangements for solid disposal. Coffey and Coad (2010) established that almost in variably the SWM of the highly density, settlements characterized by low income dwellers are usually inadequately served and often neglected altogether even though such marginalized areas have the greatest urgent need for SWM services.

Literature reviewed indicated that having a well-planned town with a structural plan in place, is very important and this goes on to show further that human resources are important to combine and make effective the other two remaining variables, that is financial resources and structural plan (Hoornweg et al, 2009; Medina, 2011; Zerbock, 2009). A well planned town is vital, if Rubirizi Town Council is focused on managing waste. People must access waste collection services and this is a challenge.

### Administration of Laws and SWM

Solid waste strategies cannot be implemented when there is lack of support and guidance emerging from legislative flame work. Legislative is required to develop a sequence of ordinances in addition to regulations with the aim of managing Solid waste. Also, constant policies of SWM are a prerequisite. The policies to be implemented should aim at encouraging cross jurisdictions and coordination between agencies while facilitating implementation of economic instruments that improve Waste Management (World Bank, 2011).

Hitherto, values are conceptions of the preferred, together with the construction of standards to which existing structures or behavior could be compared and assessed, whereas norms

ascertain how things should be done by defining the authentic means to pursue the valued ends. The normative system diverts away from the logic of consequences and put emphasis on appropriateness by defining the goals and objectives as well as the appropriate way to pursue them (Scott, 2008). The normative laws highlight that people behave in accordance with their culture, seeking to do the right thing and avoid wrongdoing. Thus, the unwritten rules and regulations that affect the behavior of people are consequently taken for granted as cited by Scott (2008, pg. 55) that "these beliefs are not simply anticipations or predictions but prescriptions" therefore people are expected to always know what exact actions or directions to take because the norms are constantly taken as given. Hence, the actors reflect the norms and values of institutions within they belong.

Besides, various state, local regulations, guidelines must be in place if SWM is to be realized. Without tough laws probably planning as well as management of solid waste in urban local governments may take long, to curb. Section 103 of the public health act, imposes a duty on local authorities, to take, all lawful and necessary measures, to prevent pollution dangerous to health (Pollock, Price, & Roderick, 2012). At the back of every one's mind is the thinking that if there is tough administration of laws and penalties for improper SWM, success can be registered (Kim, 2010).

Scholars go on to emphasize the fact that administration of laws is a critical area that should be properly examined by urban councils if solid waste is to be properly managed in their respective areas (Zerbock, 2009; Zurbrucc, 2009; Getahun, 2011). Different countries and regions have different national and local legislations to help effect SWM but going by the available literature developing countries are far from effectively achieving this. Uganda in particular has several laws and policies but poorly implemented and more on books than reality.

Hokao and Phonekeo (2012) indicated that the regulatory flame work related to SWM in Thailand was classified in three levels; National level, Provincial level as well as local level. Low income countries are known to lack appropriate institutions as well as structures of governance that are typically established in high income countries. Examples of such structures and institutions include but not to public policy, research institutions, freedom of information, judicial autonomy, auditors general, police and academia to manage well Solid waste (Bhuiyan, 2010).

Rahman (2009) said lower tax burden would not increase compliance, without an effective enforcement mechanism. Going by what other researchers have put across, they, all seem to agree that unless there are tough laws on awareness solid waste generators and miss users, planning and SWM in local governments might not be a smooth road (Kamran, 2008; Hailemeskel, 2014; Melaku, 2008). More mandatory recycling and disposal bans must be introduced for better SWM.

Kim (2010) gave an overview of failed SWM systems when he envisaged that such a system is characterized by inadequate formulation and implementation of realistic SWM laws. To deal with proper planning of SWM, Coffey and Coad urged that there must be institutional aspects that include current as well as the future legislation and the degree to which the laws formulated are enforced.

According to Melaku (2008), numerous bylaws, resolutions and administrative rules must be in place to help plan for SWM. Already there are both national laws and policies in Uganda that need to be tightened example NEMA act, Public health act and others as emphasized by Scholar (2009) highlighted a straight forward transparent, unambiguous legal and regulatory flame work, including functioning, inspection and enforcement procedures at the national, provisional and local levels, is essential to the proper planning of solid waste.

Buihyan (2010), notes that enforcement of laws that govern regular SWM activities with new implementation are often poor and consequently this results into an improper way of SWM. None of the above researchers seems to be disagreeing with the fact that stringent laws are not needed for the proper planning in addition to the methods of managing solid waste. The touch laws and policies must be there and must be seen to be enforced on the ground. Rubirizi town council has to strengthen their SWM by putting in place tough laws, to stop those who dispose garbage anyhow, as solid waste heaps are seen around town.

### Monitoring and evaluation and SWM

Waste management stakeholders can be defined as individuals or organization with a legitimate interest towards achieving the goal of minimizing waste (Visvanathan & Trankler, 2009). One way of minimizing waste is by allowing the public in general to be aware of the problems posed by ineffective management of waste. Therefore the government, formal and informal sectors, environmental organization and other groups should work together to create this awareness through municipal SWM programmes. The public involvement and participation is a means of creating a sense of individual responsibility towards waste management and hence the sustainability of the systems (Visvanathan & Trankler, 2009). Waste management stakeholders can therefore be viewed as an important element in reaching out to the communities in creating awareness about the environmental impacts resulting from poor waste disposal. This can be organized through various environmental programmes which will initiate motivation and hence ensuring a continuous participation.

There is need to design and develop a monitoring and evaluation system to track Municipal SWM sector performance. One of the advantages of monitoring and evaluation is to ensure that the organization follows the direction that is stipulated in her strategic plan (Peng & Sun, 2013). Monitoring and evaluation should improve capacity, lead to better planning and

management of Solid waste Services including enhanced cost effectiveness through high private sector involvement where is feasible (World Bank, 2014). From the above scholarly work, it is very evident to assert that SWM might not be well tackled in urban towns, if monitoring and evaluation system that follows changes over time. Already Rubirizi Town Council has shown that there is poor supervision on the ground which affects SWM (Grolia & Mao, 2014).

Although monitoring and evaluation is an important tool in SWM in Rubirizi Town Council, the health Inspector mentioned the challenges encountered in supervision, including little facilitation, absenteeism, lack of a dumping site (Rubirizi Town Council, 2010). This was not good news for proper SWM.

To ensure effectiveness and efficiency of monitoring/evaluation, key preliminary list of key performance indicators based on envisioned objectives from collection to the sites of disposing of garbage needs to be priotised. Future investigations, objectives and needs should be effectively taken into account, acquire SWM data generation systems, objectives, expectations and needs of main decision makers then integrate best practices derived from similar experiences (Santos, 2015). This meant that proper planning to monitor and evaluate SWM has stages to be completely successful it begins from the stage of collection up to disposal. Monitoring and evaluation should present options that may be analyzed towards selecting the best methods.

It is important to note that there are plans and guidelines but not rules and it is okay to deviate from the plan. However, the planners should provide a clear reason for deviations and stipulated update in the plan in order to reflect the new direction. If for example planners feel that the contracted porters disposing of, solid waste in Rubirizi Town Council are few,

increasing them in a season where solid waste is in big heaps might mean increasing on the previous budgeted for funds.

**Summary of Literature Review**

The literature reviews in this chapter give major discernments about the opinions of different authors, regarding the variables considered in this study. The gist of the matter was probably singled out by Kim (2010) who gave an overview of failed waste management systems because of inadequate formulation and implementation of realistic SWM laws in common. In addition, Coffey and Coad (2010) emphasized that SWM might not be easily conducted in settlement that are unplanned. Lastly according to the World Bank (2010), monitoring and evaluation should improve capacity, lead to better planning and management of SWM.

The leaf we can borrow here is that there must be well focused planning systems for SWM especially in developing countries. Monitoring and evaluation systems are secured in places, if Solid waste is to be managed. The available literature reviewed in Rubirizi town council so far showed that there was a gap and this was poor supervision (Grolia & Mao 2014). Then, that what other researchers were venturing into regarding SWM should be quickly looked into by our urban local government planners before SWM goes out of hand. Other countries are already looking at e-waste management.

Finally, waste reduction and recycling must be a much better option and must be looked at a large scale, following, planning including, financial resources, structural plan and human resource planning, administration of tough laws, by following up both National and Local laws and finally good tracking systems in Monitoring and evaluation by all actors in SWM. However, in Uganda, little has been done to establish the extent to which the factors affecting performance impact on the problem of poor SWM in almost all town councils, making the designing of evidence-based interventions difficult. This study thus aimed at covering the

above gaps by establishing the effect of planning, administration of laws and monitoring/evaluation on SWM in Rubirizi Town Council as a cas study that could be used for other town councils.

# CHAPTER THREE

# METHODOLOGY

### Introduction

This chapter presents the methodology that the study followed. This included the research design, study population, sample size, sampling techniques and procedure, data collection methods, data collection instruments, data quality control, procedure of data collection, data analysis, measurement of variables and ethical considerations used in the study.

### Research Design

The study used a cross sectional case study design. This design was used because it enabled the researcher to focus on one organization to gain an in-depth study of the problem with limited time scale (Amin, 2011) and enable the researcher to target a large group of respondents to obtain information without making a follow up of the respondents once information from them is obtained (Sekaran & Bougie, 2016). Therefore, this survey helped to save on time and resources during data collection. Both qualitative and quantitative methods were used in the study because the qualitative approach allowed the research to solicit information that cannot be quantified while quantitative approached allowed collecting data that was expressed in figures (Mugenda & Mugenda, 2009). Combining numerical and textual information helped enrich the interpretation of findings of the study (Mugenda & Mugenda, 2009).

### Study Population

The study focused on Rubirizi Town council. The target group was 100 residents, 10 political leaders and 10 technical staff. In total, these were 120. Residents were included in the

population because they had been residing in the town council for the last three years and they were the primary source of solid waste generators thus they were in position to provide information about various methods they used to manage sold waste. The political leaders were purposively chosen in this study because they were the main overseers of the town council. The technical staff were selected because they were the implementers of hygiene in the town council thus were in position to give information about various methods used to manage solid waste in the town council.

**Sample Size and Selection**

There were three types of subjects for the study. They included town council residents, political leaders and technical staff as shown in Table 1. A sample size of 100 respondents was determined using the following Krejcie and Morgan (1970) formula, as shown in the table below

**Table 1: Sample size**

| Respondents category | Target population (N) | Sample size | Sampling technique |
|---|---|---|---|
| Residents | 100 | 80 | Simple random |
| Technical staff | 10 | 10 | Purposive sampling. |
| Political leaders | 10 | 10 | Purposive sampling |
| **Total** | **120** | **100** | |

**Sampling Techniques and Procedure**

The researcher used purposive sampling for respondents perceived to have deeper knowledge of the subject under study that included technical staff and local leaders. Political leaders included the Chairperson, Vice Chairperson, Secretary Finance, Secretary Production, Secretary Social services, Chairperson Finance, Chairperson Production, Chairperson Social services and the Speaker. Also, the technical staff included Town clerk, Senior Assistant Town Clerk, Senior Treasurer, Physical Planner, Town Engineer, Veterinary Officer, Health inspector, Human Resource Officer, Community Development officer and town agent. In this study, simple random sampling method was used to choose a representative sample from the local community members. This allowed every member in the sampled population to have an equal chance of being selected (Amin, 2011). A list of names of households in Rubirizi Town Council was obtained from the Chairmen of Local Council 1. 80 households using random numbers were generated using the phone and then the head of the household recruited into the study. The selected residents were then contacted. Health inspectors as technical staff were interviewed. Sub county chiefs and town agents as political leaders were interviewed.

**Data Collection Methods**

This section presents the methods that the researcher used to obtain the data. The methods included the questionnaire survey and face-to-face interview.

**Questionnaire survey**

A questionnaire survey method being a research method appropriate for collecting information from a representative sample according to Amin (2011) was chosen for this study. During the study, the standardized questionnaires were particularly administered to the

respondents upon their consent. The group that was selected in this study included residents. This method involved gathering information about factors affecting SWM from a sample of local community members in a systematic way. Questionnaire survey was used for these categories of respondents to save on time because their number was too big to interview.

### Face-to-face interview

The data was particularly collected using individual face-to-face interviews for the case of key informants. Data was specifically collected on the factors affecting SWM from local technical staff and political leaders because interviews enabled the researcher to establish rapport with the respondents while aiming at gaining cooperation. Interview method also enabled the researcher to elucidate ambiguous answers and obtain in-depth understanding through probing. During the study, semi structured-interviews were specifically used to implore and gather information from the respondents. Open-ended questions were used so that other valuable questions emerged from the dialogue between interviewer and interviewee. Semi-structured interviews are also viewed as the utmost and broad method for obtaining data in qualitative research (DiCicco-Bloom & Crabtree, 2010). In this study, the probing interviewing tactic was used extensively to obtain a deeper explanation of the factors affecting SWM from the respondents. This was largely due to the fact that the respondents often needed stimuli to expand or clarify their own answers and ideas more broadly so that a broader understanding was easily obtained.

### Data Collection Instruments

This section presents the data collection instruments that were used by the researcher used to obtain the data. The methods included the questionnaire and interview guide.

**Questionnaire**

A questionnaire is a type of survey method that utilizes a standardized set or list of questions given to individuals or groups, the results of which can be consistently compared and contrasted (Amin, 2011). Questions may be designed to measure dichotomous responses (for example, yes /no or true/false questions), or responses on an interval level such as Likert scaling (bipolar 1-5 ratings) or by semantic differential scaling (bipolar adjective pairs, for example, the range of choices including "very interesting, somewhat interesting, etc). In the study, open-ended questions were also included in the questionnaires, though these require more time to read. Self-administered questionnaires (SAQs) are questionnaires that a respondent completes on their own, either on paper or via computer (Amin, 2011). SAQs were used to collect quantitative data from the local community about factors affecting SWM. SAQs were used for this category of respondents to save time because the number was too big to be interviewed.

**Interview guide**

An interview guide is a list of topics to be covered in an interview (Mugenda & Mugenda, 2009). It is similar to a questionnaire, but much less structured, and without multiple- response questions. Interview guides were used to collect qualitative data about factors affecting SWM from local technical staff and political leaders who were in position to provide in-depth information through probing during the face-to-face interview. The research presented questions to the local technical staff and political leaders and their views were written down by the researcher. Data obtained during the interview supplemented that obtained through the questionnaire.

**3.3     Data Quality Control**

In this section, data quality control is presented. This included validity of both the questionnaire and interview guise.

**Validity**

A validity test was carried out prior to the administration of the research instruments. This was done in order to find out whether the questions were capable of capturing the intended data. Experts in research reviewed the questions in the questionnaire and interview guide to see whether they were capable of capturing the intended response. The Content Validity Index (CVI) was intentionally determined for the questionnaire in order to find out its validity. The researcher used the following formula to establish validity of the research instruments.

CVI = Relevant items by all judges as suitable

       Total number of items judged

Results are presented in the following tables.

**Table 2: Validity of questionnaire for teachers**

| Raters | Items rated relevant | Items rate not relevant | Total |
|--------|---------------------|-------------------------|-------|
| Rater 1 | 27 | 5 | 32 |
| Rater 2 | 25 | 7 | 32 |
| **Total** | **52** | **12** | **64** |

**Source**: Data from field (2016)

Thus, applying the formula

CVI = $\underline{52}$ = .813

      64

The CVI for the questionnaires were above the recommended .70 (Amin, 2011). The questionnaires were then considered appropriate for collecting the data.

### Reliability

Reliability is the ability of an instrument to consistently obtain information it is intended/required (Bloor & Wood, 2010). In order to find out the degree to which questionnaires produced consistent results under the same conditions, the questionnaires were first pre-tested using 20 respondents. The reliability results were then computed using the SPSS version 20.0 package. Reliability of the questionnaires was assessed using Cronbach's coefficient alpha. Results of the reliability test are presented in the following tables.

**Table 3: Reliability of variables in the questionnaire for teachers**

| Variable | Alpha | n |
|---|---|---|
| Planning | .742 | 12 |
| Administration of laws | .828 | 9 |
| Monitoring/evaluation | .747 | 5 |
| Solid Waste Management | .820 | 6 |

**Source**: Data from the field (2016)

The alphas for the variables in the questionnaire were all above the recommended .70 (Amin, 2011) which implied that the questionnaire was suitable for data collection.

**Procedure of Data Collection**

After defending the proposal, and with a green light from UMI, the researcher was given an introductory letter which served as an assurance to the people and the Rubirizi Town Authority where research was conducted. This served to secure permission in order to carry out the study. The researcher then presented a letter of consent to the local community members, after which, questionnaires were distributed. The respondents were given time within which they should return the fully filled questionnaires. Dates were also set for the interviews with the technical staff and local leaders as key informants. After the questionnaires had been filled, the researcher collected them, sorted them and coded them.

**Data Analysis**

Qualitative and quantitative data analyses were applied in this research.

**Quantitative data analysis**

Descriptive statistics comprising of frequencies and percentages were reported. Inferential statistics used were Spearman correlation ( *rho* ). The frequencies and percentages were used to determine the respondents' views on planning, administration of laws, monitoring and evaluation and SWM. Spearman correlation and coefficient of determination were used to answer the research questions. The correlation coefficient ( *rho* ) was basically used to determine the strength of the relationship between the variables. This was because the scale; strongly disagree, disagree, not sure, agree and strongly agree. It was then accompanied the questionnaire which was ordinal (Sekaran & Bougie, 2016). The responses were arranged in order whereby one could not exactly determine how much one disagreed or agreed and as such adding or subtracting the responses such as strongly disagree from disagree seemed not to make sense. It is recommended that with an ordinal scale, Spearman rank order correlation

is suitable for determining relationships because it does not involve means and standard deviations, which are meaningless with ordinal data. The sign of the correlation coefficient (+ or -) was used to determine the nature of relationship. The significance of the correlation coefficient (*p*) was mainly used to determine the level of confidence in the findings.

### Qualitative data analysis

This involved content analysis, which was used to edit qualitative data and reorganize it into meaningful shorter sentences. This type of analysis is used when qualitative data has been collected in textual format such as data collected using face-to-face interview (Sekaran & Bougie, 2016). A thematic approach was used to analyze qualitative data where themes, categories and patterns were identified. The recurrent themes, which emerged in relation to each guiding question from the interviews, were presented in the results, with selected best quotes that emerged from participants presented.

### Measurement of Variables

The questionnaire was accompanied with an ordinal measurement, which categorizes and ranks the variables. Thus, a Likert scale was used to gather opinions regarding the variables included in the study. The ordinal scale was chosen in this study because it eased data quantification given that it uses few numerical codes for data analysis as suggested by Amin (2011).

### Ethical Considerations

The identity of people who participated in the study was kept strictly confidential. Protecting the dignity and rights of every individual who actively got involved in this research project was taken into consideration by not exposing any given information before any one until the research work was done and ready for everyone to read. Personal consent from the

participants of this study was obtained. This ensured observation of their rights as employees and human beings. Respondents received disclosure in regard to the nature of the study, the risks involved, accruing benefits and alternatives, with an extended opportunity to ask pertinent questions regarding the research. The researcher treated all information provided by participants with maximum confidentiality. Honesty was maintained throughout the research process in reporting data, results, methods and procedures in order to avoid fabrication, falsification, or misrepresentation of data. All quotations used and sources consulted were clearly distinguished and acknowledged by means of references. A letter of authorization from the UMI was provided as a request for permission to conduct the study. A covering letter supplemented the research instruments and explained the purpose of the study. During the study, the questionnaires were administered to the respondents while being found in their respective areas of work. The questionnaires were filled and upon completion, they were cross-checked and collected immediately. The cover letter was also used to provide access to the interview process, which was done on appointment.

**CHAPTER FOUR**

**PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS**

**Introduction**

This chapter presents, analyses and interprets the results. It is divided into five major sections. The first section presents results about the response rate. The second section presents results on residents, technical staff and politicians' background information. The third section presents results on planning and SWM. The fourth section presents results on administration of laws and SWM. The fifth section presents results on monitoring and evaluation and SWM.

**Response Rate**

Response rates are normally considered the most widely used compared statistic for judging the quality of results obtained from the field (Biemer & Lyberg, 2009). A response rate is a standard measure of how successfully (potential) interviewees were motivated to participate in a given study. It is defined as the number of units in the net sample when divided by the number of units in the gross sample. It is then expressed in the form of a percentage. High research response rates help to ensure that research results are representative of the target population. In this study, the sample was 100 residents, technical staff and politicians but the study managed to get 83 residents, technical staff and politicians. The break down is shown in Table 4.

**Table 4: Response rate**

| Category | Targeted sampled size | Actual sampled size | Percentage % |
|---|---|---|---|
| Residents | 80 | 68 | 85 |
| Technical staff | 10 | 8 | 80 |
| Political leaders | 10 | 7 | 70 |
| Total | 100 | 83 | 83 |

**Source**: Data from residents, technical staff and politicians

Thus, the total response rate was 83%. According to Amin (2011), a 67% response is acceptable. Therefore, with an 80% response rate in this study, the results were considered representative of what would have been obtained from the population.

### Demographic Characteristics

Rubirizi Town Council residents, technical staff and politicians were asked about background.

### Age of Residents, Technical Staff and Politicians

Residents, technical staff and politicians were asked about their age. Age of the residents, technical staff and politicians is one of the most important characteristics in understanding their views about the particular problems; by and large age indicates level of maturity of individuals (Gibb, 2008). In that sense, age becomes more important to examining the response about a particular problem. Findings are presented in Table 5.

**Table 5: Distribution of residents, technical staff and politicians by age**

| Age | Frequency | Percent |
|---|---|---|
| Below 20 years | 3 | 3.8 |
| 20-29 years | 35 | 43.8 |
| 30-39 years | 34 | 42.5 |
| 50-59 years | 5 | 6.3 |
| 60 years and above | 3 | 3.8 |
| Total | 80 | 100.0 |

**Source**: Data from residents, technical staff and politicians

Findings show that most of the residents, technical staff and politicians (96.2%) of the most of the respondents were youths of as ages above 20 years. Thus, the implication of these findings is that information about the planning, administration of laws, monitoring and evaluation and SWM was obtained from residents, technical staff and politicians who were mature and given their age the possibility of them learning about these issues was higher. The assumption was that information obtained was dependable.

**Gender of Residents, Technical Staff and Politicians**

Gender is an important variable in a given social situation which is variably affected by any social or economic phenomenon (Guest, 2011) and the response of residents, technical staff and politicians on planning, administration of laws, monitoring and evaluation and SWM are not an exception to it. Hence, residents, technical staff and politicians were asked about their gender. Findings are presented in Table 6.

**Table 6: Distribution of residents, technical staff and politicians by gender**

| Gender | Frequency | Percent |
|--------|-----------|---------|
| Male | 50 | 62.5 |
| Female | 30 | 37.5 |
| Total | 80 | 100.0 |

**Source**: Data from residents, technical staff and politicians

Findings show that more male residents, technical staff and politicians (62.5%) participated in the study compared to the proportion of female residents, technical staff and politicians. In Rubirizi Town Council, the ratio male to female was higher. Thus, it was expected that if study was conducted in the area, more males compared to females would participate in that study. Thus, the implication of these findings was that information about planning, administration of laws, monitoring and evaluation and SWM was obtained from a sample that reflected gender distribution of people in Rubirizi Town Council.

### Level of education of residents, technical staff and politicians

Education is one of the most important characteristics that might affect the person's attitudes and the way of looking and understanding any particular social phenomena (Konrad & Hartmann, 2011). In a way, there is likelihood for the response of an individual is likely to be influenced by their educational status. Therefore, it becomes really imperative to know the educational background of the residents, technical staff and politicians. Hence, residents, technical staff and politicians were asked about the level of their education. Findings are presented in the Table 7.

**Table 7: Distribution of residents, technical staff and politicians by education level**

| Education level | Frequency | Percent |
|---|---|---|
| Certificate | 38 | 47.5 |
| Diploma | 28 | 35.0 |
| Bachelor's Degree and above | 14 | 17.5 |
| Total | 80 | 100.0 |

**Source**: Data from residents, technical staff and politicians

Findings show that all residents, technical staff and politicians (100%) who participated in the study had at least a certificate level of education and thus, all residents, technical staff and politicians had attended school. Therefore, the education background of the residents, technical staff and politicians facilitated better response to the questions about planning, administration of laws, monitoring and evaluation and SWM because it was expected that they understood issues that they were asked. Thus, information obtained was reliable.

**Effect of Planning on SWM**

Before determining the effect of planning on SWM, descriptive statistics about planning and SWM were presented to show the residents, technical staff and politicians views on questions about these variables. Thus, this approach was adopted for every hypothesis and the descriptive statistics that were used were frequencies and percentages.

**Descriptive results about Planning**

Rubirizi Town Council residents, technical staff and politicians were requested to respond to 12 items about planning in a five-point Likert scale. The analysis as well as the interpretation of the findings about planning follows the specified presentation of findings in Table 8.

**Table 8: Findings about Planning of Local Communities**

| Items about planning | SD | D | NDA | A | SA | Total |
|---|---|---|---|---|---|---|
| 1. Solid waste is properly planned for around in this area | 36 (44%) | 26 (33%) | 4 (5%) | 10 (13%) | 4 (5%) | 80 (100%) |
| 2. Solid waste is properly disposed off in this area | 30 (38%) | 25 (30%) | 2 (3%) | 8 (10%) | 15 (19%) | 80 (100%) |
| 3. There are adequate dumping site in place in this area | 30 (38%) | 30 (38%) | 5 (6%) | 11 (13%) | 4 (5%) | 80 (100%) |
| 4. There are well designated places for residents in this area to dispose their solid waste | 9 (11%) | 41 (52%) | 4 (5%) | 21 (26%) | 5 (6%) | 80 (100%) |
| 5. This area has an adequate budget for SWM | 32 (40%) | 37 (45%) | 6 (8%) | 3 (4%) | 2 (3%) | 80 (100%) |
| 6. There is no need to look for more funds to increase solid waste budget in this area | 38 (48%) | 24 (30%) | 4 (5%) | 9 (11%) | 5 (6%) | 80 (100%) |
| 7. The authorities in this area have allocated enough funds for solid waste | 29 (36%) | 21 (26%) | 3 (4%) | 8 (10%) | 19 (24%) | 80 (100%) |
| 8. There is no need for more resource envelop for SWM | 27 (34%) | 32 (40%) | 5 (6%) | 11 (14%) | 5 (6%) | 80 (100%) |
| 9. This area has enough staff to handle solid waste | 10 (13%) | 41 (51%) | 4 (5%) | 21 (26%) | 4 (5%) | 80 (100%) |
| 10. The waste garbage collectors are well remunerated and motivated | 34 (42%) | 32 (40%) | 4 (5%) | 3 (4%) | 7 (9%) | 80 (100%) |
| 11. The waste garbage collectors are skilled in solid waste handling | 33 (41%) | 38 (47%) | 2 (3%) | 2 (3%) | 5 (6%) | 80 (100%) |
| 12. The authority in this area has always trained staff in SWM dynamics | 25 (31%) | 35 (44%) | 4 (5%) | 8 (10%) | 8 (10%) | 80 (100%) |

**Source**: Data from residents, technical staff and politicians

Key: SD =Strongly disagree, D = Disagree, NDA = No definite answer, A = Agree,

SA = Strongly agree

To analyze the findings, for each item, strongly disagreed and disagreed were added together into one category called:

"*Residents, technical staff and politicians who opposed the items*" and strongly agreed and agreed were also added into another category called "*residents, technical staff and politicians*

*who concurred to the items*". Thus, three categories of *residents, technical staff and politicians* were compared, which included "*residents, technical staff and politicians who opposed the items*", "*residents, technical staff and politicians who had no definite answer to the items*" and "*residents, technical staff and politicians who concurred to the items*" (Interview with key informant B conducted on 24th June 2016)..

Interpretation was then drawn from the comparisons of the three categories as shown in the following paragraph.

Findings in Table 8 shows that more residents, technical staff and politicians opposed all items about planning (that is items 1 to 12) compared to residents, technical staff and politicians who concurred with these items and those who had no definite answer to these items. A comparison of these items shows that the percentages of residents, technical staff and politicians that opposed ranged from 62% to 88% while the percentages of residents, technical staff and politicians that had no definite answer ranged from 3% to 10% and the percentages of residents, technical staff and politicians that concurred ranged from 9% to 31%. From these comparisons, it can be seen that the percentages that opposed the items were higher compared to the percentages that had no definite answer and the percentages that opposed.

Findings showed that residents, technical staff and politicians were of the view that in Rubirizi Town solid waste was poorly planned and disposed of, there were adequate dumping site, poorly designated places for residents to dispose their solid waste and the budget was inadequate for SWM. In addition, most residents, technical staff and politicians were of the view that there was need to look for more funds to increase solid waste budget, the authorities in this area did not allocated enough funds for solid waste and there was need for more resource envelop for SWM. Lastly, most residents, technical staff and politicians were of the

view that the staff was not enough to handle solid waste, the waste garbage collectors were poorly remunerated/motivated, not skilled in solid waste handling and the authority rarely trained staff in SWM dynamics.

Generally, the above findings obtained from residents, technical staff and politicians using questionnaires show that solid waste planning was poor in Rubirizi Town Council. This was because the residents, technical staff and politicians' negative response outnumbered their positive response about solid waste planning. Interview findings obtained from the three key informants were supportive of the above findings as they shed some light about solid waste planning in Rubirizi Town, for example, when asked to comment on solid waste planning, key informant A responded:

> *"The town council has placed garbage bins in some parts of the town. However, the concentration of these bins is limited along the main road. Lack of garbage bins induces people to litter the town and throw their garbage anywhere they see fit"*
>
> (Interview with key informant A conducted on 23rd June 2016).

From the interview findings, it is showed that there had some effort by the town council to provide solid waste collection points close to the people. However, the concentration of garbage bins was confined to very few parts of the town. Places outside the town did not seem to have any garbage bins provided by the municipality. This implies that people from far away the road were not planned for in order to easy their solid waste dispose habit. Similarly, the key informant B answered:

> *"We place garbage bins across major town areas and collect waste from the bins once in a while. However, we cannot keep an eye on each and every bin; sometimes they get damaged or stolen but no one informs us. Thus, the bins are not replaced. I*

*guess people should inform us if the bins are to be replaced or if they are inadequate"*

(Interview with key informant B conducted on 24th June 2016).

From the interview, another issue frustrating the Town Council Authority's solid waste planning was raised. This was about the irresponsible behavior of some members of the local community within the town such as damaging and/or stealing waste bins and a lack of concern by the community to communicate their solid waste problems to the Town Council that contributed to poor waste planning.

Related to adequacy of the collection vehicles and staffing, key informant C said:

*"The town council does not have enough vehicles and staff for waste collection. That is why our town looks dirty. Both the number of staff and number of vehicles are inadequate. We send our staffs on the basis of how much load they are expected to clear, see it varies from area to area. However, we are short staffed and that is the truth, we do not have enough staff or vehicles to collect all the waste from so many areas on a daily basis"* (Interview with key informant C conducted on 25th June 2016)

Thus, from the findings, poor planning of Rubirizi Town was manifested in the form of inadequate garbage collection personnel, equipment and vehicles. In such a situation, effective and efficient waste management hard was to achieve in the town. The following was also revealed during the interview with key informant A reported:

*"The waste workers do not have any safety or security while handling the waste. They are not given gloves, shoes or any kind of safety equipment while handling the waste"*

(Interview with key informant A conducted on 23rd June 2016)

Also, Key informant A went on to confirm he said:

*"The workers that collect garbage within the town are completely dependent on God for their safety because most if not all those workers haven't got even a single tetanus shot from the municipality. Besides this they do not receive any kind of safety items like water proof boots, raincoats, gloves nothing"* (Interview with key informant C conducted on 25th June 2016.

Thus, this shows that poor waste planning in Rubirizi Town was in the form of failure by the authorities to care for the safety or security of waste workers while handling the waste given that the workers were not given gloves, shoes or any kind of safety equipment while handling the waste.

### Descriptive results about SWM

Rubirizi Town Council residents, technical staff and politicians responded to 10 items about SWM. Findings are presented in Table 9. The findings from the analysis and interpretation follow the prescribed presentation of findings in this study.

**Table 9: Findings about SWM**

| Items about SWM | SD f(%) | D f(%) | NDA f(%) | A f(%) | SA f(%) | Total |
|---|---|---|---|---|---|---|
| 1. The authorities in this area collect solid waste in time | 14 (18%) | 29 (36%) | 5 (6%) | 15 (19%) | 17 (21%) | 80 |
| 2. The volume of solid waste is very low in this area | 52 (65%) | 14 (18%) | 5 (6%) | 8 (10%) | 1 (1%) | 80 (100%) |
| 3. The solid waste collectors in this area are able to cope with the volume of solid waste | 18 (23%) | 23 (29%) | 9 (11%) | 13 (16%) | 17 (21%) | 80 (100%) |
| 4. There is no problem of solid waste in this area | 20 (24%) | 40 (50%) | 8 (10%) | 6 (8%) | 6 (8%) | 80 (100%) |
| 5. Solid waste is properly disposed by the collectors | 4 (5%) | 47 (58%) | 7 (9%) | 20 (25%) | 2 (3%) | 80 (100%) |
| 6. I am satisfied with the garbage collection service in this area | 35 (43%) | 31 (39%) | 9 (11%) | 3 (4%) | 2 (3%) | 80 (100%) |

**Source**: Data from residents, technical staff and politicians

Key: SD = Strongly disagree, D = Disagree, NDA = No definite answer, A = Agree, SA = Strongly agree

Findings show that more residents, technical staff and politicians opposed all items about SWM (that is items 1 to 6) compared residents, technical staff and politicians who concurred with these items or who had no definite answer. A comparison of these items shows that the percentages of residents, technical staff and politicians that opposed ranged from 52% to 83% while the percentages of residents, technical staff and politicians that had no definite answer ranged from 6% to 11% and the percentages of residents, technical staff and politicians that agreed ranged from 7% to 40%. From these comparisons, it can be seen that the percentages that opposed the items were higher compared to the percentages that had no definite answer and the percentages that concurred. Thus, from this analysis, the following is the interpretation. Most residents, technical staff and politicians in Rubirizi Town Council were of the view that the authorities did not collect solid waste in time and high volumes of solid waste. In addition, most residents, technical staff and politicians in Rubirizi Town Council were of the view that there were problems of solid waste, solid waste was not properly disposed by the collectors and they were not satisfied with the garbage collection service. In other words, these findings show that there was poor SWM in Rubirizi Town Council.

Interview findings revealed in detail the status of SWM in Rubirizi Town and findings supported those obtained from using questionnaires. During the interviews with key informants, poor SWM was given much emphasis. For example, key respondent B had this to say in relation to the collection of solid waste within the town:

> *"The solid waste collection service is not regular in most parts of the town council. It is done perhaps once after two-three weeks. Another issue is that even the garbage collection containers need maintenance from time to time but I have never seen any in my area being maintained so far"* (Interview with Key Informant B conducted on 24th June 2016).

In support of the above findings key informant C had this to say:

*"It is such a mess as you can see, the town authority does collect the waste, but not on*

*a daily basis. On the other hand, people have become aggressive; they do not*

*appreciate what the Town Council is    doing. When they are advised to sort their*

*waste, they do not listen. In a community like this, mobilization is hard because*

*people leave home very early in the morning. When we go for mobilization, others*

*lock up their gates and they refuse to open and yet they are the ones who carry*

*buveera (polythene bags) full of garbage and dump them along the way as they go to*

*work"* (Interview with key informant C conducted on 25th June 2016)

These findings revealed irregularity in the waste collection including a lack of members of the community to cooperate with Council Authority in SWM in Rubirizi Town. An added problem was that there were no special methods of separating wastes such as hospital waste or animal carcasses as key informant A said during the interview

*"Be it in the hospital waste, animal death or even the carcass, rabid animals, waste from*

*houses, from town, everything comes down here and it is all dumped in the same place"*

(Interview with key informant A conducted on 23rd June 2016)

**Correlation between planning and SWM**

The first hypothesis stated, *"There is a significant effect of planning on SWM in Rubirizi Town Council"*. To determine the strength of the relationship between planning and the SWM, the researcher used Spearman Rank Order Correlation Coefficient ( *rho* ). The coefficient of determination as well significance of the coefficient (*p*) was used to test the hypothesis by comparing the coefficient to the critical significance level at .05. This procedure was applied to test the hypotheses. Table 10 presents the test results for the first hypothesis.

**Table 10: Correlation between planning and SWM**

| Dependent variable | Independent variable |
|---|---|
|  | Planning |
| SWM | $rho = .631$ |
|  | $rho^2 = .398$ |
|  | $p = .000$ |
|  | $n = 80$ |

**Source**: Data from residents, technical staff and politicians

Findings show that there was a strong positive correlation ($rho = .631$) between planning and SWM. Since the correlation does imply causal-effect as stated in the first hypothesis, the coefficient of determination, which is a square of the correlation coefficient ($rho^2 = .398$), was computed and expressed as a percentage to determine the change in SWM due to planning. Thus, findings show that planning accounted for 39.8% change in SWM. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation ($p = .000$) is less than the recommended critical significance at .05. Because of this, the first hypothesis of this study was accepted.

The implication of these findings is that the strong effect implied that a change in planning contributed to a big change in SWM. The positive nature of the effect implied that the change in planning and SWM was in the same direction whereby better planning contributed to better SWM.

### Effect of Administration of Laws on SWM

Before determining the effect of administration of laws on SWM, descriptive results relating to administration of laws were presented, analyzed and interpreted. Findings are presented in the following subsection.

### Descriptive results about administration of laws

Rubirizi Town Council residents, technical staff and politicians were requested to respond to eight items about administration of laws by demonstrating their agreement using a five-point Likert scale. Findings are presented in Table 11. The analysis and interpretation of the findings about administration of laws follows the presentation of findings.

Table 11: Findings about administration of laws

| Items about administration of law | SD | D | NDA | A | SA | Total |
|---|---|---|---|---|---|---|
| 1. I know the laws that govern SWM in this area | 39 (49%) | 24 (30%) | 4 (5%) | 9 (11%) | 4 (5%) | 80 (100%) |
| 2. Town council have tough laws that regulate solid waste disposal and littering of the town | 30 (37%) | 25 (31%) | 2 (3%) | 8 (10%) | 15 (19%) | 80 (100%) |
| 3. Both national and local laws are adhered to in this area | 28 (35%) | 32 (40%) | 5 (6%) | 11 (14%) | 4 (5%) | 80 (100%) |
| 4. The town council has enacted by laws to support other existing laws for proper SWM | 40 (50%) | 23 (29%) | 5 (6%) | 7 (9%) | 5 (6%) | 80 (100%) |
| 5. There are penalties and prosecutions for solid waste mismanagement from time to time | 39 (49%) | 24 (30%) | 4 (5%) | 9 (11%) | 4 (5%) | 80 (100%) |
| 6. More laws on SWM in this area should not be enacted | 30 (38%) | 25 (30%) | 2 (3%) | 8 (10%) | 15 (19%) | 80 (100%) |
| 7. The quality of laws governing solid waste in this town is satisfactory | 28 (35%) | 32 (40%) | 5 (6%) | 11 (14%) | 4 (5%) | 80 (100%) |
| 8. Residents in this town follow the SWM laws. | 40 (50%) | 23 (29%) | 5 (6%) | 7 (9%) | 5 (6%) | 80 (100%) |
| 9. People in this area have been involved in interpreting laws governing solid waste | 18 (23%) | 35 (43%) | 4 (5%) | 6 (8%) | 17 (21%) | 80 (100%) |

**Source**: Data from residents, technical staff and politicians

Key: SD = Strongly disagree, D = Disagree, NDA = No definite answer, A = Agree, SA = Strongly agree

Findings show that more residents, technical staff and politicians opposed all items about administration of laws (that is items 1 to 9) compared residents, technical staff and politicians who concurred with these items while a small percentage had no definite answer to these items. A comparison of these items shows that the percentages of residents, technical staff and politicians that opposed ranged from 66% to 79% while the percentages of residents, technical staff and politicians that had no definite answer ranged from 3% to 6% and the percentages of residents, technical staff and politicians that concurred ranged from 15% to 29%. From these comparisons, it can be seen that the percentages that opposed the items were higher compared to the percentages that had no definite answer and the percentages that concurred. Thus, from this analysis, the following is the interpretation: Findings show that most residents, technical staff and politicians were of the view that they did not know the laws that govern SWM, town council did have tough laws that regulate solid waste disposal and littering of the town and both national and local laws. Furthermore, most residents, technical staff and politicians were of the view that the town council did not enacted by laws to support other existing laws for proper SWM, there were no penalties and prosecutions for solid waste mismanagement from time to time and more laws on SWM had to be enacted. Lastly, most residents, technical staff and politicians were of the view that the quality of laws governing solid waste was satisfactory, residents in the town did not follow the SWM laws and people were not involved in interpreting laws governing solid waste. Thus, from the findings, it is shown that administrative laws governing the management of solid waste in Rubirizi Town Council were not effective.

During interviews, key informants shed some light about administration of laws related to waste management in Rubirizi Town Council. Key informant A revealed that:

*"In respect for the laws, guides to waste management at the national and area specific instruments need to be emphasized as well as their relevance to SWM. The policy framework here in this area [Rubirizi district] is analyzed in terms of general guidelines that impact on SWM relating to planning, collection and transportation and enforcement as well. However, gaps in the laws or policies at the local government level pose a challenge to SWM in Rubirizi Town and enforcement of waste management difficult"* (Interview with Key Informant A conducted on 23rd June 2016).

Similarly, in support of the findings in above quotation, Key Informant B had this to:

*"In an attempt to enforce the SWM, the Town Council through the law enforcement arm in this district is responsible for bringing all individuals who violates the waste management laws to book. However, due to man power limitations, majority of the offenders go unpunished"* (Interview with Key Informant B conducted June 24, 2016).

As for Key Informant C, when asked about administration of laws related to SWM in Rubirizi Town council, the following was revealed during the interview:

*"Attempts by the Town Council to curb indiscriminate dumping of solid waste are erecting of warning notices such "No Dumping sign posts" with a fine if the law is contravened. However, these are subsequently abused since there is no body to enforce the notice. Although it is obvious to see waste scattered around people's home and premises, no person has so far been charged for not keeping their environment*

*clean as stipulated in the bylaws"* (Interview with key informant C conducted on 25th June 2016).

The implication could be that those who place of waste indiscriminately do so in disobedience of council bylaws stopping the uncontrolled disposal of waste. Such kind of defiance mostly probably leads individuals to defying other laws too. On the other hand, key informant A insisted that people were aware of waste management laws and regulations but there was a major weakness of commitment to these laws mainly because of people's negative attitude and behavior leads them to ignore them. Key informant A explained:

*"About law enforcement, people are aware, if you want to test them on whether they are aware or not is when you catch somebody disposing waste in areas not allowed and he/she will apologize immediately, why because she/he is aware that she/he is not doing the right thing. So they have the general awareness of the law that once you produce waste you have to dispose it the right way. What they do is negligence"*

(Interview with Key Informant A conducted on 23rd June 2016)

Thus from the findings, it is shown that there was administration of laws for waste management in Rubirizi Town Council. However, there were challenges in implementing the laws. In Rubirizi Town, laws and regulations were even weaker in enforcement because they lacked the work force to collect waste collection as observed by key informant B who stated:

*"We use laws and regulations when the work is being done. For example now we cannot use these laws by 100 % when we are trying to get people to do the work"* (Interview with Key Informant B conducted on June 24, 2016).

The interview findings corroborate the findings obtained using questionnaires and provided an in-depth explanation relating to weaknesses in the administration of waste management laws. This has further aggravated the problem of solid waste in the area.

**Correlation between Administration of Laws and SWM**

The second hypothesis stated, "*The administration of laws significantly affects to SWM in Rubirizi Town Council.*" Spearman rank order correlation coefficient ( *rho* ) and coefficient of determination were used to analyze this hypothesis. Table 12 presents the test results.

**Table 12: Correlation between administration of laws and SWM**

| Dependent variable | Independent variable Administration of laws |
|---|---|
| SWM | $rho = .674$ <br> $rho^2 = .454$ <br> p = .000 <br> n = 80 |

**Source**: Data from residents, technical staff and politicians

Findings show that there was a strong positive correlation ( $rho = .674$ ) between administration of laws and SWM. The coefficient of determination ( $rho^2 = .454$ ) shows that administration of laws accounted for 45.4% change in SWM. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation (p = .000) is less than the recommended critical significance at .05. Thus, the second hypothesis was accepted.

Thus, the implication of the findings was that the strong effect implied that a change in administration of laws contributed to a big change in SWM. The positive nature of the effect implied that the change in administration of laws and SWM was in the same direction. The implication of this was that better administration of laws contributed to better SWM and poor administration of laws contributed to poor SWM.

Interview findings revealed that poor administration of laws contributed to poor SWM in Rubirizi Town as shown in the following extract:

*"Poor performances of waste management have been realized because poor implementation of laws. We have laws and regulations to use when things are not done properly but that is not our intention because it is has negative implication. We are not here to punish the community we want them to know the proper ways of handling waste. We would rather educate than give them than punishing them through fines"* (Interview with Key Informant A conducted on 23rd June 2016)

Key Informant B revealed that no high priority was given to the use of laws and regulations, as he clarified:

*"I do not favor very much the use of law enforcement because it may discourage if not well used. I think what is required here is more of a consultation work, making the community understand what should be done and why"* (Interview with Key Informant B conducted on 24th June 2016).

On his general view about the effect of administration of laws on the community, key informants C added:

*"They have an effect because once we give fine to an individual, others want to know why and so they learn from it. Without laws and regulations it becomes difficult to work"* (Interview with Key Informant B conducted on 25th June 2016)

Fear of using existing laws negatively affected SWM in Rubirizi Town council as Key Respondent A had this to say:

*"We have laws and regulations to use when things are not done properly but that is not our intention because it is has negative implication. We are not here to punish the community we want them to know the proper ways of handling waste. We would rather educate than give them fines"* (Interview with Key Informant A conducted on 23rd June 2016).

53

Thus, the laws and regulations were perceived to have a negative influence to the community. Similarly, no high priority was given to the use of laws and regulations as Key informant C clarified thus:

*"I do not favor very much the use of law enforcement because it may discourage if not well used. I think what is required here is more of a consultation work, making the community understand what should be done and why"* (Interview with Key Informant C conducted on 25th June 2016)

### Effect of Monitoring and evaluation on SWM

Descriptive results relating to monitoring and evaluation were presented, analyzed and interpreted. Findings are presented in the following subsection.

### Descriptive results about monitoring/evaluation

Rubirizi Town Council residents, technical staff and politicians were requested to respond to eight items about monitoring and evaluation by representing their agreement based on a five-point Likert scale. Findings are specifically presented in Table 13. The analysis and interpretation of the findings about monitoring and evaluation follows the presentation of findings.

**Table 13: Findings about monitoring/evaluation**

| Items about monitoring/evaluation | SD | D | NDA | A | SA | Total |
|---|---|---|---|---|---|---|
| 1. The authority in the town council always monitors solid waste activities | 39 (49%) | 24 (30%) | 4 (5%) | 9 (11%) | 4 (5%) | 80 (100%) |
| 2. The authority in the town always assesses whether there is always value for money in waste management disposal | 32 (40%) | 23 (28%) | 2 (3%) | 8 (10%) | 15 (19%) | 80 (100%) |
| 3. The kind of monitoring activities in this area has ensured efficiency and effectiveness in SWM | 29 (36%) | 30 (38%) | 5 (6%) | 12 (15%) | 4 (5%) | 80 (100%) |
| 4. The town council authority evaluates SWM activities to assess achievement of set targets | 36 (45%) | 21 (26%) | 6 (8%) | 12 (15%) | 5 (6%) | 80 (100%) |
| 5. The current town council monitoring and evaluation methods ensures a clean town | 18 (22%) | 35 (44%) | 4 (5%) | 6 (8%) | 17 (21%) | 80 (100%) |

**Source**: Data from residents, technical staff and politicians

Key: SD = Strongly disagree, D = Disagree, NDA = No definite answer, A = Agree, SA = Strongly agree

The findings in Table 13 show more residents, technical staff and politicians opposed all items about monitoring and evaluation (that is items 1 to 5) compared residents, technical staff and politicians who concurred with these items while a small percentage had no definite answer to these items. A comparison of these items shows that the percentages of residents, technical staff and politicians that opposed ranged from 66% to 79% while the percentages of residents, technical staff and politicians that had no definite answer ranged from 3% to 8% and the percentages of residents, technical staff and politicians that agreed in this study ranged from 16 to 29%. From these comparisons, it can be seen that the percentages that opposed the items were higher compared to the percentages that had no definite answer and the percentages that concurred. Thus, from this analysis, the following is the interpretation;

Findings show that most residents, technical staff and politicians were of the view that the authority in the town council rarely monitored solid waste activities, rarely assessed whether there was always value for money in waste management disposal and the kind of monitoring activities did not ensure efficiency and effectiveness in SWM. Lastly, most residents, technical staff and politicians were of the view that the town council authority did not evaluate SWM activities to assess achievement of set targets and the current town council monitoring and evaluation methods did not ensure a clean town council. Therefore, these findings show an ineffective monitoring and evaluation of waste management in Rubirizi Town Council.

Interviews findings further revealed information on monitoring/evaluation. For example, key informant A revealed:

*"Motoring of waste management practices in the town is very poor. In fact, such monitoring does not exist. Monitoring and supervising waste management practices such as ensuring every store has an "effective" waste bin and supervising the disposal of waste to discourage dumping of waste materials anywhere in the town would enhance waste management practices in marketplaces"* (Interview with key informant A conducted 23rd June 2016)

Key informant B revealed other issues considered affecting monitoring and evaluation of waste management as shown in the following:

*"The Town Council is responsible for implementation of the regulation and monitoring of activities of waste generators of solid waste. It has to follow the byelaws put in place for waste materials practices. However, the community operates without any monitoring or supervision by the council"* (Interview with key informant B conducted 24th June 2016)

Lack of community participation was another issue that negatively affected effectiveness of SWM monitoring and evaluation in Rubirizi Town. Key informant C revealed:

*"Generally, the main problems faced are all alike, but the major problem is that people are not cooperative with the council they think the garbage they produce is for the town council (Interview with key informant C conducted 25th June 2016)"*. In addition, Key Informant B in support explains, *"We are not keen on the whole issue people think it is a responsibility of a waste manager or a municipality"* (Interview with key informant B conducted 24th June 2016)

**Correlation between monitoring and evaluation and SWM**

The third hypothesis stated, "*There is a significant effect of monitoring and evaluation on SWM in Rubirizi Town Council*". Spearman rank order correlation coefficient ( *rho* ) and

coefficient of determination were used to analyze this hypothesis. Table 14 presents the test results.

**Table 14: Correlation between monitoring and evaluation and SWM**

| Dependent variable | Independent variable Monitoring/evaluation |
|---|---|
| SWM | $rho = .709$ $rho^2 = .503$ p = .000 n = 80 |

**Source**: Data from residents, technical staff and politicians

Findings show that there was a strong positive correlation ( $rho = .709$) between monitoring and evaluation and SWM. The coefficient of determination ( $rho^2 = .503$) shows that monitoring and evaluation accounted for 50.3% change in SWM. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation  (p = .000) is less than the recommended critical significance at .05. Because of this, the third hypothesis was accepted.

Thus, the implication of the findings was that the strong effect implied that a change in monitoring and evaluation contributed to a big change in SWM. The positive nature of the correlation implied that the change in monitoring and evaluation and SWM was in the same direction. This shows that better monitoring and evaluation contributed to better SWM and poor monitoring and evaluation contributed to poor SWM.

# CHAPTER FIVE

# SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

### Introduction

This chapter presents, analyses and interprets the results. It is divided into five major sections. The first section presents the summary. The second section presents the discussion according to the objectives of the study. The third section in this study presents the conclusions as prescribed in the objectives of the study. This fourth section presents the recommendations in accordance to the study objectives.

## 5.1 Summary of Findings

This section presents the summary of the findings in three sub-section based on the hypotheses of the study. The first sub-section presents the summary of the findings on the effect of planning on SWM. The second sub-section presents the summary of the findings on the effect of administration of laws to SWM. The third sub-section in this study presents the summary of the findings on the effect of monitoring/evaluation on SWM.

### Planning and SWM

The study tested the following first hypothesis, "*There is a significant effect of planning on SWM in Rubirizi Town Council*", which was accepted given that the significance of the correlation ($p = .000$) is less than the recommended critical significance at .05. Findings reveled a strong positive correlation ($rho = .631$) between planning and SWM, whereby better planning contributed to better SWM and poor planning contributed to poor SWM. Planning accounted for 39.8% change in SWM.

### Administration of laws and SWM

The study tested the following second hypothesis, "*The administration of laws significantly affects to SWM in Rubirizi Town Council*", which was accepted given that the significance of the correlation (p = .000) is less than the recommended critical significance at .05. Findings reveled a strong positive correlation ( *rho* = .647) between administration of laws and SWM, where better administration of laws contributed to better SWM and poor administration of laws contributed to poor SWM. Administration of laws accounted for 45.4% change in SWM.

### Monitoring and evaluation and SWM

The study tested the following first hypothesis, "*There is a significant effect of monitoring and evaluation on SWM in Rubirizi Town Council*", which was accepted given that the significance of the correlation (p = .000) is less than the recommended critical significance  at
.05. Findings reveled a strong positive correlation ( *rho* = .709) between monitoring and evaluation and SWM, whereby better monitoring and evaluation contributed to better SWM and poor monitoring and evaluation contributed to poor SWM. Monitoring and evaluation accounted for 50.3% change in SWM.

### Discussion of Findings

### Planning and SWM

Studies conducted by Venkatshwaran (2010) as well as UNCEA (2010) have interrelated diseases like plague and cholera to poor SWM. In regard to Hanks cited in Hoornweg et al (2009), the United States Public Health Service identified 22 human diseases that are linked to improper SWM.

It was established that no effort was made to separate various type of waste in Rubirizi Town. The waste management practices mainly involved dumping of waste irrespective of its nature and composition. This is typical in a developing country framework, as seen in the work done by Inanc, Azni, Atsushi and Shinichi (2010), Medina (2011), Zerboc (2009) and Zurbrugg (2009). Poor waste management contributes to poor health of the community in an area.

Rubirizi Town council lacked effective collection and transportation facilities. Thus, capacity for solid waste managers is an important issue for better performances of SWM. Capacity involves the operational abilities of the institution, efficiency institutional structures, management capacity of the institutions and the use of appropriate technologies (Achankeng, 2009). Supporting this finding is literature indicating developing countries lack facilities for proper handling, collection and transportation of the generated wastes (Zerboc 2009). The waste collection trucks cannot reach every part of the Rubirizi Town, compelling the residents to throw their garbage in open dumping spaces near human settlement. These findings concurred with Zerboc (2009) and Zurbrugg (2009) when they observed that another problem associated with handing of waste relates to lack of standardized container to keep the waste before being picked up. Also, lack of right transportation vehicles for waste is known to add to the problem. For instance in Rubirizi Town, the Council uses few vehicles to transport waste and often some portion of waste ends up falling on the road and the vehicles used were often improper and not in good mechanical condition. Zerboc (2009) argues that that the vehicles for transporting wastes in developing countries solemnly function efficiently and are characterized by break down, thus escalating the problem.

Capacity for solid waste managers is yet another important issue for better performances of SWM systems (Mungure, 2011). This is because better plans to affect the waste situation will depend on their knowledge of the issue. Capacity building for SWM, therefore, involves the

operational abilities of a municipality/town because of efficiency institutional structures, management capacity of the institutions and the use of appropriate technologies (Mungure, 2011).

Information obtained from the interview revealed that the problem of finance is very acute in Rubirizi Town. Lack of financial resources was an obstacle to waste management. Moreover, there was still a limited capacity to assume the responsibility of SWM. Therefore, one of the factors influencing municipal SWM in the Rubirizi Town was the shortage of finance. This finding concurs with Zurbrugg (2009) who observed that SWM is given low priority in developing countries; as a result, very limited funds are allocated to the sector by government. This problem is severe at the local government level where local revenue collection system is inadequately developed and financial base for public service and is weak. In addition to inadequate funds, many local governments in developing countries lack good financial discipline characterized by poor management and planning. Lack of financial discipline with respect to management and planning, predominantly cost accounting depletes the limited resources available for the sector. Such inefficiencies quickly cause the SWM services to be on halt for some periods, thus losing trust of service users. (Zurbrugg, 2009). Kazungu (2010) opined that the lack of financial and physical capacity by government agencies and other players involved in waste collection is to blame for ineffective coupled with inefficient waste management practices in developing countries, mainly in urban poor areas such as slums.

Effectiveness of SWM service is dependent on sustainability of the management of the services. Sustainability in its turn depends, among other, on the way the management of the service is planned, financial capacity of the service providers and supporting organizations. Similarly, the establishment of effective and sustainable SWM service unconditionally

requires making specific objectives in addition to their implementation (Anand, 2010). Furthermore, appropriate measures that include political, institutional, social, financial, economic and technical aspects of the service (Schübeler, Wehrle & Jürg, 2010).

In this study, it was established that the Rubirizi Town Council provided garbage bins but the concentration of these bins was limited along the main road because they were inadequate. The implication of this was that some households were far away from where the bins were placed, which had a negative effect on garbage collection efforts. For example, Hailemeskel (2014) conducted a study which established a significant negative association between distances of community waste bins (CWBs) and ways of SWM. The result showed that the respondents who were nearer to CWB used the container compared to those at far distant. Inadequate supply of waste containers coupled with long distance to these containers increases the probability of waste being dumped in open areas and roadsides relative to the use of community waste bins inclusive (Getahun 2011; Buenrostro, 2008). Therefore, distance to community waste bins had an impact on the SWM in Rubirizi Town. Most developed countries implement such criteria to select best suitable location of CWBs to make SWM efficient and sustainable (Kamran, 2008; Magutu et al, 2010). Moreover, such measures help to practice various methods of SWM systems. Findings of this are almost in line with Kazungu's (2010) observation that urban areas have a skewed waste management service provision, with urban poor who reside in peri-urban areas and slums receiving little, if any, waste management support, which poses serious human and environmental health challenges.

Lack of garbage collection gear and inadequate waste collection personnel for waste collectors was raised as an issue that impacted negatively on SWM. This finding is seen elsewhere as Mungure (2011) observed that insufficient capacity was a fundamental

impediment to sound SWM in many African municipalities. An efficient, effective and environmentally sound SWM operation requires building administrative capacity including the technical capacity for operating, maintaining and monitoring the process.

Mungure (2011) opined that often a large number of employees working in SWM including the private sector, non-governmental organizations and government institutions have insufficient technical and financial knowledge to operate efficiently. Capacity building inform of training for example is important in building human resource as well as institutional capacity at all levels. This implies the necessity for sustainable in addition to effective solid waste systems. There is therefore a need for training for all the personnel who are engaged in waste management from waste pickers to local government officials in the town councils. According to the World Bank (2007), capacity building refers to investment in people, institutions and practices that will enable achievement of development objectives (World Bank (2007). However, investing in people, institutions and practices requires knowledge, time and money. While emphasis has been put on the physical resources as part of the capacity building process, it is not the entirely focused on SWM. It therefore involves the process by which individuals, organizations, institutions and societies develop abilities (individually and collectively) to perform functions, solve problems and set and achieve objectives.

### Administration of laws and SWM

Findings of this study revealed that waste management by-laws were set up in Rubirizi Town as a way of disciplining defaulters. However, in some cases there has been a soft implementation of these laws for effective waste management. The rules and regulations and their implementation were weak. In addition, there was no little effort made to create awareness about SWM in the community including the rules and regulations and associated

penalties. The regulative structures of waste management in the town did not comprise of stringent rules or laws governing waste management. The existing by-laws were rarely implemented and there was no strict follow up.

The findings point to what Scott (2008; World Bank, 2011) referred to as regulative rules. These particular rules were shown be inadequate and weak in Rubirizi Town council and findings revealed that the people who passed or even enforced the laws were not directly involved in solid waste collection as well as its disposal. The regulative features of institutions pressurize and regularize behaviour with its processes of rule setting, monitoring and sanctioning activities. The regulatory pillar is often reinforced by rules and laws resulting to the elements of fear, force and expedient. Often the powerful actors use this type of pillar to impose their will to others through using threats of sanctions. An example is the use of authority using its coercion power legitimated by a normative framework to support and constrain the exercise of power. In other words, when power and enforcement are being practiced in some cases by the same actors meaning that those who formulate the laws are the same implementing it, it is unarguably that the powerful actors will have the capacity to influence the outcome. The actor is becoming the rule maker, evaluator and implementer. In addition, institutions from a regulative pillars perspective depends on how the rules are interpreted and resolved, design of sanctions and incentives can bring yet another effects (Scott, 2008).

Regarding Rubirizi Town without effective laws and regulations, there would be no directives to specify how things should be done. According to Caplan, Grijalva and Jarkus (2011) stringent enforcement of municipal by-laws in countries like the United States of America and Sweden helped in solving deep waste management problems in the cities. Thus, Rubirizi Town council can learn from such countries to make strides in enforcement of its

SWM by-laws by harmonization and coordination of local government by-laws and waste management national laws. By laws of some countries require the occupiers of domestic and trade premises to separate waste which can be recycled and place in a different container provided by waste operator (Kazungu, 2010). This provision ensures that every generator of solid waste separates wastes which can then be recycled and put in separate containers.

In Rubirizi Town council, people were aware of the waste management laws but some did not adhere to them given that when they were caught it the act of breaking the laws they apologised immediately. Thus, law enforcement can be seen as a tool that not only helps to shape the community to doing things the way they are supposed to be done but also in educating and creating the awareness hence commitment to how things should be done (Melaku, 2008). According to Mungure (2011) despite the fact that regulation is a useful tool towards attaining the most desired behavior in a community, it can hardly function alone as individuals evade by developing ways of going around regulations by exploiting slight vagueness in the bylaws.

This study established that although it was obvious to see waste scattered around the community, people were not charged for not keeping their environment clean as stipulated in the by-laws in Rubirizi Town council. The implication as based on Mungure (2008 observation could be that those who dispose of waste indiscriminately did so in defiance of bylaws, which prohibited the uncontrolled disposal of waste.

Lack of SWM law enforcement in Rubirizi Town council in addition contributed to lack of commitment to doing the right things leading to people disposing waste as they wished. According to Kazungu (2010), lack of law enforcement in connection to lack of commitment could be related to the role of normative rules. Normative rules make use of the role of values and norms within the community. Values are conceptions of the preferred, together with the

construction of standards to which existing structures or behavior could be compared and assessed, whereas norms ascertain how things should be done by defining the authentic means to pursue the valued ends. The normative system diverts away from the logic of consequences and put emphasis on appropriateness by defining the goals and objectives as well as the appropriate way to pursue them (Scott, 2008). The normative laws highlight that people behave in accordance with their culture, seeking to do the right thing and avoid wrongdoing. Thus, the unwritten rules and regulations that affect the behavior of people are consequently taken for granted as cited by Scott (2008, pg. 55) that "these beliefs are not simply anticipations or predictions but prescriptions" therefore people are expected to always know what exact actions or directions to take because the norms are constantly taken as given. Hence, the actors reflect the norms and values of institutions within they belong.

Findings of this study showed that unlike social norms and values, Rubirizi Town council operates through mainly regulation and control, thus enforcing responsibilities through making laws, regulation and policies for SWM. However, regulation and control was not the only means, the normative rules played a major role as Lambi (2007) argues that people's societal norms have a greater influence on waste management and waste generation patterns are further determined by people's attitude and behaviors.

In SWM the normative and regulative pillars complement each other toward achieving effective waste management systems (Mungure, 2011). The normative laws play their role from first of all developing the system through sharing a common objective of reducing the environmental impact resulting from inappropriate management of waste. These laws are therefore shared by all actors in waste management in the sense that considerations for making the regulations are based on the normative understanding of the common problem hence setting objectives towards attaining proper solutions. Consequently, it can be observed

that the actors who are engaged in the normative laws could as well be the actors employed in the regulative laws. Meaning setting of such, the regulations require consideration on the possibility of the community to relate and apply them without disregarding their norms and values.

Lack of SWM law enforcement in Rubirizi Town council was in addition contributing to lack of commitment to doing the right things leading to people doing as they wish. With considerations from the findings of this study, lack of law enforcement in connection to lack of commitment can be related to the role of normative laws because without laws and regulations there are no directives to specify how things should be done.

The rules and regulations of the Rubirizi Town with regard to solid waste collection and disposal were not well known by some members of the community. Mobilization and participation of the community in waste collection and disposal process was not well practiced. This was mainly due to low involvement of all stakeholders in waste collection and disposal.

### Monitoring and evaluation and SWM

The efficient organization of operations also depends on the monitoring and enforcement roles of the Rubirizi Town council. However, findings of this study revealed that the council failed its role of monitoring and supervision of waste practices. The monitoring and enforcement of the collection, transportation and disposal activities of waste companies were inadequate because of weak enforcement of NCC by-laws (Karanja, 2011).

Lack of awareness of proper disposal habits on the part of residents in Rubirizi Town council contributed to the community's limited participation in monitoring waste collection and disposal. The inefficient monitoring mechanisms of Town authorities brought forth the

complexity of the problems of SWM. This point resonates with the need to institute effective monitoring mechanisms in achieving efficient and proper management of solid waste (Abila & Kantola, 2013). It shows that various stakeholders must be involved in such monitoring system. Waste management stakeholders can be defined as individuals or organization with a legitimate interest towards achieving the goal of minimizing waste (Visvanathan & Trankler, 2009). One way of minimizing waste is by allowing the public in general to be aware of the problems posed by ineffective management of waste. Therefore the government, formal and informal sectors, environmental organization and other groups should work together to create this awareness through municipal SWM programmes. The public involvement and participation is a means of creating a sense of individual responsibility towards waste management and hence the sustainability of the systems (Visvanathan & Trankler, 2009). Waste management stakeholders can therefore be viewed as an important element in reaching out to the communities in creating awareness about the environmental impacts resulting from poor waste disposal. This can be organized through various environmental programmes which will initiate motivation and hence ensuring a continuous participation.

There was a general tendency of Rubirizi Town council of thinking that waste management was purely a responsibility of the Town Council dwellers. The idea might have been facilitated by the fact that the Town Council was the sole actor in monitoring the collection and transfer of solid waste. Consequently, it negatively affected the efforts of the Town Council on waste management. These findings concurred with Tadesse (2010) who observed that in many parts of the world, communities continue to be looked at as passive recipients of government services, and were very often disregarded even in local decision-making processes. Ultimately, this approach results in the people failing to know the role they can play in the process. Therefore, in the midst of several waste management and disposal methods, community participation in the monitoring of SWM in Rubirizi Town council was a

missing link/component in a recipe for better SWM. Considerable research efforts have been directed to public participation even in the aspects of monitoring of SWM (Barr, 2010). Such researches have had interesting findings emerge in support of public participation in waste management. Because it may no longer be viable to use waste management methods of an autocratic nature, the participation of the people in SWM decisions and practices becomes inevitable.

In the study on Residential SWM in India, Joardar and Souro (2000) found out some gaps in the SWM practices that would easily point to public participation as the most possible solution. It was found out that monitoring of waste management at the different stages right from the source to the disposal sites was lacking (Joardar & Souro, 2000). Basic SWM monitoring should ideally be a role played by the public, at the source of waste generation. Without waste community participation in SWM, it practically becomes difficult to manage the solid waste in a sustainable way.

Besides, the way in which solid waste is disposed of especially in the developing world may only suit involvement of the public in order to converse the effects of poor solid waste disposal. Joardar and Souro (2000) found out that lack of community participation in SWM monitoring contributed to uncontrolled waste management. Uncontrolled dumping when practiced indiscriminately by the public imposes far-reaching effects as Joardar and Souro point out.

The process of public participation in SWM monitoring may sometimes be long and not cheap in terms of time. To some people, it may not even be meaningful. However, it is almost impossible to talk about sustainable development and at the same time evade the need to have the people involved. This is because in contemporary development practice, growing awareness of the importance of people's non-expert experiences and knowledge has

continuously led to a dire need for shared decision-making in various contexts (Barnes, 2011). The input of the public is not ignorable in any given sector because of their exerted influence on the direction of development.

However, it is imperative to look at some of the methods in SWM and locate the place for public participation in the success and effectiveness of such methods in managing solid waste (Tsai, 2007; Bekin, Carrigan & Szmigin, 2007; Mackaness cited in Bekin et al., 2007). Read, Phillips and Murphy (2008) found out that Local Governments were increasingly encouraging waste reduction as a better way of managing solid waste. In their study on waste reduction, Bekin et al. (2007) argue for waste to reduce as a more environmentally viable and yet involving way of mitigating the solid waste problem. They found out that in communities that engaged in production of some consumption items (vegetables and fruits), there was reduced solid waste generation. In these communities however, they found out that there were structures that had ensured an understanding of the need for deliberate measures to deal with waste. The community members were actively involved in the appreciation of the need for collective effort and thus agreement on such undertakings.

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

Barr (2010) argues that it is not the role of the product producers alone to reduce waste but also a duty of the public to manage waste in a sustainable manner. This argument is valid because the will for involvement of the public needs to be guaranteed so that the roles of the producers and the consumers in waste reduction can support each other. It should be valued that success of participation relies strongly on collective action by groups and communities. Implicitly, the members in the group need to have cohesion as a basis for their collective operation in SWM. Tsai, (2007) emphasized the importance of social capital in waste management. Social capital in this case offers an opportunity to the people to collectively construct meaning and vision, consequently reducing probability of divergence in belief and ideology. They instead are most likely to share a common vision and thus able to work together to attain it.

### Conclusions

### Planning and SWM

Considering that this study established poor planning for SWM in Rubirizi Town council, it is logical to conclude that there was insufficient financial support to waste management in Rubirizi Town council. Also, high running costs incurred in the Town Council made it impossible for the council to accumulate enough resources to facilitate an improvement in the SWM systems. The Town Council is presently constrained by the absence of transportation and disposal facilities. The facilities have a financial implication and therefore require prior budgeting. The Town Council therefore has to keep on its toes in providing some services that motivate the public to participate constructively to the management of solid waste. The resource constraint on the part of the Rubirizi Town Council is in a way limiting the level of public participation in SWM because what the Town Council contributes is what acts as a motivation for the public to engage in SWM.

It is therefore imperative to conclude that the observed poor waste planning exhibited in Rubirizi Town was attributed to failure by the authorities to care for the safety or security of waste workers while handling the waste given that the workers were not given gloves, shoes or any kind of safety equipment while handling the waste.

## Administration of laws and SWM

The findings indicated that although policies and regulations existed, there was lack of enforcement and sanctions placed for noncompliance. Waste management was governed by national laws and Rubirizi Town Council byelaws, which provides for legal and institutional framework for sustainable SWM. However, poor means of introducing of these laws to the community left the policy ineffective on waste management activities. Though the responsibility of raising awareness lies on both the local and central authorities, little had been done to enforce it, which in consequence left the community with an impression that waste was a responsibility of the Town Council.

This study highlighted the importance of both the regulative and normative rules in the SWM. The findings showed that in reality, the elements of regulative and normative rules are not found clearly aligned and thus failure of one element undermined the impact of the other. For example, if the members of community failed to follow societal norms for SWM then legal laws would also be undermined and vice versa. However, in municipal SWM the importance of these elements cannot be undermined as being part of the main factors contributing to the ineffectiveness of waste management systems. With regards to the normative laws, the community behaved as they did basing on what they knew and what was practiced around. As a result, little concern was given to the impact of their actions and attitudes. These findings suggest that in general administration of laws positively related to SWM in Rubirizi Town council.

### Monitoring and evaluation and SWM

It was established that the level of SWM monitoring and evaluation was still low at both the Town Council and community levels. Also, it was indicated that the level of public involvement in SWM monitoring in Rubirizi town council was low. No structure existed that allowed for a more synergistic relationship between the public and the Town Council authorities. This consequently gave room for people to dispose of waste carelessly since SWM monitoring and evaluation was not practically adopted as a priority in the Town Council. This study has shown that monitoring/evaluation as a tool of performance has a positive effect on SWM in Rubirizi Town council.

### Recommendations

### Planning and SWM

Considering that one of the basic obstacles to proper SWM in Rubirizi Town council was inefficient and inaccessibility of CWBs, this research recommends that the Town Council should provide additional CWBs to be distributed in a wider area for easy community access. Many of the problems associated with Rubirizi Town council SWM practice were related to the lack of adequate funding and SWM equipment. Therefore, SWM in general requires policy priority and adequate budget allocation. In addition, there is need for the provision of funds from the government that help in areas such as acquisition of better and more efficient equipment necessary for waste handling.

### Administration of laws and SWM

Findings from the study recommend putting emphasis on designing regulations for better SWM systems which goes hand in hand with the changing values and the norms of people as regards perceptions towards regulations. This is because the normative cognitive aspects of

waste management as well as public attitude and behavior were perceived as the part of the burden to the performance of waste management. Thus, public awareness in addition to tight law enforcement on the other hand could yield a positive effect. Hitherto as people practice what they have observed from others, formal and informal education through public- education campaigns in addition to trainings and performances with the aim of letting the community know how serious the waste problem is would be very useful. This includes but not limited to putting announcements on radios and televisions with a focus on both the positive and negative effects of solid waste. People will be made aware of the price they are paying for improper disposing off of waste. Also, the community members will get involved and eventually become role models as well as good trainers to others. It is really good to understand that knowledge is a continuous process in that with time public behavior as well as attitude changes and this need to be appreciated. Rubirizi Town Council should prepare specified rules and regulations that focus on local problems such as institutional issues about the town's SWM service responsible body, stakeholder's participation and sustainable SWM options, and strictly enforce this rules and regulations under close supervision and inter organizational linkage.

### Monitoring and evaluation and SWM

There are views for public participation in SWM monitoring and evaluation in Rubirizi Town Council. The best way to solicit for public participation is by showing the people that they are worth being involved in the initial planning stages. The people's ideas should be included in the initial deliberations and discussions so that they can see themselves as part of the decision-making structure. This is important because the people need to know that it is a prerequisite for them to be responsible for both the good and bad practices at present and therefore for any change to be concrete there is need to involve the people right from the start

by way of consultations. This will also help in taking the relationship between the public and the authorities to another level of mutual understanding and interdependence.

Apart from involving the people in taking the initial decisions, the Town Council should strategically plan for sensitization of the people. Several solutions may be brought at the table. However, the first step should be to sensitize the public about the whole issue of SWM. Effective and meaningful sensitization is planned when the whole program package is complete. That is when one can know what exactly to sensitize about and how. It is this study's suggestion therefore that sensitization should not be done for the sake of it and basing on mere thought but after a common agreement on the programme of SWM monitoring for purposes of being systematic and thorough.

# REFERENCES

Abila, B. & Kantola, J. (2013). Municipal Solid Waste Management Problems in Nigeria: Evolving Knowledge Management Solution. *World Academy of Science, Engineering and Technology*, 78292-78297.

Achankeng, E. (2009). *Globalization, urbanization and municipal Solid Waste Management in Africa*. 2009 Conference Proceedings - African on a Global Stage. African Studies Association of Australasia and the pacific.

Al-Jarrah, O., & Abu-Qdais, H. (2006). Municipal solid waste landfill siting using intelligent system. Waste management, 26(3), 299-306.

Amin, M. (2011). Social Science Research Conception, Methods and Analysis. Makerere University Kampala.

Anand, S. (2010). *Solid Waste Management*. New Delhi: A Mittal Publication.

Anestina, A. I., Adetola, A. & Odafe, I. B. (2014). Performance Assessment of Solid Waste Management following Private Partnership Operations in Lagos State, Nigeria. *Journal of Waste Management*, Volume 2014.

Barbalance, & Robert Crowell, (2010). The history of Waste. Do you want to be a barbologist: Retrived November, 17,2015 from http://Waste.garbo./st447

Barnes, M. (2011). The same old process? Older people, participation and deliberation. *Ageing & Society, 25*, 245–259.

Barr, S. (2010). What we buy, what we throw away and how we use our voice. Sustainable Household waste management in UK. *Sustainable Development, 12*, 32-44.

Bekin, C., Carrigan, M. & Szmigin, I. (2007). Beyond recycling: 'Commons-friendly' Waste reduction at new consumption communities. *Journal of Consumer Behavior, 6*, 271-286.

Berlanffy.V (1920) Organism Systems Theory. Retrieved June 20,2015, from

www./lvb/hmt.Tokyo Japan.

Bhuiyan, (2010) .International journal on Waste Management Systems. December 2010.

Biemer, P. P. & Lyberg, L. E. (2009). *Introduction to survey quality*. Wiley Series in Survey

Methodology, Wiley, Hoboken

Bilitewski, B. (2008). From traditional to modern fee systems of waste management. Alaska

State Library: JuneauAk.

Buenrostro, O. (2008). *Municipal solid waste. Perspectives from multidisciplinary research*.

Morelia Mexico: University of Michoacan Publications.

Coffey, M. & Coad, A. (2010). Collection of Municipal Waste in Developing Countries. UN

Habitant journal: second edition Nairobi. 32(2), 12-16.

Constitution of the Republic of Uganda 1995.

Deranar,R. Koistad,L.J. Rahman,A.(2012). Waste Flow Analysis. The World Bank.

Washington

Environmental management in the world cities.The World Bank report 2009

Getahun, T. (2011). Municipal solid waste generation in growing urban areas in Africa: Current

practices and relation to socioeconomic factors in Jimma, Ethiopia. *East African

Medical Journal, 184*(10): 10-16.

Geography, R. E. (2009). World development report. *The World Bank, Washington DC*.

Gibb, S. (2008). The state of human resource management: Evidence from employees' views

of HRM systems and staff. *Employee Relations, 23*(4), 318-336.

Graham, P. (2018). Ethics in critical discourse analysis. *Critical Discourse Studies*, 1-19.

Groria and Mao (2014, June 20). How to improve drainage systems in Kampala. The New

Vision News paper.

Guest, D. E. (2011). Communicating the psychological contract: An employer perspective. *Human Resource Management Journal, 12*(2), 22-38.

Hailemeskel, A. (2014). *Assessment of demographic and socio economic factors affecting municipal Solid Waste Management practice: the case of Laga Tafo - Laga Dadi Town, Oromia Regional State, Ethiopia*. A Thesis Submitted to the Department of Geography and Environmental Studies, School of Graduate Studies, Haramaya University.

Nasambu, J. (2016). *Factors Influencing The Performance Of Monitoring And Evaluation Systems In Non-Government Organizations In Lira District, Northern Uganda.* Uganda Technology And Management University.

Henry, M. Faoulu, L.Kemzu, N. (2010). Levels of Solid waste. Vermillion: London.

Hickman,H., Lanier,J,R., & Richard, W. Eidredge, (2010). A brief history of SWM in the United States, 1950 -2000. USA Protection Agency. Calfonia.

Hokao, K., & Phonekeo, V. (2012). Assessing the impact of urbanization on urban thermal environment: A case study of Bangkok Metropolitan. International Journal of Applied, 2(7).

Hoornweg, D., Thomas, L. & Keshav, V. (2009). *What a waste: Solid Waste Management in Asia*, World Bank.

Inanc, B., Azni, I., Atsushi, T. and Shinichi, S. (2010): Development of a database of landfills and dump sites in Asian countries. *Journal of Material Cycles and Waste Management, 6*: 97–103

J.W Creswell, L. Ebersohn, L.Elloff, R. Ferreirra, N,V. Ivankova, J.D Jansen, J. Newwenhuis, D. Pietersen, V.L Pano Clark, (2007). First Steps in Research. Von der westwizen

Joardar, D. & souro, D (2000). Urban Residential Solid Waste Management in India. Issues Related to Institutional Arrangements. *Public Works Management and Policy, 4*, 319-330.

Kamran, R. (2008). *Municipal solid waste: An evaluation on the borus system*. Master's thesis, University College of Borus, Sweden.

Karanja, A. (2011). *Solid Waste Management in Nairobi: Actors, Institutional arrangements and contributions to sustainable development*. Ph.D. thesis, Development Studies, Institute of Social Studies, The Hague, The Netherlands.

Kazungu, R. K. (2010). *Improving governance for sustainable waste management in Nairobi*. 46th ISOCARP Congress.

Kelseva, M. & Mbuligwe, S. (2011) . Appraisal of solid waste collection following, private sector involvement in Dar-Es-Salam city. Tanzania Habitant International.

Kim, J. (2010). Sustainable urban waste management in metropolitan Seoul. Waste Management journal: Retrived June 30, 2015, from South Korea.Adv./Architec./Ser.

Kinobe, J. R. (2015). Assessment of Urban Solid Waste Logistics Systems: The Case of Kampala, Uganda. Doctoral Thesis Swedish University of Agricultural Sciences Uppsala.

Klang, A., Vikman, P. A. & Brattebo, H. (2010). Systems analysis as support for decision making towards sustainable municipal waste management - A case study. *Waste Management & Research, 24*, 323-331.

Al-Jarrah, O., & Abu-Qdais, H. (2006). Municipal solid waste landfill siting using intelligent system. *Waste management, 26*(3), 299-306.

Geography, R. E. (2009). World development report. *The World Bank, Washington DC*.

Graham, P. (2018). Ethics in critical discourse analysis. *Critical Discourse Studies*, 1-19.

Hokao, K., & Phonekeo, V. (2012). Assessing the impact of urbanization on urban thermal environment: A case study of Bangkok Metropolitan. *International Journal of Applied, 2*(7).

Loughlin, J., Hendriks, F., & Lidström, A. (2012). *The Oxford handbook of local and regional democracy in Europe*: OUP Oxford.

Manomaivibool, P. (2009). Extended producer responsibility in a non-OECD context: The management of waste electrical and electronic equipment in India. *Resources, Conservation and Recycling, 53*(3), 136-144.

Maruna, M., Milovanovic Rodic, D., & Colic, R. (2018). Remodelling urban planning education for sustainable development: the case of Serbia. *International Journal of Sustainability in Higher Education*.

NASAMBU, J. (2016). *FACTORS INFLUENCING THE PERFORMANCE OF MONITORING AND EVALUATION SYSTEMS IN NON-GOVERNMENT ORGANIZATIONS IN LIRA DISTRICT, NORTHERN UGANDA.* UGANDA TECHNOLOGY AND MANAGEMENT UNIVERSITY.

Peng, S., & Sun, R. (2013). Fostering Two-Way Communication in Public Organizations. *Public Administration Reformation: Market Demand from Public Organizations, 18*, 144.

Pollock, A. M., Price, D., & Roderick, P. (2012). Health and Social Care Bill 2011: a legal basis for charging and providing fewer health services to people in England. *BMJ: British Medical Journal (Online), 344*.

Santos, L. A. (2015). AIIB releases draft environmental and social safeguards, opens consultations: Devex.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*: John Wiley & Sons.

Warning, U. N. E. P. D. o. E., & Assessment. (2011). *UNEP Year Book 2011: Emerging Issues in Our Global Environment*: UNEP/Earthprint.

Zarate, M., Slotnick, J., & Ramos, M. (2008). Capacity building in rural Guatemala by implementing a solid waste management program. *Waste management, 28*(12), 2542-2551.


Konrad, A. M. & Hartmann, L. (2011). Gender differences in attitudes toward affirmative action programs in Australia: Effects of beliefs, interests, and attitudes towards women. *Gender Roles, 45*(5-6), 415-432.

Kontenh, P. (2009). Using Technology to Impact Driver Behavior: International Journal in Waste Management and Practices, 67(5) 21-19. Retrived July 3,2015 from www.wmp.no/publications.five453 collection.

Lambi J. (2007). *The potential of participation in promoting more sustainable waste management. A comparative study of waste management in Douala and Bamenda (Cameroon).* M. Sc Thesis.

Loughlin, J., Hendriks, F., & Lidström, A. (2012). *The Oxford handbook of local and regional democracy in Europe*: OUP Oxford.

Magutu, P. O., Mbeche, I. M., Nyamwange, O., Mwove, M. N., Ndubai, R. E. & Nyaanga, R. O. (2010). Formulation and implementation of operation strategies used in Solid Waste Management: case study of City Council of Nairobi. *Journal of African Research in Business & Technology*, 1-22.

Manomaivibool, P. (2009). Extended producer responsibility in a non-OECD context: The management of waste electrical and electronic equipment in India. *Resources, Conservation and Recycling, 53*(3), 136-144.

Maruna, M., Milovanovic Rodic, D., & Colic, R. (2018). Remodelling urban planning education for sustainable development: the case of Serbia. *International Journal of Sustainability in Higher Education*.

Mao Cat, (2014,April 15). Rubirizi Scores on water but…. New vision Newspaper.

McAllister, J. (2015). *Factors Influencing Solid-Waste Management in the Developing World*. A Plan B report submitted in partial fulfillment of the requirements for the degree of Master of Science in Geography, Utah State University.

Medina, M. (2011). *Globalization, development, and municipal Solid Waste Management in third world cities*. Retrieved 18 July 2016 from http://www.gdnet.org/pdf/2011 AwardsMedalsWinners/OutstandingResearchDvelopment/martin_medina_martinez_paper.pdf

Melaku, T. (2008). *Household solid waste generation rate and physical composition analysis, in Jimma town Ethiopia*. A master's thesis presented to the school of graduate studies of Addis Ababa University. Addis Ababa, Ethiopia.

Memon,M.A (2010). Integrated of SWM based on 3R approaches. Second Edition. New York.

Ministry of Local Government: A local Government HANDBOOK. September 2010.

Mugenda, O. &Mugenda, A. (2009) Research Methods, Qualitative and Quantitative Approaches. Nairobi, African centre for studies press.

Mungure, J. M. (2008). *Governance and community participation in municipal Solid Waste Management, case of Arusha and Dar es Salaam Tanzania*. Masters Thesis at Department of Development and Planning.

Mungure, J. M. (2011). *Governance and community participation in Municipal Solid Waste Management, case of Arusha and Dar es Salaam Tanzania*. Master's Thesis at Department of Development and Planning.

Natamba, S. (2014). *Waste Management within Urban Areas in Uganda: A Case Study of Kyazanga Town Council, Lwengo District*. A Research Proposal Submitted to the Faculty Of Social Sciences in Partial Fulfillment of the Requirements for the Award of the Degree Of Master of Arts in Development Studies of Uganda Christian University.

Newman, (2009)Scientific American Long Awaited Research, a 4-4 million year old Hominid Sheds. www. Scientifiamerican.com. author cfm?id=1403, Newsletter.

Okot-Okumu, J. & Nyenje, R. (2011). *Municipal solid waste management under decentralization in Uganda*. Makerere University Institute of Environment and Natural Resources (MUIENR), Kampala, Uganda.

Parthan, K.R., Mike ,M.W., Wilson D.C., Cocks, J.H. (2012) Cost estimation for SWM in industrial regions. 4th Ed. John Willey and Sons Inc.

Peng, S., & Sun, R. (2013). Fostering Two-Way Communication in Public Organizations. *Public Administration Reformation: Market Demand from Public Organizations, 18*, 144.

Prince and Joseph (2000)Higher Solid waste Hurting Countries. World Bank Paper.

Pollock, A. M., Price, D., & Roderick, P. (2012). Health and Social Care Bill 2011: a legal basis for charging and providing fewer health services to people in England. *BMJ: British Medical Journal (Online), 344*.

Rahman, A. (2009). Tackling corruption through tax administration reform. Retrieved from, http://www.ifc.org/ifex/fias.nst//attachments. File. On October 30, 2015.

Read, D., A., Phillips, S., P. & Murphy, A. (2008) Waste Minimization as a Local Government Issue: Fact or Fiction? Sustainable Development, 6, 78-91.

Rodic ,R. T., Ssheinberg, A. M,. Wilson, D.C. (2010). comparing waste management in the world cities. *Journal on Draft guidelines on implementation*. Retrieved August 19,2015 from http:// Waste.com/stories.

Santos, L. A. (2015). AIIB releases draft environmental and social safeguards, opens consultations: Devex.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*: John Wiley & Sons.

Schmeer, K. (2009). Guidelines for conducting a stakeholder analysis, partnership for health reforms. Journal on Solid waste in 21st century. Retrieved June 20,2015 from, http:ww2.ds.ac uk/link.

Schubel.P. (2010). Conceptual framework for municipal SWM in developing countries. Dolphin Publishers, Germany.

Schübeler, P. Wehrle, K & Jürg, C. (2010). *Conceptual framework for municipal Solid Waste Management in low-income countries*, (updated 05/11/2010).

Sekono, V.B. (2010,November 18). Privatization of Revenue Collection by Local Governments. A circular to all Chief Administrative Officers and Town Clerks.

Tadesse, E. (2010). *The people shall govern: A research report on public participation in the policy process*. Johannesburg, Centre for the Study of Violence and Reconciliation, and Action for Conflict Transformation.

Technical planning committee minutes

The Ministry of Environment, Republic of Korea, Extended Producer Responsibility.(2013) . Retrieved from, http://eng.me.go.kr/content.do? On November 19th, 2015.

The Republic of Uganda (2010) National Development Plan 2010/11-2014/15.

The Republic of Uganda (2010) National Development Plan 2010/11-2014/15.

Thyberg, K. L. & Tonjes, D. J. (2015). A Management Framework for Municipal Solid Waste Systems and Its Application to Food Waste Prevention. *Systems, 3*, 133-151.

Tsai, T. H. (2007). The impact of social capital on regional waste recycling. *Sustainable Development, 16*, 44-55.

Uganda Urban Indicators Database 2014. Kampala Uganda

Uganda Urban Indicators Database 2014. Kampala Uganda

UNCEA (2010). *Ninth conference of African planners, statisticians, and population and information scientists*, Addis Ababa, 11-16 March 2010. Retrieved 18 July 2016 from http://www.uneca.org/eca_resources/Publications/DISD/old/planning%20conf/o stat.txt

UNEPI (2011) SWM, United nations environmentalprogramm. Division of technology, industrial and economics (DTIE).

UNEPI (2011) SWM, United nations environmentalprogramm. Division of technology, industrial and economics (DTIE)

Venkateshwaran, S. (2010). Ecological, Economic and Social Dimensions, *Economic and Political Weekly*, November 5-12.

Wang, C., Lin, M. & Lin, C. (2012). Factors Influencing Regional Municipal Solid Waste

    Management Strategies. Journal of the Air & Waste Management Association, 58:957–

    964.

Warning, U. N. E. P. D. o. E., & Assessment. (2011). *UNEP Year Book 2011: Emerging*

    *Issues in Our Global Environment*: UNEP/Earthprint.

WaterAid (2011). Solid Waste Management: Study in Bwaise II Parish, Kawempe Division.

    Final Report, October 2011.

World Bank (2007). *Capacity building in country assistance strategies in the Africa region*, a

    progress report. Washington, DC

World Bank, (2011). Managing Solid waste. Retrieved from, www.devex/protects world

    bank/tenders/ solid waste mgt protect in jordarn. On November,19,2015.

Zarate, M., Slotnick, J., & Ramos, M. (2008). Capacity building in rural Guatemala by
    implementing a solid waste management program. *Waste management, 28*(12), 2542-
    2551.
Zerbock, O. (2009). *Urban Solid Waste Management: Waste reduction in developing nations*.

    Michigan Technological University.

Zurbrucc, C. (2009). *Solid Waste Management in developing countries*. SANDEC/EAWAG

Zurbrügg, C., Becker, B., & Voegeli, Y. (2007). Cash flow in solid waste management.

    Sandec News, 8, 14-15.


Zurbrugg. C (2013). Assessment methods for SWM decisions support in developing

    countries. PHD thesis Universal degilstudi di Brescia.

**Appendix 1: Questionnaires** for **Rubirizi Town Council** Political Leaders**.**

**Topic: Factors affecting Performance of SWM in Urban Local Governments, Case of Rubirizi Town Council.**

Dear Respondent.

I am a participant at Uganda Management Institute (UMI).

As part of my study program, I am undertaking an investigation on the above topic. You have been highly recommended as a good respondent in this study because of the knowledge we hope to get from you and by virtue of your position in this Town Council for the exemplary good results of this research. I am humbly requesting for your input in answering the questions here under by filling in the gaps using numbers and other guidelines given. Would like to assure you that all the information you will give will remain confidential and only useful for this research.

I thank you.

Yours,

Kashemeire Ketty

(UMI).

**Section A: Background information**

1) Your designation----------------------------------------------------------------

2)  Age of the respondents (Tick your correct age against the range provided

    1.  (Below 20)    2. (20-29)    3. (30-39)    4. (50-59)        5. (60 and above)

3)  Gender of the respondents( Tick the appropriate identity)

    1.  Male        2. Female

4)  Highest qualification of the respondents (Tick against your correct qualification)

| | |
|---|---|
| 1.  Certificate | |
| 2.  Diploma | |
| 3.  Bachelors Degree and above | |
| 4.  Others(Specify) | |

**Please tick in the appropriate number to indicate your level of agreement with the**

**questions asked.**

5= Strongly agree

4= Agree

3= No definite answer

2= Disagree

1= Strongly disagree

**Section B: Planning**

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. Solid waste is properly planned for around in this area | 5 | 4 | 3 | 2 | 1 |
| 2. Solid waste is properly disposed off in this area | 5 | 4 | 3 | 2 | 1 |
| 3. There are adequate dumping site in place in this area | 5 | 4 | 5 | 2 | 1 |
| 4. There are well designated places for residents in this area to dispose their solid waste | 5 | 4 | 3 | 2 | 1 |
| 5. This area has an adequate budget for SWM | 5 | 4 | 3 | 2 | 1 |
| 6. There is no need to look for more funds to increase solid waste budget in this area | 5 | 4 | 3 | 2 | |
| 7. The authorities in this area have allocated enough funds for solid waste | 5 | 4 | 3 | 2 | 1 |
| 8. There is no need for more resource envelop for SWM | 5 | 4 | 3 | 2 | 1 |
| 9. This area has enough staff to handle solid waste | 5 | 4 | 3 | 2 | 1 |
| 10. The waste garbage collectors are well remunerated and motivated | 5 | 4 | 3 | 2 | 1 |
| 11. The waste garbage collectors are skilled in solid waste handling | 5 | 4 | 3 | 2 | 1 |
| 12. The authority in this area has always trained staff in SWM dynamics | 5 | 4 | 3 | 2 | 1 |

## Section C: Administration of laws

| | | | | | |
|---|---|---|---|---|---|
| 1. I know the laws that govern SWM in this area | 5 | 4 | 3 | 2 | 1 |
| 2. Town council have tough laws that regulate solid waste disposal and littering of the town | 5 | 4 | 3 | 1 | 1 |
| 3. Both national and local laws are adhered to in this area | 5 | 4 | 3 | 2 | 1 |
| 4. The town council has enacted by laws to support other existing laws for proper SWM | 5 | 4 | 3 | 2 | 1 |
| 5. There are penalties and prosecutions for solid waste mismanagement from time to time | 5 | 4 | 3 | 2 | 1 |
| 6. More laws on SWM in this area should not be enacted in this area | 5 | 4 | 3 | 2 | 1 |
| 7. The quality of laws governing solid waste in this town is satisfactory | 5 | 4 | 3 | 2 | 1 |
| 8. Residents in this town follow the SWM laws. | 5 | 4 | 3 | 2 | 1 |
| 9. People in this area have been involved in interpreting laws governing solid waste | 5 | 4 | 3 | 2 | 1 |

## Section D: Monitoring/evaluation

| | | | | | |
|---|---|---|---|---|---|
| 1. The authority in the town council always monitor solid waste activities | 5 | 4 | 3 | 2 | 1 |
| 2. The authority in the town always assesses whether there is always value for money in waste management disposal | 5 | 4 | 3 | 2 | 1 |
| 3. The kind of monitoring activities in this area has ensured efficiency and effectiveness in SWM | 5 | 4 | 3 | 2 | 1 |
| 4. The town council authority evaluates SWM activities to assess achievement of set targets | 5 | 4 | 3 | 2 | 1 |
| 5. The current town council monitoring and evaluation methods ensures a clean town | 5 | 4 | 3 | 2 | 1 |

**Section E: SWM**

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The authorities in this area collect solid waste in time | 5 | 4 | 3 | 2 | 1 |
| 2. The volume of solid waste is very low in this area | 5 | 4 | 3 | 2 | 1 |
| 3. The solid waste collectors in this area are able to cope with the volume of solid waste | 5 | 4 | 3 | 2 | 1 |
| 4. There is no problem of solid waste in this area | 5 | 4 | 3 | 2 | 1 |
| 5. Solid waste is properly disposed by the collectors | 5 | 4 | 3 | 2 | 1 |
| 6. I am satisfied with the garbage collection service in this area | 5 | 4 | 3 | 2 | 1 |

**I thank you once again**

**Appendix 2: Questionnaires for Rubirizi Town Council Political Leaders**

**Topic: Factors affecting the performance of SWM in Urban Local Governments (Case of Rubirizi Town Council).**

Dear Respondent.

I am a participant at Uganda Management Institute (UMI).

As part of my study program, I am undertaking an investigation on the above topic. You have been highly recommended as a good respondent in this study because of the knowledge we hope to get from you and by virtue of your position in this town council for the exemplary good results of this research. I am humbly requesting for your input in answering the questions here under by filling in the gaps using numbers and other guidelines given. Would like to assure you that all the information you will give will remain confidential and only useful for this research.

I thank you.

Yours,

Kashemeire Ketty

(UMI).

**Section A: Background information**.

1) Your designation-----------------------------------------------------------------

2) Age of the respondents(Tick your correct age against the range provided

    1. (Below 20)   2. (20-29)   3. (30-39)   4. (50-59)     5. (60 and above)

3) 4. Gender of the respondents( Tick the appropriate identity)

    1. Male     2. Female

4) Highest qualification(Tick against your correct qualification)

| | |
|---|---|
| 1. Certificate | |
| 2. Diploma | |
| 3. Bachelors Degree and above | |
| 4. Others(Specify) | |

**Please tick in the appropriate number to indicate your level of agreement with the questions asked.**

5= Strongly agree

4= Agree

3= No definite answer

2= Disagree

1= Strongly disagree

**Section B: Planning**

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. Solid waste is properly planned for around in this area | 5 | 4 | 3 | 2 | 1 |
| 2. Solid waste is properly disposed off in this area | 5 | 4 | 3 | 2 | 1 |
| 3. There are adequate dumping site in place in this area | 5 | 4 | 5 | 2 | 1 |
| 4. There are well designated places for residents in this area to dispose their solid waste | 5 | 4 | 3 | 2 | 1 |
| 5. This area has an adequate budget for SWM | 5 | 4 | 3 | 2 | 1 |
| 6. There is no need to look for more funds to increase solid waste budget in this area | 5 | 4 | 3 | 2 | |
| 7. The authorities in this area have allocated enough funds for solid waste | 5 | 4 | 3 | 2 | 1 |
| 8. We need more resource envelop for SWM | 5 | 4 | 3 | 2 | 1 |
| 9. This area has enough staff to handle solid waste | 5 | 4 | 3 | 2 | 1 |
| 10. The waste garbage collectors are well remunerated and motivated | 5 | 4 | 3 | 2 | 1 |
| 11. The waste garbage collectors are skilled in solid waste handling | 5 | 4 | 3 | 2 | 1 |
| 12. The authority in this area has always trained staff in SWM dynamics | 5 | 4 | 3 | 2 | 1 |

**Section C: Administration of laws**

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. I know the laws that govern SWM in this area | 5 | 4 | 3 | 2 | 1 |
| 2. Town council have tough laws that regulate solid waste disposal and littering of the town | 5 | 4 | 3 | 1 | 1 |
| 3. Both national and local laws are adhered to in this area | 5 | 4 | 3 | 2 | 1 |
| 4. The town council has enacted by laws to support other existing laws for proper SWM | 5 | 4 | 3 | 2 | 1 |
| 5. There are penalties and prosecutions for solid waste mismanagement from time to time. | 5 | 4 | 3 | 2 | 1 |
| 6. More laws on SWM in this area should not be enacted in this area | 5 | 4 | 3 | 2 | 1 |
| 7. The quality of laws governing solid waste in this town is satisfactory | 5 | 4 | 3 | 2 | 1 |
| 8. Residents in this town follow the SWM laws. | 5 | 4 | 3 | 2 | 1 |
| 9. People in this area have been involved in interpreting laws governing solid waste | 5 | 4 | 3 | 2 | 1 |

**Section D: Monitoring/evaluation**.

| | | | | | |
|---|---|---|---|---|---|
| 1. The authority in the town council always monitors solid waste activities. | 5 | 4 | 3 | 2 | 1 |
| 2. The authority in the town always assesses whether there is always value for money in waste management disposal. | 5 | 4 | 3 | 2 | 1 |
| 3. The kind of monitoring activities in this area has ensured efficiency and effectiveness in SWM. | 5 | 4 | 3 | 2 | 1 |
| 4. The town council authority evaluates SWM activities to assess achievement of set targets | 5 | 4 | 3 | 2 | 1 |
| 5. The current town council monitoring and evaluation methods ensures a clean town | 5 | 4 | 3 | 2 | 1 |

**Section E: SWM**

| | | | | | |
|---|---|---|---|---|---|
| 1. The authorities in this area collect solid waste in time | 5 | 4 | 3 | 2 | 1 |
| 2. The volume of solid waste is very low in this area | 5 | 4 | 3 | 2 | 1 |
| 3. The solid waste collectors in this area are able to cope with the volume of solid waste | 5 | 4 | 3 | 2 | 1 |
| 4. There is no problem of solid waste in this area | 5 | 4 | 3 | 2 | 1 |
| 5. Solid waste is properly disposed by the collectors | 5 | 4 | 3 | 2 | 1 |
| 6. I am satisfied with the garbage collection service in this area | 5 | 4 | 3 | 2 | 1 |

**I thank you once again**

**Appendix 3: Interview Guide for Technical Staff**

**Part A: Planning**

1. Do you have a budget or funds set aside for SWM?

2. What is the annual budget for SWM?

3. Do you have a static budget over budgeting periods or budgets vary period to period?

4. What are other resources are allocated for purposes of SWM?

5. How much estimated solid waste (Kgs) from the Town Council Quarterly?

6. Do you think there is a difference in the amounts of solid waste collected over varying budget allocations?

7. SWM requires different players and specialists. Who is who in this Town Council regarding SWM?

8. What are some of the physical and proxy structures or technological approaches does this Town Council employ towards SWM?

9. Usually, these solid waste materials have their final destinations. Do you have any other end product or purpose arising out of their proper management?

**Part B: Laws and Policies**

10. Where do you derive mandate to collect and manage Solid waste?

11. What policies and laws do you implement while collecting and managing solid waste?

12. Do you have any law or policy implementation structure?

13. Do you sometimes experience cases of non-compliance by residents and town dwellers to the policies and laws?

14. What remedies do you institute to town dwellers who do not comply with the set policies, laws, rules and guidelines as regards SWM?

15. To what extent have you helped council as technical staff to enact solid waste by laws?

**Part C: Monitoring/evaluation**

16. Do you have any M & E tool for purposes of SWM?

17. Who develops and executes the M & E tool?

18. How often do you conduct M& E?

19. Under what circumstances do you find it necessary to conduct M & E?

20. After M & E, do you find it worth conducting?

21. From your own view, is solid waste reducing or increasing?


**I thank you again**

**Appendix 4: Interview Guide for Technical Staff**

**Part A: Planning**

1.  Do you have a budget or funds set aside for SWM?

2.  What is the annual budget for SWM?

3.  Do you have a static budget over budgeting periods or budgets vary period to period?

4.  What are other resources are allocated for purposes of SWM?

5.  How much estimated solid waste (Kgs) from the Town Council Quarterly?

6.  Do you think there is a difference in the amounts of solid waste collected over varying budget allocations?

7.  SWM requires different players and specialists. Who is who in this Town Council regarding SWM?

8.  What are some of the physical and proxy structures or technological approaches does this Town Council employ towards SWM?

9.  Usually, these solid waste materials have their final destinations. Do you have any other end product or purpose arising out of their proper management?

**Part B: Laws and Policies**

10. Where do you derive mandate to collect and manage Solid waste?

11. What policies and laws do you implement while collecting and managing solid waste?

12. Do you have any law or policy implementation structure?

13. Do you sometimes experience cases of non-compliance by residents and town dwellers to the policies and laws?

14. What remedies do you institute to town dwellers who do not comply with the set policies, laws, rules and guidelines as regards SWM?

15. To what extent have you helped council as technical staff to enact solid waste by laws?

**Part C: Monitoring/evaluation**

16. Do you have any M & E tool for purposes of SWM?

17. Who develops and executes the M & E tool?

18. How often do you conduct M& E?

19. Under what circumstances do you find it necessary to conduct M & E?

20. After M & E, do you find it worth conducting?

21. From your own view, is solid waste reducing or increasing?

**Thank you**

D