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THE FACULTY OF COMMERCE

DEPARTMENT OF ACCOUNTING

RESEARCH TOPIC

AN ANALYSIS OF THE REFUSE REMOVAL TARIFF SETTING IN MUNICIPALITIES A CASE OF CITY OF MUTARE

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R11304Q

THIS DISSERTATION IS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE BACHELOR OF COMMERCE ACCOUNTING HONOURS DEGREE AT THE MIDLANDS STATE UNIVERSITY

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APPROVAL FORM

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DEDICATION

This research is dedicated to my husband (Sydney), my children (Faith, Kedar and Charity) and friends for their support. I love you all.

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The successful accomplishment of this academic achievement was through endurance, hard working and faith. For the bible says in Mark 11 vs 24, "Therefore I say to you, whatever things you ask when you pray, believe that you receive them and you will have them". I extend my first appreciation to my supervisor Mr Kazembe for the unwavering support and commitment he advanced to me during the research. I thank you very much, be blessed now and forever.

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To the respondents and interviewees, thank you for completing and answering the questions which led to the success of this research. Lastly I would like to thank my husband and children for they were the pillars of my strength.

ABSTRACT

The study sought to analyse the refuse removal tariff setting in Municipalities. In this study the Finance Director, middle management, employees and councillors of Mutare City Council as well as households in the high density suburbs were used as the research subjects. Data collection was mainly by way of 53 questionnaires, 7 scheduled interviews as well as Mutare City Council documentary review. The results showed that residents' inputs were not crafted into the final budget. The Council was not educating the residents on litter reduction and waste management projects. The Finance Committee's tariff was operating at US$2.87 and was below cost. The refuse removal tariff was not cost reflective since mark-up and other costs were not included. The majority respondents agreed on a US$8.00 charge for refuse removal. City of Mutare must establish another dumping site other than the usual Munene River which had received pollution complaints from the owners in Mozambique. The study showed that the decision makers did not have adequate time to discuss tariff setting criteria's reports with their subordinates and the households. This study recommends the Finance Committee to be given some orientation on refuse removal tariff setting procedures and the implementation of the processes. Finally, it is also recommended that further research be undertaken in order to establish refuse removal tariff setting processes used in municipalities.

LIST OF ACRONYMS/ABBREVIATIONS

ABC – Activity Based Costing

CDM – Clean Development Mechanisms

CBA – Cost Benefit Analysis

DEA – Department of Environmental Affairs

PDG – Development Bank of Southern Africa

FFC – The Financial and Fiscal Commission

FCA – Full Costing Analysis/Full Costing Accounting

FBS – Free Basic Services

IDP – Integrated Development Planning

IWMP – Integrated Waste Management Plans

MCC – Mutare City Council

MDG – Millennium Development Goals

MFMA – Municipal Financial Management Act

MTREF – Medium Term Revenue and Expenditure Framework

MSME – Micro, Small and Medium Enterprises

MSFM – The Municipal Services Financial Model

NT – National Treasury

NWMS – National Waste Minimization Waste Act

O & M – Operation & Maintenance

PRASA – Paper Recycling Association of South Africa

SALGA – Southern Africa Local Government Association

TARSC – Training and Support Centre

ULB – Urban Local Bodies

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

The chapter was an introduction to the whole study; it gave the background of the problem, the statement of the problem, its objectives, significance of the study, delimitations, limitations of the study, assumptions, definition of terms and summary.

1.1 Background to the study

Mutare City Council is a Local Authority which is mandated by the Urban Council's Act (Chapter 29:15) to offer services to its residents. Among other services being offered by the Council is refuse removal. The refuse removal budget is presented to the Finance Council by the Finance Director yearly.

Table 1.1 Refuse removal budget against actual revenue and expenditure.

Categories of items	**2011**			**2012**		
	Budget US$	**Actual Collection US$**	**Variance US$**	**Budget US$**	**Actual Collection US$**	**Variance US$**
Income	2 980 300	980 300	(2 000 000)	1 916 393	1 549 196	(367 197)
Donation	-	1 000 000	1 000 000	-	-	-
Expenditure	1 273 460	3 373 460	(2 100 000)	1 399 525	3 827 365	(2 427 840)
Surplus/(Deficit)	1 706 840	(1 393 160)	(3 100 000)	516 868	(2 278 169)	(2 795 037)

Source: Mutare City Council Annual Financial Statements – 2011 and 2012.

Table 1.1 above showed that, in January 2011 and 2012 the Finance Committee reported an adverse annual income for refuse removal of 67% decreasing to 19%, giving a deficit of US$3 100 000 and US$2 795 0370 respectively. The Mutare City Council Town Clerk, Mr O.L. Muzawazi highlighted that Swedish International Development Corporation Agency donated US$1 million for refuse collection vehicles (Manica Post 25 February 2011, and 4 February 2011 Management meeting).

Table 1.2 Refuse Removal Debtors Age analysis for Mutare City Council

Period Ending	2009	2010	2011	2012
Above 30 days in US$	9 295.36	6 500.50	4 647.68	10 328.17
Cumulative totals in US$	**9 295.36**	**15 795.86**	**20 443.54**	**30 771.71**

Source: Mutare City Council Age Analysis 2009 to December 2012

Table 1.2 above indicated that the debtors age analysis for refuse removal account was in arrears of US$30 771.71 for the period ending 31 December 2012 (Debtors report 2012).

Table 1.3 Refuse Removal Tariffs Budget Proposal submissions for year ending 2012.

Department	Bin	Mark-up	Labour	Maintenance	Administration	Employment	Total
Health	$2.00	Pending	$1.20	$1.30	$1.70	$1.80	$8.00
Finance	-	-	-	-	-	-	$2.87
Variance	-	-	-	-	-	-	$5.13

Source: Departmental budget reports - November 2011and 2012 Health Department

Table 1.3 indicated that the Health Department's budget proposal totalled to US$8. However, the Finance Director's total budget was US$2.87 per month per household which did not explicitly breakdown the cost of each component as tallied by the user department, giving an under-cast of US$5.13.

Table 1.4 Refuse collection statistics for high density suburbs of Mutare.

High density suburbs	HOUSEHOLDS	REFUSE SCHEDULE					
	Number		Per week	Monthly Tonnes	Generated Tonnes	Collected Tonnes	not collected Tonnes
Chikanga Phases	7 819		Once	130.48	1 112.70	988.34	(124.36)
Dangamvura	14 663		Once	93.20	794.79	705.96	(88.83)
Sakubva	9 906		Once	111.84	953.74	847.15	(106.59)
Total	**32 388**			**335.52**	**2 861.23**	**2 541.45**	**319.78**

Source: National Statistical; African Distillers Limited; Mutare City Health – December 2012.

Table 1.4 indicated that 2 861.23 tonnes were generated by 32 388 high density households, and only 2 541.45 tonnes were collected leaving 11.18% tonnes of dumbed rubbish not collected; causing vermin flies and breeding host specific fleas invading houses, leading to the outbreak of

diseases like cholera and malaria (Manica Post 4 February 2011). In a management meeting (22 June 2012), the Refuse Removal Officer, Mr G. Chirau declared that all refuse vehicles be weighed by African Distillers Limited Weighbridge in order to reduce variance in refuse collection.

1.2 Statement of the Problem

The purpose of the study was to establish whether the tariff set for refuse removal by Mutare City Council was adequate to meet the refuse removal demand in its four high density suburbs and assess the effectiveness of the refuse removal budgeting processes. It also sought to establish whether the Urban Council's Act (Chapter 29:15) had a laid down budgeting process which took into account the constant changes in the economic climate.

1.3Research Objectives

- To establish Mutare City Council's existing refuse removal tariff setting processes.
- To examine the factors affecting the costing of refuse removal and any values of waste material.
- To calculate a cost reflective tariff for refuse removal.
- To establish the breakeven point for Mutare City Council's refuse removal tariff.
- To identify Mutare residents' affordable refuse removal tariff.

1.4 Sub Research Questions

- What were the existing refuse removal tariff setting processes?
- Which factors affected the costing of refuse removal and were there values of waste material?
- How was the cost reflective tariff for refuse removal calculated?
- What was the breakeven point of refuse removal tariff to ensure a financial sustainability?
- What was the refuse removal tariff affordable and appropriate for residents?

1.5 Significance of the study

The research findings should be of importance to Mutare City Council's management and employees, Midlands State University and the researcher.

1.5.1 The researcher

The research had been carried out in partial fulfilment of the requirements of Bachelor of Commerce Honours Degree in Accounting. The researcher would benefit at large by being equipped with adequate knowledge on how a research was carried out, data gathering, and data presentation as well as understanding the costing techniques in budgeting.

1.5.2 Midlands State University

The research findings would provide reference material for other students in universities and members of staff who might be carrying out research on the same topic.

1.5.3 Mutare City Council

Budgeting was the responsibility of management. The study findings would enable management to have an insight into cost accounting of departmental votes and enable the organisation to achieve its mission and objectives. It would also help the local authority in coming up with other means of expanding its refuse revenue other than relying on residents' refuse tariff fees.

1.6 Delimitation of the study

The research was only taking into account the constraints and weaknesses in the refuse removal tariff setting and collection in Chikanga, Hobhouse, Dangamvura and Sakubva high density suburbs of Mutare City Council during the periods 2011 and 2012. Any other authorities in Zimbabwe were not covered in the research. The respondents should be the occupants of the suburbs as well as the management and employees of Mutare City Council.

1.7 Limitations of the study

In the research there might be constraints which might affect the smooth flow of the research and some of the likely challenges included the following:

1.7.1 Availability of Time

Some of the respondents to the interviews might be busy or not available at scheduled appointments, but the researcher would utilise the most convenient time to conduct interviews such as after working hours.

1.7.2 Completion of questionnaires

Some of the questionnaires sent out might not be returned; hence the researcher had to persuade the recipients to complete them.

1.7.3 Access to confidential information

The employees were not willing to release the information for fear of being victimised as they believed some health reports were confidential. The researcher was granted authority to some confidential information after producing a typed and signed authorisation letter from the university, and she guaranteed that the information was purely for academic purposes and that confidentiality would be maintained entirely.

1.7.4 Costs

The researcher resorted to the use of the e-mail, DHL Express Limited and at times asked advance salary at work.

1.8 Assumptions of the study

The research was based on the following assumptions:

- Mutare City Council had competent staff knowledgeable of the budgeting processes.
- It was presumed that residents of Mutare would co-operate and would be able to divulge information pertaining to the research.
- The refuse removal section has a system of collecting garbage and assessment in place.

1.9 Definition of key terms

Affordability Tariffs: were considered to be affordable if consumers were willing and able to pay them. It was very important that tariffs were set at affordable levels: if tariffs theoretically generated sufficient revenue but were so high that consumers could not pay them, then revenue would not in fact be received.

Budget vote: The municipal budget was divided into services or activities which would be delivered by the municipality. Each budget service or activity must be voted on and approved by Council hence the use of terminology, vote.

Cross-subsidisation: referred to subsidisation within a municipality (as opposed to by an external body), and was achieved when a loss incurred in one area of service provision was compensated for by a profit incurred in another. Cross-subsidisation typically occurred between services or between groups of consumers.

Primary baseline tariff: In the guide it referred to the tariff that must be levied in order to fully recover the costs of providing a service. That was a single tariff levied on all consumer types.

Ring fenced: In each budget vote all the costs applicable to the service must be reflected so that the full cost of delivering the service was clearly shown and was referred as "ring-fencing". It required that the share of overheads costs allocated to that service was also reflected in the budget vote.

1.10 Summary of chapter

The chapter covered the objectives that the researcher mainly aimed at achieving. It highlighted the background of the problem, significance of the study, the delimitations and limitations of the study as well as assumptions. The paper also depicted on the definition of key terms as they related to the context of the research. The chapter was concluded by a summary and chapter two reviewed related literature.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

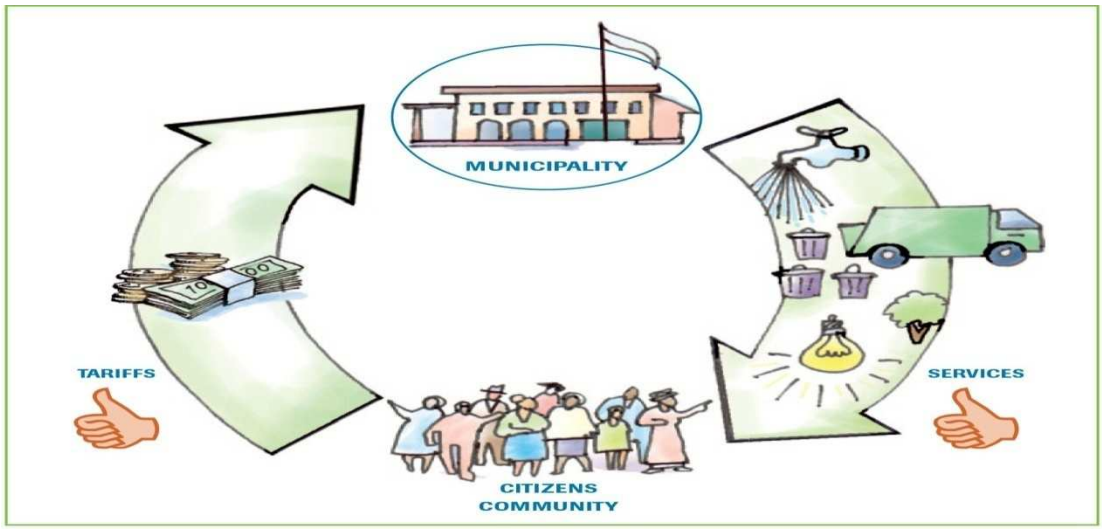
2.0 Introduction

Literature review looked at the field of study in which both published and unpublished available documents were selected if they contained the information and evidence relevant to the researcher's topic. It was written in such a way that the effective evaluations of these documents fulfilled the objectives, certain views and investigation procedures to the research under study (Hart 2009). The researcher was to explore an insight of the refuse removal tariff setting process, factors affecting the costing, cost reflective tariff calculations, breakeven point for financial sustainability, investments in refuse, the Millennium Development Goals and concluded by a summary.

2.1 Existing refuse removal tariff setting processes

2.1.1Requirements for Tariff Setting

Figure 2.1 Vicious Cycle for Southern Africa, Namibia and Botswana (SALGA 2011)



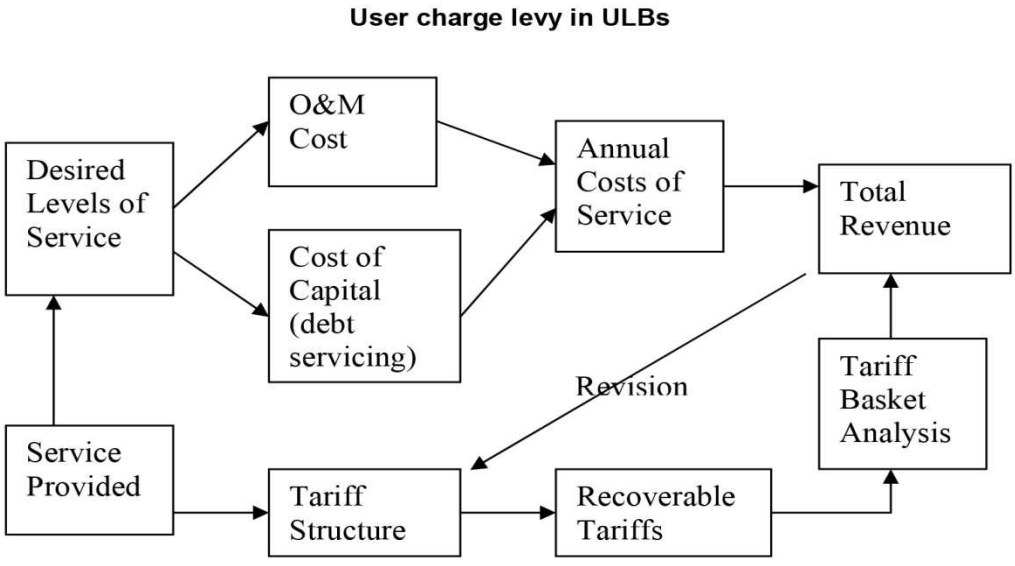
Source: Transparent Tariffs Toolkit (2011: 2)

Figure 2.1 above illustrated that the municipality was mandated to offer waste collection services to citizens, the community was to comply with municipal policies by paying refuse removal tariffs. The National Treasury (NT) (2012) encouraged revenue management to invite comments in respect of proposed tariffs, community participation for the tabled budget in order to prevent non compliance with the legislated community participation provisions. A study by Nallathiga (2011) described refuse removal tariff as 'User Charge Levy for Urban Local Bodies' (ULBs). However, in Mbare suburb of Harare City, refuse removal tariff was described as fees for dumped garbage by the roadside coupled with non collection of refuse for several weeks (The Standard, 18 November 2012).

The researcher recommended the definition by Nallathiga (2011) who narrated the principles, fixation, process and guidelines on how Southern African municipal waste tariff should be priced to the users (NT 2012).

2.1.2 Tariff Setting Process

Figure 2.2 Summarizing Existing Tariff Setting Processes (Nallathiga (2011)



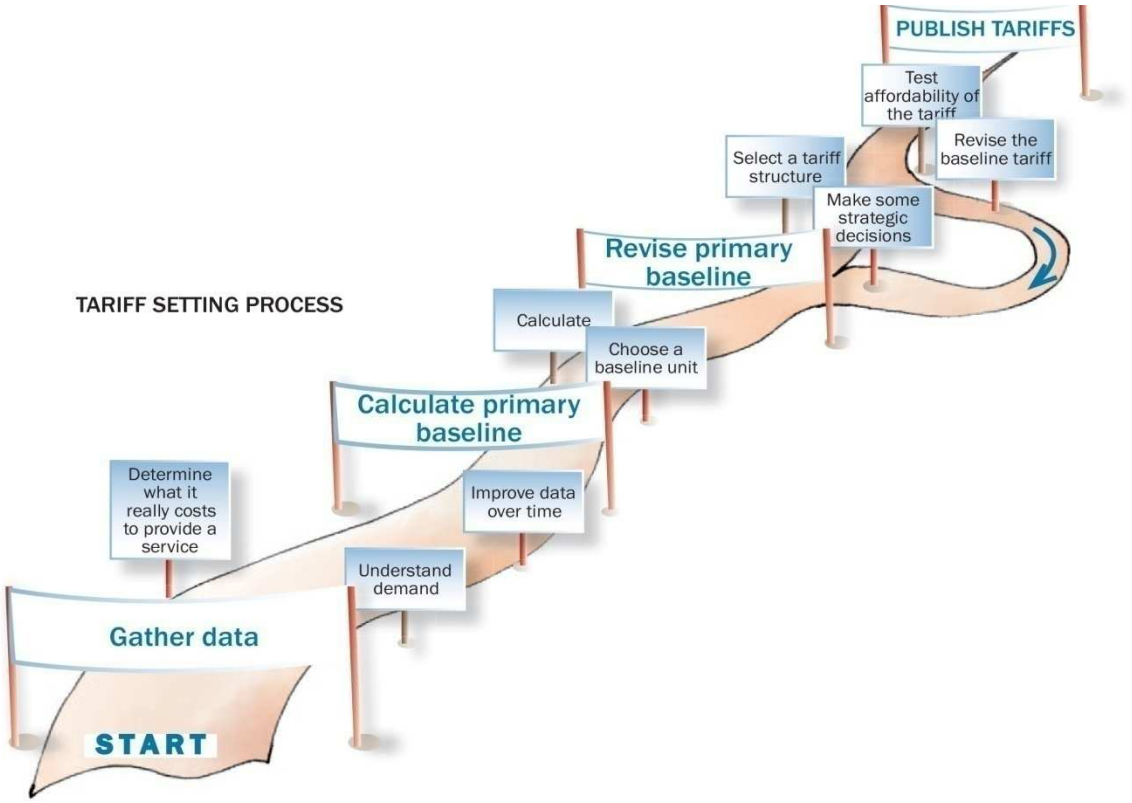
Source: Republic of South Africa Urban Local Bodies: CGG Working Paper (2011: 8)

Figure 2.2 above showed the steps to set solid waste tariffs. Boland (2009) viewed the above as well and further included difficulties in estimating appropriate marginal costs; market

adjustments costs since components of solid wastes were not known; taxation increases and low collection rates against high administrative costs. However, since solid waste was provided as public good to the Indigent Households (DEA 2010), it was necessary to factor the allowance into the setting of tariffs. The research recommends applying 'user charge levy' (Nallathiga (2011) which was a guide to Zimbabwean Local Bodies and considered the variations across municipalities' input costs and population density {Goddard (2008), Bel and Warner (2008)} because charges in Zimbabwean suburbs were rated at different costs according to their expected income levels.

2.1.3 Stages in Tariff Setting

Figure 2.3 Consecutive Tariff Setting Process Guide in Municipalities (SALGA 2012)



Source: Transparent Tariff Toolkit – 2012:5

Figure 2.3 above indicated a stepped ladder of 14 steps from start up to publishing the tariffs. Before finalization of any tariffs for the budget year, Buffalo and Sakhisizwe Municipal

management were to consider the views of the local community and the bodies MFMA; publish in the newspaper and sent a notice stating resolutions adopted by the Council; convey information by means of radio broadcasts covering the area of the municipality (MTREF budget 2012). However, the process of establishing tariffs for municipal refuse removal service was not only a financial procedure, but also considered environmental and social costs (Solid Waste Tariff Setting Guidelines for Local Authorities2012). The research proposed SALGA (2012)'s 14 steps tariff setting determinants because it complied with Zimbabwe's budgeting phases for the year from January to December involving planning, organizing, controlling, evaluating and implementation.

2.1.4 Existing service provisions (Collection Methods)

Service levels were a key cost driver and needed to be established prior to setting tariff.

Table 2.1 Relationship to Solid Waste Tariff Model – SA Municipality (DEA 2012)

Service Level Option	**Service Provided/ Description**	**Collection frequency**	**Number of users**
Communal-urban (dumping sites)	Households dump own waste outside settlement area (landfill) supervised by the Municipality	twice weekly	5000
Communal bins (skip)	Households carried their own waste to large bins (skip) and would be emptied to landfill by municipality/full contractor	once weekly	4000
Residential round collected waste (Kerbside collection)	Households put their own waste in bags or bins for weekly or fortnightly collection, then the contractor transported the waste to skip before transferring to landfill	once weekly	3500
Kerbside	The Municipality transported the waste from skip to the landfill	once weekly	3000

Source: PDG (1999) National Waste Domestic Collection Standards (DEA 2010)

Table 2.1 above described the service level information and the method used impacted the cost's efficiency of the services and also impacted other municipal objectives. Green *et al* (2003) recommended a summary of accounts be formulated as follows:

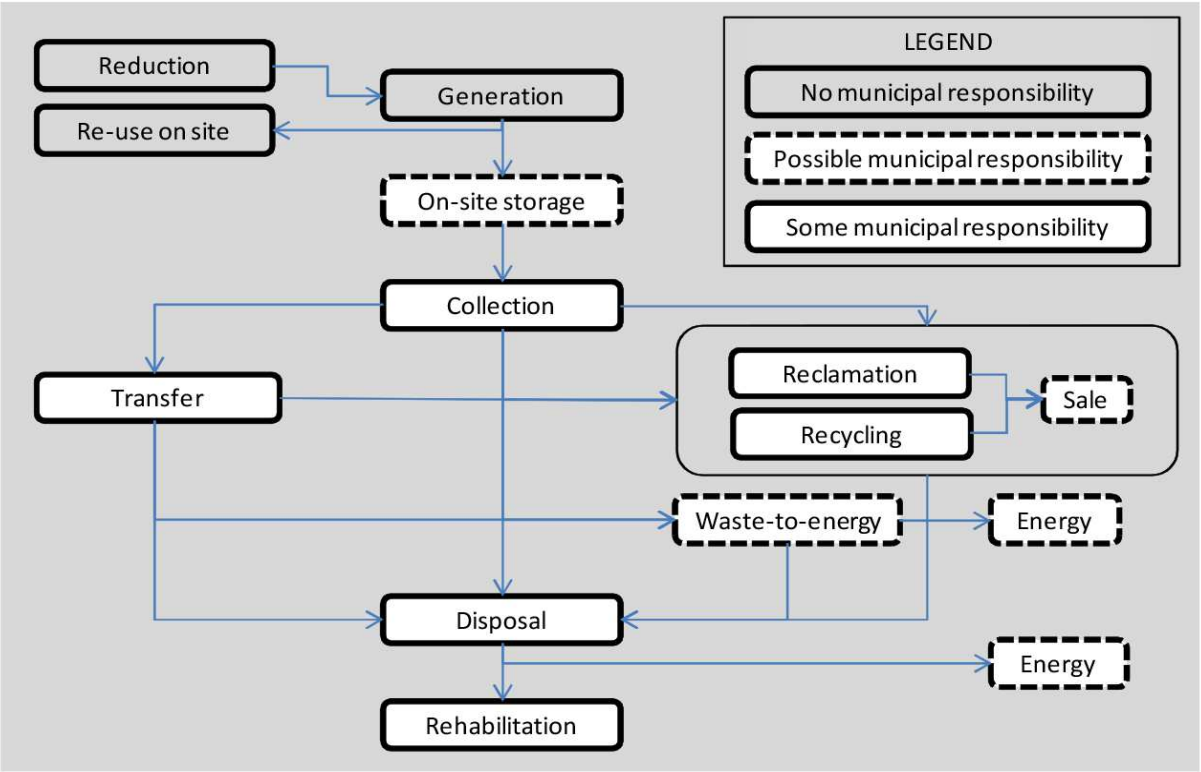
Opening Balance + Fixed charge + adjustments = revenue generated per annum.

2.2 Examining the factors affecting the costing of refuse removal charge

2.2.1 Options for setting municipal solid waste

According to National Waste Minimization Waste Act (NWMS) (2010) the following should be considered: capital cost for new landfill development; operating costs of existing landfills and disposal costs at non-municipal owned landfills. The municipality should think of the long term financial and environmental costs of alternative landfill (Minimum Requirements for Waste Disposal by Landfill, Waste Management Series, Pretoria (2010).

Figure 2.4Assessing Technical Options for setting municipal solid waste tariffs (DEA 2012)



Source: The municipal solid waste management system (DEA – May 2012:6)

Figure 2.2 above showed available alternative methods and technologies for on-site storage, collection, transfer and disposal. Exception elements in the system were in the dashed boxes.

Table 2.2Service provider:Cost apportionment and determination by (SALGA, 2011)

Service provider	**Typical cost drivers of MSW provision**
Collection	-Settlement types-distance and density and road conditions
	-level of service -frequency and type of collection approach
	-collection methods –vehicle technology used
	-distance from disposal site-need for transfer stations, fuel costs
Street, public area cleansing	-settlement types-population density and through flow of people
	-Level of service –frequency of density and collection methods
Disposal	-Land costs and Planning and sitting costs

Source: Typical cost drivers of Municipal Solid Waste provision (DEA May 2011)

Despite table 2.2's above detailed analysis in apportioning and determining costs by a service provider, Boland (2009) emphasized the developmental costs such as engineering works, the bulk payments by external providers and the inflation rate increase on tariffs. However, Madubula and Makinta's overhead costs included activity based costing which was the most accurate way of apportioning costs as it took activity as a unit and determined the allocation on the causative actions between refuse removal services. The research recommended the activity based costing by Madubula *et al* (2011) because the Zimbabwe Municipal vote for refuse removal was made up of sub votes such as wages and salaries; operation and maintenance.

Generally, The National Waste Management Strategy (DEA 2011) encouraged efficient allocation and use of resources (SALGA 2011) because it incorporated The Municipal Systems Act section 78 set up for monitoring and regulating the performance of the service providers.

2.2.2 Penalties and illegal dumping of solid waste

At Katibanda International Airport in Kigali City of Rwanda, travellers who arrived carrying non-biodegradable plastic bags might have them confiscated and had to pay approximately $4 for a reusable cloth replacement (http://travel.state.gov/cis-pa-tw-pa-tw-1168html 25/08/13:

08.29). The Auckland Council could prosecute under the Litter Act 1979 for more serious offences for illegal dumping and the maximum penalty upon conviction was $30.00 (Inthebin@aucklandcouncil.govt.nz 25/08/13: 09.34). South Australia charged $120,00 and faced up to two years imprisonment under clause 10 of the Environment Protection (Waste to resources Policy 2010) if found dumping waste.

However, the fees for waste disposal and waste treatment were not considered (Dorvil Article 2012) despite the System Tariff Policies amendment of including new sources of revenue such as fines and penalties for dumping sites (MTREF 2012/13). Cointreau (1982) found that the greater proportion of urban residents in Zimbabwe resided in the High Density Suburb where illegal waste dumping was mostly practiced. The researcher recommended (Dorvil Article 2012) and (Cointreau 1982) since Zimbabwe's illegal dumping was not a surprise hence not offended and the council failed to collect refuses at most. On the other hand the community stated that it was the mandate of the council, hence newspapers raised complaints of non-collection of refuse which the residents had dumped.

Government's commitment to waste management strategies could be traced back to the Polokwane Declaration (DEA 2001), whose vision was to reduce waste generation and disposal by 50% and 25% respectively by 2012 and develop a plan for zero waste by 2022 (Madubula and Makinta2011:6), (DEA 2011).

The official in South Australia had a problem with irresponsible rubbish disposal in roadways that continued to cost councils and ratepayers thousands of dollars (Adelaide, February 2012). City of Toronto (1998 – 2013) encouraged the residents to have garbage bins for collection with a city-issued bag tag attached to the garbage bag purchased in packages of 5 for $15.50 ($3.10 each) at local Canadian Tire Stores) (2012 meeting). However, illegal dumping was socially unacceptable (Russell and Vaughan, 2008). S 604-4 of the Toronto Municipal Code prohibited retailers from providing customers with non-compatible plastic bags and from offering customers plastic bags that were not compatible with the City's Blue Bin recycling program (2012 meeting).

2.2.3 Investments in refuse

A research carried out in Sweden found that in VafabMiljo food waste was converted to biogas and was used to fuel Vasteras city buses. Waste was used by the combined heat and power (CHP) plant feedstock and waste gasification in Malarenergi (Matt 2011 and Energy Recovery Council 2011). However, Switzerland banned landfill in 2000, incinerated non recycled combustible waste and achieved to incinerate 28 municipal solid waste disposal facilities in April 2011 (en.wikipedia.org/wiki/Waste-management-in-Switzerland 07/08/13:01.56). Incineration disposal involved passing waste through a chamber at high temperature with adequate supply of oxygen and overweighed the landfill as it required less land. The combustion reduced volume by 90% and weight by 75% if carried at 1200^0C temperature and ambient oxygen (Hill, 2004).

Table 2.3 Waste Management Methods Comparisons (Matt Williams 2011)

Country	Solid Waste	Sweden	United States	Comparisons
Forward	Refuse	-	-	Sweden landfill tax/tipping fees
Forward	Recycling	35%	34%	Recycling/Energy recovery
Forward	Waste to Energy	48%	12%	Recycling/Energy recovery
Forward	Composting	14%	-	Recycling/Energy recovery
Not forward	Landfills	3%	54%	Recycling/Energy recovery

Adapted: United States Energy Policy Act Solid Waste Period Ending 2009

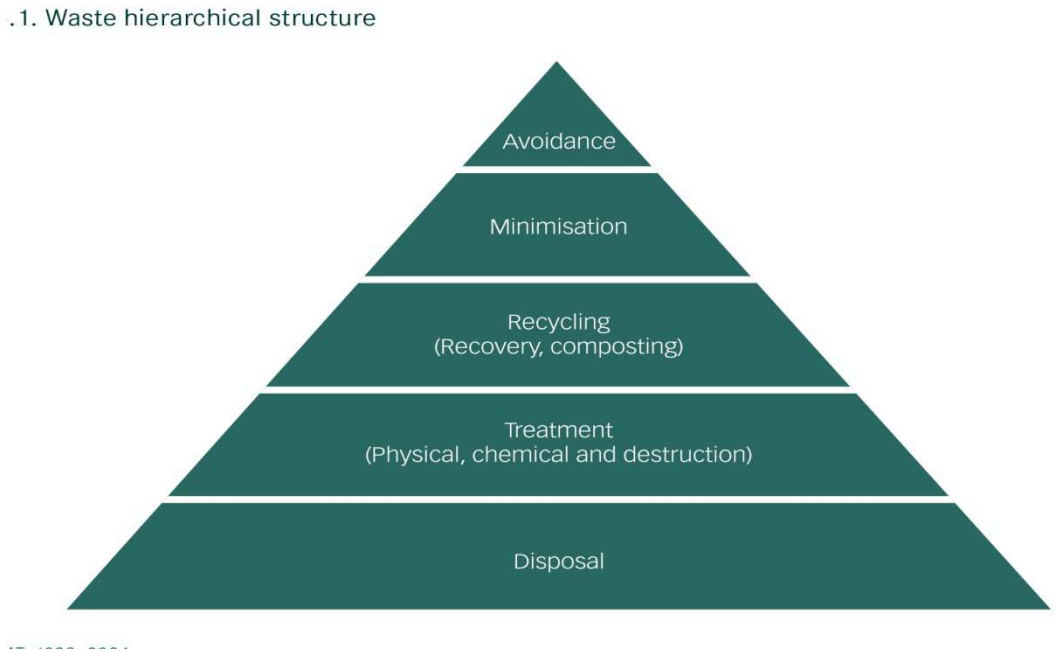
Table 2.3 above indicated that Sweden had more capacity to convert waste energy, hence in 2009 Sweden imported 36 480 tons of household waste for incineration from Great Britain and Norway. On the other hand the United States exported trash (waste) mostly to China (Matt 2011).

2.2.4 Developments and the tax evasion

Sweden and European Union municipalities charged tax on waste sent to landfills, and had been prevailing at an equivalent of US$72.5 ton and that was why Sweden had high recycling rate {Matt 2011 and (www.prasa.co.za 09/08/13: 13.18)}. According to Waste generation and waste stream analysis, European Union and the United States produced 1,51kilograms/capita/day and 2, 08 kilogram/capita/day respectively, while developing countries (including China, Brazil and India) produced an average of 0,58 kilograms/capita/day (Troschinetz and Milhelcic 2009).

Switzerland City introduced an annual taxation on refuse and some municipalities introduced refuse weighing machines, thus enforcing payment for refuse elimination by weight and not by volume (en.wikipedia.org/wiki/Waste-management-in-Switzerland 09/08/13: 08.14). Madubula *et al* (2011) discussed the transformation of waste at landfill sites into compost to generate greenhouse gases and promoting the use of clean developmental mechanisms (CDM). Waste recycling could create three forms of jobs, direct, indirect (Friends of the Earth, 2010) that was waste recycling facilities and business purchase commodities respectively. Recycling was becoming an alternative for waste disposal as compared to traditional landfill (Halsted 2009) as shown below.

Figure 2.5 Waste hierarchical structures (Madubula and Makinta 2009)



Source: DEAT, 1999 and 2008:208

Figure 2.5 above demonstrated a waste hierarchy which was a shift from traditional methods of treating and disposing waste to methods that prevented and reduced waste; avoidance and minimization were the founding principles and encompassed the use of cleaner methods to waste management activities as the first choice. Where waste could not be avoided, a second choice was to recycle and waste disposal in landfill was a last resort. All tariff setting conditions were

the same in Southern African municipalities (NT 2012) but an agenda was set for waste minimization, reuse and recycling needed to be incorporated into the budgeting {South Africa Local Government Association (SALGA) 2012}.

2.2.5 Participation in waste minimization programs

India, Pakistan, Indonesia, Ivory Coast, Zambia, Peru, Columbia and in the Caribbean provided insights into the role community participated in by providing voluntary, paid or subsidized labour for waste collection, recycling and disposal systems (Barrientos *et al* 2011). A study by Masundire and Sanyanya (1999) as discovered by Manyanhaire (2009), showed that Kariba was the only town, out of 8 studied which had a recycling program carried out by a 'dump group of women' who collected paper before burning the rubbish and it averaged 80% of the dumped paper which was collected for recycling though recycling was not significant in Africa due to few recycling plants.

2.3 A cost reflective tariff for refuse removal

2.3.1 Formula for calculating refuse removal tariff

The cost benefit analysis (CBA) suggested that for a municipal waste management system to be cost reflective, performance must be maximized and the environmental impact of the services must be minimized {Haddix 2008; Goddara 2009; Warner 2008 and Makinta *et al* 2011: 6}. According to SALGA (2011) the Primary Baseline Tariff (PBLT) was defined as a uniform tariff across all consumers for a refuse removal service level. It used the following model formula:

$$\text{Primary Baseline Tariff} = \frac{\text{Total costs (capital + information + operating)}}{\text{Total number of consumer units (kilograms/tons)}}$$

The revision of the baseline tariff needed strategic decisions such as affordability decisions; financial decision either by achieving full cost recovery and accepting a deficit or charging much to generate surplus if refuse removal was not funded from subsidies and including main cross subsidy such as tariff differentiation (SALGA 2011). According to Sakhisizwe Municipality

Final Tariff Policy 2011 and 2012 the method of calculating costs per unit of measurement was as follows:

$$\text{Costs of Refuse Removal per month (billing)} = \frac{\text{Total costs of the service (removal + operating)}}{\text{Total number of users (households)}} \times \text{number of removals x per week per household}$$

Sikhisizwe Municipality Final Tariff Policy (2012) recommended that the tariff was to be determined at a rate of between 40% and 50% of the domestic users' tariff.

In determining the basis for setting and charging fees (Madubula 2011) there was need to factor in any policy changes that had been made about the proportion of costs to be recovered through the fees. The formula was as follows:

$$\text{Costs for charging fees} = \frac{\text{Total costs (direct + indirect – legal fees)}}{\text{Estimated volume of production}}$$

The researcher recommended the popular formulae by (Sakhisizwe Municipality Final Tariff Policy 2012) because Zimbabwe Municipalities were mandated to bill four weekly collections; as well as The Primary Baseline Tariff (SALGA 2011) since all high density residents in Zimbabwe paid the same monthly bill. Though taxes and penalties increased revenue, Zimbabwe could eliminate them since the tariff penalty was not yet in our country.

Table 2.4 Costing: Bin charges/trash removal/garbage collection (MTREF 2012)

City	Weekly Quantity	Cost per household	Journal/Article
Mbombela	85 Litre load once per week	$7.00	(MTREF 2012)
Buffalo	85 Litre load once per week	$9.07	(MTREF 2012)
Tuckson	85 Litre load once per week	$15.00	MFMA Policy Section 62.1(2012)
Ekurhuleni	85 Litre load once per week	$21.00	(Shore and Duchesne 2010)

Adapted: National Treasury (2012) and Madubula (2011:225-226)

Table 2.2.1 above indicated that Mbombela City offered the cheapest and Ekurhuleni offered thrice that price at a rate of US$21.00 for bin charges.

2.3.2 Full Cost Accounting (FCA) of waste management

USEPA (2008), Higgins (2009), Shore and Duchesne (2010) and Madubula (2011) discovered that Full Cost Accounting (FCA) method of waste management as an accounting and decision support tool that recognised quantities and allocated them according to the environmental and social cost item basis; differed from other common governmental accounting practices because it assigned value to the direct and indirect operating costs along with upfront and back-end expenses. FCA helped municipal solid waste and financial planners to (Hogg 2009) plan and analyse future budgets for waste management. The investigators Hogg (2009) and Miranda *et al* (2008) added clean-up campaigns of illegal dumping, littering and waste-wise promotions; and other overheads. However, SALGA (2011) proposed that full cost recovery on waste services was achieved by setting goal of tariff for revenue which was sufficient for the municipality as a whole provided losses balance profits that was 'principle of cross subsidization between service'. The research proposed to go beyond USEPA (2008), Higgins (2009), Shore and Duchesne (2010) and Madubula (2011)'s work in the following manner:

- Zimbabwean Municipalities based their future estimates on the previous budget figures.
- Municipalities accounting were to follow Zimbabwean government practices for the Auditor-General and the Public Accounting.
- Refuse removal collection system should not lead into the disruption of the environmental and social costs resulting in associated non-collection waste epidemic diseases such as cholera.

2.3.3 Benefits of full cost analysis (FCA)

Weng and Fujuwara (2011), USEPA (2008) discovered that Cost Benefit Analysis (CBA) overweighed FCA as it concentrated on the benefits and the externalities rather than cost estimates and internalities. The benefits of FCA were to improve the municipality accounting officers' management accounting {MFMA no. 56 (SA 2003)}. Madubula (2011) considered both external and environmental benefits costs. Belgium municipal used the waste financed tax {The Financial and Fiscal Commission (FFC) 2012}; Denmark household paid a differential collection scheme based on weight and volume (FFC 2012). However, Italy used the 'tagged bag' scheme,

where waste was separated at source and bags were distributed free to the household (FFC 2011/12).

The research favoured FCA because Zimbabwe used cost estimates USEPA (2009), Zimbabwe landfills were difficult to quantify (Nahman 2011) and Nallathiga (2011:217) used the primary Baseline where a suburb was charged the same refuse and Weng (2011) concentrated on the mandated municipality duties of offering refuse removal services to residents. Above all the benefits of FCA were to aid financial planners at national, provincial and local government levels by documenting existing benchmark for financing and CBA of waste management services, investment decisions and targeting cost reductions (Madubula and Makinta 2011: 217,6).

2.4 Establishing the breakeven point of waste tariff to ensure financial sustainability

Table 2.5 Revenue generated against operating revenue (affordable) (MTREF 2012)

City	Budgeted	Afforded	Inflation	Yearly Income	Policy/Article	Challenges
Harare	8.00%	6.50%	8.30%	US$2 400	(Mabvuku meeting 2012)	Counterproductive
Mbombela	11.00%	4.00%	11.6%	US$4 200	(MTREF 2012)	Counterproductive
Buffalo	11.80%	5.00%	12.00%	US$4 200	(MTREF 2012)	Counterproductive
Fetakgomo	6.00%	5.00%	6.20%	US$3 600	(MTREF 2012)	Counterproductive
Johannesburg	6.00%	6.70%	6.47%	US$6 000	(MTREF 2012)	Productive

Adapted: National Treasury 2012 and World Statistical Offices 2012

Table 2.5 above showed that all residents were paying below their bills with the exception of Johannesburg residents. However, NT continued to encourage municipalities to keep increases in solid waste tariffs as low as possible (mfma@treasury.gov.za 09/08/13: 11.22). It was widely accepted that rendering of services should produce profit and not a loss (NT 2012). The tariff policy was based on the revision of tariff charges, local economic conditions, input costs and affordability of services by users (Website: www.treasury.gov.za/legislation/mfma 09/08/13: 11.31).

Zimbabwe's negative rate in 2009 and 2012 was caused by the sudden use of multiple foreign currencies, the black market, the redenomination and effects of the prolonged industrial closure. Other cities were affected by all sorts of external factors and associated high unemployment rate.

2.4.1 Surplus/ (Deficit) or failure to breakeven

Buffalo City's solid waste removal was operating at a deficit due to expenditure on petrol/diesel and the investigation of alternative service delivery models (MTREF 2012), Johannesburg City's deficit was due to the implementation of a comprehensive cost structure of solid waste function undertaken (1.5 Statement of Tariff Setting 2012, MFMA number 56) and Madibeng Municipality in Botswana's deficit was to be decreased by 20% in order to break even (Tariff Policy for Rates 2012(NT) 2010).

The causes of the deficit were assumed to be irregular billing for services resulting in consumers' lack of willingness to pay and the effects of the salary expenditure which increased to R12 million against generated income of R10 million per month; inadequate planning and partly lack of full awareness of the process and causing unwillingness to pay (Nallathiga 2009:1). SALGA (2012) reviewed failure to generate enough revenues from services to finance even operations and maintenance (O & M).

Moreover, over the period the tax resources and grant support remained either stagnant or had grown at a very slow pace and yet functions of the ULBs had been increasing with ever increasing population thereby invoking a steady decline in the quality and quantity of service delivery (Nallathiga 2009 and SALGA 2012).

However, Mbombela Municipality had an operating surplus for the two outer years of R20.5 million and R26.4 million for 2011 and 2012 respectively (www.mbombela.gov.za 09/08/13: 11.50) or (NT circular number. 51, 54, 55 2012 MTREF). The municipality was recommended to establish a dedicated revenue management team for following up on outstanding debts of refuse removal levies owed more than three months (www.fetakgomo.gov.za/2012/13/09/08/13: 12.28).

2.5 Refuse removal tariffs affordable and appropriate for households

The investigators of FinScope Micro, Small and Medium Enterprises (MSMEs) survey Zimbabwe (2012) discovered that 40% of MSME owners earn less than US$200.00 per month but were vital in the role of survivalist business community. The survey also concluded that 34% of business owners were in the urban set up and a further 11% reported that they do not have a monthly income that was, (^{110}/0 of 2.8 million people). SALGA (2011) identified the affordability analysis as made for comparison of municipality monthly bills for households against the monthly income municipal householders. {Ringold, Holla, Koziol, Srinivan(2012) went beyond saying that the affordability analysis ensured non-accrual of debts due to households' unwillingness as well as non-collection of refuse removal due to municipal denial. The same scenario surveyed by FinScope MSME *et al* (2012) was proposed because it was encounted by residents of high density suburbs of Zimbabwe who also faced challenges in paying their refuse removal bills.

2.5.1 Donations or subsidies on poor household (Free Basic Refuse Removal Service)

Both Mbombela and Johannesburg Municipalities offered 100% subsidy on the tariff while Buffalo City offered 21% subsidy on the tariff (MTREF 2011). Moreover, Fetakgomo City's revenue and expenditure percentage growth over MTREF was 28% for 2012 and the increase was due to the projected revenue of refuse removal based on the landfill mine agreement which brought in additional revenues of 84.8% grant revenue (Fetakgomo Council Resolutionc22/2012).

2.5.2 Requirements for Subsidies Provisions

The extent of subsidization on tariffs for poor households and other categories of users should be fully disclosed (Sakhisizwe Tariff Policy 2012). National Policy for the Provision of Basic Refuse Removal service to indigent households (SA, 2011b) recommended keeping an up-to-date registration and accounting records. (Madubula and Makinta 2011b: 6) recognized that those households did not adequately benefited from refuse service because of their locations. Historically the ULB depended upon the benefit of taxes and grants from the state, but had grown at a slow pace due to the poor state of Urban Infrastructure pricing services (Nallathiga *et al* 2011). However, in Madibeng City, the fees paid to service providers were almost double the

revenue raised (Tariff Policy for Waste 2012 and 2013). The research proposed to comply with MTREF (2012) subsidies since they should be visible, understandable by those affected and promoting the local economic development (Government Gazette 2009) as was prevailing in Zimbabwe.

2.5.3 Millennium Development Goals (2015) and implementation by local authorities

2.5.3.1 Millennium Development Goals (2015): Sponsors and Campaigns

Training and Support Centre (TARSC) with Civic Forum on Housing (CFH) held a meeting with community members in Epworth and Chitungwiza and Mutare in January 2010 supported by Oxfam Canada and initiated work to promote sustainable cleaner urban environments through the local authority's reliable services, democratic functioning on services, social auctioning and government policy implications (TARSC 2012). The seven SWISS recycling organization's independence and expertise made it a key contact for official bodies throughput Switzerland on all issues relating to recycling (http://en.wikipedia.org/w/index.php 09/08/13: 07.43).

However, absence of a structured and inclusive approach was hindering the success of the efforts of the Nairobi City Council to enhance cleanliness, protect public health and the environment in the city (allafrica.com/stories/201307040055.html). The National Domestic Collection Standards (SA, 2011a) aimed to correct the imbalances in the waste collection services. Qantas Foundation, PRO Safety Gear were Sponsors of South Australia Volunteers Clean up Day (Website: www.cleanupaustraliaday.org.au) or (Adelaide, Thursday 14 February 2012).

Figure 2.6 Non-collection of rubbish associated with cholera and malaria epidemicDiseases

Source: TARSC and CFH - January 2012 (Chitungwiza and Epworth towns)

2.5.3.2 Complaints about non-collection of refuse removal to mandated municipalities.

From February 2009 up to December 2010 City of Harare failed to provide the mandated refuse collection services {Harare Residents' Trust (HRT) 30 June 2012}, Epworth, Chitungwiza and Mabvuku refuse removal went for two months without collection up to June 2012 (HRT June 2012) and Gaborone City failed to collect garbage for months (Ngwanaamotho, Maranyane 9 April 2011). However, HRT' recommended the Council for collecting waste in Sunning-Dale (HRT 30 June 2012). Disposal charges (SALGA 2011) could be weighed by the weigh-bridge based on mass or vehicle size/volume if no weighbridge. In Mombasa, Kenya, private contractor

failed to collect refuse in low income (high density) and the only option was for Council to collect dumped refuse along roadsides (Rakodi *et al* 2000).

Table 2.6 A comparative of uncollected solid waste by world cities

City	Uncollected	Reasons for failure to collect waste	Publisher/Journal
Harare	80%	Contracted to private contractor in 1997	(Tevera et al 2002)
Mutare	40%	Huge population 2002 to 2005 later destructed in 2006 by 'Murambatsvina operation'	(Manyanhaire 2009)
Lusaka	90%	Variations in input costs against high population density in 2000 to 2001	(Mukuka and Masiye 2002)
Iraq	90%	Increased Expenditure against unchanging revenue generation from 2009	JEP 2011, 2, 555-563

Adapted: TARSC 2012 and Manyanhaire 2009

Table 2.6 above indicated that Mutare City Council was the only city able to collect waste generated falling within the range of estimates provided by Hardoy (2009) who stated that 30% to 50% of domestic waste generated was left uncollected. Kigali City of Rwanda was found as the cleanest city of Africa in 2008 (The Plastic Bag debate 2011).

5.3.3 Complaints about diseases associated with non collection of refuse removal

Hogan described cholera epidemic situation as 'scary', {The Times (South Africa) 28 January 2009} and The APA news (3 March 2009) described it as a 'mob killing' health workers in Mozambique over cholera deaths and the Malawians said cholera outbreak killed 104 (Reuters. 20 March 2009) and the {Evening Standard (UK) 9 December 2009} warned about a 'Red alert' as cholera crisis spread to Zimbabwe's neighbours.

Generally, improper disposal of waste impairs additional expenditure to fight the spread of communicable diseases and increase treatment cost to remove pollutants {2011 SciRes – Sherien Elagroudy, Tamer Elkady, FikryGhobnal) – Iraq}.

2.6 Summary of chapter

The chapter presented a review of the literature that was related to the study of the tariff setting processes as a major step in refuse removal/waste/trash/solid waste budgeting, the challenges faced in refuse removal costing, investments in refuse, Millennium Development Goals (2015) achievements, complaints from residents and the best practice in refuse removal. It could be concluded from the above literature that there were other unexplored methods of refuse removal tariff setting processes which could be exploited in order to bridge the deficit gap. The next chapter would be focusing on data collection methods and techniques that would be used in conducting the research.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The chapter looked at the activities and methods that the researcher undertook in collecting data for the project. The chapter studied the research design, population, sampling techniques, the research instruments used to collect data, data collection procedures, analysis plans and data presentation. It also highlighted the advantages and disadvantages of the research instruments and justification of sampling methods. The chapter was concluded by a summary.

3.1 Research Design

A research design was a plan used to collect, analyze, interpret and discuss data used in the research. It was the conceptual structure with which the research was conducted (Kumar 2009). Saunders, M, Lewis, P and Thornhill, A (2009) categorized the research methods into a survey, interview and case study. The researcher was to use the case study which naturally provided both descriptions and explanations of Mutare City Council's essential management involved and the high density suburb households.

3.1.2 Case study

According to Saunders (2009: 146), a case study gave the researcher an opportunity to study an organization through the gathering of both qualitative and quantitative information about a case under study, and might include collecting and analyzing documents and talking to people. Creswell (2009) further defined a case study as a qualitative strategy used by the researcher to explore the depth of a program and event. Grinnel (2011) found that a case study was characterized by a very flexible and open ended technique of data collection and analysis thereby simplifying the complexity of the study. The researcher chose to focus on Mutare City Council as a case study of other City Councils. The researcher would enjoy the advantage of having easy access to reports, minutes of meetings and interview. Owing to cases being bounded by time, activity and various data collection procedures over a defined period of time; the researcher

chose to use the case study because it was where the researcher had been working over fifteen years, meaning that data collections were flexible, financial resources were inexpensive, time was available to collect naturally set data; resulting in giving fruitful investigations, explanation of new areas of research and extensive descriptions of the problem by the researcher.

3.1.3 Descriptive Research Design

Langen (2009) defined descriptive research design as a type of research method used to describe what was in existence in respect to conditions or variables that were found in a given situation. According to Burns and Grove (2009:201), descriptive research was designed to provide a picture of a situation as it naturally happened. It might be used to justify existing practices and making judgment and also developing theories. For the purpose of the study, descriptive research was used to obtain a picture of household opinions of tariff setting for refuse removal. The study would be descriptive in nature and would be describing the trend of refuse removal debtor's age analysis.

3.2 Quantitative and qualitative data

A case study approach can have a mixture of both qualitative and quantitative data from a subsequent survey (Glaser et al 2008).

3.2.1 Quantitative data

A study by Saunders *et al* (2009) investigated the differences and relationships using tables and graphical methods in presenting and summarizing the quantitative aspect of data in order to derive specific conclusions about data. Quantitative data was hard, rigorous and scientific and was found in statistical reports. The researcher would verify the completeness and validity of the returned questionnaires by the respondents.

3.2.2 Qualitative data

Qualitative data was favoured because it gave descriptive specific research in a sensitive, detailed and contextual manner (Kalaian (2008: 727). The descriptive research had the benefit of using a sample and research instruments like interviews and meetings.

3.3 Population

According to Saunders *et al* (2009) population was referred as the full universal of people or things from which a sample was selected.

Table 3.1 Research population at City of Mutare and the high density suburbs - 2012

Department/Suburb	Original Data	Proposed Scale	Target Population
Chikanga, Hobhouse Suburbs	7 819	1 : 500	16
Danganvura Suburb	14 663	1 : 500	30
Sakubva Suburb	9 906	1 : 500	20
Ward/Suburb Councillors	8	1 : 1	8
Finance Department	220	1 : 10	22
Health Department	165	1 : 10	17
Town Clerks Department	66	1 : 10	7
Total	**32 847**	-	**120**

Adapted: Human Resources Records (Workers) and Housing Department (Households) – 2012.

To achieve the research objectives, the huge population of 32847 was scaled down to a more manageable target population of 120. The researcher was interested in gathering significant data from the targeted population of all permanent employees of the above three departments at City of Mutare as well as households and their ward representative (Councillors) in Mutare's four high density suburbs.

3.3.1 Research sample

Saunders *et al* (2009) defined a research sample as a section of the population chosen for study by the researcher. Best (2008) viewed sampling as the application of tests to less than 100% of the total population where conclusions were derived for the representative population. The sample was chosen because personnel records were often audited and household records were sampled over census hence the element of bias was reduced. In addition, the researcher had been

a worker of the organization and stayed next to high density suburbs; hence sampling was cheap and needed little time.

3.3.2 Sample size

Armstrong and Kotler (2009) defined a sample as a number of people to be surveyed. The International Statistical Institute (2008) defined a sample size as the number of sampling units that should be included in the sample. Sampling size had the advantage of reducing expenses and time since only estimated information from a number of units was allowed about the whole population without surveying each member of the population.

Table 3.2 Research sample size for Mutare City - 2012

Population Stratum	Target Population	Sample Size	Primary Data Questionnaires	Primary Data Interviews
Chikanga and Hobhouse	16	10	10	-
Danganvura	30	15	15	-
Sakubva	20	12	12	-
Ward/Suburb Councillors	8	5	2	3
Finance	22	12	10	2
Health	17	9	8	1
Town Clerk (Auditing)	7	3	2	1
Total	**120**	**66**	**59**	**7**

The above table indicated that a sample of 24 employees were selected from the 3 departments with the bulk of them from the Finance and Health departments which constituted the refuse removal tariff setting and collection management. The Town Clerk Department was also included as it constituted the policy makers for the Council. A sample of 37 households and 5 former experienced councillors were selected from the 4 high density suburbs as they were the ones who suggested affordable refuse removal tariffs as well as raising complaints of non collection of rubbish by the mandated Council. The sample size proportion to target population was 66/120 (55%) obtained after using purposive sampling.

3.4 Sampling technique

Babbie (2009) analysed the techniques into (i) Judgemental, meaning viable for a specific group of people. (ii) Purposive, implying that respondents were selected on the basis of knowledge of the population and the aims of the study.

The researcher was able to choose representative respondents of the sample being studied basing on their profession and knowledge of the topic under study. The technique was chosen because it was convenient to deliver or talk with the households in the suburbs. The technique put into consideration time, resources, response rate and requirements for statistical analysis hence the researcher had to assume the sample in order to provide adequate information required to conclude the study.

3.4.1 Convenient sampling

A convenient sample was a study of subjects taken from a group that was conveniently accessible to the researcher. One advantage was that it was easy to access, requiring little effort and time. The sampling method suffered from a major disadvantage in that it was not an accurate representation of the population, which could skew results quite radically. Use of convenience sampling was quite popular and prevalent, however, and it could be valid under certain conditions (McMahon 2012). It was very convenient for the researcher to gather data from the respondents who were able to answer and had time.

3.4.2 Criteria set for a respondent to be included in the sample

The researcher overcame the limitations of purposive sampling by making use of a criterion as stated below.

The respondents were to possess the following sample characteristics: (i) householder in the high density suburbs of Mutare City for the past six months and had known the patterns of refuse removal. (ii) Director or deputy director for Mutare City Council (for interviews). (iii) From Assistant Accountant to Chief Accountant (for questionnaires) and (iv) Former councillor for

Mutare City Council. The above were to have knowledge in the refuse removal tariff setting procedures for the past two years.

3.5 Data sources

3.5.1 Primary data Collection

Hox and Boeije (2008: 593) defined primary data as that data originally collected for the first time for the purpose of the research through interview, observation and questionnaire. Saunders *et al* (2009) emphasized the use of self administered questionnaire organized via online survey tool eSurveysPro.com and distributed mainly via e-mails to the respondents. Primary data was preferred because it was carefully collected by the researcher through the use of questionnaires and interviews, depicting data in great detail and making it accurate and reliable for use in the study and useful where secondary data was not available. However, it was time consuming and more expensive to conduct interviews from Mutare City Council management and to collect the questionnaires from the households and employees.

3.5.2 Secondary data

Saunders *et al* (2009) viewed secondary data as already collected literature in the form of reports, minutes, legislative instruments, annual financial budgets, local newspaper articles and statistics from internal auditing. The researcher benefited from using data which was discussed in the meeting and had once read the reports before, knew which documents to use and access to documents was freely given because the researcher worked in the organization. The disadvantages overweighed the advantage in that the data would be outdated. Secondary data meant that the research would be documented in the refuse removal tariff and collection reports and Council minutes. The collection of secondary data required a lot of reading thereby helping the researcher to improve the understanding of the problem.

3.6 Data collection instruments

Kothari (2009) defined data collection instruments as devices to collect data in the form of questionnaires, interview schedules and checklists. The instruments items should be very clear, logical and should address the sub-problems identified in the introduction chapter. The accuracy

of information would be yielded if time, personnel and equipment available would be considered. The researcher used interview and questionnaire methods.

3.6.1 Questionnaires

Saunders *et al* (2009) defined a questionnaire as a technique of data collection from a predetermined order in which varied responses would assist in solving the research problem. Trobia (2008:18) described a questionnaire as a set of standardized questions used to collect individual data about a specific topic. The data had the merits of being in written form, easy data process analysis and more objectively since respondents would have more time to think through the questions and responses resulting in obtaining enough information. Designed questionnaires gathered valid and reliable information from respondents which would assist in solving research problems. The disadvantage was that the researcher had to clarify ambiguity and needed time.

The researcher used short structured questionnaires and open-ended questions which were compiled for office bearers and households. People favoured responds which took less time and effort. The questionnaires would be hand-delivered and collected later after completion.

3.6.2 Likert scale

LaMarca (2011) defined a Likert scale as an ordinal technique for the measurement of attitudes, beliefs and opinions whereby individuals made decisions on their rank of agreement. Saunders *et al* (2009) defined Likert scale as the strength of response (strongly disagree through to strongly agree) indicated against self-anchoring numeric scale. The research was based on a five point scale to collect data and the scale comprised of the participant's degree of agreement ranging from strongly disagree to strongly agree where respondents would read and complete the questionnaires, thereby reducing the researcher's time and providing highly reliable scales as illustrated in table 3.3 below.

Table 3.3 Likert scale

Response	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
Ranking	5	4	3	2	1

Source: LaMarca 2011

The above scale was used because respondents could easily understand, and their opinions could quickly be assessed. Likert scale data could be analyzed mathematically. The researcher had the opportunity to educate respondents on the importance of unbiased responses and urged them to give answers which reflected their attitude, opinion and belief so that data would be useful in the study.

3.6.3 Interviews

Saunders *et al* (2009: 318) defined an interview as a purposeful discussion between two or more people. A research cited in Bryma and Bell (2012: 350) by Kvale suggested that an interview should be knowledgeable, structuring, clear, gentle, sensitive, steering, critical, remembering and interpreting. The purpose of research interview was to see the insights of the views, experiences, beliefs and motivations of individual on defined issues depending on interviewer's phrase questions.

The researcher used the direct interview and structured interviews. The structured interview was most convenient. The researcher was provided with more information by the use of open-ended interview questions and also interview guides were prepared for the respondents. During the interview, the researcher observed non verbal cues and made personal judgments. Since the researcher was a worker at the same organization with the respondents the interviews were cheap, accurate and faster to administer and enabled immediate feedback to probed and clarified questions. The disadvantages were that the researcher needed more time to set up the personal interviews because people wanted to concentrate on their big schedules.

3.6.4 Data Analysis

Primary data questionnaires were to make use of measures of central tendencies such as mode frequencies (tallies) and interview summaries; whereas secondary data used both, meaning; documents in the form of minutes and reports which enabled the facilitation of secondary data complimenting primary data obtained in the form of Likert scale, interviews and questionnaires.

3.7 Validity and reliability

According to Saunders *et al* (2009) the validity and reliability of collected data depended on question designs and questionnaire structure in order to reduce subjectivity questions which brought wrong answers. Bryman and Bell (2008) identified that validity was connected with the accuracy and truthfulness of findings whereas reliability was connected with consistency of the tool of measuring. Knapp (2008: 940) defined reliability as whether the results were for the purpose for which the instrument was intended. The pilot study aimed to confirm whether the objectives of the designed questionnaires were being measured by determining the rightful instructions to use in the study. The researcher used the pilot test of questionnaire as a tool to maximize validity and reliability whereby the researcher constantly analyzed the data obtained so as to identify omissions and remove certain factors from the questionnaire. The instruments were given to the chosen pre-test participants who were similar in all respect to the targeted candidates.

3.8 Data analysis and presentation

Anderson (2010:141) defined data analysis as narrative data evaluated into aggregation and direct interpretation and then monitored the results to avoid illogic of the analysis and pitfalls that might invalidate the conclusions. The researcher analysed the collected data by the use of measures of central tendencies as primary data and presented the data graphically and in tables and also considered emerging themes raised by the participants to present what was found in the research.

3.9 Summary

The chapter dealt with the research methodology detailing how the data was collected, design of the study, sampling procedures, data analysis and presentation, and concluded by a summary. Chapter four would reveal data analysis and presentation.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.0 Introduction

This chapter focuses on data analysis, data presentation techniques, discussion and interpretation of the collected data on the refuse removal tariff setting processes for City of Mutare. The primary data was collected through questionnaires, interviews and documentation by making use of research instruments in Chapter Three; and sought to fulfil the objectives in Chapter One and responded to sub-research questions contributing to the answering of the main research question. The chapter discusses the results obtained with the aid of tables, graphs, figures and narratives.

4.1 Questionnaires

Data was mainly collected through questionnaires.

Table 4.1 Sample Population and Questionnaire response rate

Respondent group	Questionnaires sent	Questionnaires received	Response rate
Town Clerks	2	2	100%
Finance Department	10	10	100%
Health Department	8	8	100%
Ward Councillors	2	2	100%
Chikanga, Hobhouse households	10	9	90.00%
Dangamvura Households	15	12	80.00%
Sakubva Households	12	10	83.33%
TOTAL	**59**	**53**	**89.83%**

Table 4.1 above indicated a total of 59 questionnaires which were distributed to the targeted respondents (supervisors, councillors and refuse payers (households). Out of the 59 questionnaires that were completed, 53 were returned representing a response rate of 89.83%. A total of 6 questionnaires were not returned by the targeted respondents. The reasons were assumed to be lack of transparency in language for respondents in high density suburbs.

The findings that were presented and discussed in the chapter were based on the response rate of 89.83% which was considered significant enough to justify the study and gave credibility to the findings as supported by Nadimias and Frankfort (2008) who stated that a response rate of more than 70% was justified as a representation of the sample.

4.2 Data Analysis and Presentation

The research used questionnaires, interviews and document analysis as methods of collecting data. The collected data was thereafter analysed and presented in graphs and tables using measures of central tendency.

4.2.1 Analysis of questionnaire responses

Question 1 – Mutare City Council has an individual tariff for refuse removal

The purpose of this question was to identify an individual tariff for refuse removal used by the Council in tariff processing. It was important to carry out refuse removal processes so that tariffs could be managed.

Table 4.2 Analyzing if Mutare City Council has an individual tariff for refuse removal.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	26	12	0	0	15	53
Outcome as Percentage	49.1%	22.6%	0%	0%	28.3%	100%

Table 4.2 showed that 26/53 (49.1%) strongly agreed that there was an individual tariff for refuse removal and 12/53 (22.6%) agreed. None of the respondents 0/53 (0%) were unsure as well as disagree whilst 15/53 (28.3%) strongly disagreed.

Overally, 38/53(71.7%) agreed while 15/53(28.3%) disagreed to an individual tariff for refuse removal. The mode of 38/53 (71.7%) agreed that there was an individual tariff for refuse removal at Mutare City Council. The response rate gave a mean of 18/53 (34%) meaning the data was skewed to agreeing. Therefore, Mutare City Council had to budget the refuse removal tariff in its separate vote.

Question 2 – Mutare City Council's refuse removal tariff depends on the frequency of collections per month

The question was intended at identifying the monthly bill whether it tallied with the number of refuse collections per month.

Table 4.3 An analysis of the collection frequency of refuse removal per month

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	12	24	3	10	4	53
Outcome as Percentage	22.6%	45.3%	5.7%	18.9%	7.5%	100%

Table 4.3 showed that 12/53 (22.6%) strongly agreed that the refuse removal tariff of Mutare City Council was activity based and 24/59 (45.3%) agreed. The unsure respondents were 3/53 (5.7%), whilst 10/53 (18.9%) disagreed and 4/53 (7.5%) strongly disagreed.

In total 36/53 (67.9%) agreed and 17/53 (32.1%) disagreed that the tariff was activity based. The mode of 36/53 (67.9%) agreed to activity based tariff. The results showed that the Council had a weekly collection of refuse removal and the monthly bill was a total of 4 weeks collection.

Question 3 – The refuse removal tariff setting process is initiated by the user department

The purpose of the question was to identify whether the refuse removal tariff setting process was first proposed by the Health Department.

Table 4.4 An analysis of User department initiation of tariff.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	15	20	12	3	3	53
Outcome as Percentage	28.3%	37.7%	22.6%	5.7%	5.7%	100%

Table 4.4 showed that 15/53 (28.3%) strongly agreed that the health department initiated the tariff setting process and 20/53 (37.7%) agreed. The uncertain respondents were 12/53 (22.6%), whilst 2/53 (5.7%) both disagreed and strongly disagreed.

Overally a total of 35/53 (66.0%) agreed and 18/53 (34.0%) disagreed. The mode was 35/53 (66.0%). It can be concluded that the refuse removal tariff setting was initially calculated and proposed by the user department. The results gave credibility to the study by Nallathiga (2011) who identified the "User charge levy in Urban Local Bodies'.

Question 4 – The refuse removal tariff is calculated yearly as mandated by the Local Authority Regulations.

The purpose of the question was to determine whether the Finance Director presented the refuse removal budget to the Finance Committee annually as prescribed.

Table 4.5 An analysis of the yearly calculation of tariff.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	12	31	0	2	8	53
Outcome as Percentage	22.6%	58.5%	0%	3.8%	15.1%	100%

Table 4.5 showed that 12/53 (22.6%) strongly agreed that the refuse removal tariff was calculated yearly according to the regulations and 31/53 (58.5%) agreed. None of the respondents 0/53 (0%) were unsure and 2/53 (3.8%) disagreed whilst 8/53 (15.1%) strongly disagreed.

Overally, 43/53 (81.1%) agreed while 10/53 (18.9%) disagreed that the tariff was revised yearly. The mode of 43/53 (81.1%) agreed meaning that the tariff was calculated on a yearly basis by Mutare City Council management. The response rate gave a mean of 13/53 (25%) meaning that it was skewed to strongly agreed. Literature by Transparency Tariff Toolkit (2012) also stated that municipalities should follow a structured process when setting tariffs.

Question 5 – Residents and Council both participate in the refuse removal tariff setting process

The purpose of this question was to examine whether the Council and residents came to an agreed figure for refuse removal on each annual tariff setting process.

Table 4.6 Analyzing those who participate in tariff setting process.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	8	11	5	22	7	53
Outcome as Percentage	15.1%	20.8%	9.4%	41.5%	13.2%	100%

Table 4.6 showed that 8/53 (15.1%) strongly agreed that residents and Council both participated in the refuse removal tariff setting process and 11/53 (20.8%) agreed. The unsure respondent were 5/53 (9.4%), whilst 22/53 (41.5%) disagreed and 7/53 (13.2) strongly disagreed. Overally, a total of 19/53 (35.8%) agreed and 34/53 (64.2%) disagreed. The mode was 34/53 (64.2%).

It can be concluded that the refuse removal tariff setting process was not a consensus of the municipality and the citizens. The results supported literature by South Africa Local Government Association (SALGA) (2012) which identified the 'Vicious Cycle' for Southern Africa, Namibia and Botswana.

On the other hand, the results opposed literature by the Medium Term Revenue and Expenditure Framework (MTREF) budget (2012) where before finalization of any tariffs for the budget year, Buffalo and Sakhisizwe Municipal management were to consider the views of the local community.

Question 6 – Mutare City Council collects refuse on given/agreed days

The purpose of the question was to establish whether the Council stuck to the collection days of waste in each section of the high density suburbs.

Table 4.7 Analyzing whether refuse is collected on agreed days.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	22	11	8	2	10	53
Outcome as Percentage	41.5%	20.8%	15.1%	3.8%	18.9%	100%

Table 4.7 showed that 22/53 (41.5%) strongly agreed that Mutare City Council collected refuse on agreed days and 11/53 (20.8 %) agreed. The uncertain respondents were 8/53 (15.1%), whilst 2/53 (3.8%) disagreed and 10/53 (18.9%) strongly disagreed.

In total 33/53 (62.3%) agreed and 20/53 (37.7%) disagreed that the refuse was still being collected on agreed days. The mode of 33/53 (62.3%) agreed on the methods used to collect refuse per location and the mean was 11/53 (21%) meaning that the responses were skewed to agreeing.

It can be concluded that the Council was complying with the wishes of the residents and the mandated policy. The results conformed to literature by National Waste Domestic Collection Standards (2010) which identified households' weekly collections by the South African Municipality.

Question 7 – The refuse removal budget for Mutare City Council is cost reflective (that is, includes all costs of removing refuse).

The question was intended to make a breakdown of the costs in order to derive a refuse removal tariff at a cost recovery basis.

Table 4.8 Analyzing whether the Council budget is cost reflective.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	4	13	2	14	20	53
Outcome as Percentage	7.5%	24.5%	3.8%	26.4%	37.7%	100%

Table 4.8 showed that 4/53 (7.5%) strongly agreed that the refuse removal budget for Mutare City Council was cost reflective and 13/53 (24.5%) agreed. The uncertain respondents were 2/53 (3.8%), whilst 14/53 (26.4%) disagreed and 20/53 (37.7%) strongly disagreed.

In total 17/53 (32.1%) agreed while 36/53 (67.9%) disagreed to a cost reflective tariff. The mode of 36/53 (67.9%) disagreed meaning that part of the costs for removing refuse were not considered in the calculations. The response rate gave a mean of 11/53 (21%) meaning that it

was skewed to strongly agreed. The results of the question opposed literature by Transparency Tariff Guide (2012) which outlined the cost of providing a service.

Question 8 – The refuse removal budget for Mutare City Council sustains its refuse operations for the whole budgeted period.

The purpose of the question was intended to prove whether the operations from the month of January to December were wholly covered by the budgeted revenue.

Table 4.9 Analyzing whether the refuse removal budget sustains its operations for the whole budgeted period.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	9	1	5	19	19	53
Outcome as Percentage	17.0%	1.9%	9.4%	35.8%	35.8%	100%

Table 4.9 showed that 9/53 (17.0%) strongly agreed that the refuse removal budget for Mutare City Council sustained its refuse operations for the whole budget period and 1/53 (1.9%) agreed. The uncertain respondents were 5/53 (9.4%), whilst 19/53 (35.8%) both disagreed and strongly disagreed.

Overally, a total of 10/53 (18.9%) agreed and 43/53 (81.1%) disagree. The mode was 38/53 (71.7%). The mean was 11/53 (21%) meaning that it was skewed to disagreed that the refuse removal budget sustained its operations for the whole budgeted period. It can be said that Mutare City Council's refuse removal tariff budget could not cover operating costs for removing waste for the whole period.

The results of the question opposed the literature by the Transparency Tariff Toolkit (2012) which highlighted that the budget was the starting point for setting tariffs and making expenditure allowances.

Question 9 – The refuse removal tariff for Mutare City Council operates at a loss

The purpose of the question was to confirm whether the Council's refuse removal budget was failing to breakeven.

Table 4.10 Analysing whether the refuse removal budget operates at a loss.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	15	25	0	7	6	53
Outcome as Percentage	28.3%	47.2%	0%	13.2%	11.3%	100%

Table 4.10 showed that 15/53 (28.3%) strongly agreed that the refuse removal tariff for Mutare City Council operated at a loss and 25/53 (47.2%) agreed. The unsure respondent was 0/53 (0%), whilst 7/53 (13.2%) disagreed and 6/53 (11.3%) strongly disagreed.

In total 40/53 (75.5%) agreed and 13/53 (24.5%) disagreed that the refuse removal tariff for Mutare City Council operated at a loss. The mode of 40/53 (75.5%) agreed that the tariff was below costs. The mean was 13/53 (25%) meaning that it was skewed to strongly agreed that the refuse removal account operated at a loss. It can be concluded that the Council's refuse removal tariff was not covering costs and no mark-up was calculated. Literature gave credibility to transparency Tariff Guide (2012) which outlined that many Municipalities failed to generate enough tariff income to cover the costs.

Question 10 –Transport costs are the major input costs in determining the refuse removal tariff for Mutare City Council

The purpose of the question was to identify whether it was correct that shortage of vehicles or fuel hindered the whole system of refuse collection

Table 4.11 Analyzing whether transport costs is the major determinant.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	17	16	0	8	12	53
Outcome as Percentage	32.1%	30.2%	0%	15.1%	22.6%	100%

Table 4.11 showed that 17/53 (32.1%) strongly agreed that transport costs were the major input cost in determining the refuse removal tariff for Mutare City Council and 16/53 (32.2%) agreed. None of the respondents 0/53 (0%) were unsure and 8/53 (15.1%) disagreed whilst 12/53 (22.6%) strongly disagreed.

Overally, 33/53 (62.3 %) agreed whilst 20/53 (37.7%) disagreed that transport costs were the major input cost determination. The mode of 33/53 (62.3%) agreed indicating that if there would be shortage of fuel and funds for vehicle repairs and, the possibility of non collection of refuse was high in the high density suburbs. The response rate gave a mean of 13/53 (25%) meaning that it was skewed to agreed that funds for refuse collection vehicles were the major determinants. The results supported literature from Transparency Tariff Toolkit (2012) which emphasized proper understanding of costs as a key to good tariff design.

Question 11 – A cost reflective tariff is not affordable for Mutare High Density Residents

The purpose of the question was to establish whether residents would be able to afford if all the costs were included in refuse removal tariff setting process.

Table 4.12 Analysing whether a cost reflective tariff is affordable to residents.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	11	20	7	5	10	53
Outcome as Percentage	20.8%	37.7%	13.2%	9.4%	18.9%	100%

Table 4.12 showed that 11/53 (20.8%) strongly agreed that a cost reflective tariff was affordable for Mutare High Density Residents and 20/53 (37.7%) agreed. The uncertain respondents were 7/53 (13.2%), whilst 5/53 (9.4%) disagreed 10/53 (18.9%) strongly disagreed.

Overally, a total of 31/53 (58.5%) agreed and 22/53 (41.5%) disagreed. The mode was 31/53 (58.5%). The mean was 11/53 (21%) meaning that the results were skewed to strongly agreed. It can be concluded that the residents in high density suburbs were unable to pay a cost reflective tariff. The results supported literature by FinScope Micro, Small and Medium Enterprises (MSME) (2012) which surveyed Zimbabweans and concluded that 40% of households in high density suburbs were paid less than US$200.00.

Question 12 – Residents and Council both participate in litter reduction campaigns.

The purpose of the question was to find out whether there had been activities and participation by all urban people to reduce rubbish in high density suburbs.

Table 4.13 Analysing whether there is participation in litter reduction campaigns.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	9	9	8	17	10	53
Outcome as Percentage	17.0	17.0	15.1%	32.1%	18.9%	100%

Table 4.13 showed that 9/53 (17.0%) strongly agreed and 9/53 (17.0%) agreed that residents and Council both participate in litter reduction campaigns. The unsure respondents were 8/53 (15.1%), whilst 17/53 (32.1%) disagreed and 10/53 (18.9%) strongly disagreed. Those who agreed were totally Council employees and the probability of bias was assumed to be high because they were defending their organization.

In total 18/53 (34.0%) agreed and 35/53 (66.0%) disagreed that the Council and residents participated in litter reduction campaigns. The mode of 35/53 (66.0%) disagreed that residents were participating in litter reduction. The results showed that Mutare City Council was not educating its residents thoroughly on a clean environment; hence refuse vehicles kept on collecting rounds.

The results conformed to literature by Madubula and Makinta (2009) that identified the lack of will to develop and implement innovative waste management projects in municipalities.

Question 13 – Which tariff should be charged by Mutare City Council in order to (i) cover refuse removal cost (ii) make the suburbs ever clean (iii) and is affordable to residents.

The purpose of the question was to spell out difficulties found in arriving at a tariff after putting all necessary factors into account.

Table 4.14 Analysing a tariff which suites Mutare City Council requirements.

Response	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total	Total
US$2.87	11	20	1	13	8	53	100%
Below US$5.00	11	22	2	13	5	53	100%
US$6.50	6	14	10	15	8	53	100%
US$8.00	13	27	5	3	5	53	100%
Above US$10.00	12	20	7	10	4	53	100%

Figure 4.2 Analysingthe correct figure for refuse removal tariff.

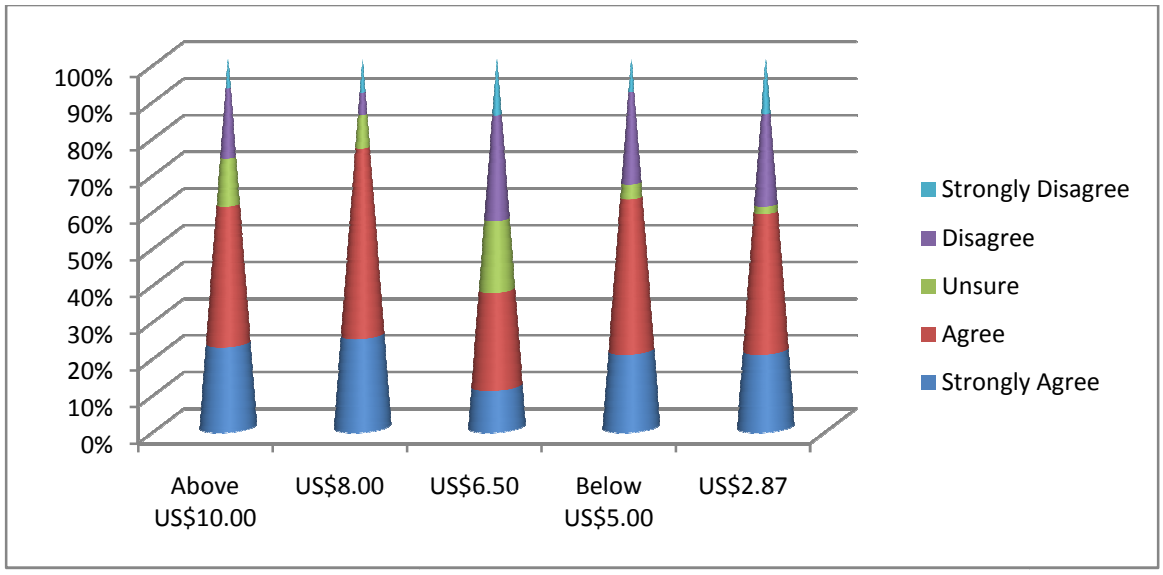


Figure 4.2 above indicated the respondents' preference to a refuse removal tariff that should be charged by Mutare City Council in order to (i) cover refuse removal cost (ii) make the suburbs ever clean (iii) and is affordable to residents. The results of the above were ranked as follows:

1st 40/53 (75%) agreed and 13/53 (25%) disagreed to a charge of US$8.00

2nd 33/53 (62%) agreed and 20/53 (38%) disagreed to a charge below US$5.00

3rd 32/53 (60%) agreed and 21/53 (40%) disagreed to a charge of US$10.00

4th 31/53 (58%) agreed and 22/53 (42%) disagreed to a charge of US$2.87

5th 20/53 (38%) agreed and 33/53 (62%) disagreed to a charge of US$6.50

The modal class was US$8.00, the median class was US$10.00 and the lower class was US$6.50.

Therefore, Mutare City Council can adopt US$8.00 which correctly agreed with the recommendations by the User Department in December (2012).

The results supported literature by Boland (2009) who identified that a tariff structure was judged according to the adequacy, fairness and simplicity.

The aim was to support literature by The Plastic Bag debate (2011) in which Kigali City of Rwanda was judged as the cleanest city. Literature was further supported by Transparency Tariff Toolkit (TTT) (2012) which outlined the "primary baseline" tariff.

Question 14 – What do you think are the reasons for Mutare City Council's failure to provide an adequate refuse removal service to the residents as prescribed?

The purpose of the question was to establish the major factors hindering the collection of refuse.

Table 4.15 Analysing the causes of failure to provide adequate services as prescribed.

Response	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
US$2.87 is not enough	35	10	1	5	2	53
Have money but inefficient	17	8	7	12	9	53
Salaries bill is very high	22	8	20	2	1	53
None of the above	5	9	15	20	4	53

Figure 4.3 An analysis of the causes of failure to provide adequate service

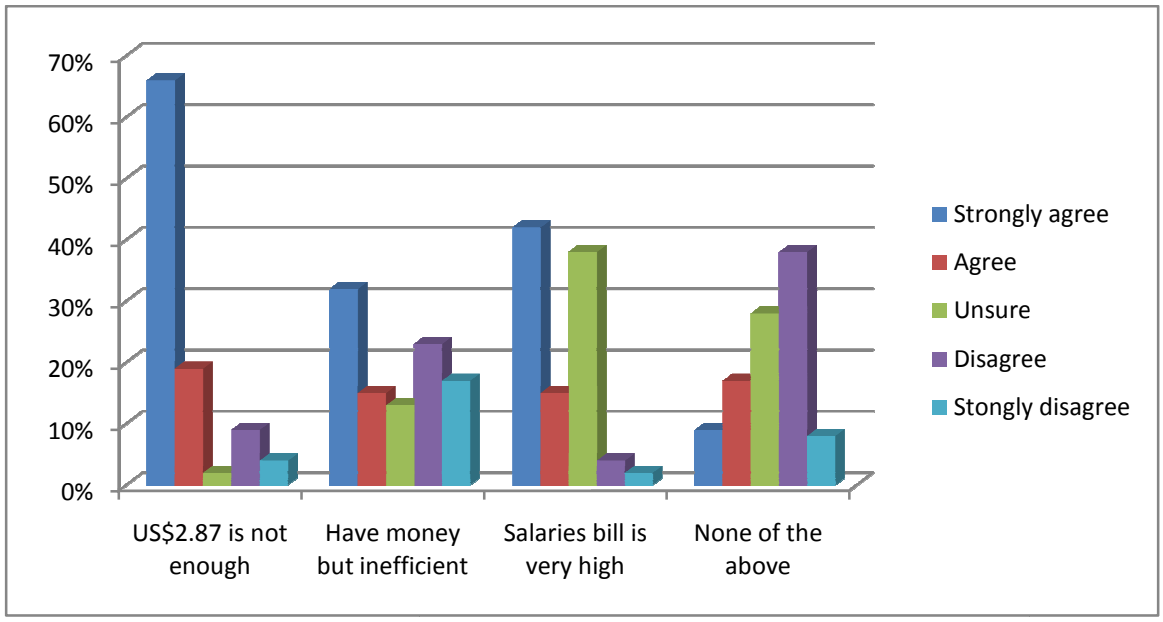


Figure 4.2 above indicated the respondents' opinion on the reasons for Mutare City Council's failure to provide an adequate refuse removal service to the residents as prescribed. The results of the above were ranked as follows:

1st 35/53 (66%) strongly agreed, 19% agreed, 2% unsure, 9% disagreed and 4% strongly disagreed that a charge of US$2.87 was not enough.

2nd 30/53 (42%) strongly agreed, 15% agreed, 38% unsure, 4% disagreed and 2% strongly disagreed that the salaries bill was very high.

3rd 25/53 (32%) strongly agreed, 15% agreed, 13% unsure, 23% disagreed and 17% strongly disagreed that the Council had money but was inefficient.

4th 14/53 (9%) strongly agreed, 17% agreed, 28% unsure, 38% disagreed and 8% strongly disagreed that the reasons mentioned above were the causes leading to failure to provide an adequate refuse removal service to the residents as prescribed.

Overally, 45/53 (84.9%) agreed and 8/53 (15.1%) disagreed that a lesser charge of US$2.87 was the cause of failure to provide an adequate refuse removal service to the residents as prescribed. The mode of 45/53 (84.9%) agreed that US$2.87 was not enough for Council to provide prescribed refuse removal services. The results supported literature by Nallathiga (2009) who identified the recovery of Operation and Maintenance costs and the User Charges.

On the hand, the results opposed literature by SALGA (2011) who identified the full cost recovery on waste services through the 'principle of cross-subsidization between services'.

The responses ranked 2nd and 3rd both made up the median stating that Council had money but was inefficient and the salaries bill was very high respectively. The results supported literature by Nallathiga (2009) who identified the discouragement of wastage, extravagant use of service and encouraged user economy.

Question 15 – Residents often suffer from disease outbreaks due to uncollected refuse

The purpose of the question was to verify the outbreaks of diseases caused by dumped refuse.

Table 4.16An analysis of possible diseases caused by uncollected refuse

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	9	18	7	3	16	53
Outcome as Percentage	17.0%	33.9%	13.2%	5.7%	30.2%	100%

Table 4.16 showed that 9/53 (17.0%) strongly agreed that residents often suffer from disease outbreaks due to uncollected refuse and 18/53 (33.9%) agreed. The uncertain respondents were 7/53 (13.2%), whilst 3/53 (5.7%) disagreed and 16/53 (30.2%) strongly disagreed.

Overally, 27/53 (50.9%) agreed while 26/53 (49.1%) disagreed. The mode of 27/53 (50.9%) agreed meaning that there used to be some cases of diseases outbreaks. The 1% difference was

due to the fact that City of Mutare employees were not honesty to reveal that waste related diseases were reported in different clinics.

Question 16 – The Council is fulfilling the mandated duties to the residents when setting up refuse removal tariff.

The purpose of the question was to find out whether Mutare City Council was carrying out the refuse removal services/processes as prescribed.

Table 4.17 Analysingthe Council's mandated duties.

Details	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
Number of respondents	15	25	1	4	8	53
Outcome as Percentage	28.3%	47.2 %	1.9%	7.5%	15.1%	100%

Table 4.17 showed that 15/53 (28.3%) strongly agreed that the Council was setting up the refuse removal tariff as a mandate and not at a profit and 25/53 (47.2%) agreed. The unsure respondent was 1/53 (1.9%), whilst 4/53 (7.5%) disagreed and 8/53 (15.1%) strongly disagreed.

Overally, a total of 40/53 (75.5%) agreed and 13/53 24.5%) disagreed. The mode was 40/53 (75.5%). It can be concluded that the Council was to abide by the Local Authority regulations that it should collect refuse no matter the residents refuse to pay.

Question 17 – What do you suggest as any other contribution you think is relevant to the tariff setting process of Mutare City Council besides the ones given above?

The purpose of the question was to search for relevant ideas concerning the procedures for setting tariffs for refuse removal and the investments opportunities which can be concluded as findings.

A number of respondents noted that the refuse removal tariff setting should be improved by involving all stakeholders in setting up of tariffs, incorporating the poor and marginalized members in the community though scientifically set tariffs should not be arbitrary reduced to promote populist policies. In addition, the Council should take inputs from residents and use them when setting refuse removal tariffs as well as holding regular meetings with residents.

Other respondents stated that the Council should take into account Environmental Management Agency Costs, tariff should be reviewed, inflation levels should be considered and the refuse removal budget should also take into account that vehicles needed replacements and reserves should be created.

Moreover, some respondents agreed that the Millennium Development Goals (2015) had been held but to no avail hence there was need to consult widely with stake-holders mostly and leaders of residents associations and encourage their participation. The results gave credibility to literature by Training and Support Centre (TARSC) with Civic Forum on Housing (CFH) (2012) which held a meeting with community members in Epworth and Chitungwiza and Mutare in January 2010.

4.2.2 Summary and Analysis of interview responses

4.2.2.1 Interviews

From a total of seven scheduled interviews, all were conducted. The targeted interviewees were the Finance Director, Acting Deputy Finance Director, and Senior Hygiene Officer, Acting Internal Senior Auditor, Former Councillor of Dangamvura, Former Councillor of Chikanga and Former Councillor of Sakubva. The response rate was 100% which was quite significant enough to justify the study and therefore gave credibility to findings, which according to Howards *et al* (2008) should be 75% of the targeted population, were presented and discussed hereafter.

Question 1 – What are the existing refuse removal tariff setting processes and how have the residents responded to these tariffs, are you satisfied?

The majority of the interviewees stated that the usual procedures were that, the user department (Health) estimated the tariff using full costing system. Between October and November each year the Finance Management attended a national seminar/workshop where the economists would be advising on the average inflation rate for each vote concerning the mandated delivery services and was calculated as follows:

Current tariff + inflation rate tariff + any adjustments = estimated budget.

Once the tariff was calculated it was taken to Council for consideration as well as residents. The high density tariffs were sent for ministerial approval and if approved would be gazetted and became an official document which the Council started implementing. The tariff was adjusted according to affordability and residents were consulted through the press.

The results supported literature by Nallathiga (2009) who identified the need to factor in any policy changes when setting up tariffs.

However, although residents were involved during the budget consultation days, the two interviewees argued that their input was not crafted into the final budget.

Residents had never appreciated that the set tariff was not cost reflective because of their nature and not wanting to pay syndrome.

As Council, they were not satisfied with the tariff as it did not breakeven but they often had to consider the plight of the people.

Question 2 – Which factors affect the costing of refuse removal charge and are there any possibilities of values of waste material?

The interviewees stated that the Council should operate on cost recovery basis and should first build costs to determine the tariff and should consider factors such as labour costs, cost of vehicles, cost of fuel, cost of repair works, and replacement value of plant.

Council was experiencing high salaries/capital projects but no source of funding and was relying on debts at the expense of service delivery. The knowledge supported literature by DEA (2010) which stated that service levels were a key cost driver and need to be established prior to setting tariffs.

However, the interviewees pointed out that they had witnessed that political influence would propose that residents could not afford an increase in tariff.

Some interviewees cited that the value of waste material could be estimated but Council had not come up with the policy to sell such waste. It was an idea worth looking at. A few firms in

Harare were licensed to collect waste from Mutare City Council's refuse dump site situated at Munene Gorge.

Question 3 – What is the breakeven point of refuse removal tariff which ensures financial sustainability?

The majority interviewees said that revenue and expenditure of refuse removal was not tallying because they were not scientifically obtained and people never visited the tariffs. They further observed that Local Authority salaries were very high as compared to the revenue from tariffs. In addition they stated that if refuse was collected according to the stipulated timetable, it motivated the ratepayers and the financial state could change. The results supported literature by Nallathiga (2009:1) who identified that inadequate planning and lack of full awareness of the process as the major causes of unwillingness to pay.

The interviewees further stated that some residents were paid income of below US$200.00 per month and could not afford to payment in time in order for Council to meet its financial obligations leading to failure to breakeven. The results supported literature by FinScope (2012) which identified that 40% of high density residents were paid a salary of not more than US$200.00 per month.

The interviewee from the user department stated that the proposed cost for removing refuse was US$8.00 and they added US$2.00 as mark-up totalling up to $10.00.

Question 4 - Is the refuse removal tariff affordable and appropriate for residents and justify yourself whether it is cost reflective?

The majority of the interviewees stated that the Council had never been successful in coming to a consultative meeting concerning budgeting with residents because residents were refusing to pay and proposed that it was a mandate of the Council to provide free refuse removal service. The Council budget normally recovered 60% and believed that 60% had agreed.

The explanation opposed literature by Solid Waste Tariff Setting Guidelines (2012) which stated that the process of establishing tariffs for municipal refuse removal service was not only a financial procedure, but also considered environmental and social costs.

Some interviewees explained that the existing charge of US$2.87 was not cost reflective as it had already been reduced to ensure affordability. They stated that the majority of the high density households were civil servants. The situation supported literature by FinScope Micro, Small and Medium Enterprises (MSMEs) survey Zimbabwe (2012) which identified that 40% of MSME owners earned less than US$200.00 per month.

However, one interviewee stated that Council management was not consulting residents resulting in absenteeism in meetings, complaints due to lack of knowledge about the tariffs and unwillingness to get services at a fee.

Question 5 - What do you suggest as any other contribution you think is relevant to the tariff setting process of Mutare City Council besides the ones given above?

Some interviewees proposed that they wished to find investors for recyclable garbage companies (plastics and rubber tyres) just like the Harareans who were using Mutare City Council's pit. They further stated that they had no cost accountant and had challenges relying on university and college students; refuse removal was cross-subsidized from water and rates which were always in surplus and had to depend on subsidies because they were not allowed to charge more than US$15.00 per household. The results supported literature by DEA (2010) which identified cross subsidization within the solid waste account.

The Council through its Ministry should coordinate to ensure that the refuse removal service was priced so as to breakeven, or to have a justified surplus to ensure replacement of assets used to offer the refuse removal service.

That was because cross-subsidy was impossible as all services were priced below breakeven tariff. The explanation supported literature by the Department of Environmental Affairs (2010) which identified that the subsidy amount was influenced both by the revenue and poverty.

4.2.3 Documentation Review

The documents reviewed included refuse removal committee reports, health memorandum to various units of the organization and complainant reports from households in high density suburbs. The information gathered from the complainant reports stated that Council was

imposing refuse removal tariff, signifying the absence of communication between Council and residents in the setting of tariff.

Table 4.18 Refuse Removal Debtors Age analysis for Mutare City Council

Period Ending	2009	2010	2011	2012
Above 30 days in US$	9 295.36	6 500.50	4 647.68	10 328.17
Cumulative totals in US$	**9 295.36**	**15 795.86**	**20 443.54**	**30 771.71**

Source: Mutare City Council Age Analysis 2009 to December 2012

The table 4.18 above indicated that the debtors age analysis for refuse removal account was in arrears of US$30 771.71 for the period ending 31 December 2012. The study gave credibility to literature by Ringold, Holla, Koziol and Srinivan (2012) that identified the affordability analysis.

The results opposed literature by National Treasury (2012) which stated that rendering of services should produce profit.

The refuse removal committee minutes dated 21 June 2012 stated that the concern was that the managers were not responding to health reports timeously resulting in non collection of refuse in the suburbs due to shortage of refuse vehicles where only top management signatories were essential.

Table 4.19 Refuse Removal Tariffs Budget Proposal submissionsfor year ending 2012

Department	**Bin**	**15% Mark-up**	**Labour**	**Maintenance**	**Administration**	**Employment**	**Total**
Health	$2.00	Pending	$1.20	$1.30	$1.70	$1.80	$8.00
Finance	-	-	-	-	-	-	$2.87
Variance	-	-	-	-	-	-	$5.13

Source: Departmental budget reports - November 2011and 2012 Health Department

Table 4.19 above showed that the Finance Committee's tariff operated below cost because it was calculating a picking cost of 71 cents for empting the Chikanga household bin, therefore for 4 collections per month, 0.71 cents x 4 = US$2.84.

The complaint reports dated 20 February 2012 stated that the residents in Sakubva high density suburbs were suffering from vermin flies moving from the perishable vegetable wholesale where waste was taking a week without collection. The results indicated that there was need to collect refuse daily from the perishable vegetable market.

Table 4.20 Clinical records for the months of September to December 2012

Details	Typhoid	Dysentery	Malaria	Diarrhoea	Total	Total
Chikanga Surburb	0	1	5	8	14	25%
Dangamvura Suburb	1	1	4	2	8	14%
Sakubva suburb	3	3	5	10	21	38%
Hobhouse Suburb	2	3	2	6	13	23%
Total	6	8	16	26	56	
	11%	14%	29%	46%		100%

Source: City of Mutare Clinical reports – December 2012

Table 4.19 above indicated that if Mutare High Density suburbs were kept unclean, a mode of 26/56 (46%) were treated from diarrhoea outbreak and the most prevalent suburb was Sakubva with a mode of 21/56 (38%). Overall diseases like typhoid, dysentery, malaria and diarrhoea were prevalent in Mutare Clinics.

The result supported literature by (SciRes – Sherien Elagroudy, Tamer Elkady, FikryGhobnal) – Iraq (2011) who identified the improper disposal of waste impairing additional expenditure to fight diseases and treatment cost to remove pollutants.

On the other hand, the results opposed literature by USEPA (2008), Higgins (2009), Shore and Duchesne (2010) who discouraged the disruption of the environmental and social costs.

4.3 Summary

The chapter looked at the research findings, data analysis and presentation. Findings revealed in the research had been clearly presented, interpreted and analysed in the chapter and these had formed a basis of making an overall conclusion on the role the finance management played in setting refuse removal tariff framework for the Council.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The previous chapter focused on the analysis and presentation of data from the research carried out. The chapter gave a summary of the research and the conclusions based on the findings that the researcher had made on the analysis of the refuse removal tariff setting in municipalities. Recommendations to improve existing practices were cited at the end.

5.1 Chapter Summaries

Chapter One outlined the background of the problem in refuse removal tariff setting process within local authorities, taking City of Mutare as a scenario. The chapter highlighted; the refuse removal budget deficit, the debtors' age analysis, a tariff below break-even point and complaints rose due to non collection of refuse by the mandated municipality leading to the outbreak of diseases.

Chapter Two explored literature on tariff setting processes and the major contributors found relevant were: The Transparent Tariff Toolkit (2011) which provided a consecutive tariff setting process and "The Vicious Cycle". The DEA (2012) identified the Solid Waste Primary Baseline Tariff Model. Matt and Energy Recovery (2011) that identified the conversion of waste to energy by Sweden and the exporting of trash to China by the United States. Masundire and Sanyanya (2009) who identified a recycling plant in Kariba Town. Nallathiga (2011) explained the "User charge levy in Urban Local Bodies". Madubula, N. and Makinta, V. (2011) identified the "principle of cross subsidization between services". FinScope (MSME)Survey Zimbabwe (2012) recognised the affordability analysis.

Chapter Three looked at Mutare City Council as a case study. It described the households' opinions and the trend of refuse removal debtors' age analysis as a research design. The huge population was scaled down to a more manageable target population where a sample size of questionnaires and interviews were selected. Convenient sampling was popular and prevalent to

the researcher as a sampling technique to conduct the respondents. The Liket Scale Model was used to measure respondents' attitudes, and data was presented using measures of central tendencies.

Chapter Four analysed the results of all research questions using tallies, calculations, overall totals, and the mode, median and mean. The data was presented using Likert scale tables and percentages on graphs. The secondary data was derived by the use of documentary review imbedded in the minutes, memorandum, and reports. Above all, results were attended to by explanations.

5.2 Major Findings

The findings are going to be presented according to the research objectives as follows:

Objective 1: To establish Mutare City Council's existing refuse removal tariff setting process.

- There was a tariff setting process at City of Mutare in which an individual tariff for refuse removal was pegged at US$2.87 per month per household since February 2009.
- The estimate of the tariff was done by the user department using full costing.
- Residents were unwilling to pay the little figure because they complained that their input was not crafted into the final budget.
- Between October and November each year, the Finance Management team attended a workshop where the economists give advice on the average inflation rate for refuse removal calculated as follows: Current tariff + inflation + any adjustments = estimated budget.

Objective 2: To examine the factors affecting the costing of refuse removal and any values of waste materials.

- Mutare City Council was having shortage of funds to purchase vehicles, fuel, repairs and maintenance, replacement of plant and funds to pay the manpower, hence resulted in the non collection of refuse in high density suburbs.
- The political influence would propose that residents could not afford an increase in tariff.

- The distance from the refuse pits was not taken into consideration.
- Mutare City Council was not educating the residents on litter reduction as no statistics were provided.
- There was lack of will to develop and implement innovative waste management projects in Mutare Municipality that would provide jobs, improved service delivery and cost reduction and revenue creation.
- A few Waste Paper Material firms from Harare were licensed to collect refuse dump from Mutare pit situated at Munene Gorge.

Objective 3: To establish the breakeven point for Mutare City Council's refuse removal tariff.

- The Finance Committee's tariff was operating at US$2.87 and was below cost by US$5.13.
- The user department's proposed cost for removing refuse in the period ending 2012 was equal to a total cost of US$8.00.

Objective 4: To calculate a cost reflective tariff for refuse removal.

- The user department scientifically calculated the cost reflective tariff for refuse removal in 2012 at US$10.00 (upper-limit).
- According to the Finance Committee, the cost of refuse removal was not considered in full.
- The researcher calculated the refuse removal tariff showing a full recovery cost of US$8.00 plus US$1.20 (15% mark-up) equalling to US$9.20 (lower-limit). The percentage figure was supporting the Council's Documentary Review (2012).

Objective 5: To identify Mutare residents' affordable refuse removal tariff.

- The majority of the respondents agreed that if US$8.00 was charged to residents in high density suburbs, the Council would be in a position to (i) cover the refuse removal costs (ii) make the suburbs ever clean (iii) and would be affordable to residents, but they did not include mark-up.

5.3 Other findings

- The Mozambique residents were complaining about pollution from their river, Munene, where Mutare has chosen the gorge (situated in Mutare) as their dumping site. The dumpsite has been established that it is polluting the source of Munene River.

5.4 Conclusions

The research was a success because it enabled research questions to be answered and satisfied the research objectives. The research resulted in finding out solutions to refuse removal tariff setting processes.

5.5 Recommendations

- It is recommended that the Council adopts either a cost reflective tariff of US$9.20 calculated by the researcher or a tariff of US$8.00 which was preferable and can be affordable to residents.
- It is advisable that the Council crafts the inputs of residents into the final budgeting in order to overcome unwillingness to pay as well as complaints. The results are opposed by the Medium Term Revenue and Expenditure Framework (MTREF) budget (2012) where before finalization of any tariffs for the budget year, Buffalo and Sakhisizwe Municipal management were to consider the views of the local community in meeting because some residents do not read newspapers if press advertisement is used.
- It is recommended that the budget make adequate allowance for required expenditure since the budget is the starting point for setting tariff. The results are supported by Boland (2009) who identified that a tariff structure was often judged according to adequacy, fairness, simplicity and affordability.
- It is also recommended that the Council should introduce other recycling methods as the Mozambique residents are complaining about pollution from their river, Munene, where landfill is being practised at the gorge.
- The researcher is urging Mutare City Council to educate the Chikanga women to participate in waste paper picking so as to create employment and reduce litter like baby pampers dumped everywhere because they cause toxic diseases. The encouragement is

supported by Masundire and Sanyanya (2009) who identified that in Kariba Town there was a recycling program carried out by a 'dump group' of women who collected paper before burning the rubbish and it averaged 80% of the dumped paper which was collected for recycling.

- The Municipality should be encouraged to participate in clean-up campaigns; buying refuse bins, bringing out refuse bins on collection day and placing litter in public bins and donating dumping bins in the suburbs. The encouragement is supported by the South Australia Clean Up day (Adelaide, 14 February 2012).
- It is recommended that City of Mutare Finance Committee adopts the method of calculating costs per unit of measurement which, according to Sakhisizwe Municipality Final Tariff Policy (2012) was as follows:

$$\text{Costs of Refuse Removal per month (billing)} = \frac{\text{Total costs of the service (removal + operating)}}{\text{Total number of users (households)}} \times \frac{\text{number of removals per week}}{\text{per household}}$$

- It is advisable that the Council should carry out an affordability analysis as part of tariff calculations. The advice gave credibility to literature by the investigators of FinScope Micro, Small and Medium Enterprises survey Zimbabwe (2012) who identified that 40% of the MSME owners earned less than US$200.00 per month.

The recommendations is supported by Ringold, Holla, Koziol, Srinivan(2012) who identified that the affordability analysis ensured non-accrual of debts due to households' unwillingness as well as non-collection of refuse removal due to municipal denial.

5.6 Suggested areas of further study

The researcher suggested that further research can be carried out on the Finance Committees in Local Authorities as adding value to the organization.

It is suggested that City of Mutare should come up with innovative ideas such as:

- Introducing refuse removal tariff setting processes on quarterly basis in order to match with prevailing inflation.

LIST OF REFERENCES

Books

1. Anderson, R. E. (2010:14). Multivariate Data Analysis; Prentice Hall Higher Education.
2. Babbie, E. R. (2009). Basic of research Methods for Criminal Justice and Criminology, 3rd Edition: Cengage Learning.
3. Best (2008): How to Write the Best Research Paper Ever.
4. Burns, N and Grove, S. K. (2009). Understanding Nursing Research: Building Evidence –Based practice: Elsevier Health Sciences.
5. Creswell, J.W. (2009). Research in Organisations: Foundations and Methods of Inquiry. Bernett – Kohler Publishers.
6. Glaser (2008). The Discovery of Grounded Theory; Strategies for Qualitative research. Transaction Publishers.
7. Grinnel, R.M. (2011). Social Work Research and Evaluation: Foundations of Evidence-Based Practice. Oxford University.
8. Hardoy, J. (2008). Environmental Problems in Third Word Cities, Earth Scan, London.
9. Kalaian (2008:727). Online Research Methods in Urban and Planning Studies: Design and Outcomes.
10. Kothari, C.R. (2009). Research Methodology, Methods and Techniques, 2nd Edition, New Age International.
11. Kumar, R. (2009). Research Methodology: A Step-by-Step Guide for Beginners.
12. LaMarca, NB. (2011). Field Research in Organisational Psychology: The Likert Scale: Advantages and Disadvantges.
13. Mcahon, B. (2012). Attachment Quality, Parental Monitoring, and Peer Relations as predictors of convenient sampling: ProQuest.
14. Saunders, M, Lewis, P and Thornhill, A. (2009). Research Methods for Business Students.

Journals

1 Barrientos, C. (2008). Recycling of Domestic Waste in Guatemala City; a case study with neighbourhood participation GATE, Vol 3, No. 10, pp 11-14.

2 Bel, G, and Warmer, M. (2008). Does privatisation of solid waste and water services reduce costs? A review of empirical studies Resource, Conservation and Recycling; 52(12), 1337-1348.

3 Boland, J. (2009): Pricing of Water: principles and compromises.

4 Chattopadhyay, S. "Municipal Solid Waste Management in Kolkata, India - A Review," Waste Management, Vol.29, No.4, April 2009, pp.1449-1458.

5 Goddard, H. (2008). The benefits and costs of alternative solid waste management policies resource conservation: Recycling, 13(3-4), 183-213.

6 Green, C. 2003/2008). Handbook on Water Economics Principles and Policy, Wiley Eastern, England.

7 Hart (2009). Doing a Literature Review. Releasing the Social Sciences research Imagination. Thousand Oaks. Sage Publication.

8 Higgins, G. (2009). Basic Principles of Full Cost Accounting for the Business, Labor, and Agriculture Interim Committee. Helena, MT: State of Montana, Legislative Services Division.

9 Manyanhaire, I, O. (2009). Domestic Solid Waste Management System in Sakubva High Density Suburb of Mutare: Journal of Sustainable Development in Africa, Volume 11, No. 2 (2009). Clarion: University of Pennsylvania.

10 Masundire, H and Sanyanya, R. (1999-2009). Waste Management in the Zambezi Valley: case studies from Botswana, Zambia and Zimbabwe in Yap, N.T.P. (1999) (Eds). Cleaner Production and Consumption in Eastern and Southern Africa: Challenges and opportunities. University of Guelph, Weaver Press Series. Canada.

11 Nallathiga, R. (2011). South Africa Urban Local Bodies: CGG Working Paper (2011:8)

12 Ringold D, Holla A, Koziol M and Srinivan B. (2012). Citizens and service delivery assessing the use of social accountability approaches in human development, World Bank report, Washington DC.

13 Rusell, C and Vaughan, W. (2008). The choice of pollution control policy instruments in developing countries; arguments, evidence and suggestions. In Henk Folmer and Tom Tietenberg (eds). The International yearbook of Environmental and Resource economics 2004/08. Chehtenham, UK. Edward Elgar.

14 Troschnetz, A and Milhelcic (2009). Sustainable Recycling of Municipal Solid Waste in Developing Countries. Waste Management, 29, 915-923.

15 Uiterkamp, B. Azadi, H and Ho, P. (2011). Sustainable recycling model: a comparative analysis between India and Tanzania. Resources. Conservation and Recycling 55, 344-355.

16 United States. Environmental Protection Agency. Solid Waste and Emergency Response. Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2009. 2009 Web 1 Oct.2011<Solid Waste and Emergency

17 Urban Management Programme, (1996): Conceptual Framework for Municipal Solid Waste Management in Low-Income Countries, UMP Working Paper Series No. 9, Nairobi.

18 USEPA. (United States Environmental Protection Agency. Making Solid Waste. Decision with Full Cost Accounting, Washington, DC, USEPA.

19 Weng, Y-C and Fujiwara, T. (2011). Examining the effectiveness of municipal solid waste management systems: An integrated cost-benefit perspective with a financial cost modelling in Taiwan. Waste Management, 31, 1393-1406.

20 World Bank, (2009): What a Waste: Solid Waste Management in Asia, Urban Development Sector Unit, East Asia and Pacific Region, World Bank, Washington.

21 WRAP (Waste and Resource Action Programme), (2010). Coz Impacts of Transporting the UK's Recovered Paper and Plastic Bottles to China. Banbury, UK: WRAP.

Websites

1. en.wikipedia.org/wiki/Waste-management-in-Switzerland. 07/08/13: 01.56.
2. http://en.wikipedia.org/w/index.php 09/08/13: 07.43.
3. http://travel.state.gov/cis-pa-tw-1168html 25/08/13: 08.29.
4. http://www.foe.co.uk/resource/reports/morejobslesswaste.Pdf.
5. http://www.statssa.gov.za/Accessed 20 June 2012}: Census in Brief. Pretoria, StatsSA.
6. Inthebin@aucklandcouncil.govt.nz. 25/08/13:09.34.
7. mfma@treasury.gov.za. 09/08/13: 11.22.
8. www.cleanupaustraliaday.org.au.
9. www.fetakgomo.gov.za/2012/13/09/08/13: 12.28
10. www.mbombela, gov.za until 04 May 2011.
11. www.prasa.co.za. 09/08/13: 13.18.
12. www.treasury.gov.za/legislation/MFMA. Circular number 64 pp. 1-15 of (20/11/2012).
13. www.ucowr.siu.edu/updates/92/v92-A2.pdf.

Documentary Review, Acts, Departments, Articles and others

1. A meeting with community members in Epworth, October 2012, on their experiences relating to the Solid Waste Management (SWM) process and accountability for health (TARSC 2012).
2. Adelade, February 2012. South Australia. "Irresponsible rubbish disposal in roadways".
3. APA. 15 January (2009). "Zimbabwe cholera surges as neighbours report rising cases".
4. APA news. 3 March 2009. "Mob kills health workers in Mozambique over cholera deaths".
5. Central Statistics Office Report, (2012): Government Printers, Harare.
6. City of Harare failing to provide refuse collection services that fall under its mandate from February 2009 up to December 2010. {Harare Residents' Trust 30 June 2012}.

7 City of Mutare Budget, (2-011-2012), City of Mutare, Mutare.

8 Cointreau, S. (2009). Environmental Management of Urban Solid Wastes in Developing Countries. Washington, DC. Urban Development Department. World Bank.

9 Department of Environmental Affairs, (2010), Solid Waste Tariff Setting Guidelines for Local Authorities: Republic of South Africa, Pretoria.

10 Department of Finance, (2000): Municipal Finance Management Bill, Pretoria.

11 Department of Provincial Affairs and Local Government, (2010): Guidelines for Setting Tariffs for Trading Services, Draft document, Pretoria.

12 Department of Provincial Affairs and Local Government, (2000): Municipal Systems Act, Pretoria.

13 Department of Water Affairs and Forestry, (2008): Minimum Requirements for Waste Disposal by Landfill, Waste Management Series, Pretoria.

14 Diverting Waste from Landfill. Rep. European Environment Agency, (2009) Web.7 Oct. 2011.

15 Environmental Protection Agency, (2009): Making Solid Waste Decisions with Full Cost Accounting, USEPA, Solid Waste and Emergency Response.

16 Evening Standard (UK). 9 December 2009. "Red alert cholera crisis spread to Zimbabwe's neighbours".

17 FFC, (2011/2012): Research and Recommendations Program Work Plan. Midrand: FFC.

18 Finance Committee Minutes, (2011-2012): Refuse removal tariffs. City of Mutare, Mutare.

19 FinScope MSME Survey Zimbabwe, (2012): Harare, Zimbabwe.

20 Government of Zimbabwe, (1996): Urban Councils Act Chapter 29:15, Government Printers, Harare.

21 Hill, M. K. (2008). Understanding Environmental Pollution, Cambridge, University Press, UK.

22 Manica Post 12 February (2012), "Residents Complains about non-collection of refuse and increase of refuse charges".

23 Mbombela Municipality, (2011/2012): Medium Term Revenue Expenditure Framework Budget.

24 Mutare City Council Annual Financial Statement: Budgeting (2012).

25 Mutare City Council Debtors Age Analysis, 2009- December 2012.

26 National Treasury (2011), Local Government Budgets and Expenditure Review, Pretoria. National Treasury.

27 National Treasury (2012), MFMA Circular No. 64.

28 Ngwanaamotho, Maranyane (9 April 2012). Mmegi. "Gaborone City Council fails to collect garbage".

29 Reuters. 20 March 2009. "Malawi: Malawi says cholera kills 104".

30 Sakhisizwe Municipal Final Tariff Policy, (2011-2012): Medium Term Revenue and Expenditure Budget Framework, Pretoria.

31 South African Department of Environmental Affairs, (2012), Solid Waste Tariff Setting Guidelines for Local Authorities, Department of Environmental Affairs, Pretoria.

32 South Africa Local Government Authority, (2012), Tariff Setting, Pretoria.

33 The Times (South Africa). 28 Jan 2009. "Cholera situation is 'scary', says Hogan".

34 Transparent Tariffs Toolkit (2011), a guide for local government in Southern Africa, Namibia and Botswana: Setting Tariffs, Pretoria, Government Printers.

35 United States Energy Policy Act Solid Waste, Period Ending 2009.

36 Urban Councils Act Chapter 29:15, Zimbabwe.

APPENDIX A

Midlands State University

Established 2000

DEPARTMENT OF ACCOUNTING

P Bag 9055 Gweru

September 2013

The Finance Director

City of Mutare

P O Box 910

Mutare

REF: REQUEST TO CARRY OUT RESEARCH AT YOUR COMPANY

My name is Eugen Zimunya Musabayana an employee in your organization. I do hereby apply for permission to carry out a research, entitled **"An analysis of the refuse removal tariff setting in Municipalities: A case of City of Mutare"**.

The research is a requirement in fulfilling the Bachelor of Commerce Accounting Honours Degree at Midlands State University. I promise that the information obtained in the research will be used for academic purposes only.

I hope that my application will meet your best consideration.

Yours faithfully

Eugen Zimunya Musabayana

Reg# R11304Q

Appendix B

QUESTIONNAIRE TO MUTARE CITY COUNCIL EMPLOYEES AND REFUSE REMOVAL TARIFF PAYERS

Dear respondent

My name is Eugen Zimunya Musabayana, a student undertaking a research project entiltled **"An analysis of the refuse removal tariff setting in Municipalities: A case of City of Mutare"**. May you kindly assist by answering the questions below? You are advised of honesty when answering the questions and the information provided will be treated with utmost confidentiality and will be guaranteed and used sorely for academic purposes only.

Instructions

Please answer all questions and provide answers to the following questions by ticking in the boxes given and filling in the spaces provided.

Your cooperation will be greatly appreciated.

1 Mutare City Council (MCC) has an individual tariff for refuse removal.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

2 MCC's refuse removal tariff depends on the frequency of collections per month.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

3 The refuse removal tariff setting process is initiated by the user department.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

4 The refuse removal tariff is calculated yearly as mandated by the Local Authority Regulations.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

5 Residents and Council both participate in the refuse removal tariff setting process.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

6 Mutare City Council collects refuse on given/agreed days.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

7 The refuse removal budget for Mutare City Council is cost reflective (that is, includes all costs of removing refuse).

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

8 The refuse removal budget for Mutare City Council sustains its refuse operations for the whole budgeted period.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

9 The refuse removal tariff budget for Mutare City Council operates at a loss.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

10 Transport costs are the major input costs in determining the refuse removal tariff for MCC.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

11 A cost reflective tariff is not affordable for Mutare High Density Residents.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

12 Residents and Council both participate in litter reduction campaigns.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

13 Which tariff should be charged by Mutare City Council in order to (i) cover refuse removal cost (ii) to make the suburbs ever clean (iii) and is affordable to residents?

Response	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
US$2.87						
US$6.50						
US$8.00						
Below US$5.00						
Above US$10.00						

14 What do you think are the reasons for Mutare City Council‘s failure to provide an adequate refuse removal service to the residents as prescribed?

Response	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Total
US$2.87 is not enough						
Have money but inefficient						
Salaries bill is very high						
None of the above						

15 Residents often suffer from disease outbreaks due to uncollected refuse.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

16 The Council is fulfilling the mandated duties to residents when setting up refuse removal tariff.

Strongly agree ☐ agree ☐ unsure ☐ disagree ☐ strongly disagree ☐

OPEN-ENDED QUESTION

17 What do you suggest as any other contribution you think is relevant to the tariff setting process of Mutare City Council besides the ones given above? ----------
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END OF QUESTIONNAIRE: THANK YOU.

APPENDIX C

INTERVIEW QUESTIONS TO MANAGEMENT AND COUNCILLORS OF CITY OF MUTARE

- What are the existing refuse removal tariff setting processes and how have the residents responded to these tariffs, are you satisfied?
- Which factors affect the costing of refuse removal charge and are there any possibilities of values of waste material?
- What is the breakeven point of refuse removal tariff which ensures financial sustainability?

4 Is the refuse removal tariff affordable and appropriate for residents and justify yourself whether it is cost reflective?

5 What do you suggest as any other contribution you think is relevant to the tariff setting process of Mutare City Council besides the ones given above?

END OF INTERVIEW: THANK YOU