

PRESBYTERIAN UNIVERSITY COLLEGE, GHANA
FACULTY OF DEVELOPMENT STUDIES

DEPARTMENT OF ENVIRONMENTAL AND NATURAL

RESOURCE MANAGEMENT

EVALUATION OF THE EFFICIENCY OF PRIVATE
SOLID WASTE MANAGEMENT IN ABLEKUMA
NORTH MUNICIPAL ASSEMBLY

BY

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SEPTEMBER 2019

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MANAGEMENT**

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**A DISSERTATION SUBMITTED TO THE DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCE MANAGEMENT OF THE FACULTY OF
PRESBYTERIAN UNIVERSITY COLLEGE, GHANA IN PARTIAL
FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS
DEGREE IN ENVIRONMENTAL HEALTH AND SANITATION.**

BY

HARRIET KRAKUE

SEPTEMBER 2019

DECLARATION

Candidate's Declaration

I hereby declare that this project work is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

.....

Date:

HARRIET KRAKUE

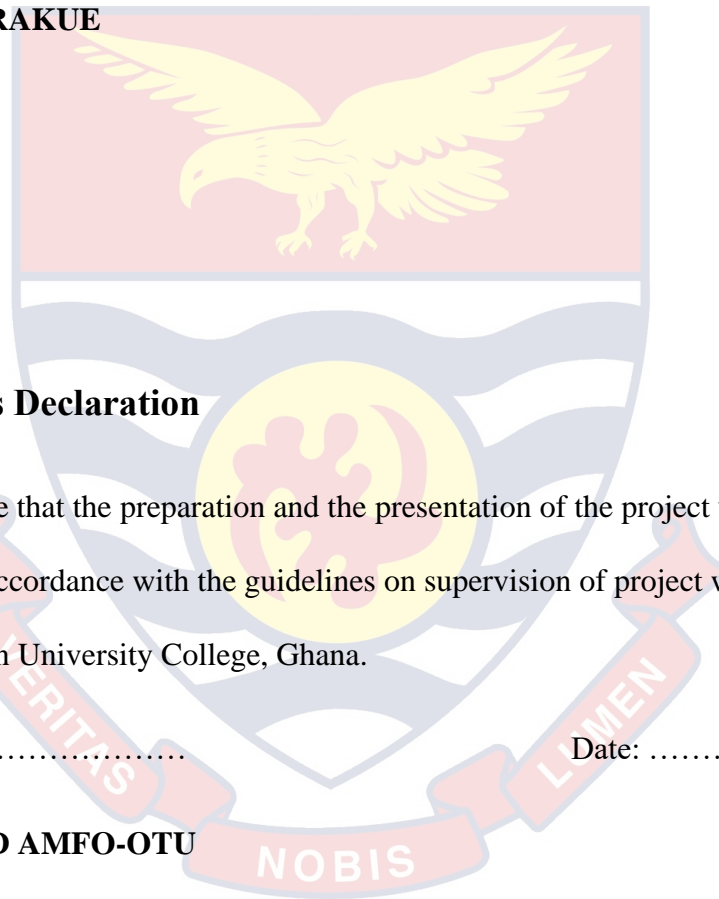
Supervisor's Declaration

I hereby declare that the preparation and the presentation of the project work were supervised in accordance with the guidelines on supervision of project work laid down by the Presbyterian University College, Ghana.

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Date:

DR RICHARD AMFO-OTU



ABSTRACT

This study set out to evaluate the efficiency of private solid waste management in the Ablekuma North Municipality. A total of 100 respondents from five electoral areas of the Assembly was used for the data collection and systematic sampling procedure was used to select the various households. Twenty (20) respondents were also interviewed from two private waste collection companies in the Municipality. In each house the female adults were interviewed. The results showed that all respondents interviewed had attained some level of education with 41 per cent having completed secondary education. Majority (55%) of the respondents kept their waste in sacks, 41 per cent kept in waste bins and 4% in baskets. 89% of the respondents were aware of waste separation but do not practice it. About 52 per cent of the respondents have registered with the formal private waste collection companies for their waste collection and 46 per cent have registered with the informal sector tricycle operators for their waste collection services. Majority (53%) of the respondents rated the quality of service delivered by the private sector as fair, good (22%), poor (13%) and very poor (6%). The waste collection companies are faced with some challenges which include bad roads in the various communities, the absence of final disposal site within the Municipality and poor patronage of services by the community members. It was concluded that the private sector waste collection services were not efficient and require much improvement but the informal sector collectors are complementing their inefficient waste collection services. The franchised private sector service provider should be cautioned to improve service coverage and delivery and the informal collectors should be empowered to provide supportive waste collection services in the municipality.

ACKNOWLEDGEMENT

My sincere thanks goes to the Almighty God for giving me life and strength to finish this work. I also thank my supervisor Dr. Richard Amfo-Out for his immense support and dedication to this research.



DEDICATION

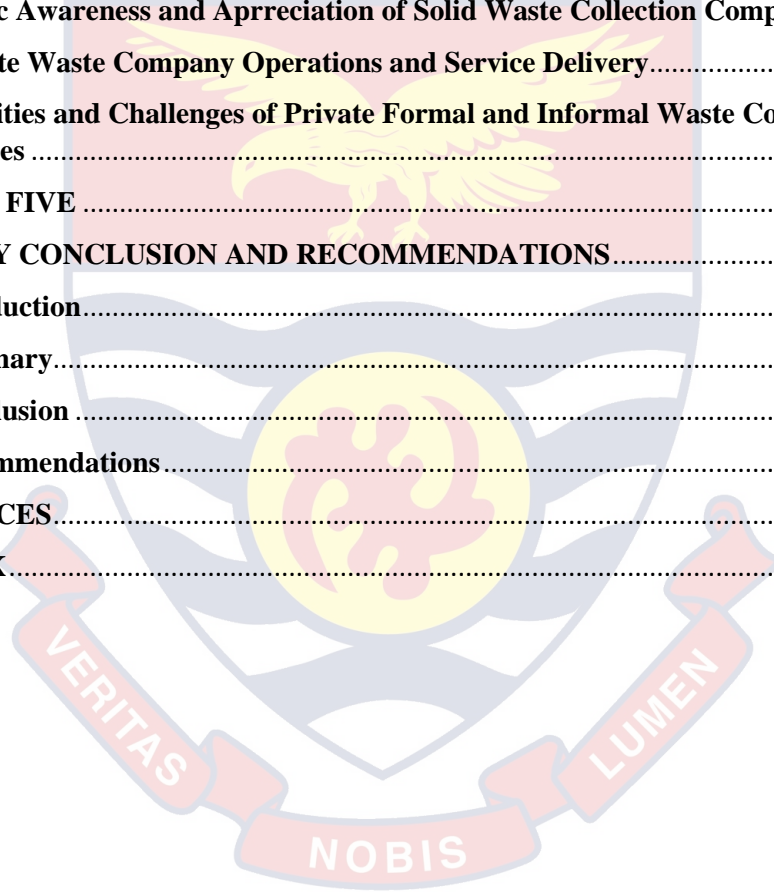
This research work is dedicated to my family and friends for their support and prayers.



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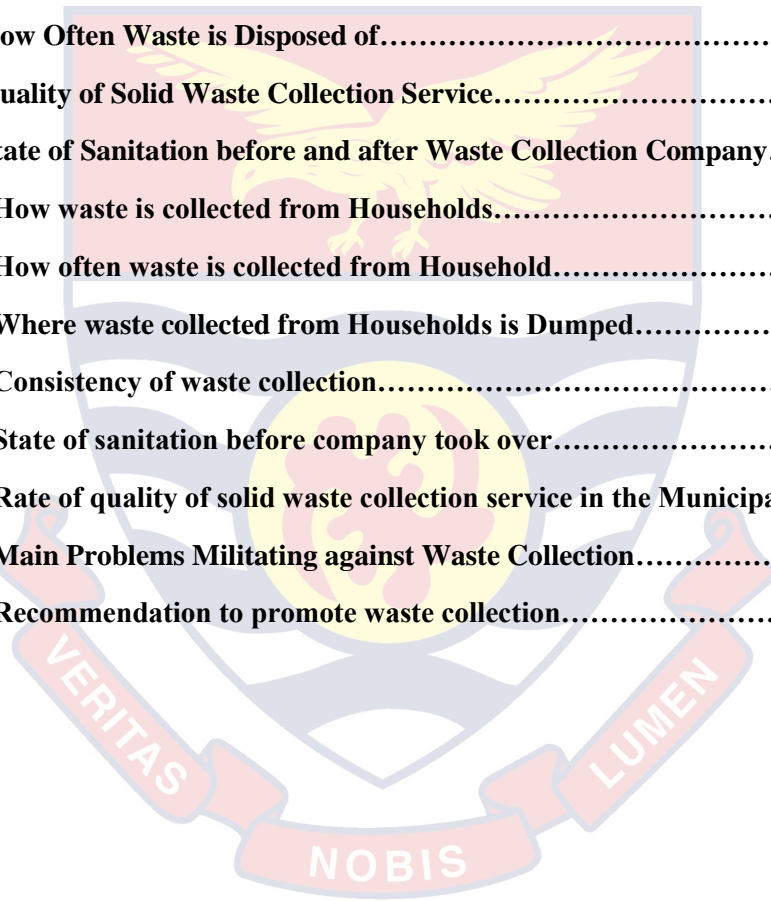
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study.

Management of solid waste has become a major problem especially in urban areas throughout the world in the fast growing cities of the developing world (Foo, 1997). The rapid rate of growth in population and the increasing per capita income has led to the generation of high volume of solid waste, which poses great threat to the quality of the environment and human health (Snigdha, 2003). The access to sanitation, clean and adequate water are therefore crucial to the health and wellbeing of people. More cities have become industrialized and this has come along with it issues of how to manage solid waste generated. Advancement in Technology and Economic growth has led to the generation of diverse Solid Waste and the management of these waste more complex. The increase in disease outbreaks; cases of cholera and other diarrheal conditions recently explains this fact.

In addition to this the changing economic trends, industrialization and rapid urbanization has complicated the issue Solid Waste Management (SWM) in most developing countries. Solid waste is not just increasing the composition of waste but also there are changes in quantity from kilograms to tonnage proportions in recent times. (Bartone, 1993). According to a study by Boadi and Kuitunen (2003), in 1998, 80% of solid waste generated was from the low-income community, 17% also came from the middle-income communities and 3% of waste was from high income communities. Most of the waste generated from the low-income residents in Accra was not collected appropriately.

Before the year 1995, 60% of solid waste was collected by the Waste Management Department of the various Assemblies (WMD), (Boadi & Kuitunen,

2002). According to a study by Post *et al.*, (2003), as at 1999, about five years after Solid Waste Collection was privatized, the amount of waste collected by the public and the private sectors increased to 70%. Ten years on, with the increase in more private waste management companies it is possible 10% of solid waste has not being collected. Management of Municipal solid waste has been a major agenda for Assembly leaders and waste management contractors in urban areas especially in sub-Saharan Africa. The high concentration of people in urban areas or cities has implications on solid waste managers dealing with challenges in handling, recycling and supervision (Oteng-Ababio, 2014). Private sector involvement in solid waste management in developing countries has increased but their efficiency and effectiveness is not always clear because of their inability to change to a more customer-oriented service delivery (Oduro Kwateng & Van Dijk, 2013).

In Ghanaian cities, like those in other African countries are faced with problems which include inadequate infrastructure and weak administrative systems (Dinye, 2013). In the city of Accra, two major interrelated structural problems exist. One of them is the issue of employment to meet the increasing population and the other is the inexistence of infrastructural base and managerial framework to effectively and efficiently implement effective laws, traditions, rules and norms to manage solid waste in the City (Tibajuka, 2001). The public sector's ineffectual performance can mainly be attributed to their inadequacy to be equipped economically and their inability to adopt social and technical capability of new methods to solve solid waste problems (Chaplin, 1999). Major reason given are lack of resources, uneducated population and institutional weakness.

It is very important to understand that as solid waste is on the increase less attention is given to it. For solid waste management to improve or have any chance to

be successful, it is important to understand why and when the need for solid waste to be managed. For in Ghana, it is difficult to find evidence of good urban management practice for even smaller towns, in the area of waste management let alone for the cities (Burra, Petel & Ken 2003). According to Cointreau-Levine (2000), some reasons accounting for this include: the many necessities of delivery in the public sector in waste management rules have not been satisfied by municipalities in the previous years, for example such as primary door-to-door collection or sanitary land filled sites. Again, there are very inadequate skills and information within municipalities to handle these activities. Most municipalities lack the finances to expand operations into new geographic areas or into new settlement areas.

Oteng-Ababio, Melara & Gabbay (2012) perceives that city managers in West Africa have incorporated public-private partnership approach as a sustainable means of solid waste management. In most cases, governments and waste managers talk about public-private partnership in public sector enterprise only in terms of “formal sector” companies but do not recognize the role played by some informal employees and other community based and non-governmental organizations (Hardoy, Mithin & Sattererhwaite, 2001).

This lack of acknowledgement for the informal sector often results in fondness for large scale, technocratic solutions to problems due to the alleged “prestige” and some financial gains to some officials (Post 2002). According to Baud (2000), the problems that affect public-private partnership include unequal power relations between external partners and project beneficiaries, and the costs involved in dealing with a variety of partner s.

Private Sector Inclusion in utility service provision is based on the agenda of privatization. This stipulates that, social and economic functions of the community can

be undertaken by business under a free market mechanism. The state is to facilitate and regulate their role without direct engagement (Gutierrez, 2001). The main driver for a successful private sector engagement in solid waste management is competition, transparency and accountability between customers and service providers. According to Franssen (1999), It is important to note that private sector involvement does not create efficacy but competition among service delivery by private sector throughout history drives economic progress, thus can be associated to private sector involvement in solid waste management.

According to Savas (2000), one of the most frequently cited merits of the private sector over government is its organizational flexibility. Private sector management has greater comfort in firing employees for non-performance and in providing rewards for workers with good performance. Cointreau-Levine (2000) also projects that the main explanations for this improvement are that private sector service providers are responsible to their customers and are obliged to respond to client or customer dissatisfaction. Dinye (2013), projects that, private sector management in solid waste management in Ghana rides on several issues that include, the nature of the existing solid waste management system, the ability of the inhabitants to pay and the economies of the private sector investment in the solid waste management venture.

1.2 Problem Statement

The Ablekuma North Municipal Assembly has been subjected to rapid increase in population over recent decades. Notwithstanding the various positives associated with the urbanization of the Municipality, the area is unfortunately saddled with waste along with its poor and nonfunctioning disposal. The Municipality lacks any landfill or open dumpsites hence waste generated are handled in one of two ways; waste generated are either burnt by residents or are dumped haphazardly all over the Municipality.

As a counter measure, the Accra Metropolitan Assembly opted for public-private partnership as an approach to sustainably manage the waste generated within the Assembly. Public-private partnerships are financing strategies that are widely used around the world including Accra (Post 1999; Oteng-Abbabio, 2010). The aim has been that public-private partnership can help gather resources, reduce risks, contribute to economies of scale and enhance service delivery (Band, 2001; Helmsing, 2000).

It was envisioned that, the engagement of the private sector would mark a change in the solid waste management situation within the Municipality. Nonetheless the problem still lingers despite some residents having benefited from the collaboration in terms of coverage and reliable service compared to when the services were delivered by the Accra Metropolitan Assembly alone. There are still issues of inefficiency of private sector delivery and service quality problems.

Not many studies have been done to evaluate the contribution of the private sector dominated to the effectiveness and efficiency of service delivery in the Municipality though the partnership has existed over decades. Solid waste collection provided by informal private sector has also not been well acknowledged and evaluated to assess their contribution to the service delivery efficiency by the private sector. All these present gaps in academic literature and affect practices hence this study to contribute to fill the gap.

1.3 Research Questions

This inquiry seeks to address the following questions.

1. What is the level of knowledge of the public about the accredited private solid waste company in terms of efficiency and quality of service?

2. What has been the contribution of the informal sector private waste collectors to the efficiency and quality of service delivery?
3. What challenges do the formal private waste company and informal waste collectors face in their operations?
4. How can these challenges be solved to bring about the desired service efficiency and quality of service delivery?

1.4 Objectives of The Study

The general objective of this study is to examine the contribution of the private sector in solid waste management in the Ablekuma North Municipal Assembly.

In accordance with this, the specific objectives that guide the study are:

1. To assess the level of knowledge of the public about the accredited private solid waste company in terms of efficiency and quality of service delivery.
2. To examine the contribution of the formal private waste company and the informal waste collectors to the efficiency and quality of service delivery.
3. To identify the challenges, the formal private waste company and informal waste collectors face in their operations.
4. To assess how the challenges can be solved to bring about the desired service efficiency and quality of service delivery.

1.5 Significance of The Study

The study would provide in depth unravelling on the work of the private waste company within the municipality. The findings of the study would be a great source of information to the central administration of the municipality and be a great a great help

to the Municipal Environmental Health and Sanitation Unit in handling solid waste issues within the municipality.

It will aid the decision to either add new private sector companies to create competition in service delivery, understand the contribution of the informal sector waste collectors in the solid waste service delivery within the municipality and to formalize their operations and provide some basic information for other researchers. The solutions found to the existing challenges of the private sector participation will be important in strategizing to improve the performance of the private sector service providers in solid waste management.

1.6 Limitations of The Study

A number of challenges were encountered in the course of this research, the absence of a detailed comprehensive land use map of the study area made it difficult to clearly distinguish between localities. The study therefore had to depend on a crude description given by the Municipal Planning Authorities. In the house-to-house collection mode, problems occurred as refuse could not be easily quantified in monetary terms since refuse were often put in polythene bags due to inadequate waste bins. Another limitation is the fact that the final disposal site had no mechanism to check the number of trips of solid waste made by the company. This made it difficult to check the quantity of solid waste collected in a day by the company. The researcher therefore had to rely on the information given by the company, which could be compromised. Also, acquiring data from residents was difficult since a lot of people do not like talking to strangers and or researchers.

1.7 Research Organization

The main work contains five (5) chapters. Chapter One: Introduces the research work which includes; the background of the study, problem statement, objectives, research questions, significance of the study, limitations and the research organization of the study. Chapter Two: Review of related literature; the literature review is presented in portions. The first focuses on some basic concepts related to waste management in Ghana, whereas the second part highlights the private sector involvement in managing urban solid waste, its relevance on solid waste management as well as the challenges confronting the efficient and effective operations of the private sector. Chapter Three: Methodology; this describes how the research was conducted. The chapter includes; sampling size, sampling procedures, data collection and its analysis. Chapter Four: Results and Discussion. This chapter highlights a narrative description of this research. Both tables and graphs were used in presenting the findings. Chapter Five is dedicated to summary, conclusion and recommendations from the study.

This is the final chapter of this research that includes a summary of the main findings, recommendations for further studies and also recommendations for policy and practice considerations. A list of reference cited within the work are covered under the heading Reference.

CHAPTER TWO

2.0 REVIEW OF LITERATURE

2.1 Introduction

This part is made up of the review of related literature. The literature review is presented in two portions. The first focuses on some basic concepts related to waste management in Ghana, whereas the second part highlights the private sector involvement in managing urban solid waste, its relevance on solid waste management as well as the challenges confronting the efficient and effective operations of the private sector.

2.2 Definition of Solid Waste Management

According to the Oxford Advance Dictionary waste is any material that is no longer needed for a particular purpose and is therefore thrown away. Waste is a substance that is easily recognized. It is described as something or a substance that is no longer useful to its owner and has failed to fulfil its purpose or usefulness. (Gourlay, 1992, Fredduah, 2004). There are two basic types of waste which are solid and liquid waste. The focus of this study is on solid waste.

Solid waste is being defined in various forms by different writers and researchers. Solid waste is therefore any material which can be found from the activities of both human and animal that is usually discarded as unwanted (Tchobanoglous *et al* 1993). Zerbock in a study in 2003, stated that solid waste is made up of both hazardous and non-hazardous substances from industries, commercial activities and domestic places. These includes, household organic materials, sweeping of streets, institutional trash and waste from construction sites.

Kumah in a study conducted in 2007 defined Solid Waste Management as “The Administration of activities that provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of waste”.

Solid Waste Management (SWM) is defined as managing the processes involving solid waste collection, treatment and disposal of waste generated in households, commercial and business establishments, institutions, and non-hazardous industrial process of waste (Tchobanoglous, 1993). He grouped the direct activities of solid waste management into six functional elements:

(a) **Waste generation and characterization:** this involves various places where waste is being created as a result of human existence and activities. Due to improved standard of living, industrialization and improved healthcare an al new forms of waste have emerged which include e-waste and industrial waste. At all these places waste is generated which need to be managed. At the various places different volumes of waste are generation and partly is due to the standard of living of the people in a particular locality and the type of waste generated. (UNEP, 2009).

Human nature is such that waste generation cannot be avoided. This is usually argued by the fact that higher incomes result in increased consumption and generation of waste. A typical example can be sited in the case of a low or middle income earner who cannot afford his own home and therefore resides in a rented apartment, whereas a supposed wealthy person on the other hand is likely to own a home with beautiful landscaping; Though both may be single individuals living on their own. In London on Nov., 9th 2011 a report released by the international energy agency indicated that the affluent (about 20% of the global population) use close to 80% of the world's raw energy resources and contribute the lions share to the world's waste generated and pollution (<http://EzineArticles.com/6720502>).

In several communities in Africa, high tones of solid waste are generated daily and most of these wastes ends up in open drains, open dumps, streams and other water bodies, thereby contaminating these surface and ground water and this poses a major health issues and hazards (EGSSAA, 2009).

(b) On-site storage and handling: Waste generated differs at all levels and places and same is seen in the home and as such needs to be held together in a receptacle until collection time is due. Storage is usually expected to be on a short-term basis only and should prevent the waste from being released to the environment. In some conditions, improper storage could be deemed disposal and could trigger a strict regulation of the waste (US EPA, 2008). Due to the irregular generation of waste and in some in some instances not so appropriate infrastructure in place for solid waste collection, it is essential for waste to be stored temporarily prior to collection.

The storage of wastes generated by households before collection and transportation to the dump site is usually found in various receptacles. These receptacles include polythene bags, propylene sacks, metal bins, and disposing waste into pits dug at the back of the house (Downmore et al., 2011). These waste generated at the various sources are kept in different containers before they are finally taken to the final disposal site for other measures to take place.

MEFN (2000) outlined some criteria that needs to be taken into account when selecting and maintaining solid waste storage facilities which includes; the solid waste storage facilities should be selected by taking into account quantities of waste generation in a given area and the population densities; a storage facility should be accessible to users; storage facilities should be so designed that waste stored are not exposed to open atmosphere and is be aesthetically acceptable and user friendly; The solid waste storage facilities should be easy to operate and designed for easy handling, transfer and

transportation; and bins for storage of bio-degradable waste shall be painted green, those for storage of recyclable waste shall be painted white and those for storage of other waste shall be painted black.

(c) Collection: Basically, there are three modes of solid waste collection in Accra. This include the curbside, communal container and house-to-house collection. On a franchise basis, the house-to-house collection service is provided usually in the high income area where contractors charge some fees for a daily or weekly collection. These places a are well-planned residential community with first and second class access roads. Each household has plastic containers with covers for waste storage. These contractors then pay a fee to the Accra Metropolitan Assembly for the use of its dump site (Anomanyo, 2004).

(d) Transfer and Transport: Waste once collected is moved from its generation or storage point to another point (transfer station) for further transport to a treatment or disposal site. Waste transfer stations are facilities where municipal solid waste is unloaded from collection vehicles and held briefly while it is reloaded onto larger long-distance transport vehicles for transport to landfills or other treatment or disposal facilities (US EPA, 2011). Transfer stations are not common in municipal waste management in African cities.

Ablekuma North Municipal Assembly is no exception. In the transportation of solid of waste, vehicles used for the collection such as the skips, roll off, side loaders and tipper trucks in certain areas are expected to be loaded and moved in such a manner that the contents do not fall, spill or leak. Covers like nets are to be provided to cover the solid wastes especially in the case of skips and tipper trucks to prevent littering and spillage during transportation.

(e) **Treatment and resource recovery:** Solid waste is much easier to handle and treated and has more prospects for being recycled and recovered as compared to liquid waste. The latent energy present in its organic form can be recovered for gainful utilization through adoption of suitable Solid Waste Processing and Treatment technologies.

(f) **Final Disposal:** As opposed to recovery, reuse and recycle, disposal at a landfill or dumpsite (in most African cities) is usually the final destination of solid waste. Solid waste disposal in Ghana is an issue of great concern especially with regards the poor administration and management of waste collection services, indiscriminate dumping, lack of fitting disposal sites, troubles with proper solid waste disposal due to deterioration of road ways, breakdown of vehicles and traffic woes.

These functional elements require planning and management in order to achieve high quality of service. Schubeler, Wehrle and Christen (1996) reported that agencies responsible for SWM often pay too little attention to integrated management approaches based on adequate information systems, management approaches, methods, and techniques. The procedures and methods developed for management (planning, operations, monitoring) may be different in the various organizations, and managers responsible for solid waste management take control of all the necessary management functions and are responsible and accountable for discharging the roles of the organization in a cost effective manner.

2.3 Sustainable Waste Management

An important concept of waste management is sustainable waste management which is an integral part of sustainable development (WCED, 1987). Thus, in keeping with the objectives of sustainable development, sustainable waste management can be regarded as an approach to waste management that, in addition to protecting human health and the environment, ensures that the scarce resources of the earth are conserved for both present and future generations of humanity. It therefore becomes important to minimize natural resource extraction and consumption by recycling waste materials, and conduct waste management efficiently to curtail the environmental impacts of waste disposal and protect ecosystem services for both current and future generations (Millennium Assessment Report, 2005).

In line with the waste hierarchy, the best way to achieve sustainable waste management is to reduce the amounts of waste produced (Girling, 2005). Where waste is unavoidable, a sustainable approach is to encourage re-use and recycling of products to prevent them from getting into the waste stream. Finally, where waste prevention/reduction, re-use and recycling are economically impossible, waste is processed to recover their intrinsic values such as energy. Sustainable waste management also seeks to increase co-ordination between the producers of goods, retailers, manufacturers, the public, local authorities and all concerned with the management of waste and reusable materials and equipment (London Waste Action, 2007).

Advancement in technology and economy has led to diverse kinds of Solid Waste being generated and the management of these waste has become much complex than before. Also some other factors include poor institutional framework coupled with low capacities and lack of resources; that is both human resource and capital resources

has put solid waste management and sanitation situations in many cities various Developing World, especially Africa, in a deplorable state (N E H A, 2005). The increase in the demand for plastic and rubber products, which are highly non-biodegradable, poses both health and economic problems. However, some other factors which include illiteracy, lack of self-control and the unwillingness to pay for the collection of Solid Waste Management by the community and citizenry are contributing factors that make recycling challenge for most of these countries.

2.4 The Goals of Waste Management

In 1976, the United States Congress enacted the Resource Conservation and Recovery Act (RCRA) which authorized the Environmental Protection Agency (EPA) to regulate waste management and disposal practices. The goals of waste management that were set by the RCRA included: the protection of human health and the environment from the hazards posed by waste disposal, the conservation of energy and natural resources through waste recycling and recovery, reducing or eliminating the amount of waste generated, and ensuring that wastes are managed in an environmentally-safe manner (RCRA,1976). Other writers agree with these objectives of waste management. For example, Schubeller Wehrle & Christen (1996) have stated the goals of municipal solid waste management as protecting environmental health, protecting the quality of the environment, supporting the efficiency and productivity of the economy and the generation of employment and income for people.

Cointreau (2001) argued that “the overall goal of urban solid waste management is to collect, treat and dispose of solid waste generated by all urban population groups in an environmentally and socially satisfactory manner, using the most economical means available”. Similarly, the Ghana Environmental Protection Agency has noted that waste management is essential in the present day context for the following reasons:

To protect human health against waste-related hazards and risks, to prevent pollution of the environment and its natural resources like air, water and land, to produce energy which could be an alternative for the fast depleting fossil fuels and other conventional sources of energy, to make optimum use of the waste generated, for a better and sustainable future and (Ghana EPA, 2002). It can be concluded from the above that the main objective of waste management is to protect public health against waste-related hazards and risks, and to maintain ecosystem services by preventing the pollution of the natural environment and its resources such as land, water and air as well as the aesthetic quality of the environment.

2.5 The Principles of Waste Management

The principles of waste management, as identified by Schubeller, Wehrle and Christen (1996), are “to minimize waste generation, maximize waste recycling and reuse, and ensure the safe and environmentally sound disposal of waste”. This means that waste management should be approached from the perspective of the entire cycle of material use which includes production, distribution and consumption as well as waste collection and disposal. While immediate priority must be given to effective collection and disposal, waste reduction and recycling should be pursued as equally important longer-term objectives (Schubeller, Wehrle & Christen, 1996). Cointreau (2001) has also identified ten principles that should guide a sustainable and integrated solid waste management programme. According to her scheme, such a programme should: be supportive of good governance, provide economic service delivery; establish cost recovery mechanisms for long-term financial sustainability, and conserve natural resources embrace public participation, foster environmentally appropriate technologies and sites, seek appropriate levels of source segregation, recycling and

resource recovery, conduct strategic facility planning and development, build institutional capacity and invite private sector involvement.

In line with Gilpin's (1996) notion of waste management, this means that waste management involves much more than the practical organization of waste collection, transportation, treatment and disposal. While these are important aspects of waste management, several other issues are equally important including good governance, public and private sector participation (Cointreau, 2001). The waste management situations in most developing countries show that the goals and principles of waste management are far from being achieved (Schubeller, Wehrle & Christen, 1996; Hardoy, Mithin & Satterthwaite, 2001; Pacione, 2005).

2.6 Origin of Private Sector

Privatization is a policy that has been implemented all over the world in recent decades. In regions where public ownership of firms was not as common, such as North America, privatization has mainly taken the form of contracting out services previously delivered by the government to the private sector. Most Economics and Public Policy scholars consider the privatizations in Chile (1970s- early 1980s) and the United Kingdom (1980s-early 1990s) as the first privatization policies in modern history. Others argue that the first privatization operation was the denationalization of steel in the UK in 1953, and a few scholars identify the partial sales of state-owned enterprises in Germany under Adenauer's government (late 1950s-early 1960s) as the first large-scale privatization program. However, recently published works document and analyze a large-scale privatization policy in 1930s Germany, under Hitler's government. Indeed, between 1934 and 1937, the Nazi regime privatized almost all the firms that had been taken over by the Weimar government in the early 1930s during the Great Depression.

The formal private sector is here understood to refer to private sector corporations, institutions, firms and individuals, operating registered and/or incorporated businesses with official business licenses, an organized labor force governed by labor laws, some degree of capital investment, and generally modern technology (Furedy, 1991). In general, the defining characteristic of the formal private sector is that its main objective is to generate a profit on investments.

2.7 Why Private Sector Involvement in Municipal Solid Waste Management

Private agencies engaged in waste management have higher operating efficiency because, firstly they are free from bureaucratic hurdles and the upkeep of their equipment is excellent. Good condition of vehicles and equipment ensure not only trouble-free operation but also result in higher output and profitability. According to Boorsman (1994), private sector is endowed with qualities such as political independence, economic rationality, efficiency, dynamism and innovation; qualities which make it measure up favorably to public sector enterprise. The motives of privatization have primarily been that the private sector works more efficiently than the public sector; it is hence concluded that economic benefits will arise from privatizing public sectors where there is no natural monopoly (Prasad, 1998).

Another important aspect of the involvement of the private sector in Low and Middle Income Countries (LMIC) is the debt issue. Most LMIC public budgets depend on external financial aid. Many international credit organizations impose the concept of privatization to obtain less demand for loans. The World Bank Group is the leading institution in the preparation and support of privatization programmes, providing advice and loans to cover costs associated with privatization, and also providing investment loans to cover costs associated with privatization as well as ones to help restructure private enterprises. Privatization is consequently assimilated into the “corpus

conditionality” of the donor community (Grimshaw & Willmott, 2002). Taking into consideration that 90% of municipal investments in LMIC today come from external aid (World Bank, 1997), the issue of privatization is becoming inevitable for LMIC. In reality, the donor community imposes the principles of privatization. It is a “*conditio sine qua non*” for the continuation of external aid flows. Simply put, efficient SWM and privatization are linked to LMIC.

2.8 Private Sector Involvement in Solid Waste Market

The delivery of public services has traditionally been carried out by the public sector. The increasing financial burden on the local governments and the inefficiency of the public sector (government failure) in developing countries necessitate the use of markets for public service delivery. However, markets where there is perfect competition with willing buyers and sellers do not work for public services that have externalities and information asymmetry. Solid waste collection service as a public good has externalities (negative environmental impacts) if people are excluded from the service. Solid waste collection cannot be provided through the market without regulation (legislation and incentives). The private sector is involved in solid waste collection due to market and government failures. There is also non-governmental organization failure, due to the over reliance on donor support to cover investment, operation, and maintenance costs. This means that the private sector failure (inefficiency) – under performance and inability to deliver the expected service quality – could occur if the needed policies, legislation, incentives, and government support are not given to it.

The extension of the market mechanisms of the New Public Management (NPM) to private sector involvement in solid waste collection services is still an

emerging issue, especially in developing countries. Contracting out solid waste services to the private sector and charging for services rendered by the private sector are still faced with difficulties. Public services delivery such as water supply, sanitation and solid waste services have been failing in developing countries for a long time despite the NPM and decentralization of local service delivery to the local governments. The expected improvements in service delivery have often not been achieved (van Dijk, 2006). Obviously, decentralization alone was not enough to bring about improvements in service delivery, and therefore private sector involvement in public service delivery was introduced. The paradigm shifts from public sector delivery of public services (solid waste service delivery) in developing countries to private sector provision began in the past two decades. Governments vigorously began to promote the private sector as a provider of services to improve service efficiency¹ and effectiveness² (Roth, 1987; Cointreau-Levine & Coad, 2000; Batley & Larbi, 2004), but the needed private finance and expertise to bring about the improvement are still issues, especially in developing countries.

In developing countries, different forms of Private Sector Involvement (PSI) have been suggested for achieving greater efficiency and effectiveness, to overcome the government failures in public direct service delivery – too many workers, not enough supervisors, few incentives for better performance and limited finance (Cointreau-Levine, 1994; Cointreau-Levine & Coad, 2000; Post, Broekema & Obirih-Opareh, 2003). Private Sector Involvement (PSI) in solid waste collection in developed countries emerged in the 1970s, and since then there has been increasing private sector involvement in solid waste collection service in many parts of the world (Eggerth, 2005). By 1994, there were more than 10,000 private firms engaged in urban solid waste collection service in the United States, where more than 80 percent of solid waste was

collected by the private firms (Cointreau, 1994). There is now PSI in all the elements of integrated solid waste management from collection, sanitary landfilling, recycling to resource recovery in the developed countries.

Private Sector Involvement in all sectors in developing countries has been slow especially in the Sub-Saharan Africa countries, although there is increasing private sector involvement (PSI) uptake in French-Speaking Africa (Li & Akintoye, 2003). By 1989, there was private sector involvement in solid waste collection in Latin American cities (Santiago, Buenos Aires, Sao Paulo & Caracas) with populations of 3.6 to 12 million (Bar-tone, 1991). The companies in these cities operated under service contract arrangements with the municipalities. The involvement of private sector in solid waste collection in most developing countries started gaining momentum in the 1990s. The World Bank advocated Private Sector Involvement in the 1994 World Development Report. Since then, the development partners have supported the drive for PSI in solid waste collection and management through capacity building and loans for provision of equipment. The number of private companies involved in solid waste collection keeps on increasing in developing countries, as in the case of Ghana and there is growing interest of the private sector in many developing countries. However, the presence of PSI in urban solid waste collection in developing countries has not been felt in terms of better service quality and total service coverage, and this may be due to a number of issues such as policy, capacity, regulation, legislation, and investment risk.

2.9 Does Private Sector Deliver Efficient and Quality Solid Waste Service?

The rationale for the Private Sector Involvement (PSI) in solid waste collection is to improve efficiency (reduce cost) and effectiveness of service delivery (service quality) through competition for the market – where private sector providers compete for a zonal monopoly to render service over a period of time – and to ensure that the

environmental aspect of sustainable development is integrated into solid waste management. However, recent case studies of PSI in solid waste management in some developing countries – for example, in Kenya (Karanja, 2002; Mwangi, 2003), in Ghana (Obiri-Opareh, 2002; Awortwi, 2003), in Tanzania (Mbuligwe, 2004; Kassim, 2006) and in India (Post, Broekema, & Obirih-Opare, 2003) – showed that there has been an increased coverage in some of the countries, but the service quality, efficiency and sustainability of private sector service delivery are still issues that require further studies to identify drivers for performance. The private sector still faces challenging issues of inefficiency and low service quality due to some factors of the enabling environment, inter organizational arrangements, and how companies are run; and this is what this study seeks to identify.

Studies on performance of service providers often arrive at the conclusion that services delivery by private sector is associated with gains in effectiveness and service efficiency more than by municipal departments (Cointreau-Levine, 1994; Cointreau-Levine & Coad, 2000; Post, Broekema & Obirih-Opareh, 2003). Other authors argue that the results of private sector performance (efficiency gains) over public sector delivery showed that efficiency gains are mixed and that the debate on private sector efficiency gain over public sector is inconclusive (Donahue, 1989; Bel & Warner, 2008). The results from these studies showed that their explanatory factors are inconclusive, and therefore require further studies into other approaches.

Private sector inefficiency in developing countries may be due to a number of factors, and one of them is operational inefficiency due to weak capacity. Zurbrugg (1999) argues that the operational inefficiency of solid waste collection service delivered in developing countries are due to weaknesses in institutional arrangements (policies, legal, and regulations), deficient capacity of the public and private sector

institutions involved, and the use of inappropriate technologies. It follows from this that operational efficiency of the service agent among other factors are necessary for private sector efficiency gains and improved performance. There has been increased involvement of the private sector in solid waste management in many cities in developing countries (Post et al., 2003; Cointreau-Levine & Coad, 2000). However, despite the increasing interest in public-private-community partnerships, there is evidence that coverage and the needed improvements in environmental sanitation have not been achieved (Onibokun & Kumuyi, 1999; Oduro-Kwarteng, 2006). The solid waste collection coverage has not improved to the desired level in the developing countries, despite the paradigm shift from public delivery of solid waste services to private sector participation.

There is an argument that the private sector does not, in some cases, guarantee higher effectiveness and efficiency gains or reduce cost. Some studies suggest that the efficiency of private sector depends on the capacity of local government institutions to regulate and monitor performance of the private sector⁴, and to recover cost (Obirih-Opareh & Post, 2002; Awortwi, 2003; Obirih-Opareh, 2004; Oduro-Kwarteng, 2006). Apart from regulation and performance monitoring by the public sector, which are external to private sector organization, there are other internal factors which affect private sector performance. The effectiveness and efficiency of service delivery by private sector depends on a number of factors, which may be internal or external to private sector organization.

The performance improvement of solid waste services in developing countries is daunting and one would wonder where things went wrong in the management and provision of the services. Although literature on technical, policy frameworks, implementation strategies, urban governance and institutional dimensions of waste

management is large and growing, detailed analysis of internal and external factors to private sector organization is needed to be able to apply measures that will increase efficiency and effectiveness in solid waste service provision in developing countries. The theoretical framework for this study is based on theories of markets and regulation of public services. Market as a process involves market actors (buyers and sellers), exchange mechanisms (transactions), object of ex-change (services), industry demand and supply, and regulators. The market and how it is regulated determines the service coverage, efficiency, and quality.



CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This section consists of the methodology of the study and describes and analyses specific research methods and techniques used for the study. It also looks at the appropriate data collection procedures and the tools used for the data analysis. Multi-stage techniques which include purposive, simple random and systematic sampling were employed. Questionnaire survey was carried out in all the electoral areas and a total of 20 households were interviewed. In addition, separate key informant interviews were carried out.

3.2 Study Area

The Ablekuma North Assembly was carved from the Accra Metropolitan Assembly and inaugurated in March 2018. The Assembly was established by Legislative Instrument 2308 (2018) with the capital at Darkuman. The Assembly lies within latitudes $05^{\circ} 38'$ north and within Longitudes $00^{\circ} 60'$ west. It has total land coverage of approximately 13.28 km^2 . It shares boundaries with Ga Central Municipal Assembly to the North, Ablekuma West to the South, Okaikoi North to the East and Weija Gbawe to the West. According to an estimation by the Statistical department of the Municipal Assembly, the population of the municipal assembly is about 187,000.

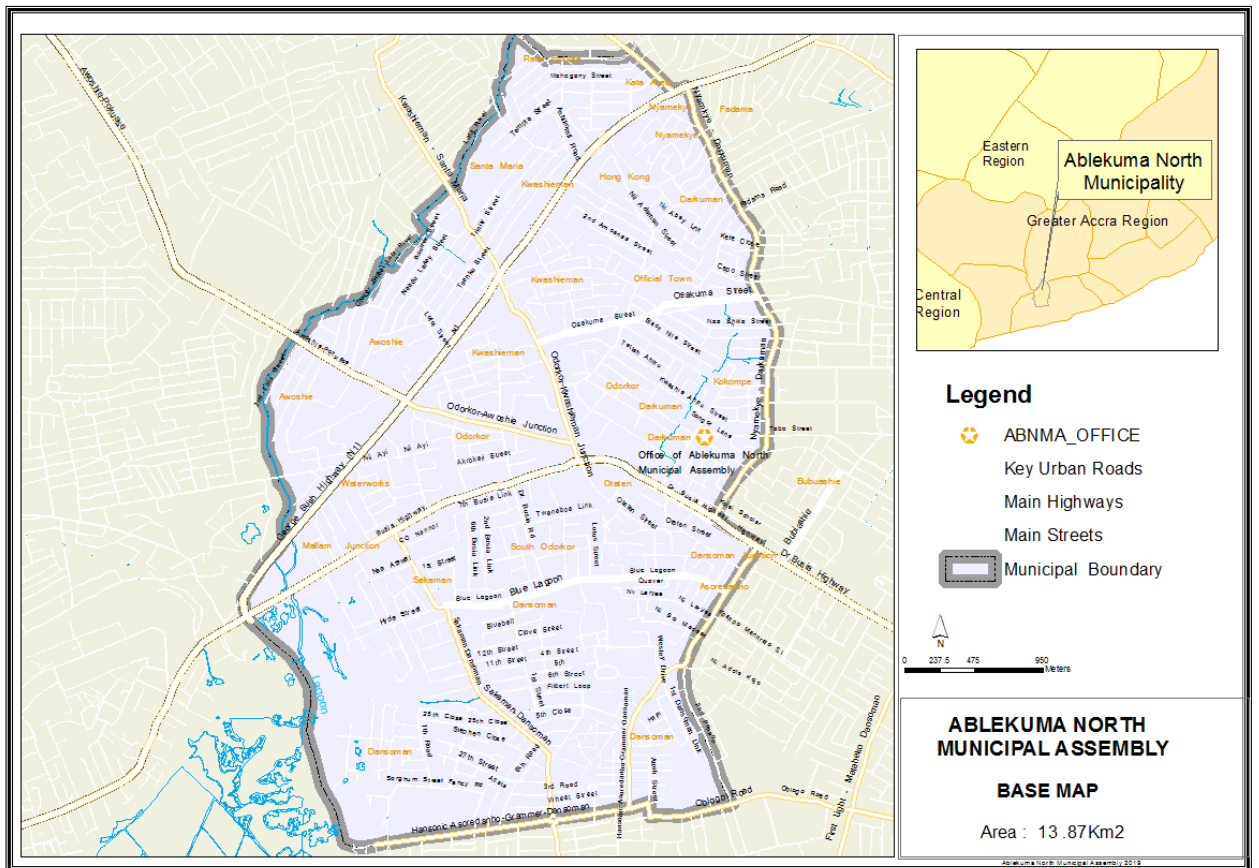


Figure 1: Base Map Ablekuma North Municipality

Source: ABNMA MPCU, 2018

3.3 Research Design

The case study design was adopted for this study. It is an empirical enquiry that allowed the researcher to investigate and understand the private sector involvement in solid waste management in Ablekuma North. This approach was preferred because it provides a systematic way of looking at events, collecting data, analyzing information and reporting results. It is used to narrow down a very broad field of research into one easily researchable topic. The varied nature of the data required and the different sources from which they had to be gathered made the mixed methods approach appropriate. In line with this methodological approach, research tools associated with

both the quantitative and qualitative approaches were combined to collect the data. The process included questionnaires and in-depth interviews.

The choice of the mixed methods approach was informed by a number of reasons. First, it was meant to achieve the logic of triangulation since no single method (such as questionnaire, interviewing of documentary analysis) could completely capture all the relevant features of any study Denzin (1989). Furthermore, the combination of qualitative and quantitative methods enabled the researcher to crosscheck the data gathered by different methods, thereby, making the results of the study valid and credible. The decision to combine quantitative and qualitative methods in this study could also be justified on the grounds that it made it possible for the researcher and her assistants to explore the research questions from different perspectives which lead to broader understanding of the issues connected with solid waste management in the municipality.

3.4 Sampling Size and Sampling Method

The Ablekuma North Municipal Assembly is estimated to have a population of about 187, 000 people. For the purpose of time and limited logistics at the disposal of the researcher, five electoral areas were purposively selected. After selecting the study communities systematic sampling was used to select the houses for the household interviews. In all communities, the 9th house was systematically selected after selecting the first house, until all the 100 houses were obtained. From each house, one elderly female was interviewed. This is because in the culture of the study population, females are more responsible for managing solid waste in the home and as such could offer more precise information on the subject. In the case of a house where an elderly female was not available, anybody who was responsible for managing solid waste in that house was interviewed irrespective of the sex.

3.5 Data Collection Instrument

Questionnaire was used to collect data through a survey approach which was carried out in all the selected localities. The questionnaire was pre-coded with a few open-ended questions that required information on perceptions and attitudes. The questionnaire for the household survey was developed to cover an aspect of the objectives of the study which was to investigate issues concerning the role of the private sector in managing solid waste. The instrument was divided into appropriate sections to allow for the systematic collection of data from households in different socio-economic areas in the study areas. The issues covered in the survey include: the socio-economic profile of households; efficiency and affordability of the solid waste management services they receive and recommendation for improvement. Structured interview guide was used to solicit information from the waste collection managers.

3.6 Data collection Method

The questionnaires were administered to the principal homemaker of each household (generally a woman). In addition to the 100 households sampled, detailed expert knowledge was sought from staff of the private waste company. Each key informant gave their perspective, understanding and knowledge about the current solid waste management situation in the municipality.

3.7 Data Analysis

Data collected from the field using the questionnaire were entered into a computer, processed and analysed using the Statistical Package for Social Sciences. Table, graphs, figures and charts were used to summarise statistical information into mean and percentages. Their responses were aptly captured in the form of narratives

for this research. Their responses provided an overview of the current solid waste management situation in the Ablekuma North Municipal Assembly, the contributions of private sector involvement in solid waste management, the solid waste management challenges as well as strategies to manage solid waste in the municipality. More importantly, they helped explain the socio-cultural and political issues affecting the solid waste management strategies



CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Introduction

This chapter gives out a table and graph presentation of the results from the data collection exercise carried out in the study. It is presented with the use of a bar graph.

4.2 Demographic Characteristic of Respondents

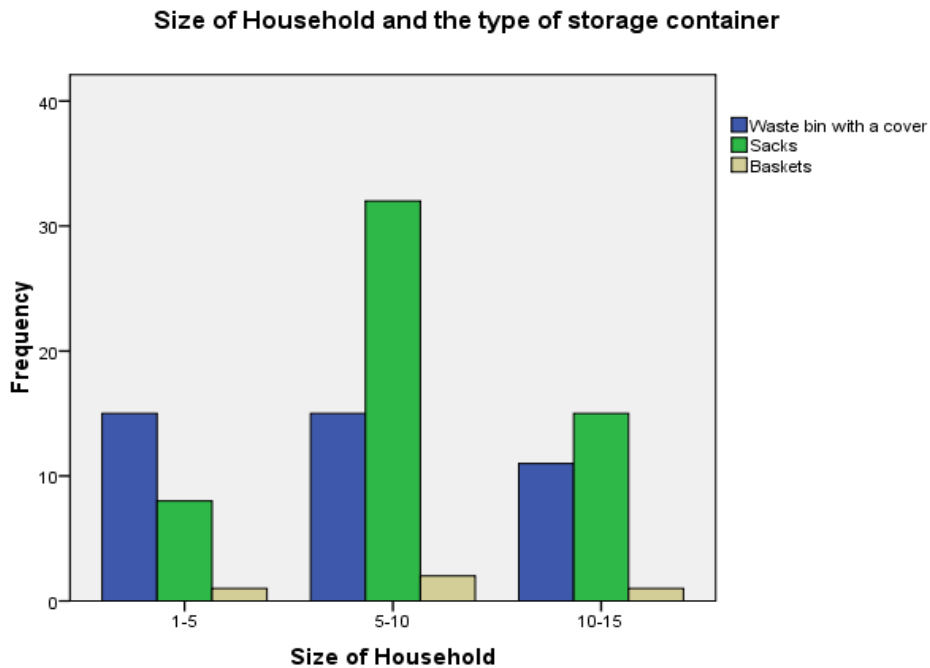
Table 1 indicates that all the respondents interviewed had attained some level of education with a most of 41% having attained secondary education, 29% have attained basic education, 10% have attained vocational education and 19% have attained tertiary education. It is therefore good to know that all the respondents have some basic formal education since this is likely to inform their decisions and obviously in relation to their waste generation and disposal. These results shows that all the respondents have all gained some form of formal education and this likely to influence the choses they make and the choses they are likely to make with regards to their waste generation storage and disposal cannot be disputed. Base on their levels of formal knowledge it is possible for them to make right choices which one would believe to be the good decision. The table also shows that 55% of the respondents are married, 37% are single, 5% are widowed and 3% are separated. All these people are likely to generate some form of solid waste from their daily activities which need to be collected and disposed of by an appropriate body.

Table 1: Summary of Demographic Factors Of The Respondents.

Demographic factors	Frequency	Percent
Highest Education		
Basic	29	29.0
Secondary	41	41.0
Vocational	10	10.0
Tertiary	19	19.0
Marital status		
Widowed	5	5.0
Married	55	55.0
Single	37	37.0
Separated	3	3.0

4.3 Public Awareness and Appreciation of Solid Waste Collection Companies

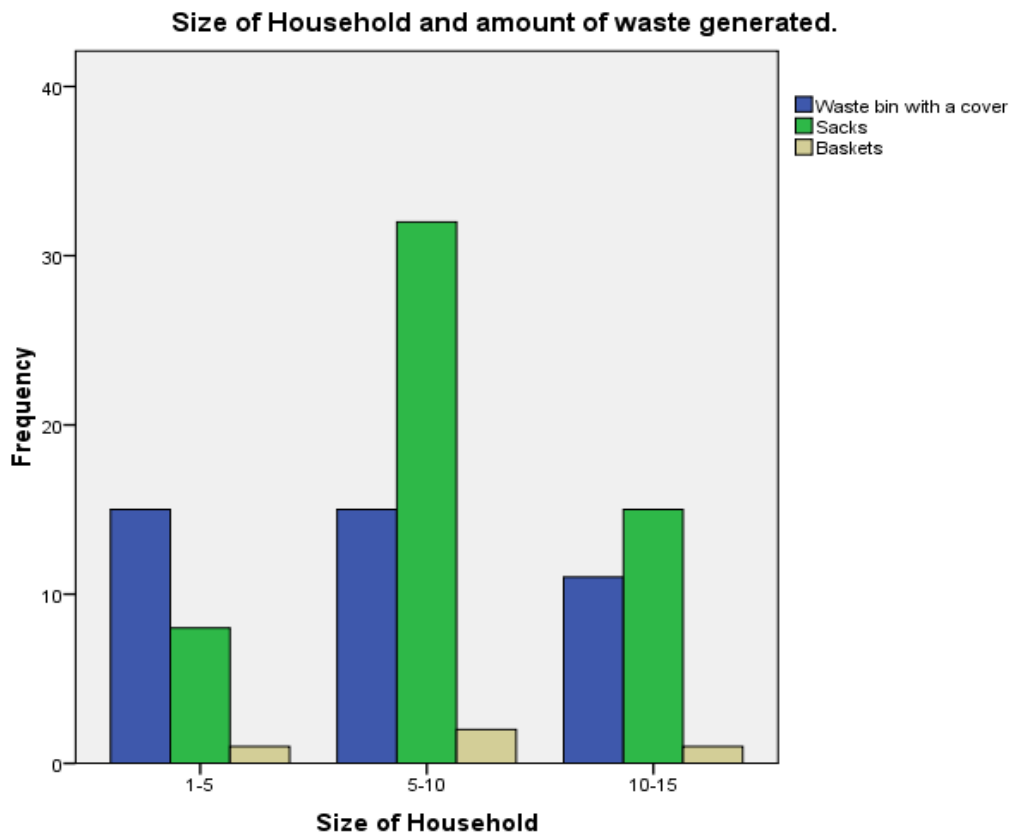
Figure 2 shows that 41 per cent of the respondents said they keep their solid waste in waste bins, 55 (55%) of them keep their waste in sacks and the rest (4%) of the respondents keep their waste in baskets. Out of this, 15(15%) of them have a household size of 1-5 and they keep their waste in waste bins, 8% with the same household size store their waste in sacks and only 1(1%) stores the waste in baskets. Respondents with a household size of 5-10 constitute 32(32%) who store their waste in sacks, 15(15%) store in waste bins and 2% store in baskets. Persons with a household size of 10-15 have 15% of them storing their waste in sacks, 11% store in waste bins and 4% store in baskets. The results show that majority of the respondent's store their waste in sacks which is not the appropriate container for storing of solids waste at all levels of waste generation. A cross tabulation revealed that there is no significant relationship ($X^2=7.001$, $P = 0.136$) between the size of the household and the type of container used in the storage of their solid waste generated at the household level.



Source: Data Collection (Ablekuma North Municipality 2019)

Figure 2: Size of household and the type of storage container

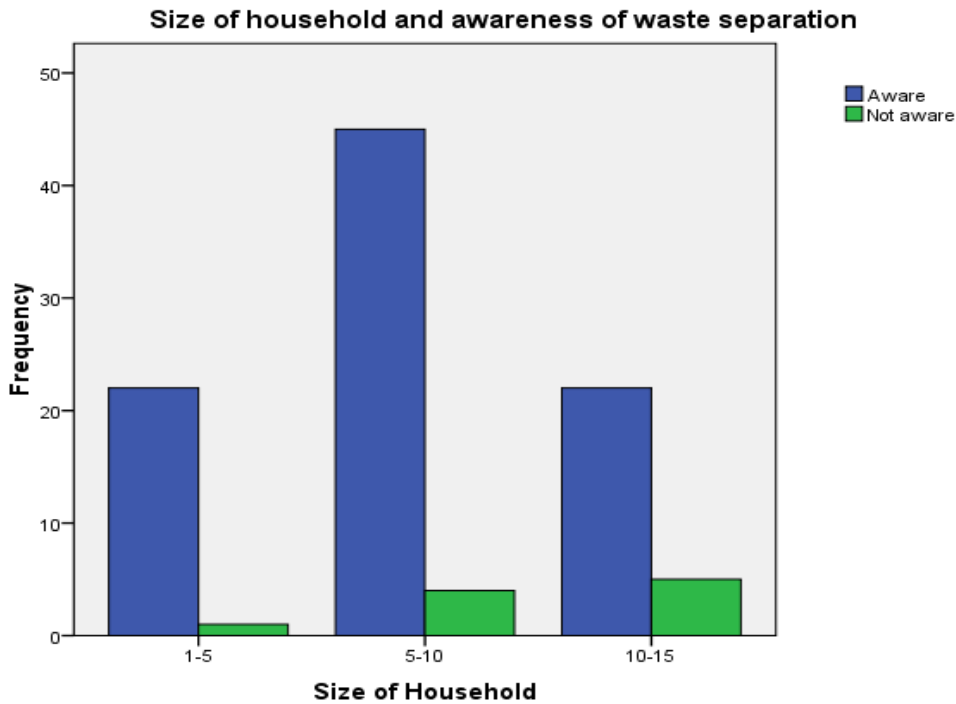
Figure 3 indicates that 24 per cent of the respondent said they generate less than 1 waste bin weekly, 36 per cent of them generate 1-2 bins weekly, 26 per cent generate 3-4 bins weekly, 12 per cent generate 5-6 bins weekly and 2 per cent of them generate more than 6 waste bins weekly. Majority of the respondents generate 1-2 bins weekly and the fact that majority of them store this waste in sacks (Figure 1) is a worrying issue that needs to be addressed and tackled immediately. These waste are likely to be littered on the compounds of the premises destroying the aesthetic beauty of the place. It is interesting to note that there is no significant relationship between the amount of waste generated ($X^2= 11.430, P= 0.178$) with regards to waste bins and the size of households.



Source: Data Collection (Ablekuma North Municipality 2019)

Figure 3: Size of Household and How much waste generated by household

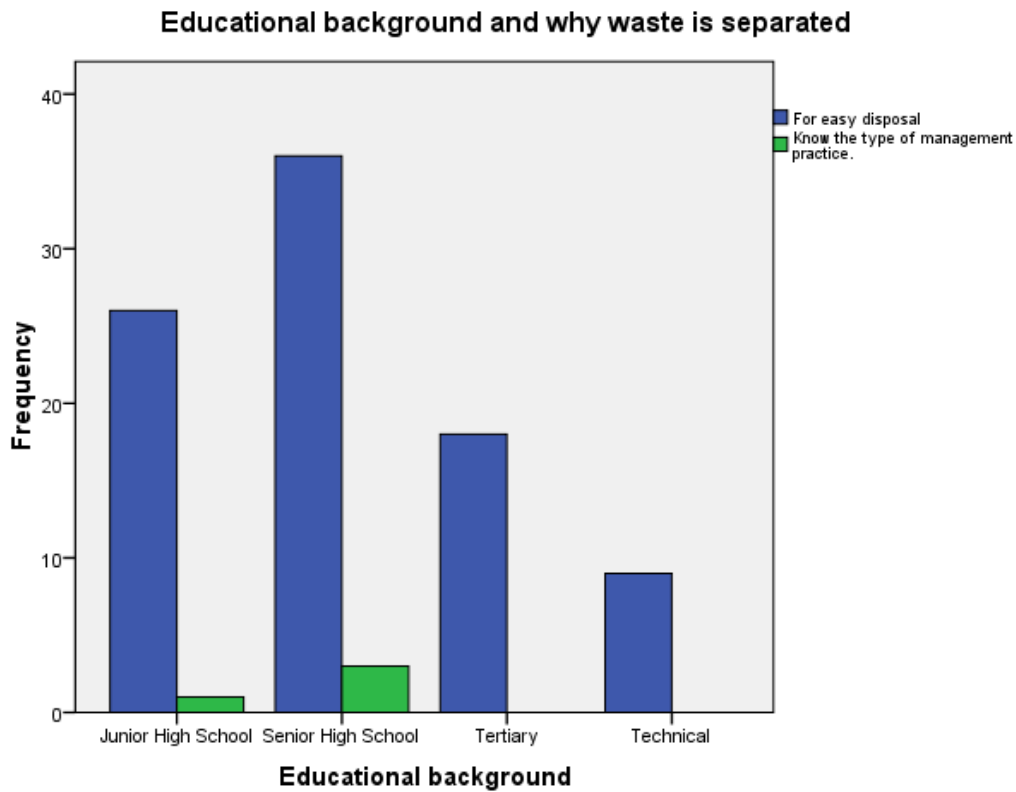
Majority of the respondent (89%) are aware of waste separation and 10 percent of them are not aware of waste separation at the household level and all levels of waste management as shown in Figure 3. Waste separation is very important at all levels of waste management from the household to the final disposal. It is therefore very encouraging to know that majority of individuals interviewed have an idea or are aware of waste separation. The respondents having an idea about waste separation does not have any significant relationship ($X^2= 3.148, P=0.207$) with the size of household. They having an idea may be due to the influx of social media and other information medium at the disposal.



Source: Data Collection (Ablekuma North Municipality 2019)

Figure 4: Size of Household and awareness of Waste Separation.

The Figure 4 shows that 89% of the respondents said waste is separated for easy disposal and 4% of them said waste is separated to know the type of management practice to use in the disposal of the waste. 26% of the respondents who completed Junior High School said waste is separated for easy disposal, 36% who finished senior High School said waste is separated for easy disposal and 18% who finished tertiary said waste is separated for easy disposal. It can be said that the respondent ability to have gained some level of education has helped in their knowledge of waste separation and its importance. A cross tabulation reveals otherwise which states that there is no significant relationship between the two variables ($X^2= 2.327$, $P= 0.501$).



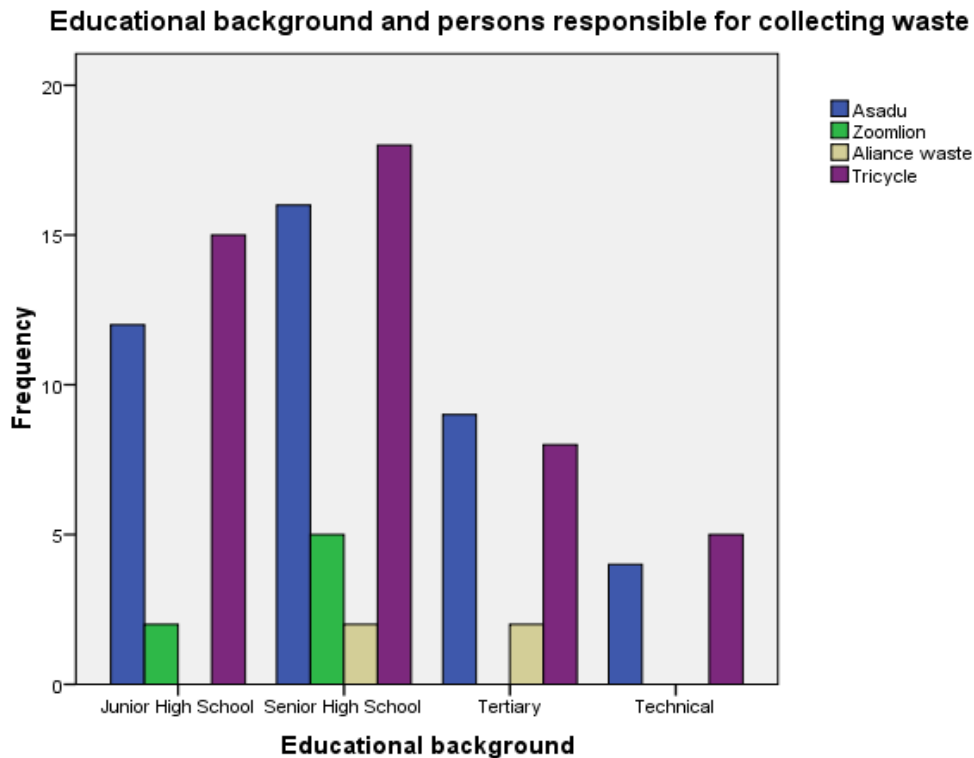
Source: Data Collection (Ablekuma North Municipality 2019)

Figure 4: Educational background and Why waste is separated.

4.4 Private Waste Company Operations and Service Delivery

The Figure 5 indicates that 41 percent of the respondents are registered with ASADU waste company, 7 percent are registered with Zoomlion, 4 percent are registered with Alliance Waste Company and a majority of 46 percent is with the Tricycle operators for the collection of their waste. It is obvious that the respondents are all registered with one company or the other for the collection of their solid waste in the community. The fact that they have attained some level of education may have given them the sense of responsibility towards the disposal of their waste hence they registering with a company either formal or informal to collect their waste. However, a cross tabulation shows no significant relationship between the variables ($X^2 = 7.707$, $P = 0.564$). The respondents

having gained some level of education may not necessarily have any influence on their choice of registering with solid waste company, it may be under some other influence.

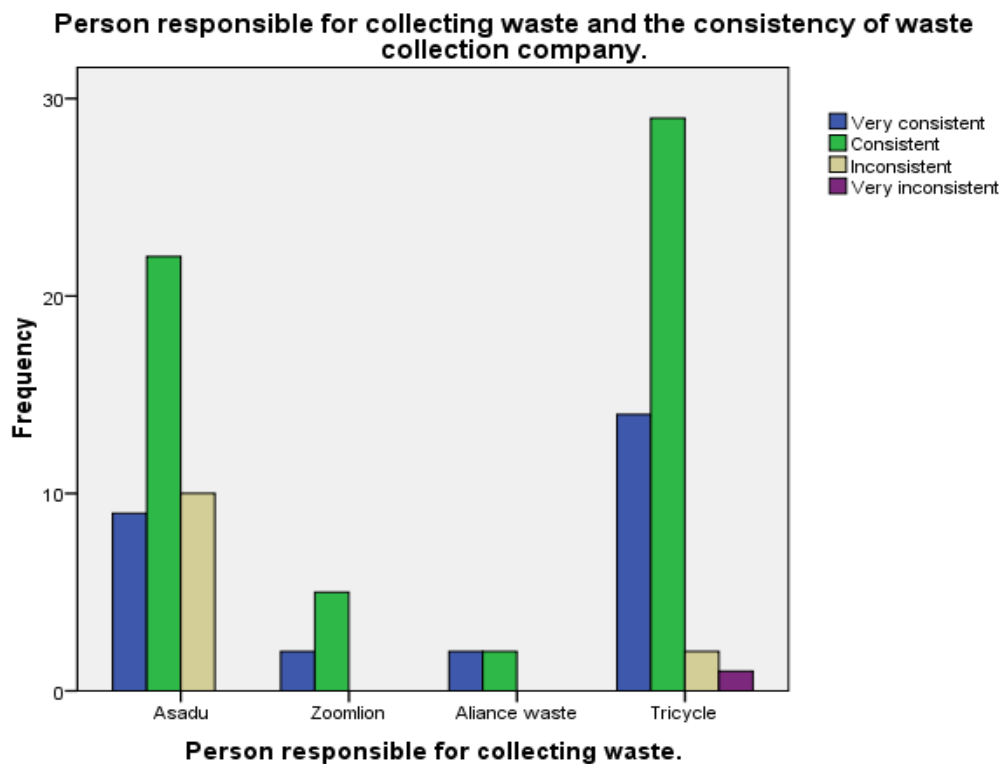


Source: Data Collection (Ablekuma North Municipality 2019)

Figure 5: Educational background and Person responsible for solid waste collection.

Figure 6 talks about the consistency of the various waste collection companies within the municipality and their activities as observed by the respondents. It indicates that 27% of the respondents said the waste collection companies are very consistent, 58% said they are consistent, 12% said they are inconsistent and 1% said they are very inconsistent. Out of the persons registered with Asadu Royal waste company 9% said they are very consistent and 22% said they are inconsistent. 2% of those with Zoomlion Ghana Limited said they are very consistent and 5% said they are consistent. With Alliance waste, 2% said they are very consistent and 2% also said they are consistent. 14% of the respondent said the Tricycle operators are very consistent, 29% said they

are consistent, 2% said they are inconsistent and 1% said they are very inconsistent. It is interesting to see that majority of the respondents said the Tricycle collectors who are considered to be informal are very consistent with their waste collection by the response of the respondents. In calculating the relationship, it is revealed that there is no significant relationship ($X^2 = 11.661$, $P = 0.233$) between the waste company and their service delivery in terms of their consistency to waste collection.



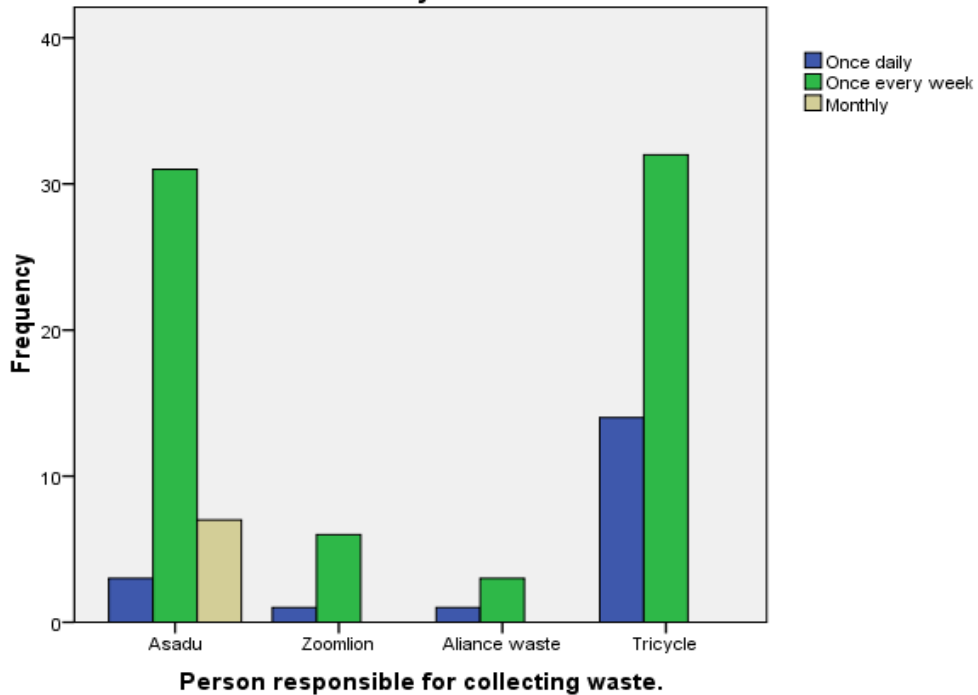
Source: Data Collection (Ablekuma North Municipality 2019)

Figure 6: Person responsible for collecting waste Consistency of waste collection company.

Majority of the respondents (72%) said their waste are disposed of once every week, 19% said their waste are disposed of once daily and 7per cent said their waste are disposed of on monthly basis. With regards to Asadu Royal company waste company the respondents of about 31% said they dispose of once every week and 3% said it is one once daily. The Tricycle operators according to the respondents, 32% said they

dispose of once every week and 14% said they do it once daily. With Alliance waste and Zoomlion Ghana Limited the 3% of the respondents said they come once every week and 6% said they come every week respectively. The solid waste company in the Ablekuma North Municipality are seen to have preferred coming for the solid waste from the households on weekly basis despite the type of company. There is a significant relationship ($X^2= 16.132, P= 0.013$) between the solid waste collection companies and the service they render to the communities in terms of how often solid waste is disposed of at the household level.

Person responsible for collecting waste and how often waste is disposed of by households.

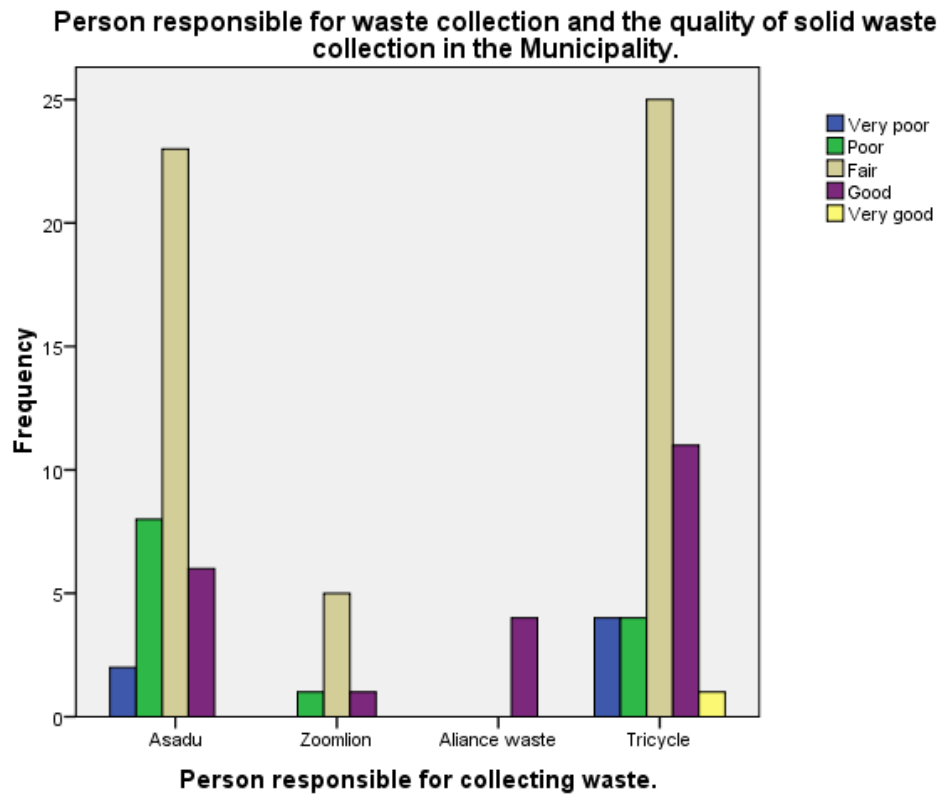


Source: Data Collection (Ablekuma North Municipality 2019)

Figure 7: Person responsible for collecting waste and How often waste is disposed of by households.

The Figure 8 indicate that majority (53%) of the respondents rated the service of the waste collectors to be fair, 22% said it is good, 13% rated it as poor, 6% said their service is very poor and 1% said their service is very good. On an average the service

of the solid waste collectors can be said to be encouraging but needs more improvement to help improve on the sanitation of the area or Municipality. In calculating the relationship, ($X^2= 19.096$, $P = 0.86$), it showed that there is no significant relationship between the variables.



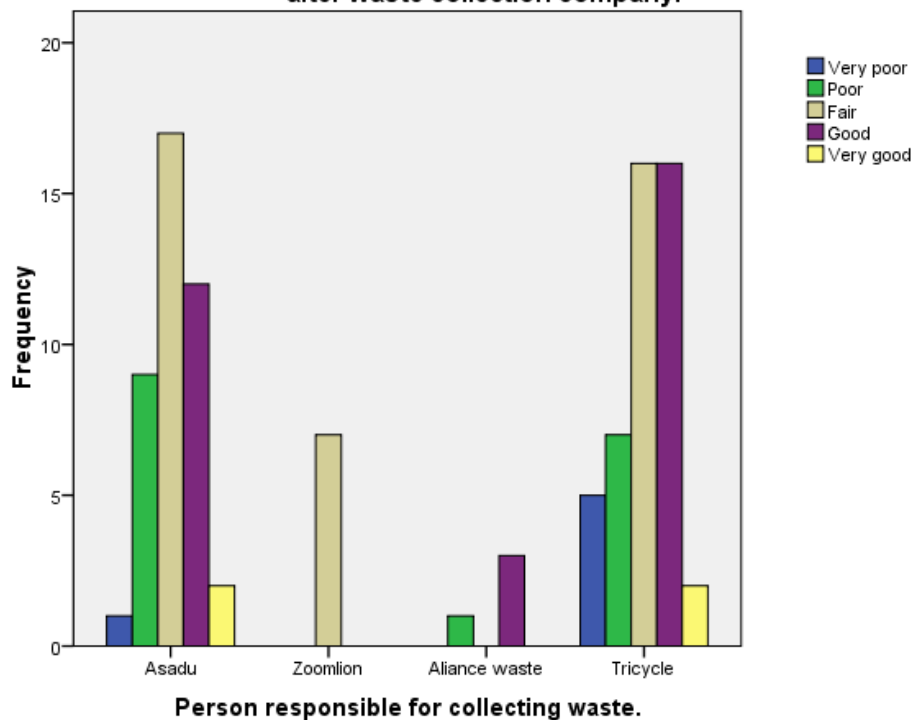
Source: Data Collection (Ablekuma North Municipality 2019)

Figure 8: Person responsible for waste collection and Quality of solid waste collection service.

A total of 40 percent of the respondents said the state of sanitation after the existence of waste collection companies is fair, 31 percent said it is good, 17 percent said it is poor, 6 percent said it is very poor and 4 percent said it is very good. It can therefore be said that the existence of the waste companies has brought about some level of change. Most of the respondents rated their service as good and fair since their existence in the

Municipality. A cross tabulation also shows that there is no significant relation ($X^2=18.630, P = 0.98$)

Person responsible for collecting waste and the state of sanitation before and after waste collection company.



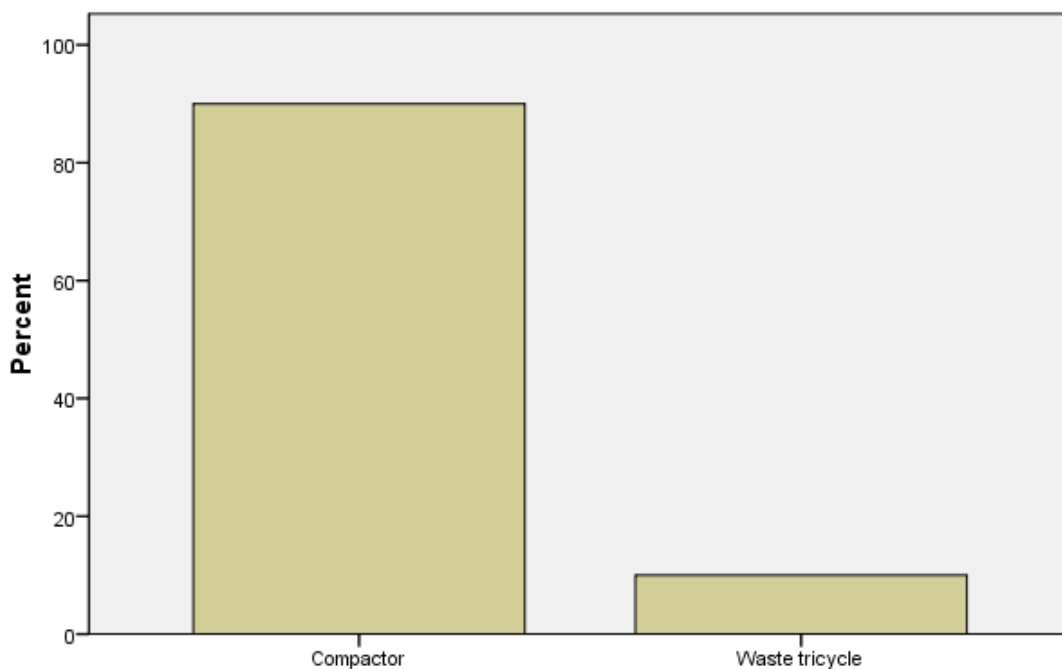
Source: Data Collection (Ablekuma North Municipality 2019)

Figure 9: Person responsible for waste collection and State of sanitation before and after waste collection company.

4.5 Activities and Challenges of Private Formal and Informal Waste Collection Companies

The figure 10 shows that the private solid waste collection companies interviewed had a majority of about 90% saying they collect the waste from the household with the compactor and 10% of them said they collect the solid waste with the tricycle. It therefore goes to show that the solid waste collection companies used more appropriate vehicles and containers for the solid waste collection and transportation. These vehicles are able to collect a large sum of solid waste to the final disposal sites.

How waste is collected from Households.

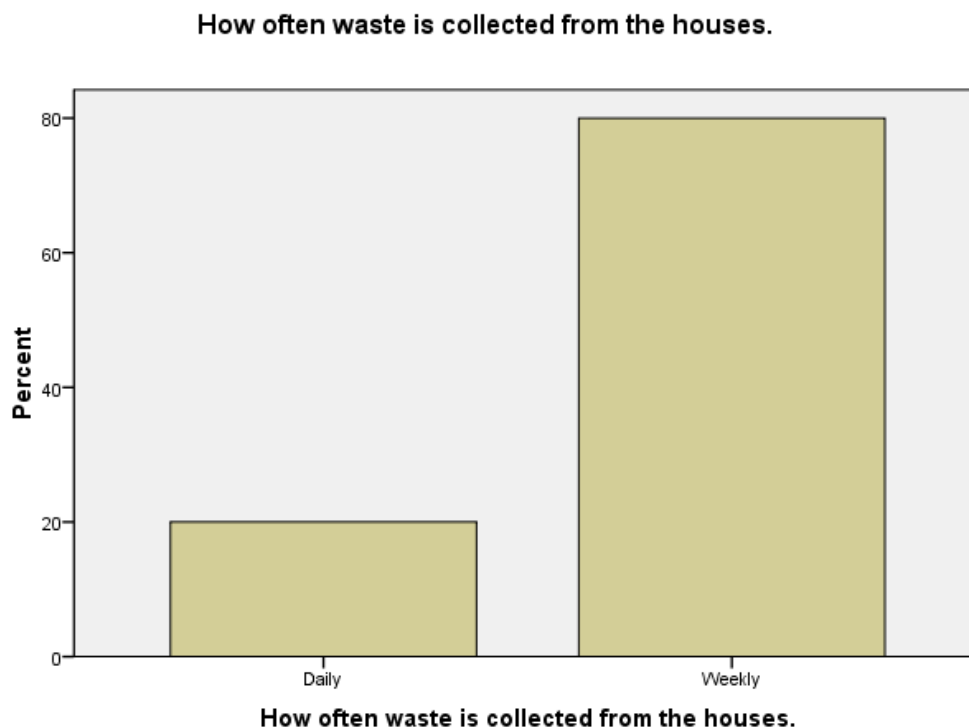


How waste is collected from Households.

Source: Data Collection (Ablekuma North Municipality 2019)

Figure 10: How Waste Is Collected from Households

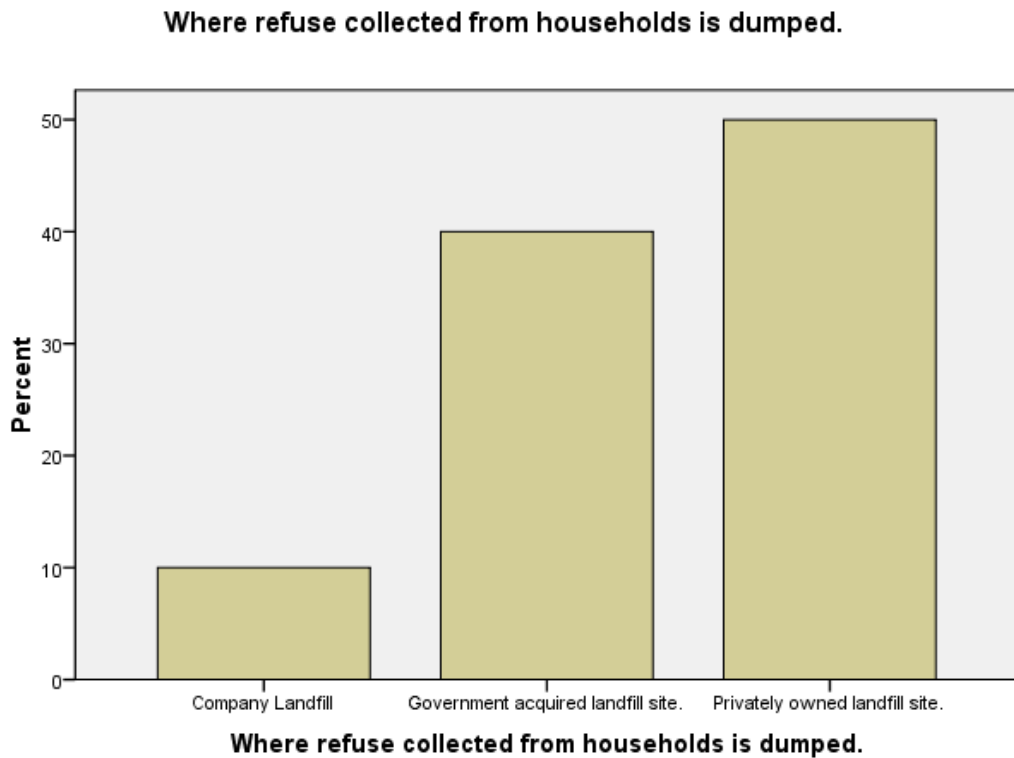
During the interviewing of the private solid waste collection companies, a majority of 80% of them said that they do the waste collection from the various households weekly and 20% said they do the waste collection daily from the households. This means that within the week the waste collection companies do visit the various households once in a week to collect the waste meaning that within a week the various households are visited once and the waste disposed of at the appropriate final disposal sites.



Source: Data Collection (Ablekuma North Municipality 2019)

Figure 11: How often waste is collected from the houses.

The solid waste collected from the various houses within the Ablekuma North Municipalities are carried by the various solid waste collection companies to different sites. 40% of the respondents said they send the wastes to a government approved site, 50% send it to a privately owned site and 10% send the waste to the company land fill sites. This is shown in Figure 12 below.

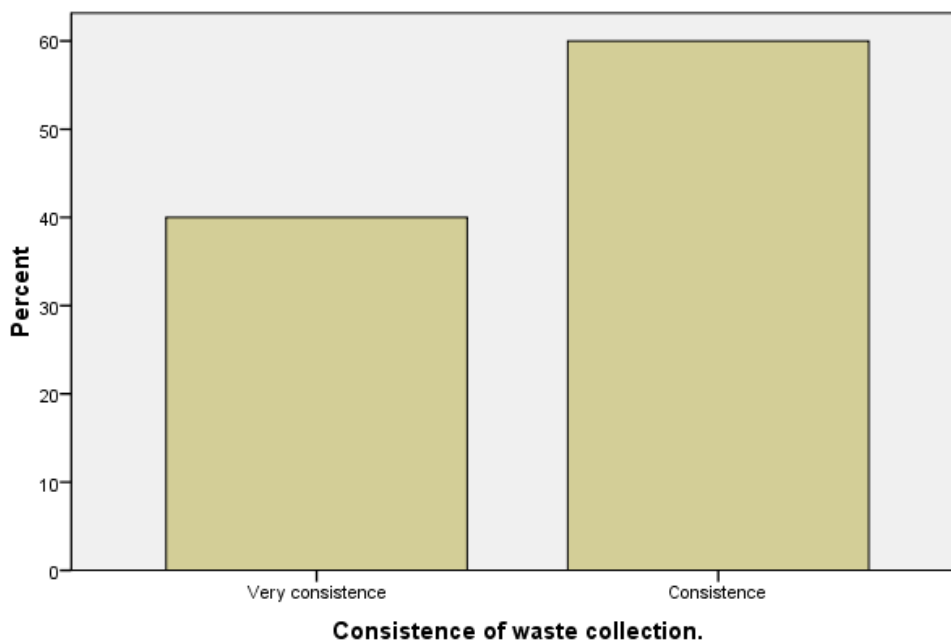


Source: Data Collection (Ablekuma North Municipality 2019)

Figure 12: Where Refuse Collected from Households Is Dumped

The solid waste collection companies had 60% of them saying that they have been consistent with their service in the municipality and 40% saying they have been very consistent as shown in Figure 13. This is in all most the same as said by the households interviewed (figure) where 58% of them said the work of the private waste collection companies has been consistent and 27% said their service has been very consistent.

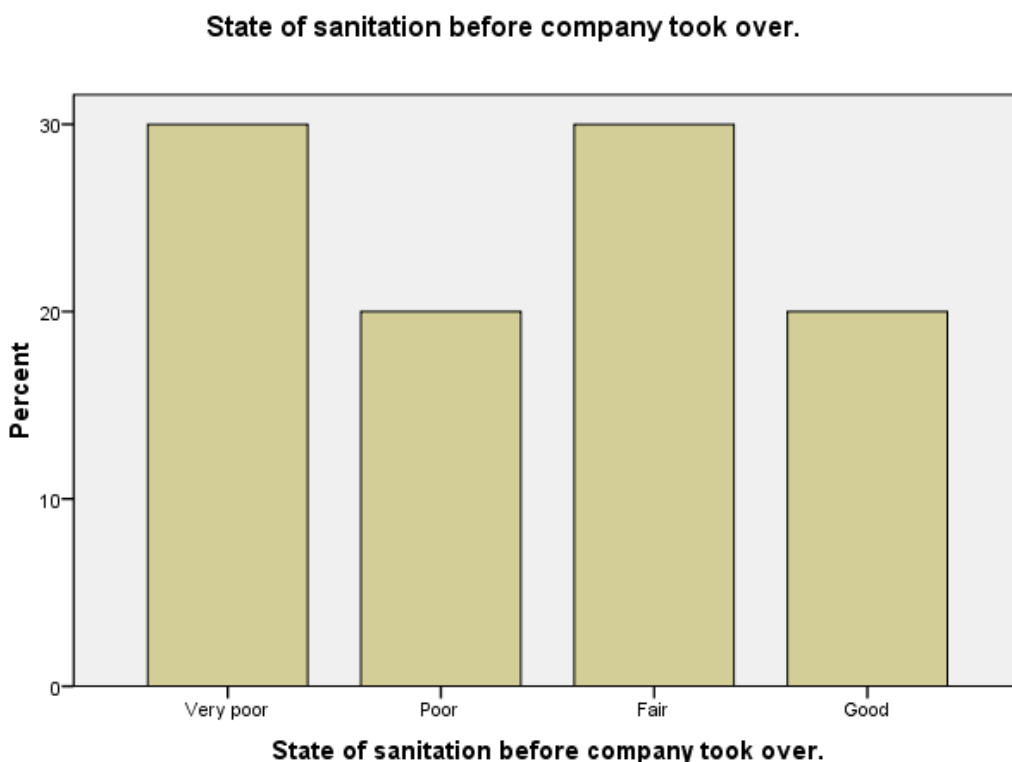
Consistence of waste collection.



Source: Data Collection (Ablekuma North Municipality 2019)

Figure 13: Consistency of Waste Collection

The figure 14 indicates that 30% of the respondents from the private solid waste collection companies said sanitation was very poor in the municipality before the company started working there, 20% said sanitation was poor, 30 % said sanitation was fair and 20% said sanitation was good before the companies took over waste management in the Municipality.

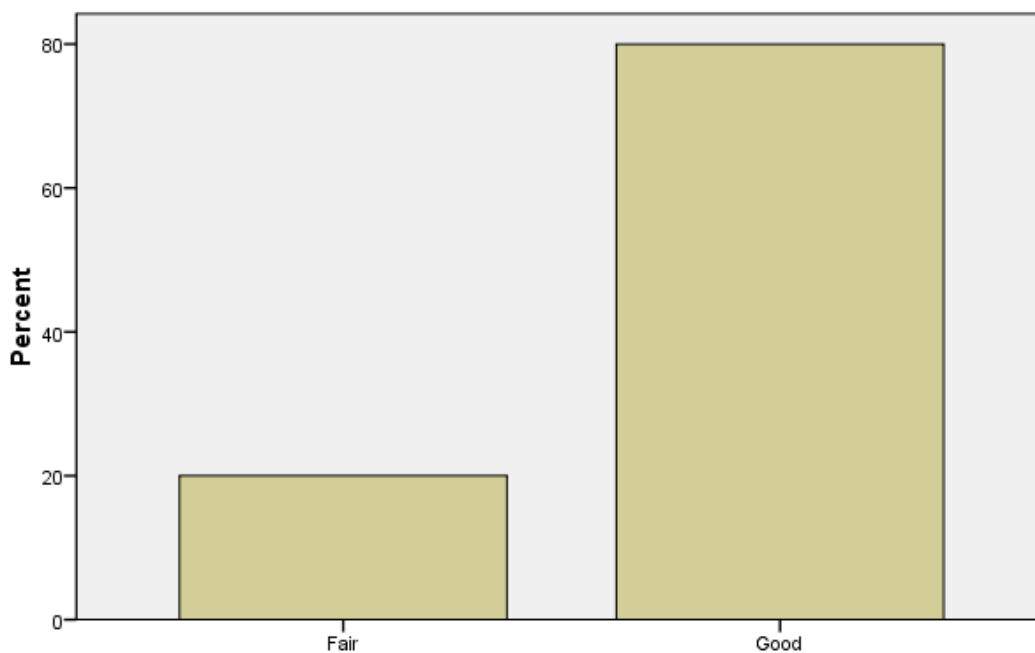


Source: Data Collection (Ablekuma North Municipality 2019)

Figure 14: State of Sanitation Before Company Took Over Waste Management.

80% of the respondents from the private waste collection companies said their service has been good since their operations in the municipality and 20% their service has been fair since their operation with regards to solid waste collection. This is seen in figure 15. In figure 8, the respondents in the households said the service of the waste collection companies is fair (53%), 22% said their service is good with 13% saying their service is poor. This means that the service of the waste collection companies has not been that bad, they have helped in tackling issues of sanitation in the Municipality.

Rate of quality of solid waste collection service in the Municipality.



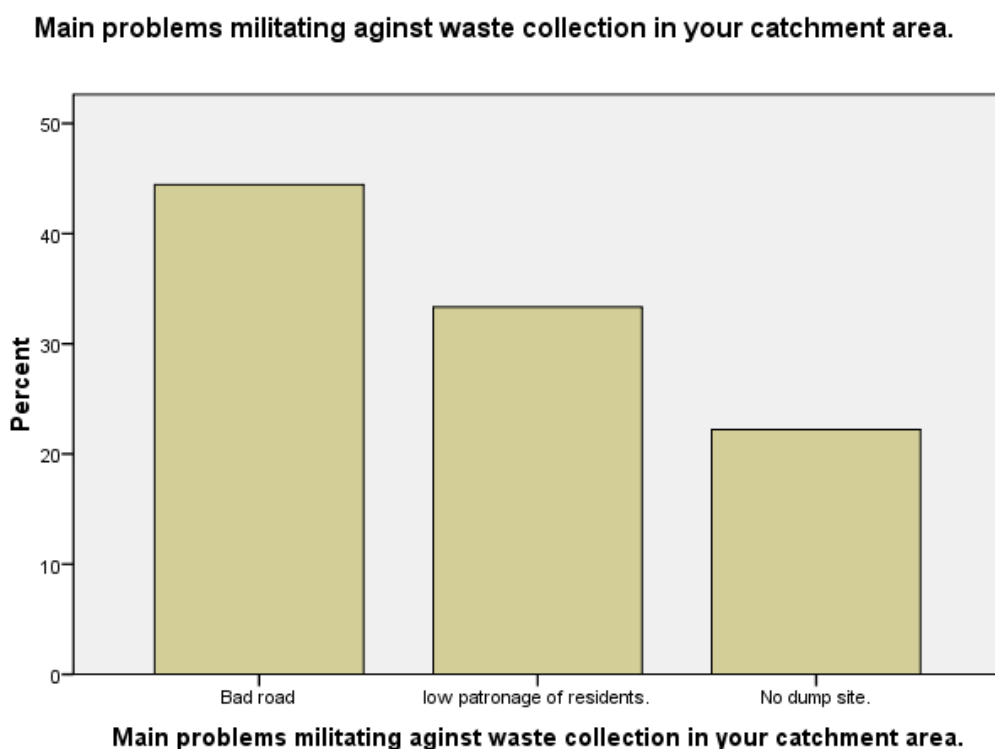
Rate of quality of solid waste collection service in the Municipality.

Source: Data Collection (Ablekuma North Municipality 2019)

Figure 15: Rate of Quality of Solid Waste Collection Service in the Municipality.

The Figure 16 shows that the waste collection companies are faced with some challenges that does not help with the smooth running of their service in the municipality. It can be seen that 44.4% of the respondents from the waste companies said the main challenge is bad roads in the communities where the wastes are collected from and also the roads leading to the disposal sites are also not in good shape. 33.3% said their main challenge is low patronage from community members and 22.2% also said there is no dump site in the municipality hence the trucks would have to travel a long distance to get to a dump site to dispose of the waste.

With all these challenges it is likely to affect their service delivery in the municipality and it is not surprising that the community members rated their services as fair (Figure 7 & 8)

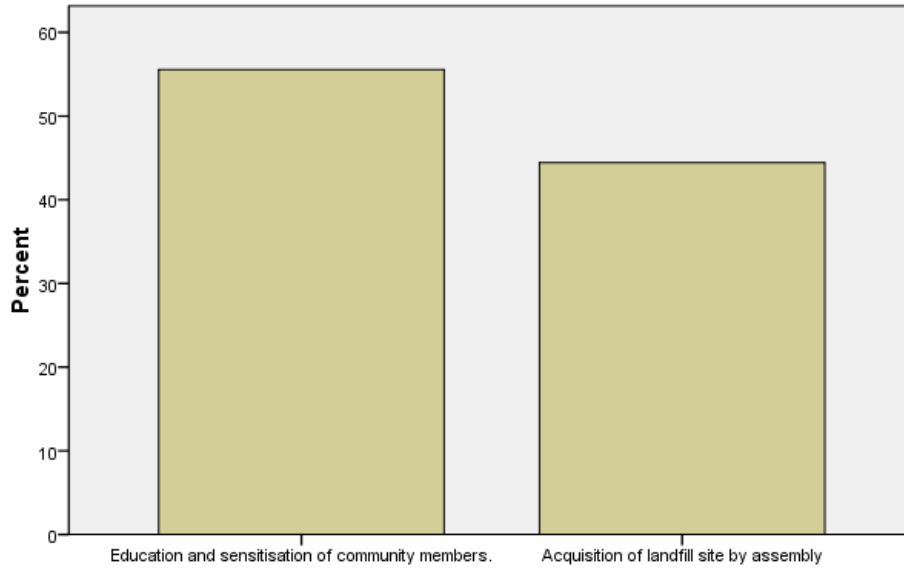


Source: Data Collection (Ablekuma North Municipality 2019)

Figure 16: Main problems militating against waste collection.

With the various challenges that the private solid waste companies face they have suggested some ways by which these challenges can be solved in order to help for an effective and quality service by the various companies. 55.6% of the respondents said there is the need for the community to be educated and sensitized on the need to register with the appropriate solid waste collection company to manage their waste and 44.4% of them said there is the need for the government and for that matter the Municipal Assembly to acquire a land fill site for waste collection within the municipality. This is seen in Figure 17.

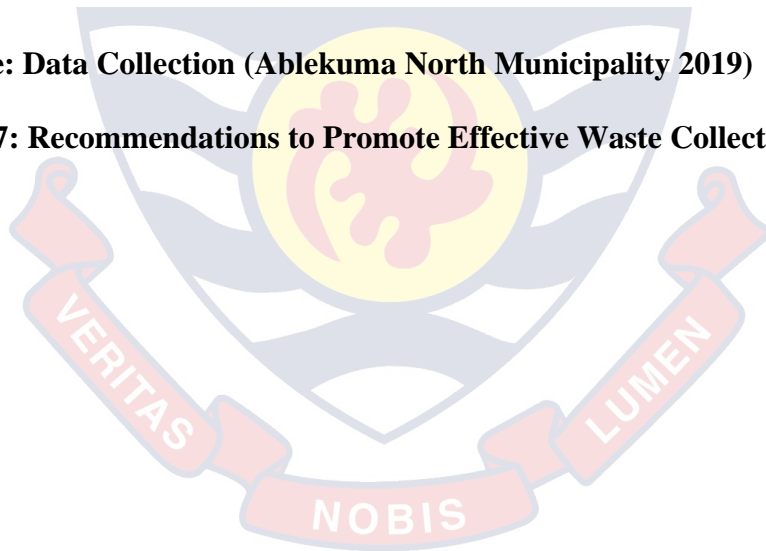
Recommendations to promote effective waste collection.



Recommendations to promote effective waste collection.

Source: Data Collection (Ablekuma North Municipality 2019)

Figure 17: Recommendations to Promote Effective Waste Collection.



CHAPTER FIVE

5.0 SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the results from the data collection and the analysis that were made from the discussion, some conclusions drawn from the analysis and recommendations made to help improve on the various challenges that were identified during the study.

5.2 Summary

The successful and sustainable management of solid waste is of paramount importance to every Metropolitan or District Assembly. Great lengths are gone to ensure that pragmatic measure are put in place for the achievement of this stride. Hence the engagement of the private sector in managing solid waste in the Ablekuma North Municipality. The assessment of the efficiency of the accredited private waste companies is dicey as illustrated by the statistics gathered from the survey conducted. The results of the data collected and the interviews conducted on the respondents from the various households showed that 41% of the respondents had attained secondary education, 29% had attained basic education, 10% had acquired vocational education and 19% had being educated to the tertiary level. Moreover, majority (55%) of the respondents interviewed were married, 37% were single, 5% were widowed and 3% were separated from their marriages.

In the area of the distribution of waste bins to households most of the respondents (41%) store their waste in bins with the majority (55%) storing their waste in sacks. This is a good sign since it is likely to help decrease the rate at which waste are disposed of indiscriminately and haphazardly in the communities. When people

have the knowledge on proper storage of their waste it is a big step in helping to solve issues of solid waste collection and disposal. The issue of interest is the type of container in which these solid wastes are stored and the ability of these containers to store the waste devoid of access to stray animals and other insects.

The study also showed that a majority of (89%) of the respondents are aware of waste separation. They could have had this knowledge through various means including the mass media like the radio stations and television station and also not forgetting the social media which has also become an important medium of transferring and sharing information. The demographic characteristics showed that all the respondents interviewed had attained some level of education and so therefore they can read on issues of concern and are also likely to be informed of issues when been discussed in either English or the local languages. They having the knowledge of waste separation is not enough.

The concern is with these people practicing waste separation to help with the management of waste at all levels from generation to final disposal. Majority (89%) of the respondents said that the wastes are separated for easy disposal and 4% said it is separated to know the type of management practice to use for the waste. There different types of waste management and so knowing the type of waste would help to identify the type of treatment process to use and the type of collection and where to dispose of the waste. Both sets of respondents are not far from where the waste needs to be separated.

It is also seen from the study conducted that most of the respondents (46%) are registered with the private informal waste collection entities(tricycle) for their waste collection and quite a number (41%) also registered with the private formal waste collection companies. The formal waste collection companies that operate in the

Municipality includes ASADU waste and Zoomlion company limited and the Alliance waste company. But the most widely patronized company is the ASADU waste collection company which collects most of the waste as compared to the other formal waste collection companies.

The tricycle operators in the Municipality keeps increasing and their activities cannot be overlooked. They have quit a number of the residents patronizing their services in the community. 72% of the respondents said their waste are collected once every week from their houses by the waste collection companies, 19% said the waste are collected once daily from their houses by the waste collection company to the final disposal sites and 7% of them said their collection is done a monthly basis from their houses. The frequency at which the wastes are collected is quite encouraging especially for the fact that majority do the collection on regularly basis. Most of the respondents (53%) from the households rated their services to be fair. Both the respondents at the households and the respondents from the various solid waste collection companies agreed to the fact that the service of solid waste collection companies in the Municipality has been good and their coming has helped improve sanitation in the Municipality.

Majority (90%) of the respondents interviewed from the waste collection companies said they use compactor in the collection of the waste from the various households and 10% said they use tricycle in the collection of the waste from the households that are registered with them to the disposal sites. These forms of transportation are the widely used form of transporting waste from a collection point or storage point to the disposal sites in most communities within the country and the operators in the Ablekuma North Municipality are no exception.

The waste collection companies also said that they collect the waste from the various households on weekly basis (80%) and 0% of them said the collection is done on a daily basis from the various households. The important issue is the fact that the wastes are collected from the various households on a regularly basis to prevent the solid waste from spilling all over the compounds causing nuisance and destroying the aesthetic beauty of the area and community which can also lead to the spread of diseases.

About 40 percent of the respondents from the waste collection companies said they dump the waste collected from the households at a government approved site, 50% dump their waste at a privately owned disposal site and 10% dump their waste at the company owned sites. The waste collection companies had 60% of their respondents saying they are consistent with waste collection from the various households to the disposal sites and 40% saying they are very consistent. This is seen in Figure 13 in chapter four.

Most (80%) of the respondents from the solid waste collection companies operating within the Municipality rated their service in the Municipality to be good and 20% of them said their service has been fair since their operation in the communities. The service of these companies cannot be overlook and this is because their service has been of immerse help to the Municipality and the country as whole.

Private sector solid waste management company operating in the Ablekuma North Municipalities faces a number of challenges which include: bad roads to some households and the final disposal sites low patronage of their services by the citizens and also unavailability of dump sites within the Municipality, for that reason they travel a long distance to dispose of the collected waste. These normally slows down their operational activities in the communities and affects their service delivery.

With these challenges the respondents from the solid waste collection companies suggested some solutions which they are optimized when implemented would help improve on their service delivery in the Municipality and the country as a whole. Most (55.6%) of the respondents suggested that education and sensitization of the community members should be done on regular basis to get them to patronize the services of the solid waste collection companies within the Municipality and also 44.4% of them also said that the Assembly should acquire a plot of land as a disposal site or the Assembly. This would help in easy collection and disposal of the waste from the household since the companies complained of having to travel long distance to dispose of the waste that are collected from the households.

5.3 Conclusion

Based on the results and discussions the following conclusions were drawn. The respondents interviewed have all attained some level of formal education and have some knowledge on issues of sanitation and health. They appreciate the introduction of the private waste collection companies within the Municipality and they have registered with either the formal waste collection companies like ASADU, Zoomlion Company Limited and Alliance Waste or informal company (Tricycle) to collect their solid waste from the household level. The services of these private waste companies were rated fairly by the respondents which shows that there is more room for improvement to help solve the sanitation issues in the Municipality. Also the respondents from the waste collection companies equally rated their service to be good and fair since their existence in the Municipality despite the challenges that they are faced with during their line of duty.

The collection of waste from the households has not been bad with a majority of the respondents saying that the collection is done on weekly basis and some on daily

basis which was the same when the respondents from the waste collection companies were also interviewed. This would help in the prevention of the waste from overflowing at the storage point creating an eyesore and also leading to the spread of communicable diseases.

The formal waste collection companies use compactor in the collection of the waste from the households to the dumping sites and the informal waste collection companies use tricycle in the collection of the solid waste from the households to the disposal sites and one issue with the operation of the informal sector is whether these boys actually send the waste to the appropriate disposal sites and not dump them just anywhere and leave without anyone noticing.

From the data collected it obvious that the introduction of the private solid waste collection companies has been of a great help to the Municipality in tackling issues of solid waste collection. They have help in collection of solid waste in the various households to the final disposal sites and improved on solid waste collection within the Municipality.

In their line of duty, the waste collection company is faced with some challenges which is not helping for an efficient service delivery in terms of solid waste collection in the Ablekuma North Municipal Assembly. Despite these challenges they have been able to improve upon the sanitation issues in the Municipality with regards to solid waste collection and disposal in the Municipality and these cannot be overlook when talking about sanitation in the Ablekuma North Municipality in the country. The Municipal Assembly need to address these challenges in order to help the private formal and informal waste collection companies to deliver effectively with regards to solid waste collection in the Ablekuma North Municipal Assembly.

5.4 Recommendations

From the findings and conclusions drawn, some recommendations have been made for the major stakeholders to help improve the solid waste management by making the private sector operators more accountable in the execution of their contractual obligations as well as the citizens to be more responsive to their duties.

For the Municipal Assembly

1. The public-private partnership between the Municipal Assembly and the private waste company should be reviewed to allow for more service providers to come on board to participate in the waste collection services since the company is not able to serve most of the households.
2. The accredited private company should be cautioned to improve upon the service delivery and stop the lackadaisical attitude towards the execution of its mandate, since the households complained on irregular and infrequent service delivery.
3. The Assembly should acquire a land for final disposal site or transfer stations to help improve upon the service of the waste collection companies to enhance consistency in their service delivery. This will address some of their challenges faced in service delivery.
4. Effective sensitization should be done to get the community members, institutions and offices to register and patronize the service of the private formal waste collection companies to improve waste management in the Municipality.
5. All the informal sectors waste collectors should be registered and be made to work under the formal company or a separate area be collected to them to

operate so as to regularize their operations to prevent them from dumping the collected waste at unauthorized places within and outside the municipality.

For the private sector:

6. The private company providing the house-to-house waste collection services should endeavor to register and provide the collection services to most of the residence in the municipality to expand the service coverage so that none would be left behind.



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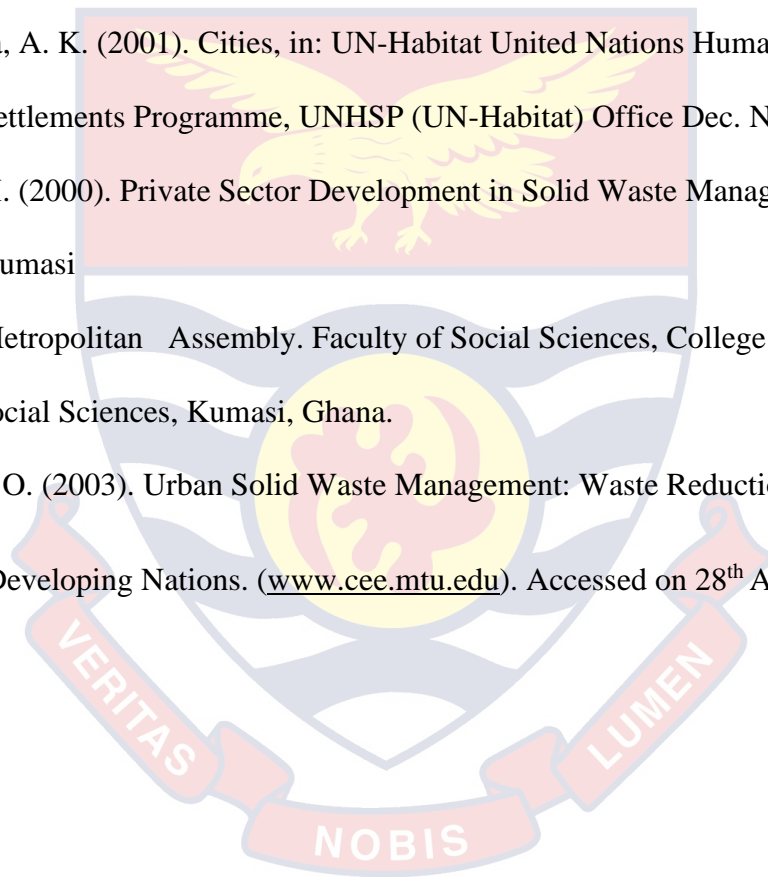
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APPENDIX A
Waste Service Delivery Market Study

Questionnaire for Beneficiaries (Households) of Solid Waste Service Delivery

Serial No:

PART A - DEMOGRAPHIC CHARACTERISTICS OF RESPONDENT

Interviewee's Address (Optional)	
Name of interviewee	
Gender	
Date of interview	
Location	
House number	

TICK THE APPROPRIATE ANSWER

A1 – Educational background	
<input type="checkbox"/> 01	Junior High School
<input type="checkbox"/> 02	Senior High School
<input type="checkbox"/> 03	Tertiary
<input type="checkbox"/> 04	Other

A2 - Marital status	
<input type="checkbox"/> 01	Married
<input type="checkbox"/> 02	Single
<input type="checkbox"/> 03	Divorced
<input type="checkbox"/> 04	Other

PART B - PUBLIC AWARENESS AND APPRECIATION OF WASTE COLLECTION SERVICE QUALITY

B1 -What is the size of your household?	
<input type="checkbox"/> 01	1 – 5
<input type="checkbox"/> 02	5 – 10
<input type="checkbox"/> 03	10 – 15

B2 -What type of storage container do you have?	
<input type="checkbox"/> 01	Waste bin with a cover
<input type="checkbox"/> 02	Sacks

<input type="checkbox"/> 03	Baskets
<input type="checkbox"/> 04	Others (specify).....

B3 -Who supplied you with your sanitary bins?	
<input type="checkbox"/> 01	Private Waste Company (ASADU)
<input type="checkbox"/> 02	Municipal Assembly
<input type="checkbox"/> 04	Others (specify).....

B4 – Where do you keep your waste bins in the house?	
<input type="checkbox"/> At the backyard	<input type="checkbox"/> At the kitchen
<input type="checkbox"/> At the gate	<input type="checkbox"/> Others (Specify)
<input type="checkbox"/> At the yard	

B5 - On average, how much waste does your household generate weekly?	
<input type="checkbox"/> Less than 1 bin	
<input type="checkbox"/> 1-2 bins	
<input type="checkbox"/> 3-4 bins	
<input type="checkbox"/> 5-6 bins	
<input type="checkbox"/> More than 6 bins	

B6 - Are you aware of waste separation?	
<input type="checkbox"/> Aware	
<input type="checkbox"/> unaware	

B7 – Why do you separate your waste?	
<input type="checkbox"/> 01 For easy disposal	
<input type="checkbox"/> 02 Know the type of management practices	

B8 - How do you dispose of your waste?	
<input type="checkbox"/> 01	Waste management company
<input type="checkbox"/> 02	Open pit at home
<input type="checkbox"/> 03	Burning the waste
<input type="checkbox"/> 04	Road side
<input type="checkbox"/> 05	Open dump
<input type="checkbox"/> 06	Other (Please specify)

B9 - Who is responsible for collecting your waste in your community	
--	--

<input type="checkbox"/> 01	Asadu
<input type="checkbox"/> 02	Zoom lion
<input type="checkbox"/> 03	Alliance
<input type="checkbox"/> 04	Others (specify)

B10 - How consistent is your waste collection company?	
<input type="checkbox"/> 01	Very consistent
<input type="checkbox"/> 02	Consistent
<input type="checkbox"/> 03	Inconsistent
<input type="checkbox"/> 04	Very Inconsistent

B11 - How often do you dispose of your house hold waste?	
<input type="checkbox"/> 01	Once daily
<input type="checkbox"/> 02	Once every week
<input type="checkbox"/> 03	Monthly
<input type="checkbox"/> 04	Others (Specify)

B13 - What was the state of your sanitation before and after the waste collection company took over?	
<input type="checkbox"/> 01	Very poor
<input type="checkbox"/> 02	Poor
<input type="checkbox"/> 03	Fair
<input type="checkbox"/> 04	Good
<input type="checkbox"/> 05	Very good

B13 - How will you rate the quality of solid waste collection service in the municipality?	
<input type="checkbox"/> 01	Very poor
<input type="checkbox"/> 02	Poor
<input type="checkbox"/> 03	Fair
<input type="checkbox"/> 04	Good
<input type="checkbox"/> 05	Very good

PART C - Fees

C1 - How often do you pay for the collection service?	
<input type="checkbox"/> 01	Daily
<input type="checkbox"/> 02	Weekly
<input type="checkbox"/> 03	Monthly
Others? Specify	

C3 - How do you rate the existing tariff?	
<input type="checkbox"/> 01	High
<input type="checkbox"/> 02	Moderate
<input type="checkbox"/> 03	Low / Affordable

C4 - How much are you willing to pay per month for solid waste collection?	
<input type="checkbox"/> 01	For communal collection, GH¢
<input type="checkbox"/> 02	For door-to-door collection, GH¢



APPENDIX B
Waste Service Delivery Market Study
Questionnaire for Waste Collection Companies

Serial No:

PART A - DEMOGRAPHIC CHARACTERISTICS OF RESPONDENT

Interviewee's Address (Optional)	
Name of private waste collection company	
Coverage area (Name of municipal covered)	
Date of interview	
Location	
House number	

PART B - MEANS OF SOLID WASTE COLLECTION AND DISPOSAL

B1 - How do you collect waste from households?	
<input type="checkbox"/>	Compactor
<input type="checkbox"/>	Waste Taxis
<input type="checkbox"/>	Waste Tricycles

B2 - How many houses does the compactor vehicle go to before it is full?	
<input type="checkbox"/>	50 – 100
<input type="checkbox"/>	100 – 150
<input type="checkbox"/>	150 – 200
<input type="checkbox"/>	200 – 250
<input type="checkbox"/>	Above 250

B3 - How often do you collect the waste from the Houses?	
<input type="checkbox"/> 01	Daily
<input type="checkbox"/> 02	Weekly
Others? Specify	

B4 - Where do you dump the refuse collected from the households?	
<input type="checkbox"/> 01	Company Landfill site
<input type="checkbox"/> 02	Government Acquired Landfill site
<input type="checkbox"/> 03	Privately owned Landfill site

B5 - How many times can a vehicle collect waste to the disposal site in a day?	
<input type="checkbox"/> 01	Once
<input type="checkbox"/> 02	Twice

□03	Thrice
-----	--------



PRESBYTERIAN UNIVERSITY COLLEGE, GHANA

FACULTY OF DEVELOPMENT STUDIES

Name of Department: Environment and Natural Resource Management

Programme of Study: MSc. Environmental Health and Sanitation

Topic: Evaluation of The Efficiency of Private Solid Waste Management in Ablekuma North Municipal Assembly.

Name of Student: Harriet Krakue

Student's ID: 1803005

RESPONSE MEMO

NO	COMMENTS	STUDENT'S RESPONSE TO COMMENTS
EXAMINER		
Suggested corrections in thesis in red pen		
1.	Abstract <ul style="list-style-type: none"> Remove 'research' from sentence in first sentence. Write figure '20' in words. 	<ul style="list-style-type: none"> 'research' removed from sentence in first sentence Figure '20' written in words.
2.	Acknowledgement <ul style="list-style-type: none"> Correct the word 'immerse' 	<ul style="list-style-type: none"> 'immerse' corrected to 'immense'
3.	Chapter one <ul style="list-style-type: none"> Indent paragraphs throughout the work. 	<ul style="list-style-type: none"> Paragraphs indented throughout the work.
4.	Chapter two <ul style="list-style-type: none"> Section 2.9, page 22, paragraph the page. 	<ul style="list-style-type: none"> Page paragraphed.
5.	Chapter three <ul style="list-style-type: none"> Section 3.2, page 26, 'map not eligible'. 	<ul style="list-style-type: none"> Map made eligible.
6.	Chapter four <ul style="list-style-type: none"> Section 4.2, page 30, provide 'table 1' 	<ul style="list-style-type: none"> Table 2 change to table 1
7.	Appendix A <ul style="list-style-type: none"> Page 62, provide guidelines and instructions. 	<ul style="list-style-type: none"> Guidelines and instructions provided.

Declaration by Candidate:

I declare that I have attended to and incorporated the comments made by the examiner in the dissertation.

Name of Student: ...Harriet Krakue

Signature:

Date:.....

Approved by:

Name of supervisor: Dr. Richard Amfo- Otu

Signature:

Date:

