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Thesis

Title: THE EFFECTS OF PSP REGULATION ON SOLID WASTE COLLECTION METHODS AND QUALITY OF SERVICE DELIVERY. A CASE OF NIMA EAST-ACCRA

Name: Valentina Tereshkova Armah

Supervisor: Ms. Julia Skinner MSc.

Specialization: Managing and Financing Urban Infrastructure (MFUI)

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Title

The effects of private sector participation regulation on solid waste collection methods and quality of service delivery.

A case of Nima East-Accra

UMD 12

Name

Valentina Tereshkova Armah

Country

Ghana

Supervisor: **Ms. Julia Skinner MSc.**

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Summary

This study focused on Private Sector Participation in Solid Waste Collection in Nima East. The main objective of the study was to explain the effect of PSP regulation on solid waste collection methods and quality of service delivery in Nima East. The study made emphasis specifically on Solid Waste Collection Methods, Quality of Service Delivery and Private Sector Participation Regulation.

To achieve the objective indicated earlier above, the study adopted the use of both qualitative and quantitative methods and a single case study approach. Secondary and primary sources of data were used in addition to observation. Municipal assembly officials and private sector waste collection officials views were solicited in in-depth-interview technique. The use of survey was employed for user perspective and inputs. The study found that solid waste collection by private companies in Nima had generally been successful, thus an improvement in quality of service delivery, though a lot more is required in terms of consistency of solid waste collection, implementation of user feedback mechanisms and creation of awareness campaign as stipulated in contracts agreements.

It was established that, effective and efficient implementation of PSP regulation solid waste collection by private sector in Nima depends on a number of factors including existing relevant policies, its implementation, monitoring and enforcement as well as adequate municipal capacity. The study found challenges such as non-enforcement of bylaws, inadequate supervision and lack of monitoring of service delivery by the Assembly due to lack of human and financial capacity. It was also established that outsourcing of Solid Waste Collection contracts was not entirely transparent.

Study findings revealed that the attainment of quality of service delivery in Solid Waste Collection by private sector and efficiency in collection methods depends on the existence of private sector participation regulation, implementation/enforcement of regulations and contract terms as well as adequate municipal capacity.

The study recommends the need for strict enforcement of byelaws, increased transparency in outsourcing, improved resources and manpower training for assembly staff, as well as clear administrative structures devoid of political influence.

Keywords

Private Sector Participation

Regulation

Solid Waste Collection

Nima East

Good Governance

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Dedication

This research paper is dedicated to my late father Joe K. Armah, I know you will be happy, you wished for this day, and God has been good. Also, to my entire family for their support and encouragement.

Abbreviations

HIS	Institute for Housing and Urban Development
AMA	Accra Metropolitan Assembly
ESP	Environmental Sanitation Policy
EHD	Environmental Health Department
FPBSWCP	Performance Based Solid Waste Collection Program
ISWM	Integrated Sustainable Waste Management
MSW	Municipal Solid Waste
MSWC	Municipal Solid Waste Collection
MLGRD	Ministry of Local Development and Rural Development
MMDAs	Municipal, Metropolitan and District Assemblies
PSI	Private Sector Involvement
PSP	Private Sector Participation
SWC	Solid Waste Collection
SSWM	Sustainable Solid Waste Management
UNECE	United Nations Economic Commission for Europe
UNOP	United Nations Office of Project Offices

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Chapter 1 Introduction

1.1 Background

'A good solid waste management system is like good health: if you are lucky to have it, you don't notice it; it is just how things are, and you take it for granted. On the other hand, if things go wrong, it is a big and urgent problem and everything else seems less important' (UN-Habitat, 2010).

Globally, Solid Waste Management (SWM) has been a major developmental concern due to its health, social, environmental and economic negative effects. As population increases, generation of waste increases, implying the need for more efficient waste management systems. Solid waste generation is extensively connected to urbanization and economic development because as countries increase in population, their affluence equally increases. This has direct influence on variation in consumption of goods and services, reflecting a corresponding upsurge in the amount of waste generated worldwide. It is estimated that, an average of 1.3 billion tonnes of Municipal Solid Waste (MSW) is generated worldwide each year and anticipated to increase to 2.2 billion tonnes per year by 2025(World Bank, 2012). (Apinhapath, 2014) is of the opinion that, internationally, SWM is one of the critical issues affecting municipalities in developed and developing countries. According to Klundert and Anschütz, (2001) the management of solid waste comprises main activities such as the generation, storage on-site, handling, collection, transport and transfer, separation, resource recovery, treatment and disposal of solid waste. In their view, these functional components necessitate suitable organizational planning, policies and management to enhance desired quality of service. SWM is viewed as one of the essential services municipal authorities provide in low and middle-income countries and remains the biggest single budget item for most municipalities globally as well as being one of the leading sector of employers (World Bank, 2012). Literature establishes that issues influencing SWC systems comprise lack of requisite skills among employees of municipalities ((Apinhapath, 2014), Goel (2006), non-existing formal regulation Moghadam, Mokhtarani, et al., (2009) the use of obsolete equipment and vehicles (Henry, Yongsheng, et al., 2006). Other researchers are of the opinion that the enforcement and manipulation of existing national and municipal government's regulation directly impacts solid waste collection processes and behaviour thus relevant SWM regulation determinants of a successful solid waste collection system. They further assert that, a fair and transparent implementation of relevant regulation or arrangements and the level of enforcement impacts Solid Waste Collection (SWC) methods (Gombya and Mukunya, 2004; Seng et al., 2010). On the other hand, (Henry, Yongsheng, et al., 2006) argues that, the involvement of inhabitants in active SWM system enhances a better service delivery.

Governments and municipal authorities in Africa faced with rapid growth in population are challenged with the effective and efficient management of Solid Waste (SW) generated. Municipal authorities are confronted with ever-increasing problems relating to the collection and disposal of SW; hence over one-half of SW generated in cities in Africa are not collected and disposed appropriately. It has been established by (Coffey and Coad, 2011),that urban population in Africa increases daily by over 150,000, this upsurge combined with economic development, shabbily planned cities and urbanization, in the view of (Al-Khatib, M, et al., 2010) these are contributing factors to increase in the generation of municipal solid waste in Africa. This requires additional competence and capabilities in the organization of waste generated; however, municipal authorities in Africa are helpless and woefully limited in capacity, it is therefore a common occurrence in many African countries to see on-sight solid

waste management problems such as poor service coverage, irregular waste collection, overflow of garbage from bins and storage containers, indiscriminate disposal at public places and waste cluttering. (Oduro-Kwarteng and Dijk, 2013). These practices contribute to environmental pollution and degradation, as well as contribute to health problems of communities. The effects of uncollected waste within municipalities are massive and Africa is largely faced with urban environmental health issues associated with solid waste management (UN-Habitat, 2010). Non-existing and non-adherence to institutional arrangements are mentioned by some researchers as reasons for poorly organized solid waste management services in most municipalities in developing countries(Marshall and Farahbakhsh, 2013). Other researchers have attributed these inefficiencies in the management of SW services to monetary and institutional limitations of municipalities (Zhu, Asnani, et al., 2008). However, some scholars found that, the problem of insufficiencies in solid waste service provision in developing countries are as a result of policy makers' failure to recognize waste administration as a priority (Yousif and Scott, 2007) . Yousif and Scott, (2007) further articulates the need for sufficient stakeholder contribution from the initiation and policy formulation stage by soliciting for users' opinions and engaging them in regular discourse on waste problems for a well-informed populace that identifies with being part of the process of established municipal rules and having shared responsibility to ensure it's workable (Yousif and Scott, 2007). On the other hand, some researchers argue that, on paper, developing countries have numerous policies that aims at confronting negativities associated with waste collection, but its enforcement remains the main challenge for municipalities (Al-Khatib, M, et al., 2010, Henry, Yongsheng, et al., 2006) Henry et al., (2006), similarly agrees that, lack of enforcement of rules and regulations by appropriate authorities contribute extensively to the shortfalls in solid waste collection in most African countries (Henry, Yongsheng, et al., 2006).

Ghana likewise other African countries is not exempted from the problems mentioned above and equally faced with numerous difficulties in managing well solid waste generated by citizens, this according to Oduro-Kwarteng et al. (2006) is as a result of estimated high cost involved in planning and running efficiently solid waste management systems and the fact that the waste sector competes with other equally essential services such as health, education and roads by the public sector, which incapacitate public sector performance in waste services. SWM service delivery is the responsibility of local authorities, however, lack of sufficient funds and adequate municipal capacity necessitated Private Sector Involvement (PSI) in SWC service delivery in Ghana (Kassim and Mansoor, 2006). SWM services in Ghana, was solely the obligation of local government authorities until in the 1990s, the government through a World Bank project (1996) and influence recognized private sector involvement (PSI) in SWC viable. According to Local Government Act (462) the Ministry of Local Government and Rural Development (MLGRD) is accountable for SWM policy formulation, legislation, regulation, monitoring and enforcement; however, municipal assemblies are responsible for the implementation of these roles.

In an attempt to alleviate numerous environmental difficulties confronting the country, the MLGRD in collaboration with major stakeholders in waste management sector reviewed the 1999 Environmental Sanitation Policy (ESP), which outlines arrangements for private sector participation in SWM and the focus of this paper, to befit prevailing circumstances. The revised ESP 2010 which was ratified by cabinet in March, 2010 and launched in November, 2010 entails PSP in SWM regulations and arrangements aimed at enhancing quality service delivery. The ESP outlines as it main focus areas capacity building, regulation and legislation, levels of service attainment, financing and cost recovery in PSP in waste management.

Researchers are of the opinion that, private sector contribution alone is not supposedly solution to difficulties encountered in solid waste service delivery, rather, a practical project application mechanism for a preferred solution options which may fail in the circumstance where no adequate municipal regulation exist and non-enforcement of rules and regulations from the onset during and after contract award. The realization of solid waste collection desired service level could possibly be attained when public and private partners have enough capacity to perform required duties and responsibilities (UNESCAP, 2011). The ESP in relation to PSP in SWM obligates local government authorities to award SWC contracts to private sector companies transparently through competitive bidding whilst ensuring adherence to existing rules and regulations during and after contracts awards. (Oduro-Kwarteng, 2011) is of the opinion that, SWC regulation aims at stimulating competition through lawful restriction, guiding rules and controls regarding service provision, being sensitive to user needs, ensuring collection companies merits required operational capacities and maintenance of standards. In outsourcing solid waste collection to companies to enhance level of service desired, municipalities must conduct consistent monitoring of value of service provided by private sector, enforce and penalize non-compliance of existing procedures and agreement. For municipalities to be able to perform above mentioned, duties, municipalities must themselves have sufficient human and financial resource capacities as well as be guided in their operations by rule of law (Oduro-Kwarteng, 2011)

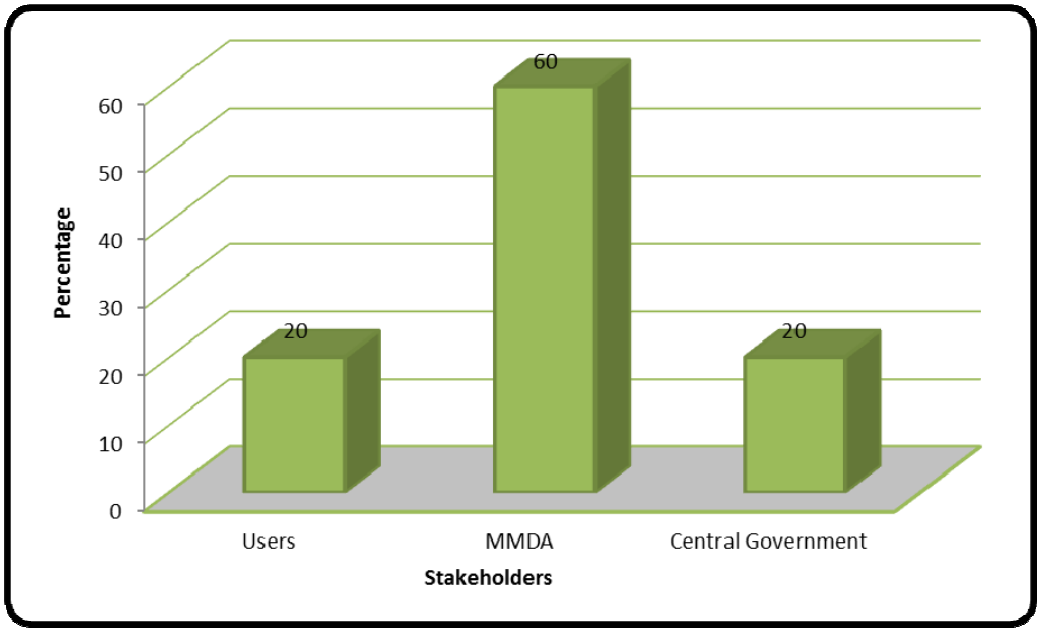
1.1.2 Problem Statement

According to a study by World Bank, (2010) SWC continues to be a critical problem in Accra the capital city of Ghana, and represents one of the major problems facing authorities in the Accra Metropolitan Assembly (AMA).This has always resulted in clogging of storm drains. The current population of over 1.7 million generates about 2,000 metric tons of solid waste each day, out of which only 1,200-1,300 tons are properly collected and disposed in the metropolis (AMA 2009). Some researchers mention non-availability of funds for acquisition of proper waste vehicles, equipment, maintenance and expenditure as key problems associated with SWC methods. The use of improper vehicles in cities usually contributes to littering and indiscriminate dumping (UN-Habitat, 2010, Annepu, 2012). This is particularly prevalent in low income areas like Nima, an urban poor community in Accra.

The Accra Metropolitan Assembly (AMA) is the authority responsible for the provision of SWM services in the Accra Municipality under which study area falls, however, with the involvement of private sector in SWC, there was zoning of the city into SWC zones to ensure collection companies operates in properly defined collection zones, Nima thus falls administratively under the Ayawaso East Sub-Metro.

Until late 1990s, AMA was the sole service provider for waste collection in the Accra metropolis, and services provided was virtually free, however, through a National Sanitation Policy, SWC services was outsourced to private companies in late 1990s (MLGRD, 2010). PSP in solid waste collection notwithstanding, local government authorities continued to invest huge sums of monies in evacuation and waste collection programes to clean the city of accumulated refuse in open places.

Chart 1: Financial Burden on MMDAs and Government



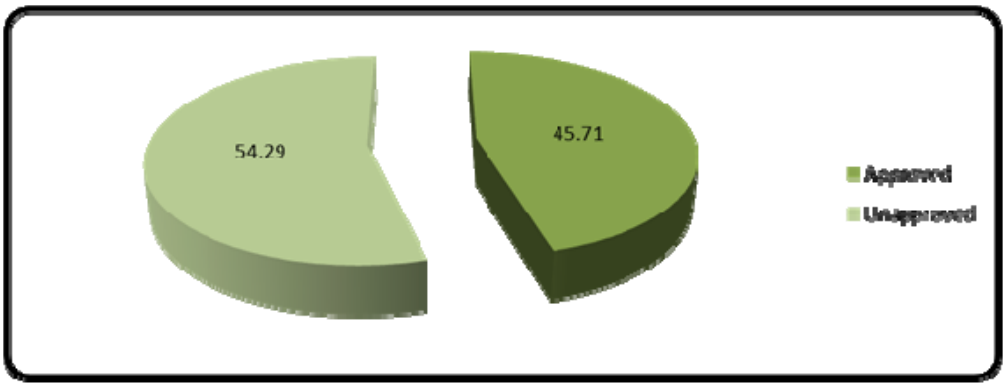
Source: Source: AMA Report 2009

In 2012, the national government which was a source of funding for such solid waste evacuation programs opted not to fund municipal SWC activities any longer; the AMA thus introduced a "polluter-pays" system indicating the use of appropriate regulation to increase revenue (full cost recovery) for financing SWC as well as improve service delivery. In line with its implementation, as mentioned above, the municipality was zoned into sub-metros to facilitate the application of polluter pays concept to achieve quality of service delivery in SWC in the metropolis.

The main objective of the Polluter Pay system which is related to a program known as Fee and Performance Based Solid Waste Collection Program (FPBSWCP) is for all households, hospitals, institutions and commercial entities to be registered with accredited or contracted AMA private waste collection companies for provision of waste bins and regular waste collection from their various premises at a fee. Households making use of communal container collection are equally required to pay a fee as and when they dump refuse (WMD/AMA, 2010). The implementation was to ensure that households are responsible for waste generated and to recover cost for collection. This concept, the ESP clearly states should be guided by appropriate and relevant.

Nima East which is the area of research, a community within Ayawaso East sub-metro, located about five miles away from the city centre and densely populated with over 45, 000 inhabitants migrating from different ethnic groups but largely people from the northern parts of Ghana and neighbouring West African countries is affected by poor SW collection system. A situation where the people of Nima, largely dispose of refuse indiscriminately develops an atmosphere for breeding of mosquitoes which endangers human health. People dispose of rubbish generally in watercourse, drainage channels, through burning and at public places. Huge piles of refuse and overflowing refuse containers are seen closer to markets, in gutters and in front of houses with the stench emanating from uncollected and decaying garbage posing health risks to the people (Annepu and Themelis, 2012).

Chart 2 percentage of approved and unapproved dumping in Nima East



Source: DESSAP Report, 2009

In line with the implementation of the polluter pay system by AMA, waste containers were to be placed in households and around places in the Nima and levied in a polluter pay collection system, to help resolve the problem of dumping of refuse any how in Nima East. It is argued by residents and a visibly clear scene on sightseeing, the problem of waste accumulation in heaps on streets, markets, gutters, spill over from bins and littering of garbage at most public places, which continues to remain dominant issue of discourse by both electronic and print media on daily basis.

Picture 1: Real Situation in Nima

Source: Google online

Could this be attributed to non-enforcement of PSP regulation as literature suggests? What does the laws if they exist stipulates? Or could it emanate from the process of outsourcing to private companies? Could this problem of indiscriminate dumping of garbage in Nima East be attributed to sheer human attitude on the part of the people or municipal laxity in its obligations of law making, implementation and enforcement of existing regulations as opined by most researchers or as a result of some other existing factors? This is the dilemma the study seeks to explain. In view of issues discussed above it is important for the study to discuss the effects of PSP regulation and its implementation on SWC methods and quality of service delivery in Nima East.

Nima is chosen for this study due to its description as the largest slum within the city centre inhabiting quiet a huge number of the city's poor compounded by SWC problems. The study however, focuses on Nima East, which is recognized by AMA as the densest in population and deprived part of Nima challenged with SWC problems (Owusu et al. (2008).

1.1.3 Research Objective

Research Objective

The main objective of the study is to explain the influence of PSP regulation on solid waste collection and quality of service delivery in Nima East.

1.1.4 Provisional Research Question

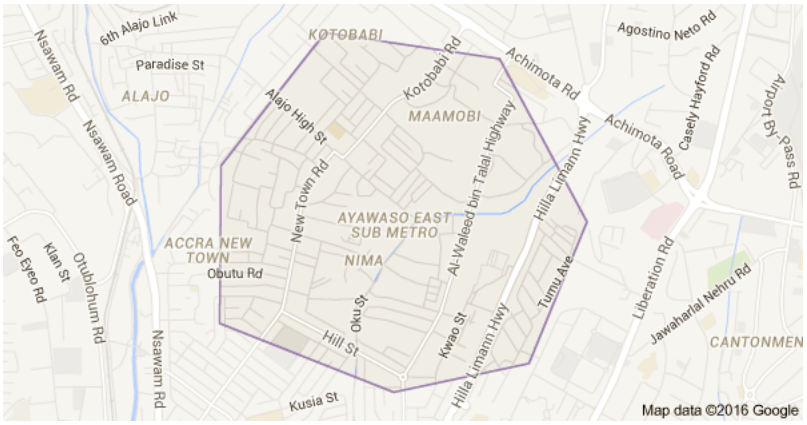
The main research question is "to what extent does PSP regulation influence solid waste collection methods and quality of service delivery in Nima East"?

Sub Research Questions

To answer the main research question, the sub research questions of this study are;

1. Which PSP regulation is in place and implemented to enhance solid waste collection in Nima East?
2. What are the current solid waste collection methods in Nima East?
3. How is the performance of the service delivery monitored and measured?

Map 1: Indicating Study Area



Source Google

1.1.5 Significance of Study

There have been different studies across the world about solid waste management in general, and these studies have suggested different solutions in improving solid waste collection inadequacies; however, the challenges of SWC continues to be one of the most pressing problems in Ghana, particularly in the Accra Metropolitan Assembly. In view of this, the study looked into regulatory issues associated with PSP in solid waste collection to explain the complex institutional problems associated with PSP in solid waste collection and how it impedes attainment of quality of service delivery. This study is relevant, in that, it serves as a reference for policy makers, government, private waste management institutions and indeed all stakeholders in waste management who seek efficiency in SWM. It could be used as inputs for plans in preparation of future policies regulating Private Sector Participation in SWC as well as policy guidelines. The study finally makes recommendations to supplement government effort to help improve sanitary conditions in the Accra Metropolitan Assembly and indeed contribute to finding solutions to make the capital city clean. AMA and Nima East was the focus of this study not only because it is the capital city and presumably faced with enormous SWC problems, but also due to the fact that it remains a priority for both government and citizens.

1.1.6 Scope and Limitations

Solid waste management is a broad area of study, this study thus focused on an aspects being collection and how PSP regulation and institutional arrangements influence SWC methods and service delivery in NIMA at the community and household levels. The study area, Nima East, was influenced by the scope of study, availability of time for data collection, access to data and cost to be incurred during data collection. In general the study looked at existing PSP regulation, its implementation and effects on solid waste management from the point of collection. As a result of very limited time and resources available, the study was limited to Nima East, a community within the Ayawaso Sub Metro faced with waste collection challenges against other communities in the metropolis equally facing SWM problems.

Chapter 2: Literature Review / Theory

2.1 Introduction

In this chapter of the study, the concept of good governance related to attaining desired level of service in solid waste collection based on key principles of good governance will be reviewed. Good governance in solid waste collection (SWC) means procedures and actions taken by local authorities and how these actions are taken to attain quality of service delivery. This includes existence of clear regulations, institutions and their ability to translate existing policies into actual implementation and enforcement (UNECE, 2008). This chapter also reviews state of the art existing knowledge related to the study area to give a fair understanding and better insight of different perspectives into issues related to regulation in SWC and quality of service delivery.

2.2 What is Solid Waste?

Waste has entirely different meaning for different people, depending on who uses and needs it at what point in time. Waste may be undesirable for the user who no longer values or needs a product therefore throws away, this product may be useful to a different person or group of people under different circumstances or probably different culture. What is considered waste by a particular group of people could as well be valuable to another, for instance some industries depend on waste and discarded materials such as paper and metals for manufacturing purposes. Integrated sustainable waste management (ISWM) considers waste as both useful and harmful material that could be utilized as sources of income particularly by the deprived in society or urban dwellers (Klundert and Anschütz, 2001). The use of waste differs in theory and could be described in diverse ways (Pongrácz, 2009) there is therefore no one way of labelling solid waste, this is affirmed by (William, 2013) that, waste is mostly classified depending on the kind of waste being considered. Some of the prevailing forms of waste comprises; residential waste, community waste, hazardous waste and electrical related waste. Waste can also be categorized into two forms namely liquid and solid waste. This paper however focuses on domestic solid waste.

Domestic solid waste originates solely from locations largely used for housing purposes; recyclable and non-recyclable things could be part of this type of waste however, harmful waste cannot be included (Chitapi, 2013). (Hosetti, 2006) views domestic solid waste as all forms of unwanted solid that is not in gas or liquid form. Solid waste generated in developing countries continues to increase as a result of constant economic development and improved living standards which in effect increases consumption of goods and services hence an upsurge in per capita generation of solid waste. This in addition to urbanization significantly increases solid waste generation in most developing countries (Minghua, Xiumin, et al., 2009). Municipalities in low income countries are thus enormously challenged with the management of continuous increase in volumes of solid waste (SW) produced in their cities. This inefficiency to manage SW generated is attributed to weak institutional structures, poor services, insufficient financing and lack of environmental controls (Klundert and Anschutz, 1999). Other researchers posit that lack of resources to purchase and maintain suitable SWC equipment affects SWM and therefore collection methods (UN-HABITAT, 2011). Some scholars however differ in opinion, and argue that, human behaviour is at the centre of waste problems thus to attain any success in waste management and collection methods, requires change in behaviour (Milea, 2009). (Plummer, 2002) mentions that failure by most municipalities, particularly in Africa, to deliver efficient municipal waste collection services calls for private sector participation, upholding that private sector is well resourced financially, economically and has enough administrative capacity needed for provision of

quality service. PSP in SWM though preferred by many researchers to provide better quality of service compared to the public sector delivery of waste management services, to ensure quality of service delivery, roles and regulations must be clearly defined, adhered to and enforced in a transparent manner by municipalities (Oduro-Kwarteng, 2011). Other researchers similarly suggest that, the management and control of waste generation requires appropriate legislation and clear implementation of relevant policies (Davidson and Welsh, 2011), in line with good governance practice.

2.3 The Concept of Good Governance in SWC

The concept of good governance in SWC in this context relates to the streamline of institutional structures and actors involved in the implementation of policies and provision of SWC services to enhance appropriate execution of PSP agreement in SWC service delivery. (Pierre & Peters, 2000 ; B.C. Smith, 2007). Researchers opine that, the attainment of quality of service delivery in SWC is an indicator for assessing good governance in cities (Bhuiyan 2010), since good governance practice in SWC service delivery requires existence of unambiguous policies and regulations that clearly outlines roles and responsibilities of relevant agencies, transparent processes and enforcement of regulations (UNECE, 2008). According to Abdullah Ahmad Badawi (2005); Rachagan S. (2010) to attain good governance practice in SWC, key principles such as transparency, fairness, accountability and rule of law must be adhered to by related parties during SWC contract tendering and policy implementation processes. Researchers agree to the fact that, good governance practice is an essential instrument for gaining public trust in SWC service delivery through the principles of accountability and transparency. Rachagan S. (2010) acknowledges further that, good governance process ensures clarity and prudence in outsourcing, establishes and maintains collaboration between private sector (PS) contractors and municipalities in SWC service delivery. This assertion is re-enforced by Oduro Kwarteng (2011) that the relationship between PS waste contractors and service authorities guided by existing regulations in SWC cannot be underestimated; emphasizing that PSP regulation and its enforcement are important in an effort to attain quality of service delivery in SWC. Literature summarizes that, good governance practice in SWC service provision is significant to achieve desired level of service; this entails allocation of roles and responsibilities, policy implementation and enforcement. Good governance practice though essential element for SWC system, most municipalities in Africa, do not practice good governance in SWM processes, usually no clear policies or regulations that set out roles and responsibilities exists, thus leaves room for personal discretion and manipulation in waste management services which according to researchers negatively affects quality of service in SWC.

Other researchers found that SWC system that embraces good governance as a tool enhances the attainment of quality of service delivery, through the existence of transparent procedures and institutional structures, clear formal rules which focuses on building institutions and employer skills to be up to new roles and tasks in private sector participation in SWC system (UNECE,2008). (Srinivas, 2016) concludes that good governance practice in SWC observes the principles of transparency, fairness, accountability and rule of law which requires openness in tender processes, adherence to and enforcement of rules and regulations as well as access to information and feedback from users on performance of service provider.

2.3.1 Principles of Good Governance

The practice of good governance in SWC system is based on generally acknowledged core principles including transparency, fairness, accountability and rule of law (existence of policies and regulations, implementation/enforcement). The above mentioned principles taken into account in the initial and implementation processes of PSP in waste collection

services could ensure good governance practice in waste collection services which is a prerequisite for the attainment of quality of service delivery in SWC services.

Box 1: Transparency in SWC Contract Awards.

> "There is a gap in capacity to organize competitive tenders, especially at the local level, and a public perception of inadequate transparency in awarding PSP deals, and the lack of adequate administrative procedures for competitive tendering". **UNECE 2008**

Transparency in public procurement is essential throughout the entire process to ensure quality of service delivery in SWC service. A transparent and fair procurement process in SWC contract to PS means private companies that win the bids are actually companies with the best resources, at the best price aimed at attaining desired level of service. The disclosure and public access to related information is important from the beginning of the procurement process to the final decision making (UNOPS, 2012). Available and equal access to information relating to SWC tender procurement processes is necessary. Transparency in waste collection tender process requires existing policies seen implemented fairly and openly as well as decisions taken made public to avoid corruption and speculation (UNECE 2008). Researchers argue that, lack of information disclosure by public institutions makes it easier for corrupt public officials to manipulate procurement processes, award themselves, their associates and families SWC contracts. Potential users who stand to benefit or be affected by the process deserve to be part of decision making and monitoring processes. Municipalities must endeavour to collect and disclose identities of ownership of all bidders, hence, researchers propose the advertisement of tender procedures, standards and specifications to avoid situations where procurement agents limits the process to private sector companies of their choice. Transparency in outsourcing enhances competition and fairness, which is a major factor in ensuring that desired quality of service is attained in SWC service provision (UNOPS 2012).

Fairness; open access to related information by all interested parties. In SWC tender bid process, municipal authorities must endeavour to publish in advance tender notices, criteria for evaluation and contracts awards. Fairness in SWC tender process could only be attained if information is accessible to all for equal advantage (UNOPS 2012).

Accountability; processes requiring municipal officials and those mandated to influence such processes must follow rules and guidelines to attain acceptable outcomes, and be able to show that procedures have been diligently followed. Transparency is precondition for ensuring public officials are accountable to the public. (Joshi, 2010) argues that the elements of accountability are setting targets, being updated or well-informed about related actions, making informed judgements and penalizing poor performance, for him this leads to the attainment of quality of service performance in SWC delivery.

Rule of Law: Municipal officials, private companies and users are all accountable and responsible for achieving quality of service delivery in SWC. Related laws and policies must be clear, applied fairly and made known to all. Municipal authorities must ensure that byelaws are properly enacted, administered and enforced. Transparency, accountability, fairness and rule of law in SWC system are to a large extent interrelated and cannot be isolated. Transparent access to information on SWC contracts bidding means broader participation and involvement in decision making, involvement in decision making confers legitimacy of decisions made, which in turn enhances effective implementation. Municipalities' roles in enhancing efficiency in SWC system remains very significant, must be transparent and function according to rules and regulations during tender process, to

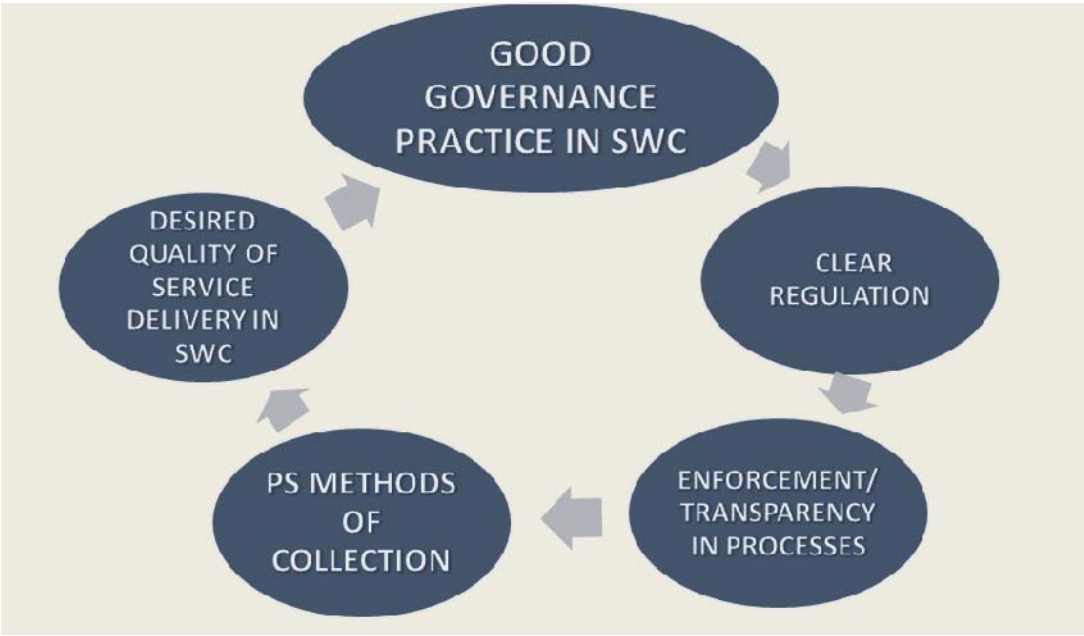
ensure the best and well-resourced private company is awarded SWC contract to attain desired level of service. UNECE (2008) principles similarly state that, tender processes leading to the award of SWC contracts must necessarily be transparent, non-discriminatory and neutral.

Neutral: Specific, predictable, clear rules and regulation that does not allow room for personal discretion or interest, provides channels for redress and actual implementation and monitoring of PSP in SWC rules and regulations.

Non-Discrimination: Fair and equal treatment for all private companies bidding for SWC contracts.

The diagram below according to literature reviewed depicts a suitable framework for good governance in PSP in SWC to attain desired level of service.

Figure 1: Framework for Good Governance Practice in PSP Waste Collection



Developed by author from the concept of good governance in solid waste collection

It is evidently clear from the above discussed arguments that for municipalities to attain desired quality of service in private sector led SWC system, relevant regulation; transparency and enforcement of laws are desired. Good governance concept related to SWC service delivery advocates for strong institutional structures that are able to enact laws, implement transparently and fairly as well as able to enforce laws. In a nutshell, literature theorizes that, to attain desired quality of service delivery in SWC system, institutional structures must exist, have the capacity to work and work transparently.

Political Interference

The extent to which established regulations in partnering private sector to improve efficiency in waste collection are enforced by mandated agencies influences service delivery. It is important that, regulatory frameworks and agreements warrants the security of private sector in the event of change of government, high inflation and monetary alterations (Joseph et al., 2007) however politicians must not influence SWC contracts processes, thus observing due process in contract bidding is essential for the success of service delivery in waste collection, interfering with bidding process offers impedes efficiency in service delivery by non-deserving and non-equipped collection company(UNOPS 2012).

Box 2: Private Sector Participation and Regulation

Some municipalities undertake PSP in SWC without complete PSP regulation, which leads to vague goals and a greater possibility of problems with service delivery. PSP regulation is needed to set a benchmark for implementation and enforcement. PSP in SWC delivery requires clear policies that lay down clear regulations and objectives. **UNECE 2008**

2.4 Institutional Arrangements

Policies are usually used as control and command instruments which outline clearly applicable standards and boundaries to be adhered to. National and municipal policies include angles that may assist improve SWC service delivery applicable to national and local circumstances (UNEP, 2009). SWC in municipalities in developing countries hitherto was provided by local governments, however, continuous increase in volumes of solid waste and lack of resources led to private sector involvement (PSI) in SWC service delivery. This changeover requires the establishments of clear regulations and regulatory institutions to ensure effective and efficient provision by PS (UNEP, 2009).

Box 3: Legislation for PSP in Solid Waste Management

"Investors in PS need predictability and security in legal frameworks, which means fewer, simpler and better rules." The application and enforcement of PSP regulations in SWC services are as important as the content itself; however municipalities must endeavour to make PSP regulations in SWC clear and business-friendly to make compliance and enforcement easier. **UNECE(2008)**

In Ghana, existing legislation permits central government some control over MMDAs. The central government appoints municipal chief executives who run the affairs of MMDAs, and the Local Government Minister, also an appointee of government, approves municipal budget and bylaws. Though MMDAs are responsible for the administration of SWC and sanitary conditions within their jurisdiction, central government sometimes issues directives directly binding municipalities. Central government transfer remains a major source of revenue for MMDAs (MLGRD, 2012). The relationship between local and central government is said to have effects on SWC in municipalities. The only legislation on sanitation in Ghana until the 1990s was the criminal code of (1960) which sought to discourage and punish indiscriminate dumping of waste. The criminal code and municipal bylaws have since been passed and enacted into law. The criminal code of Ghana, 1960 (Act 29) specifies that anyone or group that places or authorizes to be placed, any garbage on the street, open space, yard, etc either than locations set aside by municipal authorities for such purpose commits an offence and subject to punishment. Other related laws including the national building regulations, 1996(LI1630) orders house owners in localities, commercial, residential and industries to provide user facilities in their premises for waste disposal. It stipulates further that, each unit of apartment acquires a standard waste bin acceptable by municipalities for temporary storage of garbage.

The current and relevant policy document which entails regulation and arrangements for PSP in SWC is the Environmental Sanitation Policy (ESP) 2010, which proposes PSP hence makes provisions for guidelines in its operations, as well as outlines roles for municipalities. Are various actors, performing and implementing roles as stated in the ESP to attain quality of service delivery? What does the regulation say about contract award processes and after? Who is to do what? The study seeks to use this concept so seek answers for some of the questions raised above.

2.5 Legal and Regulatory Framework

SWC service provision by private sector requires adequate procedures and regulations guided by contract agreement and in the broader interest of users (Ballance and Taylor, 2005; Franceys and Gerlash, 2008). Private sector involvement in SWC requires institutions to prepare binding agreements monitor and enforce related regulations. Performance monitoring is considered essential for efficiency in contracting SWC services; this ensures that private sector delivers on agreed level of service (Oduro Kwarteng, 2011). MLGRD regulation of (1998) and relevant allows municipalities to award SWC contracts to private sector companies transparently through competitive bidding whereas the National Procurement Act (2003) makes it obligatory for municipal Tender Boards to use competitive bidding in the selection of companies, devoid of any political influence. It stipulates that selection processes should be fair and based on merit. Under the agreements, private partners are expected to invest resources such as financial, human and suitable technologies to attain efficiency. The procurement act (2003) could be interpreted to mean that, in tendering processes, municipal authorities should ensure that a well-organized and adequately resourced private company is awarded SWC contract competitively to bring to bear needed resources and competence. According to Oduro-Kwarteng (2011) PSI in waste collection services is to enhance quality of service delivery and protect public health; however, problems such as transparency in contracting, monitoring, policy regulation and implementation are encountered. He asserts further that, clear and transparent contract agreements, adherence to and transparency in contracts processes, service quality, performance and compliance of rules and regulations are essential for a successful PSP in SWC service delivery.

From the above, various authors indicates clearly the need for rules governing PSP in waste collection system, however, such regulation, they suggests, must seek to protect the interest of private investors as well as the ultimate users hence definite, unambiguous and enforced legislation required to serve as a reference-point as well as a guide to attain desired level of service in SWC.

Literature analyses that SWM is one of the major challenges encountered by most municipalities in Africa and solid waste generation in Africa continues to increase mainly due to urbanization and other economic factors (Minghua, Xiumin, et al., 2009), which does not seem to end anytime soon, thus the need for a proper and efficient management of solid waste generated, the next paragraph discusses what solid waste management.

2.6.1 Solid Waste Management

SWM is recognized as an essential service offered by municipalities since improperly managed SW negatively affects virtually the entire society, particularly, human health, economy, political, natural resources and the environment at large. SWM thus requires maximum attention guided by relevant legislation from municipalities; however, due to budgetary competition with other equally important sectors, SWM in most developing countries is poorly organized. (Klundert and Anschutz, 2001) Annepu, (2012) defines SWM system as the control of waste generation, its storage, collection methods, transfer /treatment, recycling and final disposal of SW collected. (Magutu and Onsongo, 2011) affirms that SWM comprises the collection, transportation, processing/reprocessing, disposal, regulating and monitoring of activities related to SW generated and adds that these processes aims at the reduction of negative effects of waste on the environment, human health and aesthetic. In agreement with Magutu and Onsongo, (2011) other researchers define SWM as various activities aimed at the minimization, stowage, collection, processing/treatment and disposal of SW in a manner that conforms to best principles of health, aesthetic, environmental protection and conservation (Uriate, 2008). Based on above definitions of SWM, researchers

acknowledge sustainable solid waste management (SSWM) system a more suitable process that moves in a recurring direction compared to the much used linear method of management (Vaccari and Giardina 2006).

2.6.2 Sustainable Solid Waste Management

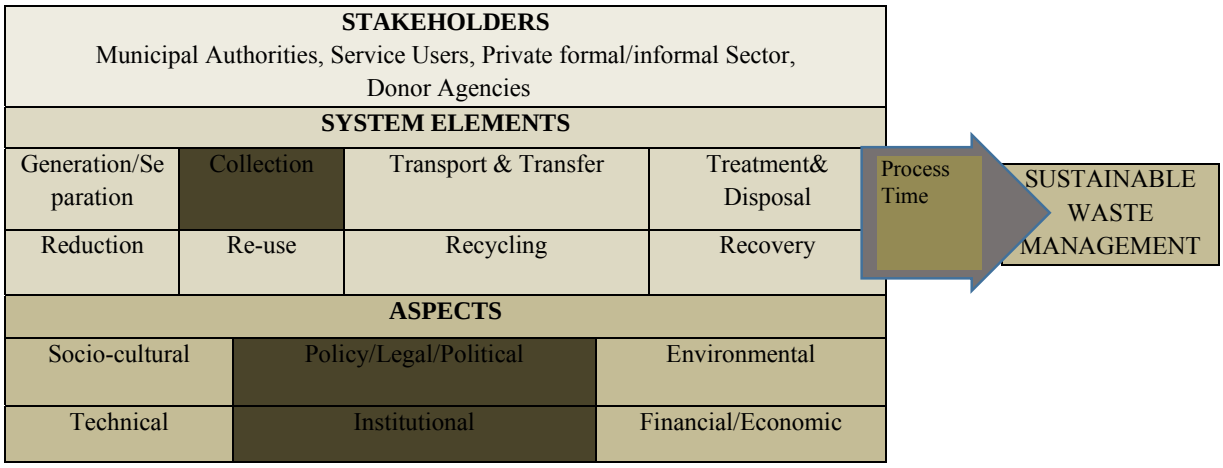
Vaccari and Giardina (2006) outlines the principles of SSWM as mainly the minimization of waste generation and its hazards, SW reuse or maximization of recycling and finally environmental friendly and proper collection/disposal of SW generated. SWM generally aims at securing human and environmental health; whilst SSWM system focuses on the social, economic and environmental aspects with it main objectives being the protection of human life whilst preventing ecological damage (Imran et al., 2008, p.4). Researchers explain further that, the central idea of environmental issues focuses on any predictable implication for future generation and socially for a waste management system that works towards the protection of human health and wellbeing whilst maintaining social cohesion for a longer period of time. Economically, SSWM proponents argue for a system that is able to include external cost for waste management comprising social and pollution prevention cost. (Imran et al., 2008, p.4). Imran et al., (2008) continues that the three main components of waste management hierarchy (3Rs) "reduce reuse recycle" are essential and reliable elements that forms the basis of SSWM services, however other writers oppose this assertion and suggests that the management hierarchy requires modification and expansion, particularly modification of the "waste prevention" aspects, which for them has been compressed over the years (Perket, 2010). On the contrary, other researchers are of the opinion that the hierarchy principles which lays emphasis on preventive effects of waste management system on human health, society and environment rather leads to an Integrated Sustainable Waste Management (ISWM) approach, thus not worth opposing, but complimenting (Gertsakis, 2003). ISWM system, the preference of researchers according to literature, takes into consideration the generation, collection, separation, conveyance, recovering, treatment and final disposal of waste generated, in the best applicable methods suitable for local context. ISWM system thus encompasses a complete life-cycle process that begins from generation to the disposal of solid waste (ISWM-TINOS, 2011,p3).

2.6.3 Integrated Sustainable Waste Management (ISWM)

Klundert and Anschutz, (2001) opines that ISWM system considers not only the financial and technical viability of SWM system, it also recognizes *institutional,* environmental and sociocultural features that generally influences the sustainability of SWM. An efficient ISWM system uses waste management methods that best suit the local context and resilient for a longer period of time, whilst experiencing virtually no decline in resources needed (Klundert and Anschutz 1999). They argue further, that ISWM system combines a number of inter-related SWC and treatment options depending on the suitability for various cities and households. ISWM acknowledges three major components that influences SWM systems hence needs attention and careful consideration for the attainment of a sustainable SWM system. These components are the waste system elements, involvement of relevant stakeholders in SWM and aspects of ISWM (Klundert, and Anschutz, 2001).

Below is a visualized illustration of the three major components of ISWM, highlighting focus areas of the study.

Figure 2: Dimensions of ISWM



Developed by Author based on ISWM Model

Though this study focuses on an element of ISWM, "***collection***" to answer the research question that seeks to explain the influence of PSP regulation on SWC methods, which is considered very critical to the success of an ISWM system, ISWM model is also of relevance to the study in that, it recognizes institutions and various actors involved in policy planning, formulation and implementation as very important to a sustainable waste management system. ISWM also serves as a tool based on which municipal authorities and policy makers could plan, and formulate SWC policies and regulations appropriate and viable for their local context (Klundert and Anschutz, 2001), this is in affirmation with the concept of good governance in relation to SWC, which is the main concept used in this study, and advocates for clear and suitable policies in SWC, acknowledgment and involvement of *all* stakeholders in policy formulation and implementation process to attain quality of service delivery. By inference, ISWM acknowledges the significance of an efficient SWC method in a broader waste management system, and proposes a SWC system that is applicable to prevailing local conditions, able to maintain itself for a longer period of time, most importantly, guided by relevant institutional and legal frameworks and the involvement of stakeholders both formal and informal. ISWM acknowledges the importance of "informal "waste collectors and the need for their incorporation, by municipal authorities, which could as well, generates additional employment Stakeholder or user involvement in SWM decision making, planning and implementation processes are as important as the economic and technical aspects of waste management (Marshall and Farahbakhsh, 2013). For ISWM system to be sustainable, it embraces quality of service delivery in SWC methods, through the use of legal, institutional and adequate municipal capacity which the study uses to ascertain its influence on PSP regulation.

2.7 Municipal Capacity in SWC

Box 4: Municipal Capacity

Private Sector Participation "involve complicated structures that require new skills, which are found more in the private than the public sector. How can Governments find the necessary skills? Governments can build the necessary capacities in a combined approach which establishes new institutions and trains public officials while at the same time using external expertise." UNECE 2008

The change from direct municipal service provision in SWC to PSP compels municipalities to reorganize, strengthen and modify human capacities, retrain their management and adjust regulatory instruments (Awortwi, 2003;(Mizra, 2007) to help monitor, regulate and facilitate private sector led SWC. Though PSP in waste collection is to enhance quality of service delivery and requires efficient monitoring and regulatory enforcement, municipalities in developing countries usually lack relevant skills to match requirements hence have difficulties managing efficiently SWC systems by private sector. Municipal authorities can build needed capacities in SWC in combined methods through the establishment of requisite institutions and training of municipal staff whilst incorporating external expertise. Skill development in municipalities though challenging, is very essential for attainment of quality of service delivery in SWC services by private sector, particularly relevant and adequate negotiation and contractual skills (UNECE, 2008). According to (Halfway, 2008), PSP in SWC calls for a more equipped and competent public sector to regulate, monitor and enforce set rules and regulations, Oduro Kwarteng (2011) in affirmation with this statement concludes that the failure of PSI in waste management in developing countries is as a result of internal administrative factors and external factors such as municipal capacity, regulation and policies. Oduro Kwarteng(2011) explains further that, contract terms and specifications which establishes responsibilities, quality of service, guiding rules and regulations, penalties and performance monitoring are essential in contractual agreements, hence, for an effective and efficient PS to be able to attain desired level of service, they require adequate human, technology and financial capacities, municipalities themselves must have sufficient technical capacity and endeavour to award contract to private companies transparently, fairly and competitively without any biases. Private sector hallmark for greater efficiency in SWC service could only be attained if private and public partners have necessary capacity to execute their new roles (OECD,2010) Observing due process at all levels in SWC service provision is essential for the success of service delivery in waste collection methods.

2.8 Solid Waste Collection

SWC comprises the collection of solid waste generated by households and industries from production or generation points to the final point of disposal. Waste collection percentage in countries generally differs by regional and national income, as higher income countries tend to attain much higher efficiency in waste collection with relatively less SWM budgetary allocation compared to low income countries (Hoornweg and Bhada-Tata, 2012) .According to, Klundert and Anschutz,(2001) SWC refers to the removal of waste generated from residential, industrial and commercial areas, to designated primary points until final removal to disposal site. SWC is considered a very important phase in waste management system, hence, methods of collection required and used by service providers is very critical to the success of waste collection service delivery. Rules and regulations relating to SWC methods could progress or hinder quality of service delivery in SWC (UN-Habitat, 2010).

2.9 Solid Waste Collection Methods

Solid waste collection contributes a greater percentage of expenditure on municipal budget and impacts heavily on the lives of urban dwellers. SWC consists of waste storage in homes, offices, and businesses and the methods of transportation of waste to its final destination of disposal or treatment site (Coffey and Coad, 2010). Researchers propose that, materials used for storage of solid waste must necessarily be durable and well covered, since improperly covered waste bins may possibly create environment for breeding of mosquitoes and other flies. They argue further that, most suitable bins or containers for SWC are plastics, since they are easy to handle and contains moisture, however they admit that, plastics are easily opened by dogs and gets broken or torn easily (Coffey and Coad, 2010).

According to Hoornweg & Bhada-Tata (2012) there are five major waste collection methods. These are kerbside, door to door; self- delivered, communal bins, and delegated or contracted collection methods.

Kerbside Pick-Up: Service users leave their waste in front of their homes according to agreed time schedule to be picked up by service providers.

Self -Delivered: This is the type of collection where waste generated is delivered directly to disposal sites or transfer stations by hired agents or third-party operators.

Delegated/ Contracted Service: Companies contracts firms and determine collection fee and schedules with users. Under this system, municipalities may as well contract private sector companies and assign area or areas of collection to facilitate efficiency in SWC.

House-to-House: Waste collectors move round houses to collects waste generated. Under this type of collection, users usually pay for service.

Communal Container Collection (CCC): With this type of waste collection mode, households bring their garbage to community bins or communal collection points that are positioned at permanent areas in localities and finally collected by the municipality or its designated contracted service provider according to schedule (Hoornweg & Bhada-Tata 2012). CCC mode comprises of two systems; the pay as you dump, which is common in the low income areas and the free dumping mode found in high density populated communities. The container is collected at least once or twice daily and replaced with an empty one. One very difficult issue associated with this form of collection, is where to put these mostly huge containers, normally at junctions or borders close to localities and accessible for collection. This form of collection is appreciated since there are usually no restrictions to accessibility. Information relating to distance decay theory in studies by (Oteng-Ababio, 2011), Wilson (2009) and Ali (2010) recognized that the extreme travel space within which families will willingly patronize the system would be within 200 meters, anything beyond tis travel interval would potentially encourage open dumping. Researchers establish that in the Accra metropolis for instance, house to house collection system is dominant in middle and upper income areas while CCC system is widely used in most low income and highly populated areas (Oteng-Ababio, Arguello, et al., 2013). Researchers posits that SWC methods has direct effects on quality of service delivery hence proper and appropriate methods preferred for attainment of quality of service delivery.

2.10 Quality of Service Delivery in SWC

Quality of service delivery in SWC implies the level at which SWC system's intended objectives are actually realized in practice and this is usually measured by the reliability of SWC service, environmental cleanliness, user satisfaction and prompt response to user feedback (Oduro-Kwarteng, 2011). According to Oduro- Kwarteng (2011) these are critical and serve as a yardstick to determine quality of service delivery in SWC. In agreeing to this assertion Esmaili Daryush, (2012) confirms that, SWC service quality refers to the extent to which set collection target is reached in practice and could be measured by cleanliness of the environment and customer satisfaction. Municipalities incapacities in SWM services has resulted in the contribution of private sector in SWC services in most developing countries, with the view that private sector guided by market values and regulation could attain desired level of service in SWC, however this requires regular monitoring and assessment of private sector performance by municipal authorities.

Box 5: Quality of Service Delivery by Private Sector

Private sector involvement in SWC service delivery is an option for improving SWC service quality and coverage. However, private sector involvement in waste management is not simple privatization. Municipal authorities remain responsible and, as the contracting body, need to have sufficient understanding and capacity to carry out their 'client' function. The necessary conditions that must be met for successful private sector involvement in SWC include regulation, transparency and accountability, all of which help to ensure that the contracting process is free from corruption and that citizens receive the desired levels of service as contracted (UN-HABITAT, 2010)

Private Sector Participation in SWC

SWC service in most developing countries is carried out in collaboration with private sector largely due to challenges including non-availability of resources, municipalities encounter in SWC service provision. SWC is considered essential in SWM system hence PSP arrangements by municipalities, rules and regulations are very critical to the attainment of desired level of service; PSP regulation could promote or impede SWC service delivery (UNDP, 2009). Oduro-Kwarteng (2011) argues that, PSP in waste collection service in developing countries which hitherto was the preserve of the public sector is as a result of limited financial and human resources by local governments. The use of markets for SWC service delivery thus became necessary; however, SWC by PS cannot be performed through the market system without relevant guiding rules and regulations. Oduro-Kwarteng (2011) continues that, PS involvement in SWC is mainly as a result of governments' failures and over reliance on donor agencies to maintain and operate SWC systems, thus, PS could as well underperform or eventually fail to attain anticipated SWC service quality if required legislation, regulations, policies and needed government support are not adequately provided. He states further that, in contracting to PS adherence to rules and regulations are necessary. Literature indicates good governance is of essence in the efficient management of private sector led SWC service in cities, particularly during tender processes. (UNEP, 2009). Other researchers contend that, PSP in public service delivery is anticipated to increase efficiency, minimalize cost and offer better and improved service delivery, hence, the basis for PSP arrangements for SWC service delivery aims at increase in the collection of waste through cost reduction and suitable methods that best protect society and the environment (World Bank, 2012). Correspondingly, van (Dijk, 2008) opines that outsourcing waste collection to PS enhances cost reduction and value for money. In view of growing difficulties associated with municipal SWC in most municipalities in developing countries, private sector provides SWC service in response to failure of suitable service delivery by the public sector (UNESCAP, 2011) PSP in SWC is based on the premise that, public and private actors cannot meet their individual needs alone. State domination and public services has not worked all this while and there is a strong ideological belief in the supremacy of the private sector. PSP in SWC services in municipalities in most developing countries are however, flawed, hence low collection rate, improper collection methods and low collection coverage rate mainly due to weak institutions and lack of enforcement of relevant PSP regulation (Asnani and Zurbrugg, 2007).

Types of Private Sector Arrangements

a) **Contracting;** This is an agreement between public and private sector where terms of work to be executed is explicitly defined and service consumers or end users are responsible for payment to the private worker. Generally for solid waste agreements for waste collection are for lengthier period. This is usually applicable to SWC services.

b) **Franchising;** under this agreement, the private company is usually allowed specific and precise right to offer detailed services for a well-defined area within a specified time period. Private companies are mandated under this agreement to directly collect fees from consumers; however, franchisees pay fees to municipalities. Franchise agreement explicitly outlines details of duties of various parties, applicable regulations and penalties. Franchising agreement in SWC allows municipal authorities to grants private waste contractors sole authority to offer SWC services within a specified zone or service area.

c) In an open competitive agreement, potential service providers are allowed to bid for service provision contracts competitively through established and transparent processes that releases and informs the general public about SWC procurement opportunities openly and accurately to allow fair competition , how open and competitive they are devoid of political and personal influence, is highly debatable. (UN-Habitat, 2010)

Potential Benefits of PSP in SWC

Researchers' are of the opinion that private sector collaboration with public sector in SWC service delivery is generally beneficial due to assertions including the following;

- Compliance in service delivery
- Provision of capital and expertise in operation and management
- Funds accessibility for increasing requirements of investment in the sector
- Innovation and upgraded technology
- Availability of required expertise (UNESCAP, 2011)

The involvement of PS in waste collection offers private sector opportunity to take responsibilities which hitherto were solely executed by the public sector; this comes with possible gains for municipalities and citizenry, however, such gains could only be realized when roles are diligently performed and supervised. PSP introduces competition and competence in service provision as well as extend coverage, and lessen delivery cost. PSI commit service delivery to commercial principles guided by due diligence in monetary operations whilst bureaucratic systems is associated with public sector. Municipalities are more or less assured of adequate service delivery due to existence of contract with private waste collection companies when adequate regulatory measures are in place. Private sector is considered more inventive and offers new and feasible ideas; provides services more professionally than government organizations (UNESCAP, 2011). In contracting private sector, government could take advantage of economies of scale. PSP arrangements in SWC could be a failure if due diligence is not done during contracting and particular attention paid to very significant issues such regulation and administrative issues during tender processes.

Possible Disadvantages of PSP in SWC includes:

Reduced Quality of Service Delivery: If not properly structured and regulated SWC contracts can result in a reduction in service quality, inefficient service delivery or lack of proper facility maintenance. For example, laxity in enforcing existing regulation and it implementation could lead to low collection service.

Bias in Selection Process: As with conventional forms of service delivery, there is always the potential for municipalities to be biased or accused of bias in contracts selection. This may be more prevalent with PSP given that "low bid" may not always win the contract if the government has established other criteria. However, the potential for accusation of bias or being biased could be reduced through well-developed policy, adherence to procedures, and by ensuring transparency throughout the processes leading to contract award and during SWC service delivery.

Non Adherence to Rules and Regulations: When guidelines related to contract bidding are not followed to ensure that the best private waste collection company, well-resourced and has the potential to deliver required quality of service in SWC wins the bid.

Absence of Technical and Financial Ability: PS Company awarded SWC service may not be resourced enough to achieve desired level of service in SWC. PSP though considered viable, does not imply an automatic resolve to difficulties encountered in public service delivery. PSP in SWC services are equally associated with failures in quality of service delivery, thus contractual procedures which merit critical scrutiny, transparency and clarity ought to be adhered to. PSI in SWC becomes beneficial to society at large when utilized in a suitable context guided by existing rules and regulations (UNESCAP, 2011).

Pre-Conditions for Quality of Service Delivery in PSP in SWC

Literature points to the fact that PSI in SWC in developing countries encounters various challenges in attaining quality of service delivery and implies further that, preconditions required to achieve set targets in PS led SWC are mostly missing. Benchmark for achieving quality of service delivery in SWC drawn from above literature review comprises; good governance practice, which entails existence and enforcement of clearly defined rules and regulations. This according to UNOPS (2012) enhances PS performance which leads to improvement in quality of service delivery in SWC, in this context being reliability of SWC service, environmental cleanliness, user satisfaction and prompt response to user feedback. (World Bank, 2006), submits that good governance practice in SWC encompasses adherence to rule of law, transparency in SWC operations and processes, user inputs, accountability and an efficient public service with capacity to implement required polices. Other researchers in agreeing to World Bank submission emphasize that enabling regulatory and legal framework facilitates SWC arrangements and quality of service delivery (Asnani and Zurbrugg, 2007). According Asani and Zubrugg (2007), enabling regulatory and legal framework outlines clearly new roles of municipalities form SWC direct service provider to the facilitation and regulation of PS SWC service provision. UNOPS (2012) adds that an enabling and regulatory SWC framework depends largely on transparent contract arrangement, enforced sanctions and PS contract performance assessment. Ndandiko (2006) points that, private sector involvement in SWC service delivery needs transparency in tender processes, strong public institutions with relevant capacity and to monitor measure and ensure private sector delivers on SWC contract performance agreement.

2.9.1 Measuring PS Performance in SWC Service Delivery

This study, taking clue from Oduro-Kwarteng (2011) who mentions that to assess quality of service delivery in SWC by private sector, customer satisfaction, reliability of service, responsiveness to customers, SWC service coverage and environmental cleanliness are useful, this study uses same to evaluate quality of service delivered by PS in Nima, however, other researchers are of the opinion that to measure quality of service delivery in SWC by private sector, indicators such as awareness campaign, willingness to pay and use of appropriate technology are equally relevant (UN-HABITAT, 2010). Oduro Kwarteng (2009) concludes that the attainment of quality of service delivery in SWC service provision refers to the actual outcome level, for instance number of SWC pickups or collections made and user level of satisfaction experienced.

Customer Satisfaction: For Oduro-Kwarteng (2009) customer satisfaction means the extent of attainment of predetermined targets in SWC services and customers expression of satisfaction with practical collection service provision, for instance customers are satisfied in relation to collection methods, number of SWC pickups and fee paid for SWC service rendered.

Reliability of Service: This symbolizes how consistent and frequent SWC is carried out on specific given days. SWC service is deemed reliable when there are no skips which could amount to uncertainties. Collection frequency should be consistent and ideally not vary; this is to avoid uncertainties amongst households. An inconsistency in frequency of collection brings about lack of user confidence in the collection system (Hoornweg, D. and Tata, P., 2012).

Complaint Structure/Responsiveness: A well-structured and operative complaint process provides a network between communities and service authorities to have first-hand information valuable for monitoring private sector performance in waste collection. This medium when established by municipalities provides feedback and sense of hope for consumers who hitherto lost complete credibility in the system (UN-HABITAT, 2010).

Service Coverage: Literature discusses that user coverage of collection and population served, determined by percentage of number of households in service area assessing SWC by service provider should be 100%, however due to various challenges in developing countries, less than 50% of service population is usually served (Wilson, Velis, et al., , 2013). Correspondingly, Asnani and Zurbrugg, (2007) shared in their view and argue that, non-adherence to stipulated policies, guidelines and regulations for SWC could affect quality of service in partnership .

Environmental cleanliness: Researchers have defined environmental cleanliness as how often communal containers are picked, cleanliness in entire service area and the neatness around the communal container area. Irregular collection of communal containers normally leads to people dumping waste at open places and waste overflow, which is harmful to the environment and human health. Coffey & Coad (2010) suggest that frequency of waste collection is an issue of utmost importance that needs consideration in SWC system to attain quality of service delivery. This according to literature has to do with the number of times waste is collected weekly or more than a week, this is a major factor for SWC systems, particularly because of the negative effects of accumulated waste kept for longer periods of time. The frequency at which waste is collected is usually determined by prevailing temperature. Researchers advocates that solid waste is collected more frequently at high temperature areas, preferably twice in a week to avoid breeding of insects,(Coffey & Coad 2010), for this to materialize institutions must have the capacity to work to ensure that PS conforms to predetermined arrangements.

Awareness creation

Public awareness and attitudes to solid waste affects MSWC system. Various steps involved in processing SW generated through to proper collection, disposal and resistance to the setup of disposal and treatment facilities in local vicinities depends on public awareness and involvement. Hence, lack of information on the need for proper MSWM and its implication on health and the safety of society severely restrict the use of community based methods by municipalities in developing countries and also a major contributing factor to MSWC system failure. People's attitudes towards waste not only influence SW generation but possibly influence their interest and willingness to pay for SWC services. (Zurbrugg, 2003, UN-HABITAT, 2010). Awareness campaigns could positively change or correct peoples negative attitudes towards handling SW, that notwithstanding others would continue to dump waste indiscriminately, thus, the need for municipal regulation deterring such practices and its enforcement (UN-HABITAT,2010).

Willingness to pay

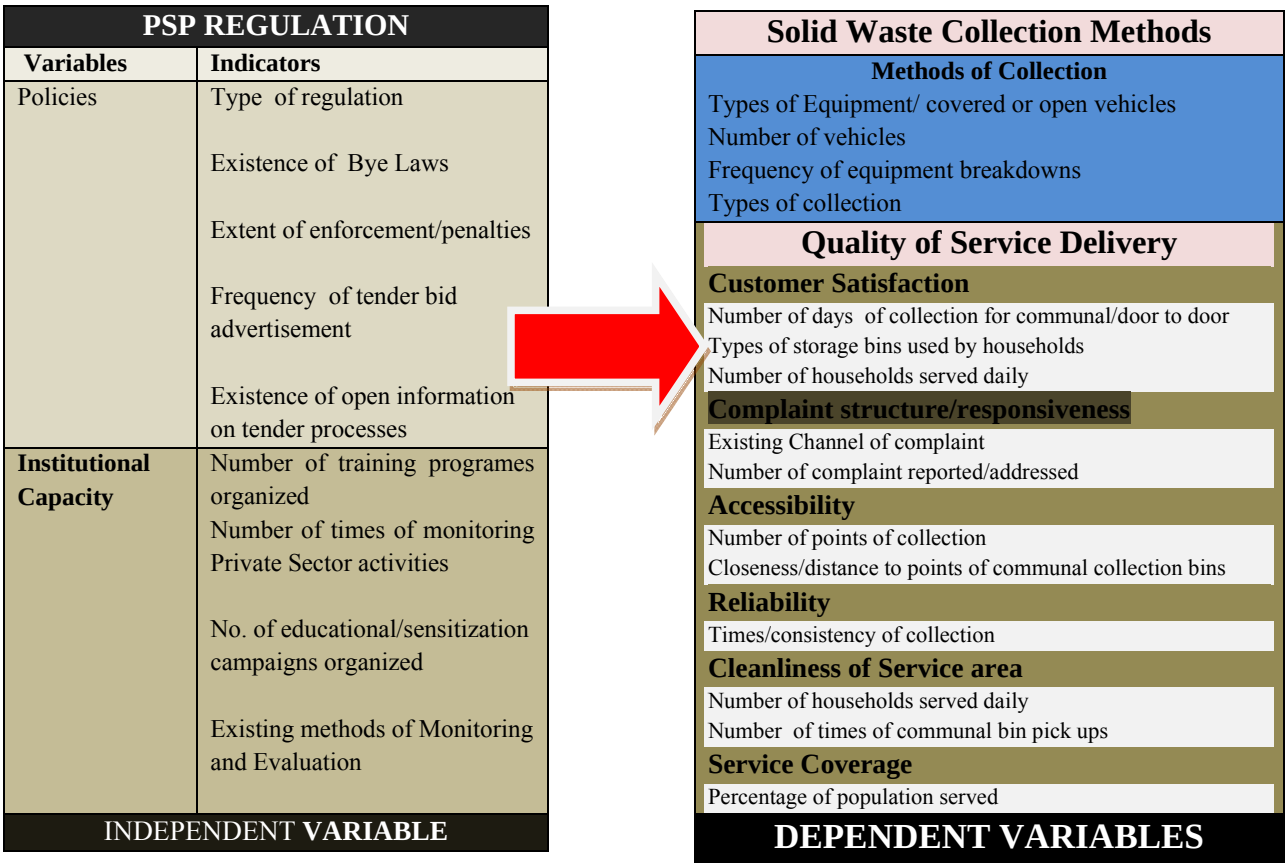
USAID (2009) establishes that services provided to communities are useful and considered reasonable when it is valued hence intended user's willingness to pay and capability to manage on the part of the private company are usually recognized as appropriate means to evaluate the viability of privatized solid waste collection. (USAID, 2009) UN-HABITAT, (2010) agrees that residents' willingness to pay for services provided by door-to-door waste systems largely depends on the reliability of service providers therefore having value for dues paid. Service users' willingness to pay could be used to ascertain convenient types of services applicable to be used to attain efficiency in the event that consumers pay for SWC services.

Technology: An efficient and all-inclusive local content technology is crucial for the attainment of preferred levels of service. These technologies are applicable from source reduction, the use of collective containers, incinerators disposal sites, and recyclables. (UNEP, 2009,) Different categories of waste and it diverse sources indicates how it is administered, there is no one way of managing waste, instead, depending on which type of garbage and its source would determine its resourceful handling and adherence to existing regulations to achieve desired quality of service**.**

The argument advanced above so far, establishes that, to attain quality of service delivery in SWC provided by private sector, regulation, institutions/capacity and law enforcement are very important. In other words various researchers advocates for the existence of PSP regulation, establishment of strong institutions and capacity to enforce transparently PSP regulations

2.12 Conceptual Framework

Figure 3: Conceptual Framework for Regulation in Private Sector Waste Collection



Source: Field Work (2016)

The above conceptual framework is designed by author on the basis of the concept of good governance practice in SWC system. It incorporates the main principles of good governance practice in SWC service delivery, which are clear and relevant policies/regulations, transparency and adherence to and enforcement of regulation by municipalities, its linkage to solid waste collection methods to create the needed platform for desired quality of service delivery in SWC. Good governance practice in SWC system embraces existence of strong institutions, enforcement of rules and regulations in a transparent manner by municipal authorities. As stated earlier, failure by local government authorities to provide quality of service delivery in SWC necessitated PSP in waste collection in most developing countries, hence the shift from sole service provider to additional responsibilities as service regulator of private sector to ensure quality service delivery. This requires related regulations and policies, adequate municipal capacity well-resourced and trained to perform new roles. For private sector waste collection to achieve targets, literature suggests relies essentially on the existence of PSP regulation, strict enforcement and monitoring as well as a transparent and credible tender processes. Based on the concept of good governance, the study focuses on PSP regulation, and it influence on solid waste collection methods and quality of service delivery. The above conceptual framework thus focuses on how PSP regulation, according to literature reviewed have direct linkage to SWC methods and it eventual influence on quality of service delivery.

Chapter 3: Research Design and Methods

3.1 Introduction

This chapter explains methodology used in study, states reviewed research questions, strategy, population and methods for sampling. The chapter also present approaches for data collection, analysis, variables and indicators used and linked to the research questions and touches on validity and reliability issues.

3.1.1 Reviewed Research Questions

To attain the objective of the study, these research questions were formulated:

Main Research Question

The main research question is to what extent does PSP regulation within Environmental Sanitation Policy influence solid waste collection methods and quality of service delivery in Nima East?

3.1.2 Sub Research Questions

To answer the main research question, the sub research questions of this study are:

1. Which PSP regulation is in place and implemented to enhance solid waste collection in Nima?
2. What are the current solid waste collection practices in Nima?
3. How is the performance of private contractors monitored and measured?

3.1.2 **Table 1: Operationalization of Study Variables and Indicators**

CONCEPT	VARIABLES	INDICATORS
Regulation	Policies	Existence of regulation Existence of Bye Laws/penalties and enforcement Existing methods of Monitoring and Evaluation Frequency of tender bid advertisement Existence of open information on tender processes/contract award.
	Institutional Capacity	Number of training programes organized Number of times of monitoring Private Sector activities Number of educational/sensitization campaigns
Solid Waste		Types of Equipment/ covered or open vehicles

Collection Methods	Methods of Collection	Frequency of equipment breakdowns Types of collection
Quality of Service Delivery	Customer Satisfaction	Number of days of collection for communal/door to door Types of storage bins used by households Number of households served daily
	Complaint structure/responsiveness	Existing Channel of complaint Number of complaint reported/addressed
	Accessibility	Number of points of collection Closeness/distance to points of communal collection bins
	Reliability	Times/consistency of collection
	Cleanliness of Service area	Number of households served daily Number of times of communal bin pick ups
	Service Coverage	Percentage of population served

Source: Author's Construct

3.1.3 Study Type, Strategy and Approach

The study is explanatory using a single embedded case study. An embedded single case study combines the use of both quantitative and qualitative approaches (Scholz and. Tietje, 2002). A case study is considered "empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when, the boundaries between phenomenon and context are not clearly evident" Yin (2009, P.18), this is an indication that, a case study strongly comprehends empirical situations of crucial circumstances, and applicable to the phenomenon. A single case study research enables researcher insightful analysis and explanation of a phenomenon, which this study seeks to attain. The unit of analysis in this study, Nima East, a community within Accra, is a relatively small territory, data collected is far-reaching and more depth from interviews conducted and secondary sources of data included, guaranteeing reliability (Verschuren and Doorewaard, 2010). The use of a single case study in this research is chosen by researcher to facilitate in-depth understanding and explanation of the phenomenon under study. The study thus explains and analyses the extent to which private sector participation regulation influences SWC methods and quality of service delivery in Nima East. Verschuren and Doorewaard (2010) advocate that, logical and analytical evidence found by researcher must essentially be founded on prior literature or knowledge. The study seeks to explain perspectives of municipal authorities and users in relation to PSP regulation on SWC and quality of service delivery. To attain better and reliable results, both quantitative and qualitative methods were used in data collection on the variables in this study. The variables are PSP regulation, solid waste collection methods and quality of service delivery**.**

3.1.4 Sample Size

The study population consists of SWC companies, AMA officials, Ayawaso East sub-metro officials and users. Nima East which is the study area has an estimated population of about forty-five thousand (45.000) according to (AMA Report, 2009), therefore the study adopted the population of 45,000. The study used sample size technique by Sloven to determine households sample size, which is represented by n = N / (1 + Ne2) where n = Number of Samples, N = Total Population and e = Error of Tolerance. The error of tolerance for the study was 5% and sample calculated 135 researchers opted for 100 due time and resource constraints. .

n = N / (1 + Ne2)

n = 45,000 / (1+45,000x0.05^2)

n = 135

To make sure of representation, a total number of 107 people (population) were sampled in all, through purposive and simple random approaches. The breakdown is two (2) high ranking official from AMA, two (2) officials of Ayawaso East sub-metro (Nima) one(1) inspector from the Waste Department, two (2) officials from the private collection companies and 100 service users in the study area.

Table 2: Research Population

TYPE OF RESPONDENTS	Sample Size	Sample Approach	Type of Data	Research Method
AMA STAFF	2	Purposive	Primary/secondary	In-depth Interview
AYAWASO SUB-METRO STAFF	2	Purposive	Primary/secondary	In-depth Interview
INSPECTION OFFICERS	1	Purposive	Primary/secondary	In-depth Interview
USERS	100	Simple random sampling	Primary	Questionnaire
PS WORKERS	2	Purposive	Primary	In-depth Interview

Source: Author's Construct

3.1.5 Data Reliability and Validity

Reliability: To guarantee reliability of study data, research instruments was pre-tested to clarify any existing ambiguity in question and researcher as much as practicable independent from data collected. A pre-test of research instruments was carried out in Nima West, a community also within the sub-metro to remove ambiguous and vague questions from questionnaire. This was done to ensure usage of quality data for field collection. Questions answered by respondents showed consistency in their responses

Validity: The rationality of the study is guaranteed by the use of triangulation, this refers to the use of a combination of techniques in the design of suitable questions for both interviews and questionnaire. Researcher made use of both primary and secondary sources. In-depth data was gathered by semi structured interviews from purposively selected people from the municipality and waste collection companies.

3.1.6 Data Collection Methods

A combined method of primary and secondary data sources was used. Detailed interviews with purposively chosen municipal and private collection company officials were conducted, user views solicited through a survey and researcher first-hand observation used. The basis for selection was mainly due to requisite knowledge on SWC issues related to research area hence their contribution very significant to study Bernard 2002, Lewis & Sheppard (2006) cited in (Tongco, 2007). Purposive sampling is a method which enables researchers to identify what ought to be known and look for people with relevant knowledge, able and willing to share ideas, which the researcher utilized. A total of four weeks was used for the collection of field data. These included the fixing of appointments dates for interviews,

Primary sources of data used include;

Questionnaires: Open and close-ended questionnaires were used for data collection from users on quality of service delivery of SWC by private companies in Nima, and to sought their opinions on how best service delivery could be improved.

Interviews: In-depth interviews was the approach used to get information from AMA, Ayawaso East sub-metro, waste management department official and PS companies involved in SWC in Nima East.

Observation: To ascertain and confirm feedback from interviews and questionnaire to be able to form triangulated set of data, observation was also used to have first-hand information of SWC practices in Nima.

Secondary sources of data: Secondary sources of data was assembled from various periodicals, journal articles, books, newspapers, magazines, research reports and organizational internal reports on PSP in solid waste collection service delivery.

3.1.7 Data Analysis Method

Data analysis is the critical assessment of data generated to uncover trends and understand clearly how various parts of issues are related. The study used both quantitative and qualitative data methods, hence the use of Statistical Package for Social Sciences (SPSS) software in analysing quantitative sources of data for fair, objective and neutral results. The study was undertaken within a month between June and July 2016, the researcher had relatively limited time spent in the study area. Nima being the main unit of analysis, and administratively managed by the Ayawaso East Sub-metro directorate under the overall supervision of AMA, makes it imperative for the study to be conducted in the AMA's headquarters, the Ayawaso East Sub-Metro Assembly and service users (Nima East). The study focused on PSP Regulation, SWC methods and quality of service delivery by private sector, thus private company officials were also interviewed in the study. The choice of institutions and personalities by researcher was informed by their understanding and roles in the implementation process of the research problem and questions respectively, Researcher made use of digital voice recorder to ensure accuracy in information acquired from officials, a further detailed field notes was taken as a backup, after which a check to confirm all relevant questions on interview guide had been answered, researcher manually transcribed interviews together with hand written notes. Data gathered was then sorted into various categories and properly labelled under various themes in relation to study objectives for

coherent and easy analysis. The main themes used for analysis were policy/implementation, institutional capacity, communication/tender processes and enforcement activities. The analysis and explanation of study findings involves a detailed description and interpretation of acquired data using direct quotations and narratives from study participants.

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Chapter 4: Research Findings

4.1 Introduction

This chapter present an insight of findings of the current Private Sector Participation regulation in the study area (Nima East), vivid information gathered through in-depth interviews analysed and outcome presented in tables and diagrams. It focuses on existing policies and regulations in place to attain quality of service delivery in SWC in Nima East, highlights existing SWC methods and provides a comprehensive insight of monitoring and assessment of private sector SWC service delivery in Nima East. The variables subject to discussion are PSP Regulation, SWC Methods and Quality of Service Delivery. The chapter interprets and examines findings of survey conducted among waste collection service users, interviews with municipal authorities and private sector officials to establish it linkage or otherwise to literature. The Accra Metropolitan Assembly is the major SWC service regulator, private sector collection companies being service providers and households in Nima East being service users. This chapter commences with a brief profile of study area. The statistical analysis of data attained is presented with graphs, tables and frequency distributions.

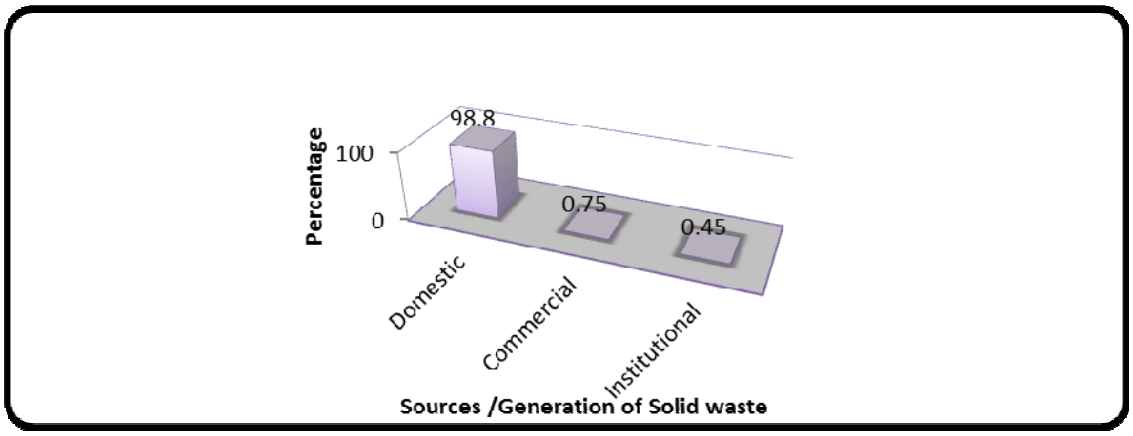
4.2 Profile of Study Area

AMA is located within the capital city of, Accra, and is one of the 216 MMDA's in Ghana with its office located right in the central business district. Traditionally, the AMA was established as a Town Council, under the then Town Council Ordinance of 1878 by colonial authorities (Report by the AMA, Headquarters, 2009). Local governments authorities including chiefs who then served in local government administration only had the powers to make bye-laws, Accra was eventually declared as a city in 1964 and AMA established by Provisional National Defence Council (PNDC) Law 207, now replaced by Local Government Act, 1993 (Act 462) (Report by the AMA, Headquarters, 2009). AMA geographically, covers an area of approximately 139.674 Km2 and lies in the dry equatorial climatic zone. The AMA is made of seventy two 72 communities out of eleven sub-metros and seventy six (76) electoral areas. Operationally, the AMA is made up of eleven sub-metro district councils and the general assembly which are mandated to perform various functions as delegated by the Assembly (Report by the AMA, Headquarters, 2009). The Ayawaso East Sub-Metro is made up of Nima, Maamobi, New Town and Kanda communities. The average monthly temperature of Nima East ranges from 24.7°c being the coolest in August to 28°c being the hottest in March, with mostly very little or no variation in temperature throughout the whole year. Nima East is located close to the equator and has daylight hours mostly unchanging within the year with relatively high humidity between 65% mid-afternoons and 95% at night. Nima East has mostly wind direction form the WSW to NNE sectors, with speeds usually ranging from 8 to 16 km/hr. (Report by the AMA, 2009).

4.3 Composition of Solid Waste

The generation and composition of SW in the Ayawaso East Sub – Metro is generally from domestic, industrial and commercial sources. Waste composition in the sub-metro consists of mainly domestic sources of entire SW generated. With a total of about 21, 937 solid waste generated in the metro, 21, 673 representing 98.8% originates from domestic sources, whilst 0.75 and 0.45 represent commercial and industrial sources of SW generated in the metro. A chart indicating above is represented below.

Figure 4: Source of SW in Nima East

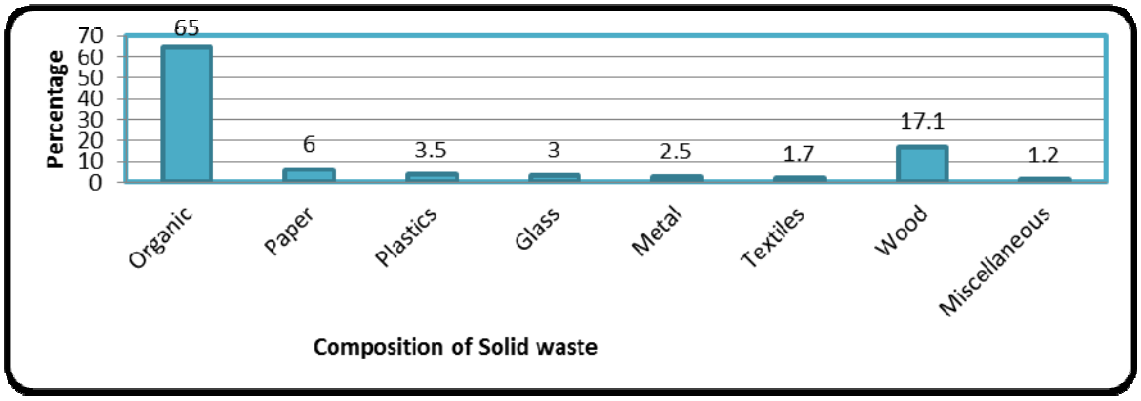


Source: Sub-Metro Report 2009

4.3.1 Domestic Sources, Generation and Composition

SW composition in Nima East is mainly characterized by organic waste and recyclables such as cardboard, rubber bags, papers, bottles, textiles and metals. According to a report by Accra Metropolitan Assembly in (2009), about 65% of waste composition in Nima is made up of organic waste, being an indication of relatively high rate of mortification thus the possibility of odour exasperation. Again, the high percentage of organics including vegetables is an indication of potential high humidity that makes SW susceptible to composting. The introduction and use of recycling could enhance efficiency and contribute to waste reduction in volumes of waste disposed at sanitary landfill sites (Klundert and Anschutz, 2001). Below is a graph indicating the composition of Waste in Nima East

Figure 5: Composition of Solid Waste



Source: Sub-Metro Report 2009

4.4 Demographic Characteristics of respondents

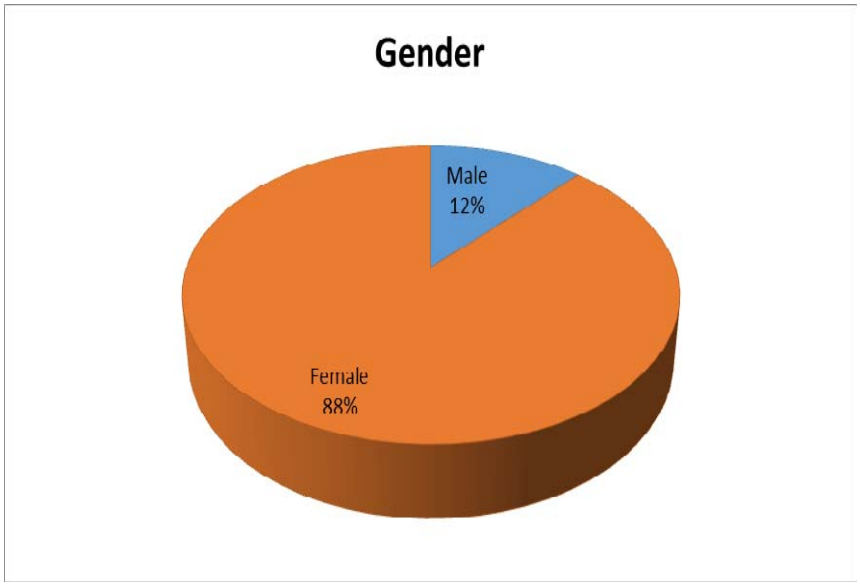
The demographic data was collected based on the following variables; gender, age and level of education to ensure a representation of major characteristics of the population of Nima East.

4.4.1 Gender

Out of the 100 respondents who participated in this study, 88% were females while 12% were males. Female dominance of the study depicts a typical Ghanaian community like Nima, where women are mostly responsible for household upkeep and cleanliness of surrounding

environments. The interpretation is that, females in households are generally in contacts with SWC companies than their male counterparts as presented in chart 4 below.

Chart 2: Gender

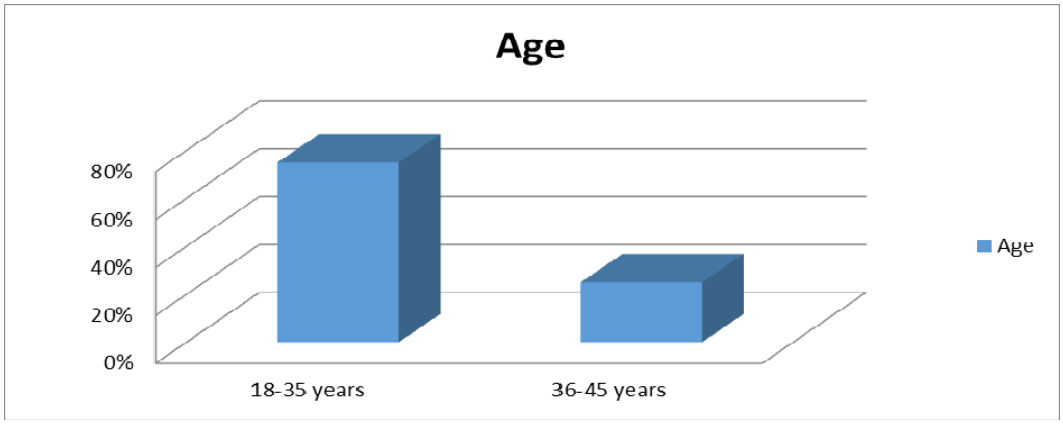


Source: Field Work, 2016

4.4.2 Age of respondents

The age distribution of the respondents reflected a more youthful population in the Nima East community. The study discovered that 75% of respondents were between the ages of 18- 35 whereas the remaining 25% fell between the ages 36-45 years. This representation is a reflection of a report by Ghana statistical service (2008) that more youthful population migrates to the city centre and settle in densely populated areas such as Nima with no proper sanitary conditions. The distribution is presented below.

Chart 3: Age of Respondents



Source: Field Work, 2016

4.4.3 Level of Education

According to analysis made, most respondents had acquired education up to the secondary level, out of the 97 respondents to this question, 59.8% had acquired secondary education, representing majority of respondents, those who had primary education constituted 35.1% of

the respondents with only 5% of respondents having attained tertiary education. It could be concluded therefore, that respondents of the study from Nima East, were averagely educated. The level of education of respondents is summarized in table 3 below.

Table 3: Level of Education of Respondents

Level of Education	Responses	Percentage
Primary	34	35.1
Secondary	58	59.8
Tertiary	5	5.2
Total	97	100

Source: Field Work (2016)

4.5 Assessing PSP Regulation/Institutional Capacity

The independent variable, PSP regulation, argued to have influence on SWC methods and quality of service delivery by private sector is in this study assessed by the following indicators; existence of bye laws, enforcement/penalties, frequency of tender bid advertisement, existence of open information on tender processes/contract award, number of training programes organized, number of times of monitoring private sector activities, number of educational/sensitization campaigns organized and existing methods of monitoring and evaluation of private sector performance.

The National Environmental and Sanitation policy (ESP) is the recognized and operational policy document that entails guidelines and institutional arrangement for PSP in solid waste management in Ghana; the ESP is however constructed with broader meaning more than limited to SWM. Key objectives as stated in the policy are "to develop a clean, safe and pleasant physical environment in all settlements to promote the social, economic and physical well-being of all sections of the population" (ESP, 2010). The ESP contains various activities related to the provision of SWM services by PS, public education, household responsibilities and individual action, legislation and regulation respectively. The ESP stipulates the following in relation to private sector participation in SWC and relevant to study area: that;

a) Bulk of environmental sanitation services (SWC) shall be provided by the private sector, under the supervision of the Public Sector, especially the Metropolitan, Municipal and District Assemblies.

b) "polluter-pays" concept be broadened and through the use of appropriate legislation raise revenue for financing environmental sanitation

c) The private sector shall operate within policies, regulations, supervisory and licensing arrangements set up by the public sector to promote efficiency and competitiveness.

In all cases the engagement of service providers shall be in accordance to the laws of Ghana and the Public Procurement Act.

The National Procurement Act (2003) referred to above by the ESP, obligate local government authorities to award SWC contracts to private sector companies transparently through competitive bidding (Oduro-Kwarteng, 2011), the National Procurement Act (NPA) specifies the following; that,

(a) Solid waste collection from individual institutional or domestic customers, contracted to private sector, subject to the supervision and setting of maximum tariffs by the Assemblies;

(b) Assemblies shall establish an enabling environment at all levels by enacting appropriate legislation, harmonizing ***byelaws*** *governing environmental sanitation service and developing standard contract and franchise documents;*

(b) Contracts, leases, franchises etc. must be clearly defined and awarded transparently and in such a way as to ensure active and fair competition;

(c) Strong and effective supervisory, licensing and performance measurement systems shall be implemented by the Assemblies;

(d) Assemblies must closely monitor costs (both internally and in the private sector), including the full cost of replacing capital equipment, so as to ensure the fixing of realistic and economically viable tariffs;

(e) Assemblies shall carry out public education campaigns to raise the status of environmental sanitation, public awareness of the costs involved and understanding of the need to pay for it;

(f) Assemblies shall enforce public participation in franchised services such as solid waste collection which have impact on community well-being.

The ESP further states that MMDAs " shall maintain adequate capacity to provide not less than 20% of the sanitation services and reserve the right to take measures to intervene and provide the services in the event of failure of the private sector to deliver the services due to industrial actions in their establishments or other reasons. From above, it clear that municipalities are sole agencies responsible for SWC and their various localities, they are however required to ensure enough capacity to be able to perform task directly or indirectly.

The ESP, as elaborated offers guidelines as to how solid waste collection by private sector should be organized by MMDAs. In-depth interviews were thus carried out with officials of AMA, Ayawaso East Sub-Metro, private waste company and a survey conducted to sample households on above mentioned indicators.

Existence of Bye Laws on Privatized Waste Collection

Bye laws are important policy mechanisms that facilitate enforcement of regulation on SWC practices in municipalities. The ESP admitting the negative impacts of indiscriminate dumping of SW on human health and the environment mandates municipalities to enact bye laws to guarantee proper sanitary conditions in municipalities. The AMA is one of main actors in the implementation of the ESP at the local level. Oduro Kwarteng (2011) opines that for SWC by private sector to attain required levels of service, there is the need for existing and applicable rules and regulations to govern entire collection system.

Under this section, researcher enquired form officials whether the Assembly had byelaws relevant to current SWC system by private sector, the purpose of this and subsequent follow-up questions under this indicator were to assess the existence and clarity of enacted by laws as required by the ESP

From interviews granted, almost all officials were quick to state that the Assembly had applicable byelaws relevant to SWC by private sector. Research in relation to the issue of existence of bye-laws on polluter pays system disclosed that, AMA has enacted its own bye laws to be enforced by the Waste Management Department (WMD) and the Environmental Health Department (EHD).

"The Assembly has its own bye-laws applicable to the current privatized SWC system which is enforced by the EHD. We have byelaws that prohibit public dumping and which allows prosecution and punishment of offenders. We also have byelaws guiding PS waste collection since that is the system largely used now. With the approval of the MLGRD, the AMA implemented the polluter pays principle in the municipality in June 2010; the implementation of this regulation (polluter-pays principle) mandates every household to register with recognized AMA waste contractor for regular collection of SW from their various locations at a fee. In time past, SWC services were exclusively delivered by the assembly for free, but we got to a point where we realized that the system was simply not sustainable, so the need for some sustainable measures including the polluter pays principle. We have had serious challenges in its implementation, especially with low income areas, due to the facts that, they are not yet used to the system of paying for SWC services. But yes we have byelaws related to collection system"

The above remark is in affirmation with (UNHABITAT, 2010), that SWC system should be guided and enforced by strong institutional guidelines that are proactive, these researchers suggest when administered would help attain quality of service delivery in SWC.

Answering questions to the kind of contracts agreements existing between the assembly and the terms of reference, respondents generally agreed that the assembly mainly operate a franchise system and usually contractors have a five (5) year contract agreement, subject to renewal through competitive bidding, In Franchising the municipality grants private SWC companies exclusive franchise or the right to deliver collection services in a well-defined area and collect fees directly from its clients. The municipality in turn taxes the companies, maintains supervisory and control roles over price fixture. SWC companies are required under the agreements to meet target set by municipality in franchise agreement. Respondent stated that:

"The assembly is gradually shifting focus from contracting agreements in SWC services to franchise, almost all SWC companies in the municipality operate under a franchise agreement, and the major difference here is that, under contracting, the Assembly does the collection of revenue from residents out of which we pay a percentage to private SWC companies monthly. Also unlike franchise where levies are fixed together with collection companies, the assembly on its own fixes levies under contracting. Most of the companies now operate under franchise agreements in the metropolis".

Terms of reference differ and are stated categorically in tender documents but mostly it is a five year agreement, when due contractors would have to renew their contract, but renewal is generally not automatic but subject to renewal process further approval upon assessment" waste companies of course pay taxes to the municipality.

In response to a question on whether private sector participation has been beneficiary to the assembly, respondents, were optimistic,

"*At the moment I can say there have been some improvements in SWC in Nima; but private companies still need to build up capacity (human and capital) to be up to the task. The assembly lacks logistics and adequate human capacity to collect waste in the entire metro, also when the assembly does the collection, the people feel they should not pay, they believe it is government responsibility, in that sense private sector engagement is useful and hopefully with time I think they would perform better than they do now, but they are doing well, the number of heaps around Nima is*

reduced significantly, I think the people themselves must also be mindful of their attitudes towards waste".

The statement above is in accordance with widely shared opinion by researchers that private sector participation in SWC generally improves quality of service delivery; however, it requires law enforcement (UNDP, 2009). .

Monitoring/enforcement

Respondents agreed also that, the EHD responsible for monitoring and enforcement of SWC service delivery by private sector performed it duties, though limited, but the assembly is however cautious and restricted in enforcing sanctions due to assembly's incapacities.

"*The EHD's monitoring team responsible for evaluation and monitoring sanitation related issues in the metro including service delivery by private sector keeps it eye on private waste collectors (moves round according to weekly time schedule), to ascertain whether companies comply with regulations (covering trucks, collects regularly etc) clearly stated in contracts agreements. All these are specified in contract documents and defaulters are either cautioned or under extreme cases fined/contract abrogated. You will agree with me, that as well as sanctions are necessary, sometimes dialogue, is important, it is not always that sanctions are solution to issues of this nature (relating to SWC by private sector). When there are defaults, we resort to dialogue (interactions with private company), to ascertain why they are doing contrary to what the agreement says, in the event that there is no change, then the last option is (which is implemented, but not often) to crack the whip, (apply sanctions). You need to be careful in arriving at sanctions, because if for instance you sanction the private company for flouting a rule, who is going to do the collection? The assembly is already burdened and less resourced, you aggravate the situation".*

The Statements above confirms an assertion by Halfway, (2008), that PSP in SWC requires a well-equipped and resourced public sector to regulate, monitor and enforce existing rules and regulations. The assembly according to respondents lacks adequate resources which impedes performance of their assigned duties, to step in the event of poor performance by private sector. This adversely affects quality of service delivery, since according to respondents the incapacity of the municipal assembly makes it difficult to enforce sanctions.

An official who spoke on anonymity stated that;

"We are aware of our roles of enforcement of byelaws, but we are limited in capacity and resources, the assembly needs training and recruitment of qualified staff administratively, but the political figures do not allow it that is why we are where we are, we are trying our best under the circumstance"

Frequency of Monitoring

Monitoring is an important means of certifying quality of service provision by PS, in waste collection. . This study found that, it was clearly stated in contracts document that "All duties of the Franchisee, as stated in this agreement, shall be monitored by persons, group of persons or organisation selected by the municipal assembly. The assembly may choose to assign responsibility of monitoring performance of waste collection companies regularly to the assembly's own staff, or enter into agreement with a private entity to supervise the performance of service. The strictures set for performance monitoring in the assembly requires that collection companies provides information below on monthly basis at review meetings with assembly officials,

- Service frequency
- Equipment availability and performance
- Number of households registered/service

In response to a question whether PS waste collection activities are monitored regularly by the assembly, respondents from waste companies held the view that generally the assembly does check on their activities to ensure companies comply with contracts agreements, however, the frequency of checks respondents could not tell researcher. Respondents acknowledged they meet occasionally not specific times with time schedule at review meetings.

"Yes, the Assembly comes in when they discover you are underperforming, I don't know how often this is done, but I am aware they do move around sometimes to check on our work, we do see them around and occasionally they come over to ask some questions here and there. But there is a review meeting also where performance is assessed among other issues. This is organised sporadically".

The study found that the assembly had set indicators clearly stated as guidelines for monitoring PS performance and efficiency in SWC service delivery, the relevant indicators for study area included;

- Frequency of collection (door to door service users)
- No. of households served
- Frequency of vehicle breakdowns
- User tariff collection rate

Observation by researcher suggested the assembly only intermittently carried out equipment checks and there were no effective regular or monthly review meetings. Researchers request for existing monitoring schedule was futile, since it did not exist. The environmental sanitation policy mandates assemblies to conduct regular monitoring and evaluation of private sector waste collection companies; which is also the view point of Oduro-Kwarteng (2011) attesting that regular monitoring of service delivery by private sector in SWC is an essential tool for a successful and effective service delivery. Private companies in waste collection perform below requirement when aware that their performance is not checked regularly as required by existing regulation. Above gives an indication regulation is ignored and this affects collection negatively.

Tender Process

Appropriate tender process ensures transparency, fair competition and accountability in order to attain quality of service delivery in SWC service by PS. Researchers conclude this ensures PS companies with required equipment and human resources capable of delivering effective and efficient SWC services is awarded the contract. Secondary sources of data reviewed advocates firm adherence to tender procedure in awarding SWC contract. It was established by study that tender calls for expression of interest in SWC contract is mostly published for over a week in Ghanaian dailies, particularly state owned dallies which is wide spread and for purchase in almost all regions. The assembly upon receipt of various expressions of interests invites bidders to purchase tender documents. According to respondents, for fairness and transparency in the bidding process, all bidders are usually invited at the same time and same notice to the assembly or any previously agreed venue for the bidding process. Officials claim or bidders are treated equally, however in interviews with private companies they had their own reservations. According to assembly officials:

"Adverts on waste collection contracts are placed on both electronic and print media, as well as on the notice boards of sub metros for not less than a month, after which bids are submitted by interested companies. The process is very open to all bidders and at the end of the process it is only companies that meet contracts specifications and requirements that are given the contracts" In response to a follow up question on what the process is, the respondent explained further that,

"Procedures are noticeably stated in tender document, but briefly what happens is that, bids are opened by AMA officials, representing the employer, "The Employer opens the bids, in the presence of bidders or their representatives present at the place and time of meeting which is specified in the bidding data. At the opening, bid prices, names amount of each bid, discounts, bid withdrawals and modifications, presence or absence of bid security and any other detailed information considered appropriate is given by employer at the opening. In accordance with the procurement law, the employer only evaluates and compares bids that seem responsive and in accordance with bidding documents. Employer awards franchise to eligible bidder whose bid is considered responsive to bidding document and offers lowest evaluated bid price".

This position above though affirmed by respondents, a respondent speaking on anonymity added that, though contract is awarded on merits sometimes, not without difficulty from political office holders. Respondent stated that;

"*The law mandates the assembly to award SWC contracts on merits to companies that have capacity in terms of personnel and collection vehicles, and that is what we strive to do, in view of pressure from political office holders".(Official AMA).*

This later position was however in line with the views of private sector collection officials. Respondents mentioned that they won their bids through open and competitive bidding and considered the process fairly transparent, they however stated that politics and corruption played a role in SWC contracts in AMA and in their opinion, affects quality of service delivery. Selection of SWC companies according to PS officials who responded only on anonymity suggested that bids are sometimes organized in some secrecy due to political reasons, to enable companies that are affiliated or linked to government in power awarded SWC contracts.

"There were some instances recently where companies awarded SWC contracts went through the back door and dealt with political representatives in the Assembly who are themselves government appointees and they had their way, ignoring due process. This happens, and due process is just not followed, assembly officials who are not politicians but have responsibilities to play are ignored and kept in the dark. There are sometimes virtually no advertisement and even when it is done, it is mere camouflage, the company that will win the bid is already aware, that is the system" The problem here is, when politicians use their influence in awarding SWC contract to companies of their choice in a corrupt manner, such companies do what they prefer even in contravention to contract agreements, why? Because they know they cannot be checked, they already "paid" for getting the job and this affect service delivery"

"Politics play much role even in the determination of designated areas of work to private companies, the size and areas assigned to SWC companies depends on which political party you are affiliated to, that will decide whether or not you are assigned subsidized or non-subsidized areas, (low or high income areas) and how small or big service area is" this is a fact.

Above views contravenes UNECE (2008) viewpoints that, fairness in decision making and equal access to information during and after SWC tender processes is a prerequisite for attaining quality of service delivery. Other researchers argue that favouritism in SWC awards, which seem to be the case in study area as claimed by respondents, permits inexperienced SWC companies to be given collection contracts; this impedes good governance practice in SWC and also not in the interest of users that service authorities seek to serve (UNOPS, 2012). Observing PSP regulation under this circumstance would require that contracts in SWC is awarded transparently, thus doing contrary to PSP regulation is mentioned to affects service performance by unequipped and incompetent waste companies. This affirms researcher's arguments that PSP regulation and its implementation has influence on SWC service delivery.

Existence of open information on tender

UNOPS, (2012) advocates the need for publication of tender and procurement processes in SWC by private sector to minimize corruption and award of SWC contracts to tenderers officials prefer. Procurement processes rendered in secrecy allows which corrupts practices.

Whilst respondents generally agreed that information about SWC bids were advertised, they revealed they relied on their own personal reliable sources of information within the municipality where they sought information about SWC contracts bidding, since they could not rely on the public advertisements.

> *" We have our own source of information within the Assembly who notifies us weeks or sometimes months before the advertisement is put on air, these advertisements are mostly limited to state owned print and electronic media and sometimes at very short notice.*"

Again respondents gave splendid explanation of the type of SWC contracts they had with the assembly: respondents explain thus**:**

> *"Under the contract agreement, which is franchise, we do our own revenue collection, purchase our own equipment and the assembly just gives you an area (franchise area) to serve, you are obligated to purchase and distribute dust bins. It is also our responsibility to educate our service users through public campaigns the importance and hazards of SWC practices which we do, uhhr, but let say not very regular***".**

> *" yes it is all in the franchise agreement, the contract outlines that we have a specific number of specified trucks, do maintenance over a period of specified time, buy our own spare parts and pay our drivers and staff as well, the municipal assembly only to supervise us"*

Respondents were of the opinion that though the municipality was to enforce payment of levies they usually do not, due to various reasons including political.

> *"Non-payments of collection fee by residents are reported to the assembly, and by law defaulting users are required to be prosecuted, am yet to see anybody being prosecuted. This is sometimes due to political reasons; you know, people associates paying solid waste collection fee to politics, let me say politicians themselves do. So majority of the people we serve still believe it's the responsibility of government to pay for SWC. Politicians are always afraid to lose elections and prosecuting offenders will cost them votes".*

Capacity building/number of training programes

The ESP, 2010, states that '*the assembly shall be responsible for the collection and disposal of solid waste. These services can be provided either directly or indirectly through private contracts or franchisees. In all cases, the assembly shall maintain an in-house capacity to provide at least 20% of services directly'*. Fundamentally the major SWC function the assembly performs through their WMDs is monitoring and evaluation activities of private companies, this requires some skill and expertise, again as stated by respondents, in the events that contracts agreements are abrogated, assemblies are required to step in, the assembly requires adequate human and technical capacity to be able to perform assigned roles. Investigations by researcher revealed that organization of training by the assembly for staff was limited due to non-availability of resources, logistical and institutional support, however, in previous years, NGOs and some international bodies supported the assembly staff in monitoring and evaluation training programmes but acquired knowledge never implemented.

A respondent from Private Sector SWC Company who made a salient point relating to assembly's capacity explained that:

"*The Assembly cannot collect all the waste in the metro, they lack the capacity to do the collection, that is why they have engaged our services, efficiency requires they do so, they only have to ensure enabling environment for us to operate."* .

Other relevant quotations during interviews inferred the municipality was woefully incapacitated in performing it assigned roles.

Capacity building for municipal workers in SWC by private sector ensures that officials are able to perform assigned duties adequately and to improve quality of service provision in the municipality. In an interview, respondents mentioned the assembly is challenged in human resources obstructing it assigned duties. UN-Habitat (2010), maintains that private waste collection companies' ability to deliver service effectively relies largely on the capacity of municipalities to build, safeguard, enforce and ensure compliance of regulation transparently, this view the study shares.

Education/ sensitization Campaign

It was established through various interviews that as part of franchise agreements, it is the responsibility of the private sector to educate its users on waste collection related issues; the assembly is however, required to ensure this is done by private sector. Education on the importance of proper practices by users is a fundamental step in ensuring that cleanliness is maintained in the Nima community. Bhuiyan (2010) argues that awareness campaigns are essential to the sustainability of SWC systems and maintains it is the responsibility of assemblies to initiate such campaigns, which is contrary to what the franchise agreements with private companies outlines, that notwithstanding, the assembly has a responsibility to enforce it application. Considering the relatively low level of education of the respondents in this study, there is the need for an active sensitization of inhabitants of Nima on proper waste management, particularly considering the relatively average number of formal educated populace. To examine and establish how regular educative programmes related to SWC are held, analysis revealed an overwhelming results, 93.8% of respondent answered no, meaning they have not been given any education in relation to SWC best practice, only 6.3% mentioned that they have had such education . This finding raises critical issues, on the part of the assembly and enforcement of contracts agreements. As stated above and mentioned by respondents during interview, private sector companies are required to organise

campaign programes to sensitize users on SWC best practice, according to analysis, it is not adhered to, however, researchers' define that for PSP waste collection to be effective and efficient, guiding rules and regulations must be observed Oduro-Kwarteng(2011). Good governance practice in SWC, which is ideal, requires implementation of guiding rules and regulations (UNOPS, 2012), implying the assembly must ensure franchisees organize sensitization programes for their clients. Some citizens may not be mindful how they dump waste publicly and thus flout rules and regulations intentionally or unintentionally, the need therefor for awareness creation and appropriate regulation (UN-HABITAT 2010).

Table 4: Users Opinion about Sensitization Programes

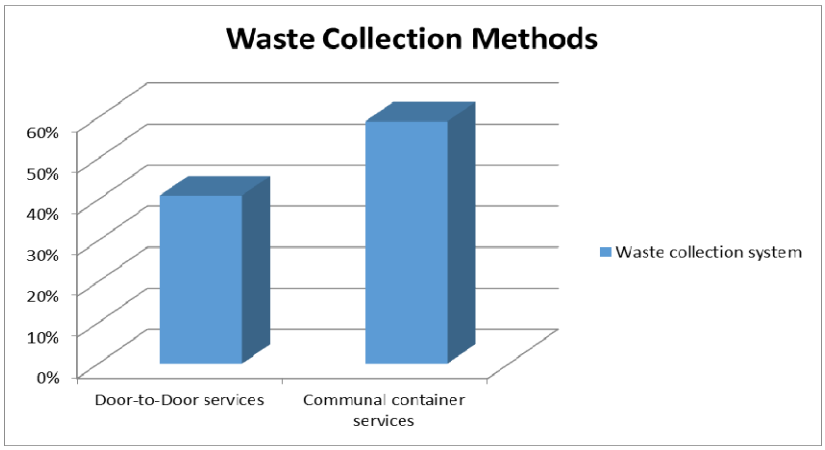
	Responses	Percentage
Yes	6	6.3
No	90	93.8
Total	96	100

Source: Field Work (2016)

4.6 Solid Waste Collection Methods Used by Respondents

In analysing dependent variable, Solid Waste Collection, to establish how it is influenced or otherwise by independent variable (PSP regulation) as established by researchers, the study used these indicators; *types of collection*, *types of equipment/ covered or open vehicles* and *frequency of equipment breakdowns.* In accordance with study intents to also evaluate the current solid waste collection methods in Nima East, the researcher sought to investigate the type of waste collection system used by respondents. It emerged that SWC collection methods largely used were door-to-door and communal container services. It was established that Private Sector Company offered door to door services whilst the municipality offered communal container services. The door-to-door service provided in Nima East was such that service delivery personnel picked waste bins outside households on agreed days, whereas communal container service users deposit their waste in large garbage collection bins or containers placed at vantage points within the community. The analysis conducted revealed that 41% of respondents had subscribed to, and used the door-to-door services in Nima East community. This method (door-to door) is mostly run by the private sector in SWC system as opined by Oteng-Ababo, (2013). Majority of respondents constituting 59% of research population indicated they use the communal container service. This method of collection, according to researchers, is generally used by both private SWM companies as well as the metropolitan assemblies. According to (Oteng-Ababio, Arguello, et al., 2013), door-to-door collection system, within the Accra metropolis, is prevalent in the middle and upper income areas whilst communal collection method is widely patronised in low income and highly populated areas like Nima. The ensuing discussion points to the fact that the private sector waste company and the municipal assembly are both engaged in the collection of solid waste in Nima East, however study shows that majority of residents in Nima, a classified densely and urban poor community patronize communal container services, this is in agreements with Oteng-Ababio, Arguello, et al.(2013) views above. The study further observed and also confirmed by interviews with private sector operatives that, most of the uncollected and littering occurs around communal container areas, and presumably dumping on the streets, in front of houses, and gutters by central container users, either as a result of not-wanting to pay as they dump or, as a result of uncollected containers.

Chart 4: SWC Methods



Source: Field Work (2016)

The municipality, it was revealed operates a pay as you throw (PAYT) system of collection for communal container users, at a subsidized fee, yet potential users do not patronize as expected which makes recovery for maintenance and purchase of equipment difficult for the assembly. It was revealed also, that prior to implementation of PSI in solid waste collection in Nima, there was no public sensitization, and members of the community were not involved in decision making or informed of any such decision by the assembly. It was clear from the survey that 91.7 % of respondent had virtually no idea about private sector participation; there were no forums or meetings to solicit for views for inputs, however, 8.3%, had prior knowledge. Users' involvement before the introduction of PSP and regulation for cost recovery was very poor, this could possibly contribute to low patronage since ISWM proponents advocates the involvement of all stakeholders in SWC system in decision making and implementation process to facilitate efficiency and compliance of regulation (Klundert and Anschutz, 2001). In the absence of knowledge about the need and use of a new system, compliance could be difficult as observed in Nima.

Table 5: Knowledge about Private Sector Participation/PAYT

	Responses	Percentage
Yes	8	8.3
No	88	91.7
Total	96	100

Source: Field Work, 2016

Picture 2: Communal Container Dumpsites

Source: Field Work (2016)

Types of equipment

Attaining quality of service delivery in SWC requires having sufficient equipment to enable proper running of service delivery (Oduro-Kwarteng, 2011). The study revealed that failure of previously organized SWC systems in Nima is attributed largely to non-availability of operational and back-up equipment to support operations. The contract agreement currently request collection companies to have a number of backup vehicles at their disposal to ensure there is no hold up in service provision, when there are equipment breakdowns. The study findings relating to methods of collection disclosed that types of equipment for SWC service delivery in the municipality is clearly specified in contract agreement and ought to be made available for inspection prior to beginning of operations by company awarded waste collection contract. The following are stated as essential equipment required related to SWC service delivery in the municipality; two (2) covered waste collection trucks of capacity not less than 14m3 and payloads of above 10,000 kg and two (2) trucks containers (skip hoist) of payloads not below 4,000 kg. The franchise agreement makes it mandatory for service providers to have back up vehicles," properly cover and contain Solid Waste Loads with nets, tarpaulins and any other means which may be appropriate to the type of equipment or vehicle used from collection point to final disposal site". It was established that there was no such inspection of equipment as indicated in the contract. Information available indicated that collection companies for Nima East had 2 compaction trucks (closed types), 2 roll on roll (open types) and 2 skip loader 14m3, this is in conformity with contracts agreements. The study observed further that, though equipment were imported, spare parts were locally acquired, thus makes it easier for companies to fix problems in the event of breakdowns. It was also established that equipment used were mostly companies' property. Investigation gave an indication that collection companies had enough trucks to provide quality service as stipulated in contract agreements but had difficulty in it maintenance due to assembly's non-enforcement of cost recovery regulations and the use of bad roads. Respondents also mentioned regular breakdown of vehicles as a result of bad roads in Nima, they however, claimed that fixing of breakdown collection vehicles do not last for more than 12 hours.

Respondents mentioned that:
"Due to insufficient vehicles and regular breakdowns of equipment, previous providers performed poorly, current contractor is performing fairly well, looking at the constraints"

"In the event that, a vehicle breaks down for repair or maintenance, the contractor is expected to use a standby or back up vehicle to continue its operations; this is to prevent heaps of waste in their operational area which is normally the case when there is a breakdown"

An in-depth interview and observation in Nima, disclosed that private companies had standby equipment to supplement service provision in case of breakdowns, they however had difficulty in it maintenance due to low cost recovery and bad access roads.

Respondents stated as follows:

> *"It is clear in our franchise agreement to have back-up trucks in addition to the required operational trucks, this allows us continuation of work when our vehicles are down, we have 2 extra backup vehicles, yet due to the nature of roads, as you can see, our equipment keeps breaking down, almost every now and then, to the extent that sometimes we have to rent to enable us work, but this is very expensive and we do run at a lost at times. This is as a result of non-payment and non-registration of users, which is why the assembly must enforce the law, if they do it will make work easy for us"*

> *"We are faced also with the problem of lack of funds to maintain and purchase collection equipment, some users are just unwilling to register with us to utilize service and others just won't pay for services rendered. These constrain us, because occasionally we need to rent equipment to make sure work is done and it is difficult, very difficult, the assembly should enforce payments and registration as the law says*."

Researchers maintain that, covering of SW collected during transportation to disposal site is very important for environmental cleanliness, they claim further that, the probability that uncovered collected waste is blown indiscriminately by wind which causes littering and air pollution is high when SW collected is not covered during transportation. The study observed that, most of the open collection vehicles used were covered with net or improvised cloth during transportation and this possible prevent bad odour and littering around as indicated by researchers.

4.7 Quality of Service Delivery

In assessing variable Quality of Service Delivery, the study sought to examine the performance of SWC service using the following indicators: cleanliness of service area, service coverage, accessibility, customer satisfaction and availability of complaint mechanisms. These indicators are found to be set objectives by municipalities to be actualized in practice by SWC service providers. User opinions about reliability of door to door services were rated high compared to communal container services. The survey showed that there were significant difference in terms of regular and consistency in collection between door to door service users and communal container users. While door to door users generally agreed that waste was collected once or twice a week on the average on previously agreed days and sometimes thrice, a week, container users indicated collection was had no specific times of collection.

It was observed by researcher that, Nima East had six (6) container points, which residents considers somehow too far from community, thus in their view not accessible. The study established that cleanliness at container sites were poor due to the fact that spill over from communal containers onto the floor were very common at almost all container sites. This was also confirmed by respondents as well as service users. Users confirmed that communal collection areas were usually not cleaned for days, sometimes weeks.

Picture 3: Spills Over at Container Sites

Source: Fieldwork (2016)

Users of house to house waste collection by private sector however, indicated that quality of service was relatively good, though incidents of spill over was experienced and non-collection, it was minimal, majority of users agreed solid waste was collected on time, ostensibly in view of the fact that users pay for services and demand reliability to prevent refuse overflow in front of their various homes.

Reliability of Provision of Service

Frequency of collection

Frequency of SWC enhances cleanliness of service areas whilst inadequacy in collection areas promotes indiscriminate dumping. According to research findings private waste companies are able to cover all households under its jurisdiction; the frequency for door to door collection was once a week, whilst that of communal container sites ranges from once a week to thrice in a week depending on as and when it's get full, it was observed however that it overflowed on daily basis. Researcher observed that containers were full in some sites for over two weeks without collection or cleaning. It was observed that containers generally got full within a day or two and required lifting otherwise overflows. With regards to the frequency at which waste is collected by the private sector, 39.1% of the 69 respondents mentioned that it was collected once in a week. It was also stated by 40.6% of the respondents that collection was done twice a week. Only 20.3% revealed that collection is done thrice a week or more. This implies that collection of waste by the private sector is done within relatively shorter intervals. Table 6 presents the findings.

Table 6: Frequency of Collection by Private Sector (door to door)

Frequency	Responses	Percentage
Once a week	27	39.1
Twice a week	28	40.6
Thrice a week or more	14	20.3
Total	69	100

Source: Field Work (2016)

Chi-square test on the relationship between collection methods and the frequency of collection

A chi-square test conducted to investigate whether there were differences in the frequency with which waste is collected through the door-to-door system and the communal container system, revealed that there is a significant relationship (p-value = 0.000, df = 2, X2 value = 35.416) between the type of waste collection system and the frequency at which waste is collected. It was revealed that 77.4% of those who subscribe to the door-to-door system had their waste collected once a week. Only 19.4% and 3.2% had their waste collected in two weeks and three weeks respectively. However, as low as 7.9% of those who patronized the communal container system stated that waste is collected once a week. Majority of the communal container users, representing 57.9% were of the view that the waste is collected twice a week. For those who mentioned that it is collected thrice a week or more, they constituted 34.2%. This implies that the service providers are more frequent in collecting waste from the door step of the inhabitants than that from the communal containers. The analysis has been summarized in table below.

Table 7: Chi-square Test on the Relationship between Collection Methods and Frequency of Collection

		FREQUENCY AT WHICH WASTE IS COLLECTED			
		Once	Twice	Thrice a week	X^2 (35.416)
	Door-to-door	77.4%	19.4%	3.2%	
					Df (2)
	Communal container	7.9%	57.9%	34.2%	
					P-Value(0.000)

Source: Field Work (2016)

Consistency of waste collection services

Respondents were further asked to indicate whether or not the collection of the waste was consistent. Majority of the respondents representing 61.1% were of the view that the collection of the waste from their households was consistent. Conversely, 38.9% disagreed with this proposition that waste collection in their homes/households was consistent.

Table 8: Consistency of House to House Collection Services

	Responses	Percentage
Yes	58	61.1
No	37	38.9
Total	95	100

Source: Field Work (2016)

Effects of inconsistent collection of waste

Respondents who were of the view that the collection of waste from their households was not consistent were further asked to indicate the effects of the delays and the inconsistencies. Out of the 33 respondents who answered this question, 45.5% opined that it leads to spill overs at the communal containers/bins. This obviously, is not a pleasant sight and serves as the breeding grounds for disease causing insects and other harmful organisms. Consequently, 54.5% are of the view that such inconsistencies attract flies and rodents all over the Nima community. Hence, inconsistencies pose a great threat to the health and general wellbeing of those who live in and around Nima East community. Table 9 presents the findings.

Table 9: Effects of Inconsistent Collection of Waste

Effects	Responses	Percentage
Spill over at communal containers /bins	15	45.5
Presence of flies/rodents all over the vicinity	18	54.5
Total	33	100

Source: Field Work (2016)

Types of Storage Containers Used by Respondents

Waste storage containers or bins are considered essential to the success of attaining quality service delivery in a waste collection system, since it plays a major role in ensuring environmental cleanliness of collection service area. The use of appropriate SWC bins according to literature possibly reduces spillage, offensive odour and breeding of insects in service area. The type of bin used could either facilitate easy collection and emptying of solid waste by waste collectors or make it difficult for collection (Coffey and Coad, 2010). Research findings pertaining to the type of waste storage containers used by respondents revealed that 69% of respondents use plastic containers for the storage of SW generates. Those who use plastic bags (polythene bags) for this purpose were 18%, baskets and metallic containers are used by 12% and 1% of the respondents respectively. The type waste storage container researchers suggests influence the appropriateness of how waste is stored until it is finally collected. Among various types of storage containers mentioned above by respondents, the use polythene bags is the least secured way of storing waste safely enough to prevent stray animals and flies from 'feasting' on SW generated. It could be argued however, from analysis that other methods used apart from polythene bags are more appropriate methods for storage of solid waste until it is finally collected. A summary of the discussion is presented in table 10 below.

Table 10: Types of SW Storage Containers

Storage container	Responses	Percentage
Plastic container	69	69
Plastic bags	18	18
Basket	12	12

Metal container	1	1
Total	100	100

Source: Field Work (2016)

Methods of Disposal of Uncollected SW

In relation to users' means of disposal of SW in the absence of regular collection, open dumping is resorted to by 39.1% of the respondents as a means of disposing their solid waste this is unacceptable . Some 40.6% burn the waste they generate while 20.3% dispose their solid waste by burying it.

Table 11: Disposal of Uncollected SW

Frequency	Responses	Percentage
Open dumping	27	39.1
By burning	28	40.6
By burying	14	20.3
Total	69	100

Source: Field Work (2016)

Complaints services

The franchise agreement document entails that service provider forms a complain mechanism to attend and address feedback issues from service users. "The franchisee shall operate and establish a complaint and public liaison office within its assigned area of service. The franchisee shall also establish and operate a telephone lines at the said office for complaint and receipt of user comments. The said office shall have at least one responsible officer in charge". Contract agreement showed states further that providers shall on further keep records of complaint received and responded to and upon request by assembly officials on monitoring make such log book available, however study revealed service providers had no such complaint mechanism as required by law, most importantly the assembly did no checks to ensure this is complied with. PSP regulation is seen flouted by service providers due to lack of enforcement by municipal authorities. As part of the objectives of this study to assess performance of service delivery, respondents were asked whether there were any mechanisms through which they got their complaints to the service provider, findings showed that an overwhelming 88% of the respondents were unaware of the existence of any complaints service, however if they had any compliant, they would complain to collection officers. This suggests that majority of the respondents who took part in this study do not get the opportunity make their grievances and dissatisfactions known to the agencies who are in charge of the collection of solid waste from their homes. In the absence of constant feedback through an effective complaint system, it would be difficult to assess the performance of companies in the discharge of their services. However, only 11.7% revealed that yes, they are aware of the existence of such complaints systems, this is a sharp contradiction to Oduro-Kwarteng (2011)'s assertion that prompt response to user complaints is an important indicator of quality service delivery in SWC system, hence it existence a necessity. The service provider therefore must step up its effort to ensure that complaints are given the necessary attention and quickly resolved and municipality perform it assigned duties of monitoring and supervision of SWC companies. Table 12 present findings below:

Table 12: Complaints Mechanism

	Responses	Percentage
Yes	11	11.7
No	83	88.3
Total	**94**	**100**

Source: Field Work (2016)

Response to complaints

As mentioned above by respondents, in the absence of any complaints mechanisms, they reported any collection related problems they had to collection officers; researcher again enquired from respondents whether they received prompt responses to their complaints on waste collection problems. SWC systems that allow feedback on service provided and act swiftly on users complaints, promote increased levels of satisfaction towards rendered services by provider. On complaints made to solid waste companies are swift, inhabitants will develop a level of increased satisfaction towards the services rendered by service providers. Findings showed that 80.2% of the respondents received no prompt response on complaints on waste collection problems. Oduro-Kwarteng (2011) opines that the level of satisfaction of SWC service users facilitate the assessment of how well service providers are performing hence the need for means of redress, above findings is a reverse hence municipality may have difficulty in assessing service performance.

Table 13: User Feedback

	Responses	Percentage
Yes	4	4.7
No	69	80.2
Sometimes	13	15.1
Total	86	100

Source: Field Data (2016)

Service Coverage

Investigations by researcher in Nima East, gave an indication that, most registered households (house to house) were served, this was confirmed also in an interview with waste collection officials.

Responding to a question percentage of coverage area, respondents from private sector agreed on the following:

"We are able to serve entire jurisdiction, all households are served according to our time schedule, you see, people don't understand the issues at stake, so they box up everything together and blame private companies wherever there is littering or no collection, we are not the ones responsible entirely for the whole area, the municipality is as well, they have not implemented the law fully, so they are still responsible for communal collection, when it is full, then the users litter around, the mess you see around here is mostly not from our users, agreeably we have our own problems too, in our case, resident refuse to subscribe and the assembly does nothing about it, also when those we have serve do not pay for services and we report to the assembly, virtually nothing is done. The problem has to do with enforcement of

the bye-laws, residents can litter around in gutters broad daylight and go scot free, and of course this happens when the central containers are full too, the assembly must implement the law, force users to subscribe to private sector collection, after all the municipality itself have no capacity to do the collection".

Customer Satisfaction

In response to how satisfied users were with service delivery, 9.1% of the 77 responses indicated that they were very satisfied with the services by private sector. 64.9% were of the view that they were reasonably satisfied with SWC while 26% stated they are not satisfied at all. This confirms a study by Oduro-Kwarteng and Dijk (2013) that the involvement of the private sector in waste collection has augmented the efforts of the municipal assembly and increased the level of efficiency in waste collected, that notwithstanding, he explains that attaining quality of service delivery relies largely on PSP regulation enforcement.

Table 14: Satisfaction with SWC Services

Frequency	Responses	Percentage
Very satisfied	7	9.1
Reasonably satisfied	50	64.9
Not satisfied at all	20	26
Total	77	100

Source: Field Work (2016)

Reasons for Dissatisfaction

Respondents were further asked to mention the reasons for their dissatisfaction with SWC service provision, in all, 23 responses were given to this question. Out of this number, 52.2% were unhappy because of inconsistencies, 34.8% were not satisfied because of the location of the communal container in the vicinity. Only 13% were of the view that the intervals between collections were too long thus dissatisfied with waste collection services provided.

Table 15: Reasons for Dissatisfaction of Collection Services

Frequency	Responses	Percentage
Services are not consistent	12	52.2
Location of Container	8	34.8
Intervals within collections	3	13
Total	23	100

Source: Field Work (2016)

Respondent as indicated below were not enthused by consistency of collection at communal container sites as 71.6% opined that communal container collection was inconsistent, 28.4% however stated that container collection was consistent.

Table 16: Consistency of Communal Collection Services

	Responses	Percentage
Yes	17	28.4
No	43	71.6
Total	60	100

Source: Field Work (2016)

Enhancing quality of service delivery in solid waste by the private sector in Nima East

In order to find sustaining measures to enhance the quality service rendered by service personnel in SWC in Nima, respondents were asked to share their opinions on how this can be achieved, out of which 21.7% were of the opinion that companies required some additional financial support. Majority of respondents representing 26.1% held the view that consistency in collection by service providers was important in ensuring quality service delivery in Nima East as advocated by Coffey & Coad (2010) that frequency of waste collection deserves maximum attention in SWC system. According to 17.4% of respondents, provision of enough communal dumping sites was necessary for ease of dumping. Accessibility to collection sites as opined by 13% of respondents ought to be improved. 13% of respondents further suggested the provision of collection trucks to boosts waste collection by private sector. For 4.3% of respondents, involving more private waste companies in service provision would enhance quality service delivery. Equal percentage (4.3%) opined that to improve on service delivery and increase customer satisfaction, users must be well informed before any major decision making regarding waste collection in Nima East. This is presented in figure 6 below.

Figure 6: Ways to Enhance Quality Service Delivery

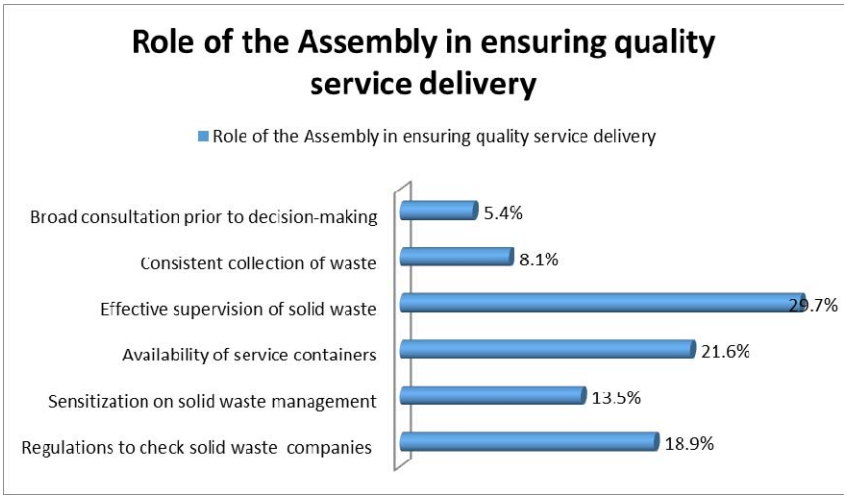
Source: Field Work (2016)

Assembly's role in ensuring quality service delivery in Nima

In all 37 respondents provided answers to this question. Out of which majority 29.7% stated that the assembly must be seen to supervise SWC services in line with relevant regulation. 21.6% of respondents were of the opinion that adequate central containers should be made

available for efficiency in SWC service whilst according to 18.9%, the assembly must have solid regulations to control activities of SWC companies. The above is in agreement with suggestion by Oduro- Kwarteng (2011) that performance monitoring, guiding rules and regulations and penalties are effective ways of making sure that the private sector operates at a desirable level in waste collection. Milea (2009), argued that the problem with waste collection is a matter of human behaviour, thus to attain any success in waste management, human behaviour must be change, it is established that, awareness campaigns could positively change or correct peoples negative attitudes towards handling solid waste (UN-HABITAT 2010). In line with researchers' views, 13.5% proposed that the assembly must continuously explain to users and the community at large the relevance of proper waste collection practices. According to 8.1% of the respondents, the municipal assembly must supervise and ensure consistency and regularity in frequency of SWC as advocated by Coffey and Coad (2010) that frequent collection must be a top priority of solid waste collection companies if quality service delivery is to be achieved. Only, 5.4% mentioned that the assembly informs them before any major decision is taken. Above represent user acknowledgement of the need and importance of municipal supervisory and enforcement roles to attain quality of service delivery in SWC in Nima East. .

Figure 7: Municipal Assembly's Role



Source: Field Data (2016)

Further Analysis of Data Findings.

The study variables originating from the operationalization and primarily used in the formulation of the semi-structured questions of the interview guide are ranked on the basis of responses of interviewees, observation and survey conducted. A scale of one to five (1-5) is used as indicated below in table 16, also indicating the ranking. The ranking is categorized as follows; very poor, poor, average, good and very good.

Table 17 Ranking and Scores

Scores	1	2	3	4	5
Ranking	Very Poor	Poor	Average	Good	Very Good

Source: Author's own construct, (2016).

The analysis of the findings of field data is summarized below, representing classification of responses and interpretation of ranking in relation to various responses for study variables.

Table 18: Analysis of Field findings

Concept	Variables	Indicators	1 (very poor)	2 (poor)	3 (average)	4 (good)	5 (very good)	Ranking
Regulation	Policies	Existence of regulation				*		Good
		Existence of Byelaws				*		Good
		Implementation			*			Average
		Enforcement						Poor
		Penalties		*				Poor
		Monitoring Adherence		*				Poor
		Open tender		*				Poor
		Competitive Bidding			*			Average
	Institutional Capacity	Training programes organized	*					Very Poor
		Monitoring Private Sector activities			*			Average
		Education/sensitization campaigns	*					Very Poor
SWC Methods	Methods of Collection	Types of vehicles used				*		Good
		Covered vehicles			*			Average
		Frequency of breakdowns			*			Average
		Door to door collection				*		Good
		Communal container collection		*				Poor
Quality of Service Delivery		Customer satisfaction			*			Average
		Channel of complaint	*					Very Poor
		Access to Container points			*			Average
		Reliability			*			Average
		Consistency			*			Average
		Service coverage				*		Good

Source: Author's own construct, based on field data (2016)

Table 19 Analysis of Influence of PSP Regulation on SWC Methods

Private Sector Participation Regulation(Independent Variable)					
Indicators	Implementation	Enforcement	Monitoring PS Activities	Existence of bye laws	Competitive Bidding
Ranking	Average	Poor	Average	Good	Average
	Solid Waste Collection Methods (Dependent Variable)				
Indicators	Types of vehicles used	Covered	Breakdowns	Door to door collection	Communal collection
Ranking	Average	Average	Average	Good	Poor

Inferring from the table above (19) research findings revealed that, (independent variable) PSP Regulation and its implementation had direct linkage to SWC methods in Nima, the interpretation of findings concludes that, door to door collection service ranked good, extensively due to implementation and adherence to regulation by service providers with respect to the usage of specified equipment in contract agreement, covering of waste during transportation and availability of backup trucks in the event of regular breakdowns, this is a direct reflection of the views of Oduro-Kwarteng (2011) that adherence to and implementation of SWC regulation influences collection methods and consistent with study findings, where adherence to equipment usage regulation by PS correlates to good collection methods. As advocated by OECD (2010) and in correspondence with research findings, lack of adequate resources and municipal capacity affects SWC system, as the municipality is found limited in performing SWC services such as enforcing mandatory user registration and patronizing waste collection services efficiently was a resultant of poor communal container services. The award of SWC contracts though study findings suggests generally lacked transparency as required by PSP regulation and established by UNECE (2008) that, unfair SWC contract award system often leads to contracts awards to incompetent collection companies, in the case of Nima East, though researcher could not establish whether or not contract was awarded based on merits or not, it had very little or no influence on collection methods, since PS companies appeared to have requisite expertise and equipment to perform SWC services.

Table 20 Analysis of Influence of PSP Regulation on Quality of Service Delivery

Private Sector Participation Regulation(Independent Variable)							
Indicators	Implementation	Enforcement	Monitoring /Sensitization	Existence of bye laws	Penalties	Sensitization	
Ranking	Average	Poor	Poor	Good	Poor	Very Poor	
Quality of Service Delivery (Dependent Variable)							
Indicators	Storage Bins	Cleanliness of Service Area	Complaint Structure	Consistency Door to Door	Frequency Communal container	Frequency Door to door	Coverage
Ranking	Good	Poor	Very Poor	Good	Poor	Good	Good

Author's elaboration from fieldwork (2016)

Information from field work above, established that the existence and implementation of PSP regulation "polluter pays principle" though not in full, in Nima East has considerably influenced to a large extent consistency and frequency of collection services by private sector, however communal container service collection remained poor as a result of lack of enforcement of related regulation. Study findings indicated above (table 20), points to the fact that indiscriminate dumping in Nima East, occurs largely as a result of non-enforcement of sanctions related to SWC services on offenders and service providers, hence a huge number of residents do not patronize the communal nor house to house system of collection as required by existing PSP regulation/byelaws; instead prefer to dump refuse anyhow, why? Analysis suggests due to the fact that, after all offenders do so and go scot-free, should the municipality endeavour to enforce PSP regulation and existing byelaws, research found could improve further SWC service delivery, this implies a direct linkage of PSP regulation to quality of service delivery in Nima East. Again, as indicated above(table 20), due to non-enforcement of specified contracts agreements, private sector companies flout certain aspects of SWC agreement, including the responsibility of establishment of complaint mechanism which according to literature facilitates assessment of service delivery by PS (Oduro-Kwarteng, 2011). Interestingly, the assembly itself was found not enforcing byelaws in relation to adequate communal container collection points and cleanliness around container areas. Findings above, gives prominence to researchers notion that, municipalities in most Africa countries, have voluminous policies and regulations on paper, anticipated to prevent negativities related to SWC by private sector, however, in practice it enforcement and full implementation remains a huge challenge (Al-Khatib, M, et al., 2010, Henry, Yongsheng, et al., 2006). In agreement with Henry et al., (2006), the study findings concludes that, lack of enforcement of SWC rules and regulations by municipal authorities contribute extensively to underperformances in SWC in Nima East as opined by (Henry, Yongsheng, et al., 2006).

Table 21 Cross tabulation on consistency of collection

RESPONSE	**USERS**			
	DOOR TO DOOR		**COMMUNAL CONTAINER**	
	Consistency	Percentage	Consistency	Percentage
YES	58	61.1	17	28.4
NO	37	38.9	43	71.6
TOTAL	95	100	60	100

Source: Field Data, 2016

According to above table, users of both house to house and communal container collection recognized the problem of inconsistencies in waste collection methods, however, users of communal containers were highly affected, which data analysis so far explains is attributed largely to non-enforcement of PSP regulation. Again this explains and re-emphasizes the linkage and importance of PSP regulation in SWC in Nima East..

To establish further the influence of PSP regulation on quality of service delivery, research enquired how uncollected SW was disposed by respondents. User responses indicate in table (12) earlier that a huge number of respondents (39.1%) resorted to indiscriminate dumping, quiet alarming, 40.6% burnt waste generated while 20.3% disposed their waste by burying. Observation indicated that most of the residents who preferred dumping anyhow were mostly those who patronized communal container services or those who would not register to

patronize collection services, however, per existing regulation patronizing waste collection services was obligatory subject to enforcement.

4.8 Summary of Research findings

The study found that current SWC system in Nima was communal container collection and door-to-door waste collection system. Door to door collection service was provided by Private Sector Company whilst communal container services were still provided by the assembly, regardless of the implementation of polluter pay system by the assembly. The study showed that the assembly had existing bye laws guiding PSP in solid waste collection and had the responsibility of enforcement, monitoring and sanctioning of offenders in accordance with regulation however there were there were lapses in the enforcement and monitoring of regulation by the assembly, this was largely attributed to lack of municipal capacity and political interference, which to a large extent had implications on methods of collection. The study further found that tender processes though advertised for public attention, the process was not entirely transparent and had flaws. Again though monitoring and evaluation training and capacity building programmes were organized for assembly officials sometime past, officers failed to utilize same in discharge of duties. The study revealed also that equipment used by private sector merit contract requirements, however, assembly did not check on assumption of service operations as stipulated in agreement to verify whether or not awardees had the capacity to perform SWC services. The assembly, it was observed did not organize regularly review meetings to assess performance of private sector as stipulated in agreements as well as did not supervise the organization of awareness or sensitization campaigns by PS collection companies to educate and equip users on SWC best practices. SWC service users were not involved in decision making process or assessment of private sector, since there was no complaint mechanisms available as required by law neither did they have prior knowledge about involvement of private sector in SWC in Nima East. Also non-payments for service delivery or defaulters were to be sanctioned, but not sanctioned hence low cost recovery for private sector.

Conclusions and recommendations are elaborated and interpreted at length in the next chapter.

Chapter 5: Conclusions and Recommendations

5.1 Introduction

The study examined the influence of private sector participation (PSP) regulation on SWC methods and quality of service delivery in Nima East, a community within the Accra Metropolitan Assembly (AMA) and administratively directly under Ayawaso East Sub-Metro. This chapter thus presents an insight of study with recommendations and conclusions. The research questions posed in Chapter One of this study is answered and findings of the study presented reflecting on literature reviewed in chapter two. Recommendations are finally made in relation to attaining quality of service delivery in SWC by private sector in Nima.

5.1.1 Answering the Research Questions

Based on the outcome of findings of the fieldwork carried out for the purpose of this study, below are the conclusions drawn:

5.1.2Which PSP regulation is in place and implemented to enhance solid waste collection methods in Nima?

The study in assessing the variables namely PSP regulation, solid waste collection methods and quality of service delivery presented findings from fieldwork based on the concept of good governance in SWC system and took into consideration relevant indicators related to variables.

Researchers asserts that PSP in SWC generally improves quality of service delivery, (World Bank, 2012) however, the failure of PSP in SWC service delivery is attributed to numerous reasons, key amongst them being *non-existence* of clear policies, *non-enforcement* and *adherence* to PSP regulation , (Oduro-Kwarteng, 2011) study findings showed that in the case of Nima East, there existed PSP regulation within a national environmental sanitation policy (ESP) which outlined clearly roles and responsibilities of various actors, (assembly, users, PS), however, study confirmed that non-enforcement and adherence to PSP regulation hindered the success or attainment of quality of service delivery in Nima as opined by UNECE (2008), that to attain quality of service delivery in SWC service by PS, regulations and clearly outlined responsibilities must be enforced. It was established that regulation existed, nonetheless in reality were not converted to practice (enforced), which contributed significantly to indiscriminate dumping in Nima East. Based on the assessment on PSP Regulation, the study found that Environmental Sanitation Policy (2010), is the policy document that entails regulation guiding SWM in Ghana, mandates assemblies to enacts bylaws, outsource SWC services to private sector through a transparent process (competitive bidding) in accordance with Procurement Act (2003) and also requires municipalities to maintain an in-house capacity to provide SWC services in the event of poor performance or non-performance by private waste collection companies. The ESP encourages the full implementation of cost recovery program “polluter pays” system by all municipalities, in this context users being solely responsible for payment of waste collection services. The AMA in the absence of continuous support from central government and lack of adequate funds on the part of the assembly to offer SWC services for free or subsidized as was the case, implemented the polluter pays system in line with the ESP, to ensure cost recovery to attain desired level of service in SWC in the metropolis. The study found that there exist currently PSP regulation, implemented partly, to enhance collection methods and quality of service

delivery in Nima, this finding, contravenes Goel (2006), argument that usually, PSP in waste collection in most municipalities in Africa was not guided by formal PSP regulation.

The analysis concluded that the assembly had byelaws in relation to SWC by private sector. Companies were assigned specific operational zone or areas, and there existed contractual arrangements or agreements between the assembly and companies. It was established that though waste collection companies went through competitive bidding and SWC tenders were advertised, contracts awards were usually influenced by politicians and not always on merits, thus some companies linked to government in power do not go through appropriate tender processes, this practice hindered recruitment of competent collection companies to provide SWC services in the interest of users and also not in line with the concept of good governance, which advocates transparency in SWC contracts, devoid of corrupt practices and favoritism.

The study revealed also that, in practice, the assembly did not perform contracts obligations such as strict enforcement of bylaws, supervision and monitoring of private sector performance. Performance monitoring by the assembly in research area was weak, there was no effective supervisory or monitoring mechanism in place to check the performance of waste collection companies, neither were users given the opportunity to access or monitor performance of PS collection companies. These are not in line with the concept of good governance which requires regular monitoring and supervision of service delivery by private sector to attain desired levels of service.

It was also established that, in practice, collection companies do not comply fully to contracts obligations and applying sanctions was a challenge for the assembly due to inadequate capacity, hence sanctions not applied. The assembly lacked regular training and capacity building programes for personnel, though established that training on evaluation and monitoring of private company performance was done in previous years, assembly failed to discharge duties. The assembly did not also have adequate equipment to step in to perform collection services by offending private companies in the event of any sanction.

5.1.3 What are the current solid waste collection practices in Nima?

The study revealed that the current SWC methods in Nima include both communal container collection and door to door collection methods. It was revealed that selected companies satisfied required number of specified equipment and types of equipment as stipulated in contracts agreements. It was also established that though waste collection vehicles were imported, generally vehicle spare parts were available locally hence ease in assess to spare parts in the event of breakdowns.

On vehicle breakdowns, study established that collection companies' experienced regular breakdowns due to bad roads, however they had back up trucks to supplement collection or to facilitate continuity in service provision. Study further established that due to availability of spare parts, it usually took companies less than 12 hours to fix problems. This is in adherence to SWC contracts agreements thus regulation observed.

Companies generally covered open vehicles when transporting waste collected to dump sites, otherwise companies generally use covered trucks. SWC companies were seen to be guided by contracts regulations with respect to collection methods, though with little or no supervision from assembly. Adherence to existing rules and regulations in SWC practices UNECE (2008) improves quality of service delivery and ensures value for money.

5.1.4 Measuring performance of private contractors

In assessing performance of private contractors the study concluded that monitoring, supervision and enforcement of PSP regulation were inadequate thus had adverse effects on quality of service delivery. This was particularly true with continuous filth in and around communal container sites, containers were simply not picked and surroundings cleaned as required by service providers (assembly), the implication being spill overs on regular bases in and around almost all container sites generating bad odours. Collection for communal containers was generally not consistent, however that of house to house service users was considered comparatively clean and maintenance of some level of consistency in collection, as providers adhered to aspects of regulation. This confirms findings by Oduro-Kwarteng (2011) that private sector participation in SWC is influenced directly or indirectly by the extent to which applicable rules and regulations are enforced in practice. Good and efficient *monitoring* of SWC service delivery by PS is important in achieving PSP waste collection goals whilst inability to monitor private sector leaves room for non-compliance (Oduro-Kwarteng, 2011) which was the case in Nima East. Weakness in assembly's capacity to monitor and supervise PS to ensure they performed collection services under contracts agreements affected service delivery as opined by Halfway (2008), that for efficiency in collection service delivery by private sector, both municipality and PS must be adequately resourced. PS companies though in practice complied with certain aspects of agreements, they were found to have flouted or ignored other aspects which influenced service delivery negatively. Literature posits that regular monitoring is SWC service delivery is necessary to attain quality of service delivery, this was established by study, study found that it was impossible to ensure fulfillment of contracts agreements without monitoring, and violating contracts agreements had negative influence on service delivery. It was established that house to house service provision covered entire jurisdiction, households within service area were served according to scheduled time table, which users confirmed to be relatively regular. Access to communal containers though considered reasonably accessible by households, users preferred containers much more closer and frequently collected by the assembly. It was established also that communal containers were woefully inadequate. The study concluded that users of house to house collection service were generally satisfied with services provided; however communal container users were not satisfied with provision of service. In contravention to Oduro-Kwarteng (2011) claim that adequate and timely response to user complaint gives an indication of attainment of quality of service delivery, there were no formal avenues for service users to channel complaint, and unofficial means of complaint by waste collection users were not responded to. Collection companies ignored the responsibility of per contracts agreements to organize regular sensitization campaigns which researchers posits could facilitate change in user behavior, thus very significant in SWC system. According to (Klundert and Anschütz, 2001), stakeholders are very important and their roles ought to be acknowledged in a waste collection system, users are the main actors in SWC service delivery, hence their involvement and knowledge of decision making equally important, the people of Nima East were the most affected by indiscriminate dumping, they suffer bad odor, hence their involvement and sensitization could help shape behavior and improve attitudes towards waste. It was observed in Nima, that the municipality used a top-down approach to SWM issues, which does not seem helpful, instead researcher proposes top down approach, since users are the ones connected to the problem, an explanation of existing regulation is important, they much be involved, informed and educated on PSP regulations as recommended by(Klundert and Anschütz, 2001) .

Generally, the study concludes that PSP regulation in study area though existed, it was not fully implemented and adhered to: most of the assessment indicators on the basis of good

governance practice in SWC were not adhered to by service regulator and providers which research showed had influence on SWC methods and quality of service delivery. The study findings and analysis clearly demonstrates that PSP regulation influences SWC methods and quality of service delivery through actions and inactions of municipal authorities in the implementation, enforcement, monitoring and supervision of existing PSP Regulation as opined by Marshall and Farahbakhsh, (2013). The role of the municipality is therefore very significant in attaining quality of service delivery in SWC thus required adequate capacity, which the municipality in this context lacked; this supports the suggestion by Apinhapath, (2014) that municipalities in developing countries usually lack requisite resources to perform assigned roles and responsibilities in partnering PS to deliver SWC services. The resultant, as found in Nima East, assembly's inability to perform assigned roles such as augmenting service delivery, monitoring and supervising service delivery by private sector. The study in agreement with Henry et al., (2006) concludes that, lack of enforcement of rules and regulations by municipal authorities contributed mainly to indiscriminate dumping in Nima East, thus the need for enforcement of existing SWC regulation which serves as control instruments and safeguarding standards UNEP, (2009).

Deducing from above findings and analysis, researcher can in answering the main research question conveniently agree with literature that PSP regulation influences to a large extent SWC methods and quality of service delivery in Nima East.

5.2 Attaining Quality Service Delivery in Nima

Assembly official's perspective; Assembly officials recognized enforcement of SWC bye-laws on private sector participation collection vital to ensuring service providers adhere to contracts obligations. Officials also acknowledged the need for enforcement of byelaws to get defaulters pay for service delivery. They proposed provision of suitable training and recruitment of personnel on merits devoid of political influence.

Service provider's perspective: SWC companies held the view that enforcement of byelaws by way of prosecuting defaulters of payment of user fee could help collection companies recover cost which they considered crucial to the attainment of quality of service delivery in Nima. They pointed out that the assembly should support or collaborate with them in the education and sensitization campaign of users. They proposed a system of fairness and absolute transparency in bidding processes without political influence. They further proposed financial support from assembly.

Service user's perspective: SWC service users suggested effective supervision of service provision and increased central containers. They also called for proper and continuous monitoring of service delivery to ensure consistency in collection. They further suggested the introduction of complaints mechanism in Nima and asked for their involvement in solid waste collection decision making.

5.3 Reflections on Literature

Literature review was in relation to effects of PSP regulation on solid waste collection methods and quality of service delivery based on good governance practice in SWC by private sector. The findings from the study therefore reflect on literature reviewed in chapter2.

The study concludes in agreement with UNECE (2008) that the attainment of quality of service delivery in SWC by private sector necessitates existence of clear regulations which outlines roles and responsibilities of relevant agencies. The ESP clearly outlines various roles

and responsibilities of SWC actors, thus reduces the problem of non-existence of regulation and ambiguities. The study established further that the existence of regulation, notwithstanding, its implementation was very weak as opined by Asnani and Zurbrugg, (2007), that PSP waste collection services in municipalities fails as a result of weak implementation and enforcement of PSP regulation. The full implementation of current SWC regulation Polluter Pay system would mean complete outsourcing of SWC to private sector by municipal assembly, and municipality maintaining its role as regulator that is not the case in study area, the municipality though incapacitated is seen to perform collection services.

The study concludes in agreements with UNOPS (2012) that contracts awards in SWC services in an opaque manner and influenced by politicians affects quality of service delivery, since collection services are eventually handed to less equipped and inefficient collection companies. The study established that in practice, contract award processes by the Assembly contradicted UNOPS (2012)'s advocacy for transparency and observation of due process devoid of political influence in SWC contracts awards.

The change from solely public sector provision of service to private sector involvement is anticipated to improve efficiency and quality of service delivery in SWC services, research conducted confirms above claim by World Bank (2012), in view of findings that users were generally satisfied with house to house service provision by private sector, frequency of collection was regular and a higher level consistency compared to service delivery by the Assembly which was less resourced in both human and financial capacity, which is also in agreement with assertion by UNECE (2008) that municipalities in developing countries usually lack adequate capacity to perform SWC services efficiently.

Findings in relation to monitoring and supervision of private sector participation in SWC was similar to findings by Asnani and Zurbrugg, (2007), that monitoring and supervision in most developing countries were weak due to limited logistics and lack of funds byThe study revealed that the assembly was understaffed and also lacked requisite skill and logistics to perform regular monitoring and supervision of private sector SWC service delivery.

Interestingly, contrary to a claim by UN-Habitat (2010) that waste collection companies in developing countries habitually resorts to the use of obsolete, inappropriate equipment and uncovered vehicles which contribute to indiscriminate dumping, research established in study area that private waste companies in accordance with contract requirements used appropriate and modern equipment. Vehicles as stated in contracts agreement were found to be used and waste collected was mostly covered during transportation to dump sites. Study findings in relation to frequent breakdowns was however comparable to the position of UN-HABITAT, (2010) that. SWC companies suffer frequent breakdowns in service delivery, nonetheless study findings varied on the assertion that fixing of breakdown vehicles took longer periods due to importation of spare parts. The study found that though companies experienced frequent breakdowns, spare parts were readily available locally and did not take longer periods to fix breakdowns.

Reflection on Study

At the beginning of the study, researcher had very limited information regarding the influence of regulation on SWC methods and quality of service delivery in Nima East, after in-depth review of credible sources of secondary data, interviews and direct observation to ensure a fair understanding and interpretation of case study, what it addresses and potential contribution to the body of knowledge, researcher believes to have found enough information

and evidence in study area towards attaining quality of service delivery in SWC in Nima East and by extension Accra Metropolitan Assembly.

In general, Accra is faced with numerous problems in the management of SW, considering the negative effects on human health and the environment as a result of indiscriminate dumping; the municipality is always looking for applicable and alternative solutions or suggestion to possible solutions of indiscriminate dumping in the municipality. In quest for efficiency in SWC services in Nima East, the municipality involves private sector in service delivery. So the study focused on the influence of PSP regulation on SWC methods and quality of service delivery in Nima East, the study gives more attention to regulation and how it affects service quality of delivery. For this study, researcher used the concept of good governance. The concept helped researcher to explain and apply the principles of good governance in relation to SWC service delivery by private sector. Furthermore the concept enabled researcher explains the link between good governance practice (law enforcement) in SWC system and quality of service delivery. Accordingly, secondary sources of data, interviews and observation was used to carry out the study, as a result finding literature on my topic was not very stressful though not easy.

The municipality in partnering private sector in SWC to attain quality of service delivery requires implementation and modifications of regulation; this paper could act as reference for further decision making and policy implementation in study area.

The study reveals that PSP in SWC service delivery requires implementation, enforcement and regular monitoring to attain quality of service delivery. It establishes further that, good governance practice should be applied in SWC services by private sector, without which the attainment of quality of service delivery is a mirage. The municipality has a responsibility to ensure relevant regulations are implemented, adhered to, monitored and enforced; these are the strong pillars of good governance practice in SWC service delivery.

The study finally concludes based of analysis, that the implementation, enforcement and monitoring PSP regulation influences SWC methods and quality of service delivery in Nima East. The findings revealed that the performance of SWC service providers depends largely on enforcement of PSP regulation and contract terms as well as adequate municipal capacity. The influence of regulation on quality of service delivery in SWC as emphasized by various researchers was confirmed by this study.

5.4 Recommendations

The attainment of quality of service delivery in SWC by private sector companies hinges on the implementation, and enforcement of relevant PSP regulation. Such regulations should be fully implemented, monitored and enforced by municipal officials, well trained and resourced enough to perform assigned duties. Good governance practice, which is a prerequisite for improvement in service delivery by private sector, advocates the use of clear and relevant policies, its full implementation, monitoring of performance and enforcement of regulation.

The study recommends the following;

The full implementation of Private Sector Participation Regulation by the Assembly (Polluter pay system) in Nima East.

Strict enforcement of byelaws/adherence to contracts obligations and defaulters sanctioned in accordance with law.

Regular capacity building training programmes in supervision and monitoring of private sector waste collection service delivery for staff of the municipal assembly.

Assembly should recruit staff based on merit and given adequate training to be able to understand and cope with relevant workload.

The assembly act neutral and transparent in SWC contracts awards to ensure level playing field for all bidding companies and endeavor to avoid all forms of corrupt practices and favoritism in contract awards.

The assembly in collaboration with private sector collection companies must educate users on SWC best practice through campaign programes, the media and locally organized durbars.

Assembly must ensure the provision of formal avenues for user complaints.

Area for Further Research

Enforcement of regulation is essential to attaining quality of service delivery in SWC services by private sector, it is important therefore, that municipalities being service regulators are well resourced with adequate capacity to perform efficiently assigned duties including enforcement of regulation. In relevance to limitations found in research area, municipalities were restricted as a result of lack of human and logistical capacities in regulating service delivery by private sector, which negatively affects SWC service delivery. Further research on "*enhancing municipal capacities to attain quality of service delivery in SWC services by private companies*" is needed. This could help find solutions to building municipal capacities to enhance better enforcement of PSP regulation in so doing, improving quality of service delivery.

5.5 Testing Reliability and Validity

Researchers recognize validity and reliability as very important in case studies and asserts that generalization enables the maximization and test of reliability and validity of a study. Golafshani (2003), noted that the generalization of study findings is the most common technique to test the validity of a research. He observed further that, the quality of a research relies on the generalizability of the result. Furthermore, triangulation method also helps the improvement of validity and reliability of the study. Triangulation method implies the combination of multiple kinds of strategy, for example the use of several techniques such as interviews, observation, recordings and secondary data to collect information makes research more trustworthy, reliable and valid (Bashir et al., 2008). According to Bashir et al. (2008), the method of triangulation (used by researcher), controls biases and establishes valid propositions due to the use of multiple data sources. Researcher established the dependability and consistency of findings generated through different data collection methods, ensured accuracy and true presentation of findings. Literature explains that triangulation method strengthens study findings. Researcher thus read numerous articles, as and when there were conflicting ideas, researcher read more credible articles for confirmation and crosschecked data for clarity. In accordance with the study objective, the choice of research method enabled researcher to further use interviews, direct observation and survey to analyze and explain the influence of PSP regulation on SWC methods and quality of service delivery in Nima East. The study recognized the importance of maximizing the reliability and validity of research hence the use of triangulated method of data.

5.6 Conclusion

This study presented an explanation and analysis of the influence of PSP Regulation on SWC Methods and Quality of Service Delivery in Nima East, with specific emphasis on adherence to existing regulation, its monitoring and enforcement by the Municipal Assembly.in addition, the study analyzed performance by PS waste collection service delivery, which analysis indicated had considerably improved service delivery. Although service delivery by PS has improved upon it implementation, quality of service delivery, research indicated could have been better with strict implementation of regulation and enforcement of same. Weak implementation, enforcement, monitoring and supervision of waste collection activities were found to impede SWC methods and quality of service delivery in Nima East.

In conclusion study established that the implementation, of PSP Regulation in Nima East to a large extends influenced collection methods and quality of service delivery. The enforcement of set standards and contracts agreements, availability of municipal resources with which to ensure / enforce implementation of regulation and the facilitative role by the municipality extensively influenced service delivery by private sector. It is worth noting that PSP regulation was found to have direct influence on enforcement and monitoring of service delivery in Nima East which also directly affects SWC methods and quality of service delivery.

In line with responses from users, researcher observation, interviews and final analysis, study could not, but agree with researchers that the realization of quality of service delivery in SWC services is influenced by PSP regulation, thus existing regulation necessitates enforcement. The enforcement or otherwise of PSP regulation has positive or negative implications on SWC methods and quality of service delivery. Researchers assertion that, the realization of quality of service delivery in SWC is influenced by relevant agencies enforcement of existing regulation (Oduro Kwarteng, 2011), was confirmed by this study, it was established further that, the existence of PSP regulation and byelaws alone was not enough, regulation should otherwise be implemented fully, adhered to and enforced, in line with good governance practice in SWC services (UNECE, 2008). The study established that PSP regulation to a large extent influences SWC by private sector thus enactment of regulation not enough, but strict implementation required.

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Annex 1: Interview Guide for Accra Metropolitan Assembly Officials

Title.....

Department.....

B. What are the current Solid Waste Collection Methods in NIMA EAST?

1. Could you explain briefly how solid waste collection was organized before private sector involvement in AMA?
2. When did private sector get involved in SWC in AMA? Why did you involve the PS in solid waste collection?
3. What is the type of contract that exists between AMA and PS in SWC service delivery?
4. If the contract is franchise why did you chose that? Why not contract?
5. What are the terms of reference?
6. Do you have specified equipment for usage by PS contractors in SWC? If yes,
7. What type of specified equipment's are indicated in SWC contract agreement for collection activities in AMA?
8. Do you check if equipment's used meet contract agreement?
9. Do you check if waste is covered when being taken to final disposal site?
10. How do you compare PSI collection system to the former system?

11. Do you have any observation, problems or issues related to PS waste collection methods you wish to share?
12. If any, how do you intend to solve this in the future?
13. Does AMA have existing bye laws for PS involvement in solid SWC?
14. Have you implemented polluter pay system to enhance service delivery? If yes, is it implementation successful in AMA? If No, what could be done to make it work in AMA?
15. Do you have specific division responsible for making sure that regulations guiding PS waste collection service delivery are firmly adhered to?
16. What supervision/ monitoring do you provide in SWC service areas served by private sector?
17. What training programmes are in place to provide capacity building for those responsible for monitoring and enforcement?
18. Do you have sanctions or penalties for PS contractors when they underperform? Has this occurred before? If yes what was wrong?
19. Do you encounter any challenges in the enforcement of these regulations?
20. How is AMAs selection process carried out for PS involvement?
21. How is contract for solid waste collection services awarded?
22. Is the bidding process open to all potential SWC contractors? How is it made open?
23. How does the public access information relating to SWC contracts?
24. Do you have any means through which users are able to assess the performance of private contractors in SWC collection?
25. Does AMA have any response mechanisms for users? (Complaint lines or forms)If yes, how quickly do you react to complaints? If no, how do you handle user complaints?

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION

Interview Guide for the Private Sector SWC Service Provider

A. General information

B.

Age..... Sex.....

B. Current Solid Waste Collection Methods

1. What kind of SWC services do you provide in NIMA?
2. What type of vehicles do you use for collection?
3. How many closed vehicle collection types do you have?
4. How many open collection vehicle types do you have?
5. Do you encounter regular breakdowns? If yes, why?
6. How long does it normally take to make repairs?
7. Do you have backup vehicles?
8. If No what happens in case of any breakdown?
9. Do you cover solid waste collected on the way to final destination?
10. How many households are you able to serve daily?
11. Are you able to serve entire jurisdiction area each day? If No, why?
12. Do you clean communal container areas? If yes, how often? If no, why?
13. How close are communal containers to households?
14. How often do you serve door to door collection service areas within a week?
15. How often do you lift communal containers in a week?
16. Which contract agreement are you operating under? (Franchise?)
17. How did you win SWC contract award? (Open bidding or sole sourcing)

18. How is the contract renewed? (Competition or automatic renewal).
19. Would you say the SWC contract process was transparent and open enough?
20. Did you encounter any difficulty during the tender process?
21. How did you know about procurement for contract in waste collection?
22. Under the current circumstances is it possible to attain desired level of service delivery in NIMA?
23. What would you suggest AMA does to help reach quality of service delivery in SWC in NIMA?

AM GRATEFUL FOR YOUR TIME AND COPERATION

BAGROUND INFORMATION

1	Street Lane				
2	Sex				
	(1) Male	(2) Female			
3	Age				
	1. Below 18 years	2. 18-35 years	3. 36-45 years	4. 46-64 years	5. 65+years
4	Level of Education				
	Primary	Secondary	Tertiary	University	

Solid Waste Collection Methods/Quality of Service Delivery

5	What system of waste collection is being used in your household/establishment?		
	(2) Door-to Door services	(1) Communal container service	
6	Who collects the waste from your house		
	The informal waste collectors	The Metro Assembly	) Private service
7	Has the same organization been collecting the waste for the past five years, or has there been a change in who has been collecting your waste?		
	Yes there has been a change	No there has not been a change	
8	If yes has there been any change in methods of collection		
	1) Yes there has been a change	(2) No there has not been a change	
9	What type of container do you use for storing your waste?		

	1) plastic container	(4) plastic bags	(3) basket	metal container
10	How did you get the container?			
	(1) Private Contractor	(2) Assembly	(3) Purchased it myself	
11	How often is your waste collected by the private contractor?			
	(1) Once a week	(2) Twice a week	(3) Thrice a week or more	
12	Are the waste collection services in your household/commercial premises consistent?			
	(1) Yes	(2) No	(3) Others (specify)	
13	If no, what happens if waste is not collected at specified times?			
	(1) Spillover at communal containers/bins.	(2) No Spillover at Communal container/bins	(3) Presence of flies/rodents all over area.	(5)Others(specify)
14	How far is the distance between communal container points and your house?			
	(1) Less than 50 metres	(2) 50-100 metres	(3) 100-200 metres	(4) 300-400 metres	5 400-500 metres
15	How far is the distance between door to door points and your house?			
	1) Less than 50 metres	2) 50-100 metres	3) 100-200 metres	4) 300-400 metres	5)Others(specify)
16	Do you use the service delivery by the Private sector?			
	(1) Yes	(2) No	(3) others(specify)	
17	If No, how do you dispose your waste?			
	(1) By burning	(2) By burying	(3) Open dumping	(4) Others (specify)
	(1) Yes		(2) No	
18	What is your opinion about solid waste collection service offered you by private contractor?			
	(1)Very satisfied	(2) Reasonably satisfied	(3) Not satisfied at all	
19	If you are not satisfied with service, why?			
	(1) The service is not consistent.	(2) The interval between collections is	(3 Not happy with the location of the	(4)Containers are emptied and thrown

		too long.	communal container.	anyhow	
20	How long has private contractor operated in your area?				
21	(1) 1-11 months	(2) 1-2years	(3) 3-4 years	(4) 5- 6 years	(5) others specify
22	Is there any public education on the importance of solid waste collection/ cleanliness in your area?				
	(1) Yes		(2) No		
23	If yes by which organization?				
24	Were you informed about the involvement of private sector in solid waste collection services in your area?				
	(1)Yes		(2) No		
25	If yes to above question, through which means?				
	(1) radio	(2) TV	(3) Newspaper	(4) Pamphlets	(5) Community meeting
26	How much do you pay for waste collection service?				
	(1) 20 Gh cedis	(2) 10 Gh cedis	(3) 5 Gh cedis	(4)10Ghp –50Ghp	Other(specify)
27	How often do you pay?				
	(1) Weekly	2. Monthly	3.Yearly	4. Others specify	
28	Are you able to pay?				
	(1) Yes		(2) No		
29	If No how much do you suggest?				
	(1)2Cedis	(2) 3Cedis	(3) 4Cedis	(4) Others (specify)	
30	If Yes are you willing to pay more for improved services?				
	(1)Yes		(2) No		
21	Do you pay regularly and promptly?				
	(1)Yes		(2)No		
22	Are you involved in fee fixing for service provision in your area?				

	(1)Yes		(2) No
23	Does Assembly solicit for your views before fixing user fee in your area?		
	(1)Yes		(2) No
24	Is there any complaints service where you are able to report your waste collection problems?		
	(1)Yes		(2) No
25	Do you receive prompt response to your complaint on waste collection service?		
26	(1) Yes	(2) No	(3) Sometimes
27	Have you had the chance to assess the performance of private contractor before?		
	(1) Yes		(2) No

28. What in your opinion should be done to enhance quality of service delivery in solid waste collection delivery by the private sector in NIMA ?

29. Do you participate in monitoring the performance of the private contractor's activities?

……

30. If yes, in what ways?

…….

31. Any recommendations changes you would want Assembly implement implemented to contribute to quality service delivery in solid waste services in NIMA East?

……
……

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