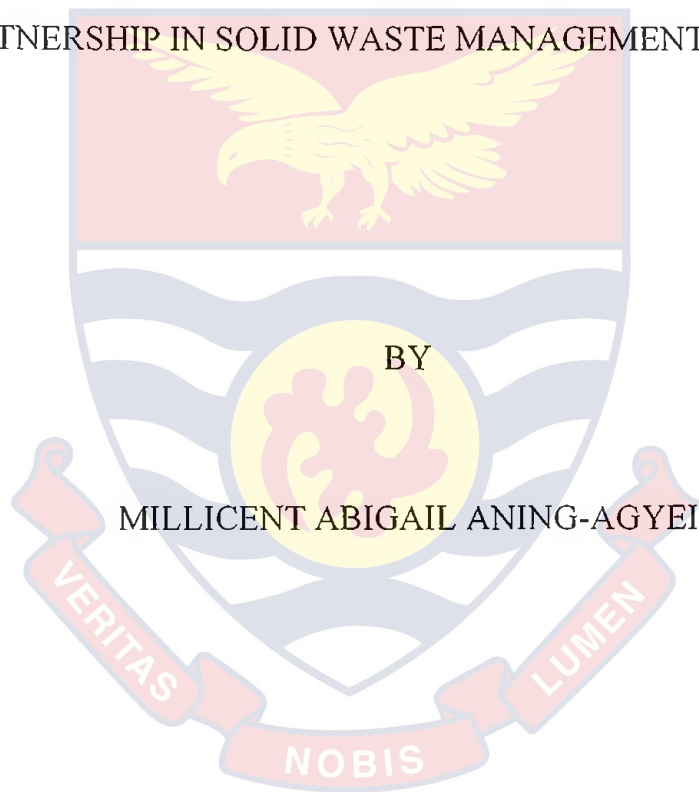




UNIVERSITY OF CAPE COAST

ASSESSING THE SUSTAINABILITY OF PUBLIC-PRIVATE
PARTNERSHIP IN SOLID WASTE MANAGEMENT IN GHANA



This thesis submitted to the Department of Integrated Development Studies of the School for Development Studies, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Doctor of Philosophy degree in Development Studies

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DECLARATION


Candidate's Declaration

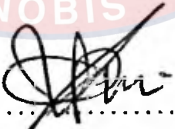
I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

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Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

Public-private partnerships (PPPs) are widely touted to offer improved accountability, greater innovation and long-term efficiencies. However, to achieve the anticipated benefits of PPP, it is necessary to recognise the circumstances under which PPPs will be sustainable through effective implementation. This study assessed the sustainability of PPP in solid waste management (SWM) in Cape Coast Metropolitan Area (CCMA) and Sekondi-Takoradi Metropolitan Area (STMA) in Ghana. The mixed-methods research design guided the data collection methods, analysis and interpretation of the study. A total of 812 respondents were sampled through purposive and stratified random sampling techniques. The study used interview, focus group discussion and observation guides, and interview schedule as instruments for gathering data. The quantitative data were processed with Statistical Product for Service Solutions version 21, and analysed using descriptive and inferential statistics. Narrative analysis was used to analyse the qualitative study. The study found that the block system in the allocation of operational areas to waste management companies (WMCs) did not encourage competition among the service providers. All the stakeholders admitted that the sanitation conditions had improved after the adoption of PPP, and thus, were willing to sustain the partnership. However, high SWM service charges, and low level of participation and transparency in fixing sanitation fees were seen as serious threats to the sustainability of the partnership. The study recommends that the Assemblies should allow for open competition among the WMCs, and CCMA Fee Fixing Resolution Committee should review SWM service charges to protect the socio-economic welfare of the citizens.

KEY WORDS

Contractual arrangements

Public-private partnership

Service quality

Solid waste management

Stakeholder participation

Sustainability



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DEDICATION

To my husband: Dr. Prince George Aning-Agyei



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LIST OF ACRONYMS

AVRL	Aqua Vitens Rand Limited
BOO	Build-Own-Operate
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
CBOs	Community-Based Organisations
CCMA	Cape Coast Metropolitan Area/Assembly
CSOs	Civil Society Organisations
CWSA	Community Water and Sanitation Agency
DACF	District Assemblies' Common Fund
DBF	Design-Build-Finance
DBFM	Design-Build-Finance-Maintain
DBO	Design-Build-Operate
DDF	District Development Facility
DFID	Department for International Development
DPAT	District Assembly Performance Assessment Tool
DWDs	District Works Departments
EHSDs	Environmental Health and Sanitation Directorates
ENSADA	National Environmental Sanitation Day
EPA	Environmental Protection Agency
ERP	Economic Recovery Programme
ESP	Environmental Sanitation Policy
EWMDs	Environmental Waste Management Departments
FBOs	Finance and Budget Offices
FGD	Focus Group Discussion

GIZ	German Technical Cooperation
GSS	Ghana Statistical Service
IDI	In-depth Interviews
IGF	Internally Generated Funds
IMF	International Monetary Fund
ISWM	Integrated Sustainable Waste Management
M&E	Monitoring and Evaluation
MCD	Metropolitan Coordinating Directorate
MESTI	Ministry of Environment, Science, Technology and Innovation
MLGRD	Ministry of Local Government and Rural Development
MMDAs	Metropolitan, Municipal and District Assemblies
MOFEP	Ministry of Finance and Economic Planning
MPO	Metropolitan Planning Office
MSWR	Ministry of Sanitation and Water Resources
NDPC	National Development Planning Commission
NGOs	Non-Governmental Organisations
NPM	New Public Management
PPPs	Public-Private Partnerships
SAP	Structural Adjustment Programme
SAPP	Sunon Asogli Power Plant
SDGs	Sustainable Development Goals
SERVQUAL	Service Quality
SoEs	State-Owned Enterprises
SPSS	Statistical Product for Service Solutions
SPV	Special Purpose Vehicle

STMA	Sekondi-Takoradi Metropolitan Area/Assembly
SWM	Solid Waste Management
UCC	University of Cape Coast
UESP	Urban Environmental Sanitation Project
UNDP	United Nations Development Programme
WAPCo	West African Gas Pipeline Company
WMCs	Waste Management Companies
WMDs	Waste Management Departments



CHAPTER ONE

INTRODUCTION

Increased complexity of societal problems, rising public demands and political scepticism, and restricted public budgets have placed governments in challenging situations that demand innovative approaches to governance. This has promoted collaborative and multi-stakeholder partnerships between all sectors of society, thereby driving governments to increasingly turn to the private sector to supplement public investments for the provision of public infrastructure and services, including solid waste management (SWM) through different forms of public-private partnerships (PPPs).

PPPs are widely touted to offer improved accountability, greater innovation and long-term efficiencies (Lang, 2016). However, to achieve the anticipated benefits of PPP in SWM, it is necessary to recognise the conditions under which PPPs will be sustainable through effective implementation. This study, therefore, presents an assessment of the sustainability of PPP in SWM in Ghana. This chapter discusses the background to the study, statement of the problem, research objectives and research questions. It also presents the relevance, scope and limitations of the study.

Background to the Study

The achievement of the Sustainable Development Goals (SDGs) requires that different sectors and actors work together in an integrated manner by sharing financial resources, knowledge and expertise, and by leveraging such multi-stakeholder resources (Taylor, Nalamad & Perez, 2017). This is enshrined in the SDG 17 which requires countries to strengthen the means of

implementation and revitalise the global partnership for sustainable development. Specifically, the SDG 17 recognises and promotes effective public-private and civil society partnerships which are aimed at sharing knowledge, expertise, technology and financial resources, and building on the experience and resourcing strategies of the partnerships to achieve sustainable development of all countries, particularly developing countries. Such partnerships have, thus, become one of the core ways for realising the SDGs.

Connected to the issue of sustainability, it has become progressively difficult for governments, the world over, to meet the ever-rising public demands amidst constrained budgets and inability to generate additional revenues (Zhang, Gao, Feng & Sun, 2014). Recognising that the traditional approaches to handling rising social issues are neither sufficient nor effective in addressing these challenges, Zhang *et al.* argue that governments find it challenging to effectively handle economic, social and environmental pressures as well as service existing public problems and demands of providing infrastructure for basic services, if left solely to its own strategies, resources and expertise. This situation, coupled with public sector borrowing restrictions, has forced governments in both developed and developing countries to turn to partnerships with the private sector to provide infrastructure and services that were once delivered by the public sector.

Hall (2015) explains that development banks and multi-national companies facilitated the spread of PPPs in developing countries in the 1990s, as part of the fiscal limits imposed on developing countries in accessing financial support. As a concept that is still evolving, PPPs have received many and diverse definitions, and a lot of disagreements about its content. Adapting

from Hall, this study conceptualised PPPs as formal contracts between government authority (public sector) and a private company (private sector) under which a private company finances, builds and operates some elements of a public service, and gets paid over several years, either through charges paid by users or payments from the public authority, or a combination of both.

Mutandwa and Zinyama (2015) describe PPPs as contractual schemes under which the public sector and private firms cooperate, and share risks and profits to provide public infrastructure and services. The PPPs have attracted great attention in the delivery of a variety of public economic and social infrastructure developments, and services. They have been peddled as critically important in meeting the challenges of sustainable development, an innovative and all-encompassing solution to budgetary constraints, and transferring risk from the public sector to the private sector (Hall, 2015). According to Brown (2015) and Lang (2016), PPPs have been heralded as being linked with increased innovation and efficiency in service delivery, better risk control and cost savings, as well as lower costs of financing.

The PPPs are believed to harness private sector capital, expertise and efficiency gains by allocating risks to the party that is best able to manage them optimally (Brown, 2015). Such proposed attributes, which have made PPPs increasingly popular in many public infrastructure and services delivery, have been advanced through the neo-liberal theory which perceives the private sector as superior over the public sector regarding efficiency and accountability in the delivery and management of public infrastructure and services (Lang, 2016). These promises have drawn governments into engaging multiplicity of actors, particularly the private sector, through a variety of PPPs

with the aim to improve economic growth, enhance urban development, provide social infrastructure, and manage public services in a sustainable way.

Despite these commendations, Boardman, Siemiatycki and Vining (2016) note that PPPs have failed to live up to their promises as generally, they conceal public borrowing, while providing long-term state assurances of profits to private companies. The PPP solutions serve important individual interests of stakeholders, primarily groups of the private actors taking part in the PPP. Due to quality improvement and the profiteering aim of private actors, PPP projects impact negatively on the poor and contribute to the increase in gap between the rich and the poor. Thus, basic services may not be affordable to the poor or the services may not be available in their vicinities.

Related to this is that the public sector does not appear to vigorously pursue the public interest, rather each actor in the system pursues self-interests, as stipulated by the public choice perspective (Mostepaniuk, 2016). Thus, the institutional environments in which decisions are made, coordinated and implemented affect the success of PPP arrangements which involve complex relationships among the multiple partners in the provision of public infrastructure and management of public services. The actors include different government organisations, agencies and departments, and various private sector firms that serve as project advisors, contractors, operators and insurers. Boardman and Vining (2012) argued that the relationships among the various actors in PPPs often turn from collaborative to confrontational, which affects the success, management and sustainability of the project and partnership.

The PPPs differ across projects, sectors, levels of government and countries, and can take many forms – from simple commercialisation to full

privatisation. Hence, governments have adopted various forms of PPPs, aimed at realising specific projects for the satisfaction of public needs. However, Hare (2013) points out that the partnership, which could be in the design, construction, operation, financing, ownership and risk transfer, are country-specific. The caution in choosing a particular form of PPP, according to Eadie, Millar and Toner (2013), is ensuring that there is better 'value for money' for the public compared to the service that would have been provided by a traditional state investment. The onus, therefore, lies on the public sector to ensure that cost-efficient, reliable and ready services that leave no one behind, at the approved price and in conformity with the agreed quality standards, as defined by the contract, are provided by the private sector.

Judging on the basis of the increasing global interest in PPPs, there should be little doubt about the success of PPPs. Proponents of PPPs claim that PPP projects and services free up public capital to spend on other government services, and are less expensive, more innovative, quicker, and more accountable than public service delivery (Zhang *et al.*, 2014). However, Pap, Pongrácz, Myllykoski and Keiski (2014) contend that projects and services under PPPs are characterised by failures, delays, little transparency and secretive deals. They also reveal the shadowy processes, non-public consultations, many false promises, fair amount of bribery, incredibly complex contracts, and adverse impacts on the poor with PPPs. This mostly leads to a less effective implementation of projects and services under PPPs, undesirable PPP outcomes and outright cancellation of PPP engagements.

An example of such PPP projects and services is the City Water project (City Water Services Limited) in Tanzania in 2003 which was awarded

two US\$9million contracts for procurement and installation of water metres and water plant equipment, but was terminated after two years due to under-delivery of services and failure to meet performance targets specified in the contract. The 2.1km Cross City Tunnel in Sydney in Australia also failed in less than two years after its opening in August 2005 as a result of low traffic volume caused by public resistance and boycott of the tunnel. The Jin Long Toll Road (JLTR) project, a 17km road in China, is another example of a failed PPP tolled road project due to exorbitant fee charges of service.

The processes in PPP are not always straightforward and their limitations must be recognised. Zhang *et al.* (2014) emphasise that PPP is not a solution option to a public infrastructure or management service problem, but it is a viable project implementation mechanism for a preferred solution option. This notwithstanding, Piippo, Saavalainen, Kaakinen and Pongrácz (2015) maintain that, if PPPs are designed and implemented properly in a balanced regulatory environment, they can become effective mechanisms for the delivery of public infrastructure and services and provide enhanced quality of service over traditional approaches. Common constraints to effective PPP require the capacity building of the public sector for monitoring purposes, and government support (Boardman *et al.*, 2016).

Nonetheless, establishing PPPs that are effective and sustainable in operation requires looking beyond the beauty of the concept which is characterised by the inherently complex contractual agreements. With each PPP being unique to some extent, especially those involving direct private sector financing, their establishment and management are quite challenging. Though Sarmiento and Renneboog (2016) argue that the effectiveness in the

delivery of public services through PPP is enshrined in the contractual arrangements agreed among the various stakeholders, there is no template for a good contractual agreement in PPP. This is because each PPP arrangement could be unique in many ways, thus, making it difficult to guarantee that success of PPPs can be wholly copied from one project or country to another.

Realising that there are various entities [government (national or local) authority or a government-owned enterprise, project sponsors, construction companies, providers of necessary equipment, plant operators, insurers, etc.] engaged in PPPs, there is the need for cooperation and strategic interactions among them. Conflicts in PPPs are rooted in the different interests and incentives that various partners have in a project. Therefore, to understand the motivation for both public sector and private sector in PPPs, it is useful to better understand the mechanism of PPPs and its accompanying challenges in its functioning as postulated by public choice theory. Velotti, Botti and Vesci (2012) assert that the extent to which each stakeholder's interest is maximised in the contract and security for the sustainability of the operations of the partnership encourages each partner to play its role effectively becomes key.

In many countries, PPPs deliver a wide range of public infrastructure and services, including transportation (roads, bridges, railways, airports and car parks), telecommunication, energy, sanitation, water, health (hospitals), education (schools and teaching facilities), housing, stadia and security (prisons). The SWM sector has witnessed a number of PPP arrangements across the globe, but most especially in developing countries, including Africa. Alam and Ahmade (2013) attributed this to the growing urbanisation resulting in an increased rate of waste generation and high costs in SWM.

Sankoh, Yan and Tran (2013) posit that key challenges of PPPs in SWM that affect African countries, including Ghana, revolve around the inability to implement consistent waste management policies ostensibly for political reasons or “rushed through” processes to typify world standards without assessing the pre-conditions, and not mainly technical or economic factors. This suggests that SWM challenges, to an extent, emanate from city authorities’ poor planning, bad corporate management practices and wrong priorities which fail to adapt appropriately to their context (Bentil, 2016; Osei-Kyei & Chan, 2015; Oteng-Ababio & Amankwaa, 2014).

For a sustainable and effective PPP for SWM, certain enabling conditions must be met in the contractual arrangements. Both the public and private sectors must adapt to a new way of doing business in PPP such that the project maintains its operations, services and an acceptable level of expected benefits for stakeholders during the projected or contracted lifetime (Sánchez, 2015). Related to this, Piipo *et al.* (2015) contend that it is difficult for public agencies such as municipalities to change their traditional role of service provider to a new role of service partner and regulator. Thus, it is worth acknowledging that not only policies that are conducive for an institutional framework are necessary for PPPs to take place, but also the relevancy and acceptability of the service, implementation and monitoring strategies as well as maintenance support.

Although Ghana developed its PPP Guiding Principles in 2004, they were not operationalized until 2012 when the Principles were revised. Ghana’s pace of PPP implementation has been significantly slow. The 2016 PPP Bill is currently at the consideration stage for discussion and approval of proposed

amendments by Parliament. The Bill seeks to establish a legal framework for the development, implementation and regulation of PPP arrangements and projects between public institutes and private entities for the provision of public infrastructure and services, including SWM. PPP in SWM in Ghana is expected to offer enhanced value for money, benefit Ghanaians with the expertise and capabilities of the private sector, as well as to ensure affordability, technology transfer, accountability, a more rigorous project assessment and sharing of risk between the public and private sectors.

Ghana faces difficulties in managing refuse in its urban and rural areas at the national, regional and district levels. These difficulties are concentrated and complicated by population pressures in the heavily populated cities. Acknowledgment of the efficiencies of the private sector, budgetary constraints, and increased waste generation compelled the Metropolitan, Municipal and District Assemblies (MMDAs) to adopt PPP in SWM in Ghana in the early 1990s after the economic crisis in the 1980s (Osei-Kyei, Dansoh & Ofori-Kuragu, 2014; Owusu-Sekyere, Harris & Bonyah, 2013).

The responsibility of SWM in Ghana is placed in the hands of local government through various legislative instruments. Key among them is the Local Governance Act, 2016 (Act 936) and the Environmental Sanitation Policy (ESP) which was formulated in 1999 and revised in 2009. The Local Governance Act empowers the MMDAs to provide municipal services, including undertaking waste management and enacting by-laws to regulate the effective management of waste in their respective jurisdictions. The ESP also guides waste management practices at every level (from district to national) to address the waste problem, and promotes reduction, reuse, recycling and

recovery of all types of waste stream through minimising the volume and cost of waste that ends up at the landfills.

Considering that waste is characterised largely by non-exclusiveness and non-rivalry, waste management service is considered as a special public good. As such, waste management had previously been the exclusive responsibility of the central government and local authorities before the private sector was introduced to either solely manage municipal waste or partner with municipalities in managing waste. Consequently, the greater part of waste management services in Ghana is provided by the public through the Ministry of Local Government and Rural Development (MLGRD) which supervises the decentralised MMDAs. However, MMDAs struggled to execute this mandate, and most cities in Ghana got engulfed in huge heaps of garbage and piles of refuse (Oteng-Ababio & Amankwaa, 2014).

Ghana, consequently, attracted external support for its waste management services. The German Technical Cooperation (GTZ or GIZ) and World Bank mainly pushed to re-sanitise cities in Ghana with the implementation of the Accra Waste Management Project from 1985 to 1994. This brought about the first Waste Management Department (WMD) in the Accra Metropolitan Area with responsibilities, including solid waste collection and disposal services. The Kumasi Metropolitan Authority's WMD followed with the assistance of the United Nations Development Programme (UNDP) Sanitation Project in Kumasi. The Overseas Development Association (ODA, now DFID – Department for International Development) of the United Kingdom also provided vehicles, machinery and equipment under the Kumasi Solid Waste Disposal project from 1992 to 1995.

Ghana, with support from the World Bank, implemented the Urban Development Projects series (1992 – 2001) which influenced the piloting of franchise management of solid waste services in Accra, Sekondi-Takoradi, Kumasi and Tamale metropolises. The World Bank supported the preparation of the legal framework, administrative and management systems for the implementation of PPPs. It also provided capacity building for the relevant institutions for the adoption of PPPs as a strategy to finance the delivery of public goods with an amount of US\$30 million over a four-year period (2012 – 2016) in Ghana's metropolises, including Cape Coast which was upgrade to metropolitan status in 2007 by LI 1927 (Adu-Gyamfi, Adjei & Tetteh, 2017). However, these external supports came with conditionalities such as privatisation reforms; public sector retrenchment; and a reduction in overall government spending.

This study focused on the Sekondi-Takoradi Metropolitan Area (STMA) and the Cape Coast Metropolitan Area (CCMA) to assess the sustainability of PPP in SWM in the two Metropolises in Ghana. As one of the rapidly expanding cities of Ghana, the STMA has grappled with the collection of huge amount of solid waste at numerous sanitary sites which are scattered throughout the Metropolis. Generating over 1,000 tonnes of solid waste daily, the STMA reports that the situation was compounded by the discovery of oil and gas off the western coast of the country in 2007. Lacking the needed resources and institutional capabilities to overcome the challenge of doubling waste generation and its consequence of spilled over uncollected refuse at the various sanitary sites, the STMA adopted a PPP initiative to improve the delivery of SWM services.

The STMA later passed a resolution at a general Assembly meeting in 2009 to involve the citizenry to contribute financially to improve waste management. The resolution resulted in the polluter-pays strategy which required that the cost of waste generated should be partly borne by those who cause or generate it. This innovation allowed residents in the Metropolis, particularly residents in low-income suburbs, to pay some amount of money at the various sanitary sites before dumping refuse. This was done alongside door-to-door waste collection at first-class residential suburbs. The Ghana Statistical Service (GSS) (2014a) reports that the commonest method of solid waste disposal in the STMA is by public dump (container), accounting for 47.1 per cent, while house-to-house waste collection accounts for 7.9 per cent.

For the CCMA, poor environmental sanitation and waste management continue to pose a challenge to the Metropolitan Assembly. The GSS (2014b) reveals that the main method of solid waste disposal in the Metropolis is by public dump in the container, accounting for 56.7 per cent, while house-to-house waste collection accounts for 5.5 per cent. Wide variations are observed among rural and urban households. While two-thirds of urban households (67.1%) dump their solid waste in public containers; only a quarter of rural households (25.0%) use this facility. Instead, most rural households (48.7%) depend on public open dumping sites for solid waste disposal.

Statement of the Problem

The Government of Ghana, through local governments (MMDAs), has been the main provider of public goods and services, including the management of solid waste. Hall (2015) and Mitchell-Weaver and Manning

(as cited by Boampong & Tachie, 2017) argue that Ghana adopted PPP in response to pressure from the World Bank, International Monetary Fund (IMF) and development partners or donors. Besides, the motivation to adopt PPP in Ghana has largely been the perceived potential benefits such as increase in the quality of public goods and services, decrease in government's financial burden of providing the goods and services, sharing of risk between the public and private sectors, and more efficient allocation of resources, as specified by the neo-liberal theory (Brown, 2015; Lang, 2016).

Relevant stakeholders (including ministries from various sectors, private companies, development agencies, banks, guarantee institutions and civil society) are, therefore, engaged in PPP to realise the anticipated results. However, a report collated by Eurodad (2018) reveals that projects and services under PPPs come with high costs for the public purse, excessive level of risk for the public sector, and lack of transparency and accountability, which result in a heavy burden for citizens by contributing to the increase in the divide between the rich and poor. Boardman *et al.* (2016) argued that PPPs in developing countries, mainly Ghana, have not lived up to expectations, thus, affecting the implementation of PPPs and sustainability of the partnerships.

Unsuccessful PPPs in Ghana include the Aqua Vitens Rand Limited (AVRL) in the water sector, the Sunon Asogli Power Plant (SAPP) and West African Gas Pipeline Company (WAPCo) in the energy sector, and the STX Engineering & Construction Limited of South Korea in the housing sector. In November 2005, AVRL entered into a management contract with the Ghana Water Company Limited to handle 81 urban water systems. The contract was,

however, abrogated in June, 2011. AVRIL could not meet Ghana's expectations, as it was argued that the overall performance of AVRIL was not encouraging in terms of its inability to meet the water quality service standard, and delays in customer account receivables, apart from the unimpressive targets for treatment plant operations (Owusu, 2011). Thus, AVRIL consistently failed to meet its contractual commitments and targets.

Ghana's partnership with SAPP and WAPCo, which was expected to produce 15 per cent (200 megawatts of power) of the total electricity generated in the country in 2011, was confronted with a lot of challenges that affected the continuous cooperation and effectiveness of the partnership in the energy sector. WAPCo was unable to guarantee continuous flow of gas for the operation, and Government of Ghana, through the Electricity Company of Ghana, was unable to pay promptly for electricity supplied through the partnership (Asumadu-Sarkodie, Owusu & Dubey, 2016). Thus, the partners were unable to meet their targets to sustain the operations of the partnership.

In the housing sector, the Government of Ghana and STX Engineering & Construction Limited of South Korea signed a contract in 2009 with the aim of constructing 200,000 housing units in five years (2010-2015) with an estimated amount of US\$10 billion. However, the project, according to Owusu (as cited in Okereke, 2017), was abrogated in 2011 on the grounds of persistent boardroom wrangling between the Ghanaian and Korean partners, ineffective and haphazard management of the project by the Government of Ghana, corruption, poor planning and absence of credible feasibility studies.

According to Osei-Kyei and Chan (2015), the failure of most of these partnership projects are attributed to the lack of understanding of what

constitute a true partnership and mechanisms of the partnerships, poor coordination among stakeholders' interests, politicisation of PPP contracts, weak mechanisms to guarantee sustainable partnerships as well as the demands by governments for such services to maintain low prices for the general public. Beyond the basic requirements for PPPs, Tufinio, Mooi, Ravestijn, Bakker and Boorsma (2013) have suggested that the scope, level of competence, openness, inclusiveness and accountability that must go with the process to guarantee success, mutual benefits, effective implementation and subsequent sustainability, need to be clearly established with certainty.

PPP in SWM is one of the working agreements in public resource management in Ghana. The Government of Ghana, through the MMDAs, signed partnership agreements with private sector companies on SWM in 2006. The aim was to ensure the collection, transportation and management of municipal and household waste. To help ensure the sustainability of PPP in SWM, the World Bank, UNDP and other international Non-Governmental Organisations (NGOs) such as GIZ and DFID provided technical, financial and logistical support to the MMDAs to better engage the private sector in the contractual arrangements.

The study focused on metropolitan areas because according to Oteng-Ababio and Amankwaa (2014), the volume of waste generated is highest in these areas with huge financial implications on the Assemblies in waste management. It centred on STMA and CCMA, as most of the studies on PPP in waste management have concentrated on the Accra Metropolitan Area (e.g. Oteng-Ababio, 2009; Oteng-Ababio, Arguello & Gabbay, 2013). This study therefore assessed how sustainable the partnership between the public and

private sectors in waste management with STMA as the third largest metropolis, while CCMA is the smallest in terms of population sizes.

The study was also informed by the differences in the budget for waste management by CCMA and STMA as indicated by Abalo, Peprah, Nyonyo, Ampomah-Sarpong and Agyemang-Duah (2018) vis-à-vis their respective amount for managing solid wastes. While a total of GH¢2,529,799.00 was allocated for managing a projected volume of solid wastes (89,202.71 tonnes) in CCMA (CCMA, 2016), GH¢2,334,512.00 was budgeted for managing an estimated volume of 137,981.18 tonnes of solid wastes in STMA (Korley & Fianko, 2017) in 2017. It was, therefore, necessary to assess the reasons behind the higher budget allocation for CCMA regarding the management of a comparatively lower amount of solid waste as against that of STMA.

A study by Bentil (2016) on the roles and challenges of the private sector involvement in SWM in STMA showed that the lack of personnel, logistics, poor attitude of the people and lack of enforcement of sanitation by-laws have led to the unsustainable and appalling state of waste management. Yelluzie (2013) conducted a study into SWM in the Cape Coast Metropolis. It was found that inadequate skip supply for storing waste, lack of routine collection of waste, poor methods of waste management, inadequate resources for waste management institutions to effectively collect the waste generated and human resources challenges were identified as the main challenges confronting SWM in the Metropolis.

Even though the partnerships in SWM in STMA and CCMA are still operational after a decade of implementation, Oteng-Ababio and Amankwaa (2014) opine that PPPs are generally saddled with numerous challenges,

including over-pricing of service charges which are not affordable to poor people, delayed payments, delays in waste collection, and poor management of waste. Osei-Kyei and Chan (2015) emphasise that such challenges pose serious threats to the effective implementation and sustainability of the partnership and the possibility of achieving the collective goal. The study sought to assess the factors contributing to the effective operations of the PPP agreements in SWM and how the stakeholders are managing the operational challenges to ensure effective implementation and sustainability of the partnership in CCMA and STMA.

Research Objectives

The main objective of the study was to assess the sustainability of PPP in SWM in CCMA and STMA in Ghana. Specifically, the study sought to:

1. examine the contractual arrangements between the public and private sectors for SWM in the two Metropolises.
2. assess the quality of SWM services through PPP in the two Metropolises.
3. assess the level of sustainability of PPP in SWM in the two Metropolises.
4. recommend strategies to ensure the sustainability of PPP in SWM in Ghana.

Research Questions

The study sought to find answers to the following questions:

1. What are the contractual arrangements between the public and private sectors for SWM in the two Metropolises?
2. What is the quality of SWM services through PPP in the two Metropolises?
3. What is the level of sustainability of PPP in SWM in the two Metropolises?

Significance of the Study

PPPs have gained traction since the 1990s as a strategy for delivering public goods and services in developing countries. Accordingly, most developing countries are beginning to appreciate the use of PPPs in public infrastructure and services, especially SWM which constitutes one of the largest municipal expenditure in such countries. This study, therefore, focused on the sustainability of PPP in SWM in STMA and CCMA in Ghana. It concentrates on the various processes associated with PPPs as well as their implementation in terms of their fundamentals and lapses in SWM services.

The findings of the study will provide more insights into PPPs in Ghana. It will provide information relevant for the implementation of PPP in effective and efficient SWM service delivery in Ghana. It will also contribute to an increased awareness and understanding of the current state of PPP in SWM in the two Metropolises. It will again provide a quality assessment of service delivery of waste management in PPP and highlight the shortfalls of the system within which the PPP operates in the target metropolises.

The results of the study will also be useful to policy makers, international donor organisations, stakeholders in the environmental

management sector and urban sanitation management, both within and outside Ghana. It will identify policy options for promoting a sustainable PPP in SWM in Ghana, with or without intervention, and be useful in the formulation of policies for PPP arrangements in order to avoid the identified weaknesses. This will inform the various stakeholders of PPP in SWM about whether they are functioning well enough or otherwise, so that necessary actions for improvement could be taken.

In addition, the study will suggest some useful ways and methods of sustaining PPP in SWM. The recommendations will help to improve SWM services that the private sector provides to the citizens. The outcomes of this research will improve the quality of service delivery in solid waste collection, transportation and disposal, and reduce sanitation cost to the Government. The private sector will benefit from enhanced returns from their businesses, as they will improve on resource efficiency and ensure a good corporate image.

The output from the study will be useful for improving performance monitoring and future benchmarking to enhance efficient and effective delivery of PPP projects and services and the sustainability of the partnership in SWM. This will provide an understanding of the linkages between the performance of private service providers and the regulatory arrangements necessary for improved SWM services under PPPs, which will benefit the citizens, households and communities.

The principles of PPPs are understood in many different ways nationally and even within the various sectors. The implementation of PPP has its own features which are often very different across countries and sectors. In order to fill this gap, the purpose of this study was to assess the sustainability

of PPP in SWM in STMA and CCMA in Ghana on PPP with the aim at defining a set of parameters/criteria characterising the whole spectrum of PPP, and providing evidence for the effective implementation and subsequent sustainability of PPP in SWM in CCMA and STMA in Ghana.

Shedding more light on the factors that contribute to the continuous operations of the PPP agreements in SWM and how the stakeholders manage the operational challenges to ensure the sustainability of the partnership in CCMA and STMA, the study will help to contribute to the strategies for structuring the implementation of PPPs and sustaining PPPs in Ghana and beyond. Additionally, the outcome of the study will contribute to filling the theoretical gap identified in the implementation and sustainability of PPPs, particularly in SWM services. This will involve suggesting other operational measures such as maximisation of each group interests to resolve conflict of interests in order to improve efficiency in PPP implementation.

Finally, the study will add up to the existing literature on PPP in SWM in Ghana and serve as a basis for further research on the implementation and sustainability of PPP in SWM. It will contribute to theoretical literature by explaining the sustainability elements in SWM and issues in PPPs. With respect to the theoretical contribution, the study contributes to the discussion on the negative impact of PPP projects on the poor through increase in the divide between rich and poor as well as lack of transparency in PPP projects. The study also contributes to the debate about the classification of waste either as a public good or private good depending on the unique and contextual characteristics of solid waste in the two Metropolises. Accordingly, it will be useful for academics or scholars who intend to research into PPPs in SWM

and practitioners of PPPs in better understanding the PPP process and implementation.

Delimitation

The study covered the sustainability of PPP in SWM in STMA and CCMA of Ghana. Geographically, the study focused on the STMA and CCMA of Ghana. Contextual issues in the study covered the following issues:

- I. Contractual arrangements between the public and private sectors for managing solid waste:
 - i. Defining contract specification
 - ii. Selection and award criteria
 - iii. Monitoring mechanism and performance indicators
 - iv. Possibility of renewal of contract that are conditional on satisfactory performance
 - v. Contract duration
 - vi. Competition amongst contractors
 - vii. Sanctions for poor performance or breach of contract
 - viii. Scope and technical specification
 - ix. Technical condition of the equipment
 - x. The physical condition, clothing and safety requirements of the workers.
2. Quality of SWM service through PPP
 - i. Sanitary conditions
 - ii. Rate of collection, refuse containers, cost, willingness to pay for the service

- iii. Reliability of service, responsiveness, assurance, empathy and tangibility
3. Sustainability:
- i. Relevancy – Consistency with national, district and sector priorities
 - ii. Acceptability – Benefits to target beneficiaries; availability of the necessary resources, logistics (trained manpower, vehicles, etc.) to support implementation
 - iii. Economic and financial viability – Post-implementation project operations with/without subsidy, project benefits vis-à-vis costs, continuation of free project services, cost recovery plan, sources of project funds, sufficiency of available funds for project implementation
 - iv. Implementation and monitoring strategy – Realistic implementation period, implementation plan with clearly defined responsibilities, monitoring and evaluation (M&E) plan, levels of review mechanisms for monitoring progress
 - v. Post-implementation operation – determination of responsibility for post-implementation operation, budgetary provisions, institutional arrangements, community/beneficiary agreement

Solid wastes constituted solid waste materials which were classified into garbage (decomposable waste from food); rubbish (non-decomposable waste); and ash (residue from burning of solid fuels) that were generated by households, institutions, commercial establishments and industries, as well as waste from street sweepings, drain cleanings, and construction/demolition. For clarity, solid waste in this study excludes radioactive waste, hazardous waste

and hospital waste. For this study, waste, refuse and garbage are used interchangeably.

Limitations

A major limitation of the study was the fact that none of the stakeholders in the PPP for SWM was willing to release the PPP contract document to the researcher. However, contents of the contract were shared with the researcher. This could affect the depth of information generated about the contractual arrangements among the stakeholders for PPP in SWM. The WMCs and Assemblies were also reluctant to provide data on actual costs and payments made regarding SWM services. This did not allow for the conduct of cost benefit analysis which is central to the sustainability of SWM in PPP.

Organisation of the Study

The study was organised into eight chapters. Chapter One which presents the Introduction covers the background to the study, problem statement, objectives of the study, research questions, scope of the study, significance of the study, limitations of the study, and definition of terms. Chapter Two contains reviewed literature on PPP and SWM. It specifically presents the conceptual, theoretical and empirical literature on PPP and SWM. It also highlights some sustainability issues on PPPs. Chapter Three covers the evolution of PPP in SWM services in Ghana as well the legislation and policy frameworks related to PPP in SWM in Ghana.

The research methodology that guided the study is spelt out in Chapter Four. The chapter focuses on the description of the research paradigm.

research design, study population, sample and sampling procedures, data collection method, research instruments, fieldwork, ethical consideration, and data analysis. It also presents detailed description of the study area in relation to the study topic. Chapters Five, Six and Seven cover the discussion and findings according to the objectives of the study. The final chapter looks at the summary of findings, conclusions and recommendations of the study.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter presents the review of theoretical, conceptual and empirical literature on sustainable PPP in SWM. It looks at the concepts of PPP, SWM and sustainable partnership. It also reviews literature on the models and benefits of PPP, service quality in SWM, and implementation of public policy. It again covers the theoretical and conceptual frameworks that guided the study.

Theoretical Framework

This section focuses on the theoretical framework underpinning the study. The study was guided by the neo-liberal theory, public choice theory and stakeholder theory.

Neo-liberal theory

Neo-liberalism is one of the 20th Century's most influential doctrines that defined the state and the world economy. Before the neo-liberal period, the classical economics and Keynesian (from the end of World War II to the late 1970s) ideologies had dominated the global economic and political convention. The Keynesian theorists who promoted a state interventionist approach criticised the then existing classical economics philosophy of allowing the society and economy to be organised according to the decisions of the 'hidden hand' (as identified by classical economist Adam Smith) of the market. Just like the classical economic theorists, the Keynesian policies were

also blamed for the economic and fiscal crisis of the 1970s and 1980s by free-market proponents of neo-liberalism such as Friedrich von Hayek and Milton Friedman whose views were enthusiastically embraced by the major political leaders (e.g. Margaret Thatcher in the United Kingdom and Ronald Reagan in the United States of America) (Smith & Tikkanen, 2014).

Accordingly, such proponents of the neo-liberal political ideology advocated the dismantling of the welfare state and reducing labour standards and trade union influence through the re-implementation of market initiatives such as privatisation and deregulation (opening the public sector to competition from the private sector). To Clarke (2005), this was underpinned by their belief that the private sector is more efficient, productive and cost-effective than the public sector in providing and managing the economy and society. Neo-liberal theory perceives the private sector to be superior to the public sector in service delivery. It, thus, promotes the maximum involvement of the private sector in public services provisioning (e.g. SWM) that were traditional functions performed by both capitalist and communist states.

Harvey (2005, p. 2) describes neo-liberalism as “a theory of political economic practices that propose that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets and free trade”. Though neo-liberalism is a resurgence of the viewpoint from classical liberal economic beliefs of philosophers like John Locke, Adam Smith and David Ricardo, who further advocated the centrality of property rights and autonomy as key components of social progress, Plant (2009) argues that it is not identical to actual liberalism.

Neo-liberalism projects individual freedom, liberty and unimpeded economic development as fundamental tenets of collective progress. It aligns with the laissez-faire market fundamentalism ideology that believes in comparative advantage, a minimalist role for state intervention into the economy and market freedom (free trade and open borders), and is driven by finance capital. Munck (2005) had argued that acts of intervention in the economy from government agencies are almost always undesirable, because interventions can undermine the finely tuned logic of the marketplace, and hence reduce economic efficiency.

The theory is characterised by liberalisation (promoting free competition), deregulation (reducing role of the state), privatisation [selling off state-owned enterprises (SoEs)], market proxies in residual public sector, internationalisation (freeing inward and outward flows) and lower direct taxes (increasing consumer choice). A general characteristic of neoliberalism is the desire to intensify and expand the market by increasing the number, frequency, repeatability and formalisation of transactions (Schultz, 2010). The theory promotes privatisation and contract maximisation by providing permission to managers to either become contract administrators who oversaw previously performed state functions now being delivered by private actors, or be in charge of the sale of state-run businesses to private entities.

As the promoter of minimal state intervention in the economy, neo-liberal theory was espoused to examine the relevant policy measures by the public sector, which could guide the effective opening up of markets and the linkage between public funding and user payments for service delivery. It was also used to assess the consequences of adopting PPP in SWM in the CCMA

and STMA. This was related to the quality of SWM service under PPP, impact of PPP on the poor and the gap between the rich and the poor.

The neo-liberal theory was adopted in this research to study the contractual arrangements between the public and private sectors in SWM in STMA and CCMA. There are wide landscapes of PPP features that are dictated by contractual arrangements. As such, PPPs are classified according to their various contractual forms, but generally involve one of the following types: Design-Build-Operate (DBO), Design-Build-Finance (DBF), Design-Build-Finance-Maintain (DBFM), Build-Own-Operate-Transfer (BOOT) and Concession-type PPPs. Usually, PPP contracts span a period of up to 25 or 30 years to enable the private sector to repay loans sourced from banks and other financial institutions and to guarantee some profits in the process. Additionally, legal requirements may inform different interpretations of PPPs.

The theory also becomes relevant for this study because SWM in CCMA and STMA are operated under PPP arrangements. However, PPPs are not a one-size-fits-all tool applicable to different projects, sectors and countries. In choosing a type of PPP, attention should be paid to the nature of project and beneficiaries or users. PPPs differ by the nature and forms they take, as well as the desire of the collaborators, which are normally specified in the project or service contract. Partnerships may also vary according to who provides different inputs and who owns it. The PPP projects and services that are not well conceived and implemented could result in huge failures of projects and services, cause waste of scarce resources, and damage public goodwill.

Public choice theory

Related to the neo-liberal theory is public choice theory (also known as political economy theory, rational choice theory, social choice theory or market theory) which was propounded by Buchanan and Tullock (1962). Central to public choice theory is its focus on the effects of individuals, firms and institutions (governments) pursuing self-interests rather than public interest. The theory assumes that human beings (public officials – legislators and bureaucrats) are rational and egoistic or self-interested utility-maximisers. Thus, various actors such as individuals, interest groups, bureaucrats and politicians are assumed to seek their own self-interest as in the market place. Zhang *et al.* (2014) argue that public institutions are inherently inefficient and ineffective in promoting social welfare, as officials do not have the right incentives to pursue public interests.

The public choice theory seeks to explain and predict the behaviour of politicians and bureaucrats in partnership by using analytical tools developed from economics, based on the principle of rational choice. It describes ways in which self-interest, rather than public interest, drives communal, political or public activities. It examines the provision of public goods such as water, air, security and waste. For instance, SWM service can be argued to have public good characteristics such as externality, non-excludability and non-rivalry. Brown (2015) defines a public good or service as any good that is inherently non-rival and non-excludable, such that the consumption of the good by an individual does not reduce the availability of the good for consumption by others and none can be effectively excluded from using the good, particularly for beneficiaries who are not willing to pay for the good or service.

Lang (2016) contends that the non-excludability concept of SWM encourages free-riding since people who cannot be excluded from the benefits of the services are aware that it is impossible to exclude them from the consumption of the good or service. The high negative externality (pollution from uncollected waste) makes SWM service a public good or service. Externalities of uncollected solid waste deters market provision by the private sector alone without government intervention (Brown, 2015). Lang, therefore, alludes to the fact that the private sector is usually challenged in providing public goods and services such as SWM at optimal and socially desirable levels, considering their non-excludability and non-rivalry problems.

Considering the high cost of waste management services coupled with budgetary constraints of governments, various development partners with different interests are usually involved in waste management through PPPs. The stakeholders comprise local and central governments (or SoEs), project sponsors, donor agencies, private companies and insurers. It implies that there may be many interest groups that have strong incentives for lobbying the government to implement specific policies that may be inefficient, but beneficial to them at the expense of the general public.

PPP solutions comprise important and diverse interests of actors in the decision-making process depending on the type of contract, width and length of the project or service and the specific need. While the private sector providers are profit-seeking (i.e., economic benefits), the public sector is expected to protect the social and economic welfare of its citizenry by ensuring value for money in its decision making. Banks or financial institutions (e.g. local commercial banks or usually Africa Development Bank)

enjoy the interest on loans and creation of new partnerships and networks. Civil Society Organisations (CSOs) provide a communications conduit between governments, businesses and local people to ensure that the aims of specific projects, initiatives or services are clearly understood by their intended beneficiaries. Beneficiaries or users (community members) of the service also want value for money by improvement in service quality.

The interests of stakeholders should be rated equally with no specific stakeholder interest dominating the interests of other stakeholders. It is imperative that there is proper synergy among the different interests of stakeholders in PPP to achieve effective and sustainable partnership in public infrastructure and services provisioning. This calls for the need for cooperation among the stakeholders, which can decrease costs and potential losses (Burke & Demirag, 2015). It, thus, becomes important to understand the motivation of all actors in PPP in SWM in CCMA and STMA.

The public's regulatory frameworks must also align with existing waste management policy frameworks, which must be consultative among all the stakeholders, and the citizens involved in decision making (Mostepaniuk, 2016). The government is equally expected to regulate monopoly rights and prices to avoid public or consumers' exploitation through overpricing, monitor performance of actors in public goods and ensure that every member of society has access to the good or service irrespective of their ability to pay.

The theory also analyses the various decisions in PPP projects by both the public and private sectors. Samsura, van Deemen, van der Krabben and van der Heijden (2013) state that the various decisions in PPP projects include bidding price; bidding compensation for projects with costly bid preparation;

concession period (stipend or honorarium); costs and benefits allocation; risk and resource sharing and allocation; resource value increment allocation, royalties and subsidies negotiation; negotiation of changes in output-based specifications; financial renegotiations; and opportunistic behaviour.

The public sector is entrusted with the authority to make decisions regarding the kinds of public services that are provided to satisfy citizens' needs. Nonetheless, decisions made by actors in PPPs depend on the costs and benefits of an action taken, whereby each group attempts to maximise its own net benefits (Liu, Li & Xu, 2015). Benefits can take the form of monetary or non-monetary rewards and may include ideologies, goals and cultural values. Cognisant of the fact that public officials are rational self-maximisers, it makes it difficult for governments to act in the public interest. Lang (2016) cautions that public officials, both elected and non-elected, must not be assumed to be acting in the public interest. As rational human beings, public officials are self-interested, maximise their selfish gains or, at best, those of powerful interest groups at the expense of the general public.

As the central theme of public choice, collective action will be affected when groups are unable to achieve collective interests (Olson, 1965). Individuals will not rationally contribute to group activities, if they will only recover some of the associated benefits. Olson suggests that organised interest groups will dominate the lobbying process in PPPs, having a dominant say regarding issues of public goods and creating less genuine public participation in government. Kang, Lee and Huang (2013) point out that rationality, which is the property of maximising one's pay-off and taking into account the fact that the opponent is also rational and also is trying to maximise his payoff, is

the cause of a conflict between the self-interest and collective interest in PPP. Javed, Lam and Chan (2014), therefore, recommend that collective action will be feasible, if the people in a group can interact and cooperate.

Obi and Ofonyelu (2015) contend that the process of decision making in the public sector is much more complex and unstable than in the case of private sector. The separation of decision making and decision execution, and unclear distribution of responsibilities between the partners enhance the risk associated with PPP. There is also no social acceptance for delivering public goods via PPPs. The lack of necessary knowledge precludes an effective use of this hybrid form of delivering public goods. The cooperation in PPP means that stakeholders, specifically the public and private sectors, amicably resolve challenges related to opportunisms, negotiations, competitive biddings and partnerships in the PPP processes to enhance social welfare (Liu *et al.*, 2015).

The private sector's partnership with government is assumed to be premised on merit. The public sector's role influences the success of PPPs in their framework, conditions, contract design and in tendering procedures and implementation. However, the rent seeking nature of public officials affects such partnerships and impairs efficient and effective delivery of public goods and services like SWM. Hence, the introduction of market mechanisms will enhance the supply of public services. Moreover, competitiveness in service delivery is expected to cause higher quality services provisioning to respond more quickly to public preferences (Ouenniche, Boukouras & Rajabi, 2016).

The theory advocates that a regulatory policy of the government that takes cognisance of the public good characteristics of waste shall enhance an effectively implemented PPP and sustainable PPP between waste management

service providers and stakeholders. The quality of services will be enhanced in terms of affordability, quality and good customer service. It is, thus, unlikely that quality service delivery could be realised in a poor partnership structure. The public choice theory was used to analyse the chances of effective implementation and eventual sustainability of PPPs, given the existing decision-making structures and inherent incentives for participating actors.

The theory was used to guide the study in assessing the different interests of stakeholders in ensuring effective implementation and sustainability of PPP in SWM in the STMA and CCMA. If private organisations are unable to reap all the benefits of a public good which they are to manage, their incentives to manage it voluntarily might be insufficient. Consumers can also take advantage of public goods without contributing sufficiently to their creation. The theory helped to assess whether there are incentives for actors to participate or cooperate in SWM in PPP.

The theory was also used to analyse the entire decision making between public and private sectors, from the primary risk allocation, to tenderer selection, and project operation (performance supervision) to explain the rational behaviours of both public and private parties. It helped to explain the before and after a preferred bidder is selected phases as well as the challenging issues in PPP implementation. Additionally, the theory was adopted to study the participation, interaction and cooperation as well as the dynamics between the PPP actors, and to suggest proper strategies for both public and private actors in the CCMA and STMA. It again proved helpful in studying the regulatory policies underlying the PPP arrangements and the level of compliance by the partners.

Stakeholder theory

It is always important to identify and consider all stakeholders in a development project for its success. Although stakeholder theory has been developed from different perspectives since the introduction of the stakeholder concept into strategic management theory, it is believed that the theory was postulated and popularised in 1984 by Freeman (1984) after building on the pioneering work done at Stanford Research Institute in the 1960s. Freeman defined stakeholders as any group or individual who can affect or is affected by the achievement of the organisation's objectives.

A key criticism that was advanced against Freeman's definition by Phillips (2003) is that it was too broad, giving room for anyone or any group to be viewed as a stakeholder of an organisation, even terrorists and competitors who can negatively affect the activities of the organisation. In 2004, Freeman modified the definition as those groups who are vital to the survival and success of the corporation. Walsh (2005) narrowed the definition down to major legitimate individuals and groups, but excluded stakeholders whose interests are distant from the operations or objectives of the organisation. However, Friedman and Miles (2006) state that the organisation itself should be regarded as a group of stakeholders and the purpose of the organisation should be to manage their interests, needs and views. Generally, a stakeholder refers to an individual, organisation, sector or community that has a stake (interest) in the outcome of a given decision, process or partnership.

Sorenson and Torfing (2011) delineate stakeholders into primary and secondary or legitimate and illegitimate stakeholders. Primary stakeholders have been described as those whose continuous involvement is necessary for

the survival of the organisation. Secondary stakeholders are those who exert relatively lower level of influence due to the fact that they have lower frequency of interaction with an organisation and, therefore, their involvement is not quite essential for the survival for the organisation. Donaldson and Preston (1995) also classified the stakeholder theory into three - normative, instrumental, and descriptive. Normative stakeholder theory interprets the function of the organisation, that is, how managers or stakeholders should act and should view the purpose of organisation, based on some ethical principle.

Donaldson and Preston further explain descriptive stakeholder theory is concerned with how managers and stakeholders actually behave and how they view their actions and roles. The instrumental stakeholder theory, as a means to an end, is seen as a process towards achieving specific goals. It seeks to verify whether organisations that are more responsive to stakeholders, are more successful in identifying the relationships between stakeholder management and the achievement of organisational goals. It deals with the linkage between organisations and deals with how managers should act, if they want to favour and work for their own interests or the public interests. In Friedman and Miles (2002 and 2006), the authors identify stakeholders depending on whether the material interests or the set of ideas of a firm and stakeholders are compatible or incompatible, and whether the relationship between them is necessary or contingent in terms of its contractual form.

The tenets of the theory are anchored on the premise that organisations are located at the centre of interwoven relations of stakeholders. The theory describes the interconnected relationship between an organisation, its customers, suppliers, employees, investors, communities and others who, in

some other ways, have a stake in the organisation as well as its management and success (Kivleniece & Quelin, 2012). It stresses the presence of many and different interests among the actors such as public and private sectors in a PPP arrangement. PPPs are regarded as networks of stakeholders with different levels of power, share of roles and responsibilities, financing and ties (formal or informal). Stemming from the fact that a successful management and implementation exercise is most likely sustainable when rooted in the objectives of all stakeholders, the engagement and management of all stakeholders are key concerns in PPPs.

As one of the most striking features of effective management and implementation and the many stakeholders in a PPP arrangement, stakeholder theory becomes an important aspect of this study. This entails identifying and classifying all stakeholders, seeking approval from all stakeholders, and ensuring effective processes, delivery and outcomes of the goods and services in the partnership. Specifically, a social network analysis approach of stakeholder theory focuses on the connections between stakeholders, the nature of the linkages, and, the role that each stakeholder performs. Stakeholders can have a significant impact on the success or failure of achieving the project's objectives in a PPP arrangement (Dooms, 2010).

D'Alessandro, Bailey and Giorgino (2014) argue that the presence of a tight contract following the technical nature of contracts and negotiations about sensitive financial deals are seen as some of the main reasons for the limited involvement of stakeholders. Deducing from this, Willems (2014) reports that the initial stage (e.g. tendering process) of a PPP contract limits the involvement of many stakeholders such as the citizens and societal groups,

because of a wide variety of rules under PPP processes. Since the interaction at this stage usually involves information on pricing and tendering offers, it is mostly between the public and private actors, but not the other stakeholders.

Nevertheless, Klijn and Koppenjan (2016) stipulate that stakeholder opposition largely emerges from the gap between expectations of different stakeholders involved in PPPs on the desired process or outcome of the project. De Vries, Bekkers and Tummers (2016) also maintain that stakeholder issues do not only emerge because of this gap, but they are often the result of the imbalance of reactive and proactive stakeholder management approaches and an absence of any guidance on the responsibility and accountability issues surrounding the stakeholder management of PPP projects. Thus, capturing and addressing stakeholder concerns, and putting appropriate stakeholder management processes in place are necessary for the success of PPPs.

The study adopted the theory to identify relevant stakeholders and their roles in the PPP in SWM in the STMA and CCMA. It sought to assess whether the STMA and CCMA align their interests with those of their stakeholders as part of the PPPs in SWM in the two Metropolises. Considering the multiplicity of actors and their inherent relationships in PPPs, interests of stakeholders play a key role in the success of the private sector participation in SWM in the STMA and CCMA. Like the public choice theory, the interests of no particular stakeholder should dominate the interests of other stakeholders. Decisions by stakeholders and relationship among them can affect waste service quality and success of PPPs in SWM in the STMA and CCMA.

The private sector, in PPPs, is expected to more efficiently deliver solutions through innovation, be allowed to recover its investments, and earn a

return on that investment that is significant enough to motivate sustained efficient asset performance and operations, while providing a net positive value for money. This can only be achieved by intensive cooperation between public and private actors, adoption of better and more innovative services, and strict compliance with policy outputs.

Concept of Public-Private Partnership

There is no universally accepted definition of PPPs by practitioners, academics, international institutions, development partners or donors. As a concept that is still transforming, PPP is multifaceted and covers efficiency gains and a wide diversity of contractual agreements characterised by different risk sharing and financing schemes (Varnavskiy, 2011). Different countries, sectors and stakeholders use related terminologies with reference to PPP. For example, the World Bank and South Korea use Private Partnership in Infrastructure (PPI), the development-financing sector uses Public-Sector Participation (PSP), Australia uses Privately-Financed Projects (PFP) and the United Kingdom employs the term Private Finance Initiative (PFI) which is also used in Japan and Malaysia.

Although the concept of PPP is widely known with evidence of substantial literature, there still exist a lot of disagreements about its content. Byiers, Krätke and Rosengren (2014) reveal that researchers and development organisations are now moving from stricter definitions of PPPs towards broader, less formalised definitions that are better adapted to capturing the context related and varied approaches of PPPs. In practice, PPP structures usually involve the transfer of much of the responsibility for financing,

designing, constructing and operating the project-and most of the risks associated with these activities to the private sector-whilst allowing certain (often residual) responsibilities and risks to be retained by the public sector.

Generally, a PPP is an arrangement in which the private sector participates in the supply of services traditionally provided by the government. It embraces a range of structures and concepts which involve substantial public benefits and cost savings as well as the allocation of risks and responsibilities between the public and private sectors. Defining PPP as a governance tool, Hodge and Greve (2007) describe PPP as the cooperation between public and private sectors to develop new ways of producing and delivering public services; sharing risks and rewards, where parties, such as public, private and society, benefit from the transaction. Dube and Chigumira (2011) also conceptualise PPPs as contracts between the public sector and private sector, in which the private party provides a public service and assumes substantial financial, technical and operational risks in the project.

Ouenniche *et al.* (2016) formally explain PPP as a business agreement between the public sector and the private sector to deliver a public service by jointly assuming, to varying extents, financial, technical and operational risks, where the public sector stakeholders typically consist of national, regional and/or local governments, governmental agencies and state-owned entities, whereas the private sector stakeholders typically consist of private sub-contractors, private investors, financiers and insurers. These contracts generally formalise collaborative efforts by both the government and business players to provide public goods and services, refurbish dilapidated public infrastructure or manage public goods and services.

The Organisation for Economic Co-operation and Development (OECD) (2012) defines PPP as long-term contractual arrangements between the government and a private partner whereby the latter delivers and funds public services using a capital asset, sharing the associated risks. The World Bank (2018) conceptualises PPPs as a long-term contract between a private party and a government entity that join forces for a shared objective to provide a public asset or services, in which the private sector takes on considerable risk and management responsibility through the life of the contract, while remuneration is linked to performance. In this context, the private firm delivers an asset, a service or both in return for payments contingent on long-term quality or other output delivery features to the government.

The Ministry of Finance and Economic Planning (MOFEP of Ghana) (2011) defines PPP as a contractual arrangement between a public entity and a private sector party, with clear agreement on shared objectives for the provision of public infrastructure and services traditionally provided by the public sector. With inference from the above definitions and explanations, PPP can be defined as collaborative efforts between the private and public sectors, which allows the introduction of private management into public service. In practice, the various stakeholders, as stipulated by Boardman *et al.* (2016), are brought together under a distinct legal entity or organisational framework known as the Special Purpose Vehicle (SPV).

The definitions strongly advocate the unwavering political or government support for institutional frameworks and attracting financing and private sector participation in PPP. This is, particularly important in the dispensation of transferring risk from the public partner to the private sector.

A commonality in these definitions is that PPPs are largely considered as a gap-filler towards services and infrastructural development by government. Nonetheless, Mutandwa and Zinyama (2015) caution that the success of PPPs heavily depends on the extent to which the government effectively controls the private partners to ensure operational autonomy for private partners.

Adapting from Hall (2015), this study conceptualised PPP as a long-term contract between government authority (public sector) and a private company (private sector) under which a private company finances, builds and operates some elements of a public asset or service; and the private company gets paid over several years, either through charges paid by users (often called a concession) or by payments from the public authority, or a combination of both. The PPP functions transferred to the private sector, for example, design, construction, financing, operations, and maintenance, may vary across contracts, but in all cases, the private company is accountable for project performance, and bears significant risk and management responsibility.

In the midst of the varied definitions, Große-Puppenthal, Byiers and Bilal (2016) cite that PPPs encompass certain basic principles or characteristics. Generally, PPPs involve a long-term relationship between the public and private sectors, requiring cooperation through communication and transparency over a considerable period because of the nature of the projects that typically use PPP. This is anchored on the key condition that allows the efficiencies needed to deliver value for money in PPPs. Risk sharing (skills, knowledge, and resources) is one of the key drivers of value for money in PPP on the assumption that risk is borne by the party that is best positioned to assess the risks, and to influence their probability and financial impact of their

occurrence. Additionally, when a product or service needed by citizens is jointly produced in PPPs; implicitly, all parties gain from its sale or provision.

Models of Public-Private Partnership

Partnerships are found in many different shapes, types and sizes, and the boundaries between public and private sectors are sometimes blurred depending on what is being emphasised. This affects the sharing of costs, risks and benefits between the public and private sectors (Sarmiento & Renneboog, 2016). The sharing of the costs of public services delivered by means of PPP projects varies over a continuum varying from fully-assumed responsibility by the public sector or taxpayers' money, at one extreme, to fully-assumed responsibility by the private sector or investors' money, at the other extreme, depending on the type of agreement or contract, which is intimately related to the type of PPP project and the type of PPP model being operated.

The PPPs vary depending on the contractual arrangement between the various parties for both new and existing services. It is important to distinguish between new and existing projects in the form of assets or services. According to the World Bank (2012), many PPPs involve new assets, which are often referred to as 'greenfield' projects involving private companies in financing, building, and managing new public assets. On the other hand, the World Bank defines 'brownfield' projects as referring to the transfer of responsibility for upgrading and managing existing assets or services to a private company. A key element of a PPP, in either case, is that the assets or services provided are specified in terms of outputs rather than inputs, that is, defining what is required, rather than how it is to be done.

Nevertheless, the functions for which the private party is responsible vary, and is conditional on the type of asset and service involved as well as the extent of involvement of and risk taken by the private party (Mutandwa & Zinyama, 2015). With variations in the magnitude to which resources are owned, financed and accounted for in the production and management of public infrastructure and services by the private sector, a number of PPP models have evolved. The private sector's contribution can be in the form of management, design and building, maintenance, operation, financing, and sometimes leasing or owning temporarily or permanently the public entity.

According to the literature (Buerter & Asare, 2014; Ling, Kumaraswamy, Dulaimi & Khalfan, 2011; Willems, 2014), there are many contractual arrangements in line with the principle of PPP models. These include service contracts, management contracts, leases, variations of Build-Operate-Transfer (BOT) [e.g. Build-Own-Operate-Transfer (BOOT), and Build-Own-Operate-Maintain (BOOM)], and concessions. Some popular PPP models and their examples have been presented in Table 1.

Table 1: Some Popular Private-Public Partnership Models and Examples

PPP Models	Key characteristics	Examples of PPPs
Service contract	<ol style="list-style-type: none"> Public partner owns assets and pays private contractor a service fee Private partner handles service delivery 	Waste collection and transport in Bangalore, India (Zhu, Asani, Zurbrugg, Anapolsky, & Mani, 2008)
Management Contract	<ol style="list-style-type: none"> Public partner owns assets Private partner manages operations partially or fully 	Water and wastewater service in Amman, Jordan (Marin, 2010)

Table 1, continued

Lease	<ol style="list-style-type: none"> 1. Public partner leases assets to private partner and makes capital investments 2. Private partner manages operations and maintains facility 	Dar es Salaam Water Distribution Company, Tanzania (Yong, 2010)
BOT	<ol style="list-style-type: none"> 1. Private partner builds new facility and owns it for a fixed term 2. Private partner operates facility 3. Ownership is eventually transferred to the public partner 	Municipal solid waste to energy plant in Wenzhou, China (Asian Development Bank, 2010)
Design-Build-Finance-Maintain (DBFM)	<ol style="list-style-type: none"> 1. Private partner maintains the asset (owned by the public partner) by providing ancillary support services (designing, building, maintaining and financing) 2. The private sector recovers its costs out of payments from the public sector and user-charges 3. Ownership is transferred to the state at the end 	2010 eGhana Project financed by World Bank (USD20 million) and the private sector (USD40 million) (World Bank, 2014)
Concession	<ol style="list-style-type: none"> 1. New or Existing assets owned by private partner 2. Private partner finances and operates the facility 3. Ownership is eventually transferred to the public partner 4. Public entity establishes performance standards and regulates price and quality of service 	Kenya-Uganda Railways, Kenya and Uganda (Yong, 2010)

Source: Adapted from Olukanni and Nwafor (2019)

In summary, PPPs are not a one-size-fits-all tool and can be used on a variety of different projects. Each model has its own benefits and constraints and can be appropriate for achieving the major objectives of PPP to a varying degree. The choice of a suitable and appropriate PPP arrangement must take cognisance of the nature of a project (whether it is the construction of infrastructure or the provision of a service or both), the final beneficiaries and/or users of the project, political and legal situation of the country, and many other considerations.

Benefits of Public-Private Partnership

State domination has not been effective in public goods and services provisioning and management, calling for a lean government and the support of the private sector which is claimed to have supremacy over the public sector. Globally, this has necessitated a shift towards PPPs in delivering social services that the public sector is mandate to execute. Consequently, Burke and Demirag (2015) reveal that there are usually two fundamental drivers for PPPs. First, PPPs enable the public sector to harness the expertise and efficiencies of the private sector in delivering certain facilities and services traditionally delivered by the public sector. Second, PPP supports the public sector to make capital investment so that it does not incur any borrowing. Thus, PPP arrangements involve a significant level of responsibility and risk that is transferred from the public sector to the private sector.

PPPs have the potential to close the infrastructure and services gap by leveraging scarce public funding and introducing private sector technology and innovation to provide better quality public services through improved

operational efficiency (Yescombe, 2015). Improving the provision of infrastructure and social services through higher levels of efficiency and quality contributes directly to growth and poverty reduction. As practised in Ireland, Germany and Sweden, the use of competition in PPP operations creates more incentives for improved service quality via entrepreneurial development and innovation. Hence, partnering with the private sector enables governments to mobilise much needed investment. It allows government to fund investments that are offset against future user fees, so that it constitutes an alternative to government borrowing directly on the bond markets.

One key reason offered for establishing PPPs is to create a collaborative environment which taps into the experience in operational, technological and managerial expertise from the private sector. PPPs present an opportunity to modernise existing operations, share costs, and achieve economies of scale. The World Bank (2016) reports that PPPs are utilised as a way of developing local private sector capabilities through joint ventures with large international firms as well as sub-contracting opportunities for local firms in areas such as civil works, electrical works, facilities management, security services, cleaning services and maintenance services. PPPs gradually expose state-owned enterprises to the private sector to ensure the transfer of skills, making them professionals and more competent, eventually, export their competencies by bidding for projects or joint ventures.

Extracting long-term value for money through appropriate risk transfer to the private sector over the life of the project from design or construction to operations or maintenance is pertinent to PPPs (Eadie *et al.*, 2013). Not only can the private sector achieve more value for money because of its alleged

efficiency and optimisation of the design and operation of the infrastructure project or service, it also takes over an important part of the risk (e.g. finance, timeframe, planning permits, community consultations), guaranteeing that projects and services are more quickly delivered (Byiers *et al.*, 2014). PPPs also improve accountability in public expenditure through transferring service delivery risk to the private party. This means the government only pays for services delivered at the specified quality over the contract period.

Other possible benefits include maximising resources and sharing risks across partner organisations. According to De Vries *et al.* (2016), a PPP requires that the private company make a long-term investment and assume some financial risk associated with a project. Thus, PPPs relieve the government budget of some project risks, while efficient risk allocation between parties improves incentives and should reduce overall project cost. PPP projects are designed so that each specific risk associated with the project is borne by the partner best suited to handle this risk. This is considered as one of the most important advantages of a PPP project solution. Since PPP projects typically give the private sector a greater responsibility for project design, construction, and service obligations and financing, there is a net transfer of risk from the public sector to the private sector (Mostepaniuk, 2016).

Finally, PPPs improve the sustainability of public services. Mutandwa and Zinyama (2015) specify that PPPs may encourage project leaders to invest in the best available technologies, as they will be responsible for the operation of the infrastructure over the whole life cycle. In addition to reducing overall cost, PPPs can greatly decrease the variability of the cost of that service to government (Sánchez, 2015). This decreases the vulnerability of the service

and of the government's fiscal position to unexpected shocks. This benefit arises directly from sharing the risks of service provision with the private party, provided that the private party is sufficiently competent to manage the risks and responsibilities allocated to it through the PPP contract.

However, Sarmiento and Renneboog (2016) indicate that many of the afore-mentioned benefits of PPP have not been achieved in practice and the outcomes of PPPs, to date, are very worrying from a public-service perspective. Not all projects can be effectively delivered using a PPP. Byiers, Große-Puppenthal, Huyse, Rosengren and Vaes (2016) maintain that the benefits of PPPs are premised on the ability to efficiently allocate risk between public and private sectors. There is a need to address many issues when merging public and private interests in a common partnership, the resolution of which might well yield some general principles to guide future PPPs.

Concept of Sustainable Partnership

Connected to the sustainable development agenda, the concept of sustainable partnership is increasingly perceived as a necessary tool for realising the SDGs. Sustainability, which was championed by the Brundtland Commission, is 'the most ranked feature of a successful project, programme or venture' (World Commission on Environment and Development, 1987, p.8). The partnership approach constitutes not only multi-stakeholder partnership, but also sustainable partnership which has been purported to play a key role in many areas of governance such as health, water, waste and climate change.

Sustainable partnerships are collaborative relationships between various parties, sectors and actors whose efforts contribute to the

implementation of agreed goals and commitments related to the implementation of projects or services (Steets, 2010). This study draws inference from Khan (2000) and Tufinio *et al.* (2013) who defined partnership for successful or sustainable projects, programmes or services in terms of providing an acceptable level of benefits for intended beneficiaries during its projected or contracted lifetime.

Sustainable partnership is a function of pre-partnership and post-partnership management processes. According to Sarmiento and Renneboog (2016), the pre-partnership stage should focus on synchronising the interests of the various stakeholders. As part of the pre-partnership stage, it is important for the partners to assess the technical capacities of each other to ascertain their levels of competence to execute the various functions. The partnership stage should focus on the contractual arrangements and the institutional frameworks that underscore their roles as well as the rewards and sanctions. The post-partnership management stage requires monitoring and coordination of the execution of the contract. Sustainable partnership is achieved when the stakeholders are able to manage their interests through the acceptability of the service quality delivered by the partnership (Mostepaniuk, 2016).

Sustainable partnerships under PPP arrangements was conceptualised as multi-stakeholders [including the public and private sectors, NGOs, CSOs, Community-based Organisations (CBOs) banks or financial institutions and communities] working together in an integrated and coordinated manner by combining financial resources, knowledge and expertise to achieve a common purpose or undertake a specific task (e.g. improve SWM services), share risks, responsibilities and resources, and maintain an acceptable level of benefits for

intended beneficiaries in SWM services during the projected or contracted lifetime. The benefits here are believed to be positive results and impacts from the PPP in SWM in CCMA and STMA.

Sustainable partnership involves instituting cooperative arrangements in the partnerships to cater for conflicts that could emanate from their diverse interests. Dahiya and Okitasari (2018) assert that sustainable partnerships go beyond just collaborating in SWM services to identifying shared values and leveraging the combined strengths of each partner to achieve an appreciable level of service impact that could not be accomplished independently. They also recommend that the implementation of sustainable PPPs in SWM need to be tailored to local context for the right solution that could work for a country.

According to Byiers *et al.* (2016), the onus lies on governments to create an enabling environment in which partnerships can emerge, and develop sufficient regulatory and assessment capacity to ensure that projects or services actually provide a public good in PPPs. Governments must undertake to ensure positive developmental outcomes from PPPs through sufficient capacity at the institutional level. Jomo, Chowdhury, Sharma and Platz (2016) also advocate that sustainable partnership in PPPs requires the correct identification and selection of projects where PPPs may be viable. In Tanzania, for example, a partnership which was signed with Independent Power Tanzania Limited to solve insufficient power generating capacity (power-purchasing), instead of solving a lack of gridlines was abrogated.

Sánchez (2015) specifies the following elements of sustainable partnerships that potentially influence PPP endeavours in the long run:

1. Logistics dimension: This refers to the continued operation and maintenance of a development project by partners. It focuses on the necessary support (both budgetary and institutional) a project demands to enable it to maintain the required level of facilities.
2. Economic dimension: This denotes the continued flow of net benefits. That is, the ability of partners to deliver all the costs and benefits under varying conditions weighted properly.
3. Community dimension: It refers to the ability of partners to maintain continued community participation in projects or services to stimulate new actions and for cost recovery.
4. Equity dimension: Equitable sharing and distribution of project benefits play a key role in sustainable PPPs.
5. Institutional stability: Partnerships in PPPs should adequately consider the institutional requirements (policies, legislations, laws, structures, etc.) and make significant efforts to ensure that they receive management support to guarantee the continuation of project or service operations during the life of the project.
6. Environmental dimension: The partnership should be able to maintain environmental stability by considering environmental implications so that negative impacts on environment are either avoided or mitigated during the life of the project.

Beyond generating private returns to ensure financial viability and sustainability, a successful or sustainable partnership should generate public returns in terms of wider social, political and environmental issues.

Principles or Pre-requisites of Sustainable Public-Private Partnership

Successful or sustainable PPPs largely depend on conditions which serve as benchmarks for proper implementation (Mutandwa & Zinyama, 2015). Without these principles or pre-conditions, the implementation of PPPs becomes problematic, thereby affecting the sustainability of the partnership. However, considering the diversity of partnerships, it is difficult to identify sustainability criteria that can be universally applied across a range of PPPs. Key amongst the pre-conditions for successful implementation of PPPs are the legal, regulatory, policy and institutional framework; objectives; institutional capacity and good governance (Woolfrey, 2015).

Clear institutional [e.g. service providers, regulatory and enforcement bodies (MLGRD), local authorities, private sector, CSOs, CBOs and NGOs], legal [i.e. laws for waste management to implement and enforce policies (Environmental Protection Agency – EPA Act, 1994 – Act 490) at the national, district and local levels] and regulatory [i.e. effective administrative, regulatory and monitoring mechanisms (EPA)] frameworks, which constitutes a set of formal organisational structures and rules for service provision, is crucial to achieving a sustainable PPP. Thorpe and Maestre (2015) report that institutional, legal, regulatory and policy frameworks present a benchmark for establishing PPPs and are determined by national, district and local policies and legislation that contains the rules of the PPP and roles of all stakeholders.

The frameworks are needed to reduce impediments (e.g. restricting asset ownership or management, repatriation of resources and barriers to cost recovery) to improved or expanded PPP service such as assignment of responsibility for development, control lines, financing, and regulating and

managing infrastructure assets (Woolfrey, 2015). The legal framework is important in PPPs in regulating and monitoring service obligations, compliance with service conditions, consumer protection, tariff regulation and asset management.

In PPPs, the government enters into a business relationship with the public service provider who is a private company. Since the partnership is a long-term relationship, this must be strong enough to be sustainable. Martens, Brones and Carvalho (2013) report that the success of a PPP depends on the initial objectives established at the design stage. The objectives cover clear and accurate definition of the problem, expectations and relevant standards, and the specific objectives of the proposed project or service. Both public and private sectors must understand and agree on the objectives of the PPP.

According to Singh, Murty, Gupta and Dikshit (2012), for effective implementation and sustainable PPPs, it will require skilled capacities in both the public and private sectors. Institutional capacities involve a range of support with the aim of strengthening the skills, abilities and confidence of organisations to build strong organisations capable of taking a leadership role in the development of their communities, districts and countries. In the absence of these institutional capacities, PPPs often tend to include rigid and inflexible contracts. Relevant institutions in PPP must be well capacitated and educated to train staff on new roles and functions as well as develop manuals, procedures, standards and other tools required to develop skills, implement new functions and build confidence. According to Gareis, Heumann and Martinuzzi (2011), a great attention should be paid to commercial, financial and economic issues related to the balance of costs and benefits in PPPs.

Good governance plays a central role in the effective implementation and sustainability of PPPs. It encapsulates key governance mechanisms and metrics such as transparency, accountability, responsibility, fairness, honesty, social justice, protection of life and promotion of security, promotion and protection of democracy, mutual trust, respect and cooperation in sustainable PPPs. Accountability and transparency are key principles which relate to all aspects of PPP and cover partner selection processes, implementation, monitoring and evaluation, decisions of the termination of the partnership, communications, financial reporting and sustainability of partnerships (Fombad, 2012; Hodges, 2012).

The Swedish International Development Cooperation Agency (SIDA) (2013) and Kindornay and Reilly-King (2013) state that accountability and transparency are often highlighted as means to develop partnership as well as combat corruption, bribery and counterfeit. Fombad (2013) argues that the little public information available regarding the exact budget allocation provided to PPPs should be a fundamental step in ensuring full openness and transparency. Core elements that are relevant within the ambit of PPPs include principal-agent relationship; accepting responsibilities; being answerable; giving account, justification and punishment; seeking redress; and putting in place the necessary structures through which accountability is achieved (Fombad, 2014). Thus, PPPs have legal obligations to operate in an accountable and transparent fashion by adhering to laws and codes of conduct which are set out in the contract documents agreed among the partners and relevant stakeholders, including beneficiaries.

Other authors (Bilal, Byiers, Grosse-Puppendahl, Nubong & Rosengren, 2014; Carney, 2014) have advocated other principles, including results and impact measurement, political will, financial support, economic stability, technical expertise, public acceptance, respect of property rights and government in PPPs. Byiers *et al.* (2016) also emphasise that the principles of value for money and importance of triggering positive economic externalities across the domestic economy have to be prioritised in PPPs by adopting best practices in the implementation of sustainable public procurement policies.

The road map to sustainable PPPs rests on establishing PPP structures, legal and regulatory structures, financial and economic implications, integrating grant financing and PPP objectives as well as effective conception, planning and implementation of PPPs. This entails strategic planning, organising and managing the process, collecting additional information, defining objectives, resolving constraints, defining scope, selecting options, identifying partners, financing for investment, cost recovery strategy, regulatory strategy, finalising the terms of the partnership, tendering and procurement, negotiating and contracting, managing the contract, monitoring and evaluation, managing disputes and managing transition.

Stakeholder Participation in Sustainable Public-Private Partnerships in Solid Waste Management

The complex nature of sustainability calls for a major shift in governance to include the participation of as many stakeholders as possible. It involves and affects stakeholders with different attributes, interests, needs and roles. Thus, each stakeholder may influence a project negatively or positively.

To enhance transparency and involvement of several stakeholders, Bell and Morse (2012) and Boateng and Kendie (2015) suggest that there is a need for stakeholder participation and collaboration in sustainable PPPs. The concept of stakeholders in SWM entails all the individuals, groups, agencies (organisations) and government that have a stake, role and interest in SWM.

Stakeholder participation is seen as one of the solutions to the problem of sustainable PPPs. Not only would participatory approaches enhance partnerships, but it also ensures that each partner gives off its best in service delivery (Bal, Bryde, Fearon & Ochieng, 2013; Kindornay & Reilly-King, 2013). Although stakeholder participation in sustainable PPPs can be defined in many different ways, Middlemiss (2014) postulates that the commonest indicator for all definitions is the active role of the stakeholders to influence the decision-making process. More specifically, the stakeholders that are affected by a decision should have an input in the decision-making process. In brief, stakeholder participation refers to the inclusion of various stakeholders that can affect, or are affected by, the results of policy-making and decision-making processes (Pisano, Lange, Lepuschitz & Berger, 2015).

Generally, a number of institutions and actors are invited to participate in such processes, for instance, CBOs, CSOs, NGOs, business representatives, social partners (i.e. trade unions, chambers of commerce, etc.), sub-national authorities, academia and individual citizens. Besides the public sector, the private sector involvement in SWM can be categorised into waste pickers, itinerant/stationary waste buyers, recycling industry (small- and large-scale), CBOs, NGOs and micro-enterprises. Although the private sector works with the public sector in SWM, De Schepper, Doods and Haezendonck (2014)

content that the extent of private sector involvement depends on many factors, including demand for the service, ability to pay, poverty level and regulations.

The roles of the various actors are quintessential for sustainable PPP in SWM. The central government is responsible for the establishment of policy, legal, institutional and regulatory frameworks. It also supports and ensures that local governments have the authority, power and capacity to effectively manage solid waste (Ali, 2010). Local governments are in charge of solid waste collection and disposal services. The responsibility of enforcing by-laws, regulating SWM activities and mobilising resources for SWM by the local government is, however, conferred by higher government authorities. When a private company is contracted to provide SWM services, the local government is mandated to regulate and control the company's activities.

The formal private sector, in providing services such as collection, transfer, treatment, recycling and or disposal of wastes, offers sources of funding as is much interested in making profit for their businesses (De Schepper *et al.*, 2014). It provides services, either directly to individuals, community associations and business establishments, or operates under various partnership agreements with MMDAs. The MMDAs in turn regulate the private companies' activities by regulating the user fee collection to ensure equitable services. The informal private sector comprises individuals or small groups, involved in unregistered and unregulated waste management activities. Members of this group are usually self-employed or are in informally organised groups.

Households and communities are the main actors in SWM and their stake is to receive effective and efficient waste collection services, especially

when it affects their surroundings and health. CBOs, which are informal organisations formed by members of the community to address the community's needs, may be formed due to poor environmental conditions or service provision (Ali, 2010). They initiate SWM operations such as waste collection and street cleaning in their communities. NGOs also act as intermediaries between the government and the private sector, and their scope of work involves creating awareness on waste management problems, forming CBOs and building their capacity, serving as communication channels between community and government sector, representing the community in municipal planning, implementation processes and information dissemination.

In SWM services, CSOs equally play a crucial role in localising efforts since they often have a closer connection to local people in their arena of operation and have structures in place to listen to the voices of those affected by development partnerships (e.g. PPP in SWM). According to Chitiga-Mabugu *et al.* (2014), they ensure that the aims of specific projects and initiatives are clearly understood by their intended beneficiaries, and call attention to stakeholder groups whose rights have been infringed upon or who have been neglected by the development process. CSOs also partner with NGOs to facilitate learning, share best practices and build the capacity and knowledge of the general populace through training and advocacy processes.

Stakeholders in SWM in PPP participate at various levels in planning processes and policy decision-making. Several classifications of participation have been developed over the past years that grade different levels of stakeholder involvement (such as the Ladder of Citizen Participation by Arnstein in 1969 and White's 1996 work on the typology of participation).

However, this study adapted Davidson's (1998) wheel of participation and the spectrum of public participation by the International Association for Public Participation (IAP2) (2014) to measure levels of participation – information, consultation, participate (partnership) and control (empowerment).

The information level of participation in SWM in PPPs ensures that the public is well informed. However, the flow of information is one-way (i.e. unilateral announcement), from the implementing agency (i.e. public sector) to the public (community) with the aim of increasing the information citizens have, and thereby influencing their understanding of a policy or an issue (e.g. SWM) for compliance. A common feature of this level of participation is that beneficiaries are intended to be passive recipients of information on what has been decided without listening to their responses (Mohammad, 2010).

Consultation is the second order of public participation which aims to include the interests of the addressees of policies and/or the general public in the decision-making process which remains in the hands of the implementing agencies. Communities participate by being consulted or by answering questions. External agents define problems and information gathering processes, and so control analysis. Such a consultative process does not concede any share in decision-making, and professionals are under no obligation to take on board people's views (Allahdadi, 2011). The main flow of information in this case is from the citizens to the sponsors of the engagement process. The intention is to develop policies that take into account information delivered to decision-makers by citizens.

Participation or partnership is the third order of public engagement. At this stage, information is exchanged between the sponsors of participation

processes and the participants with the aim of improving the quality of decisions through bottom-up flows and creating opportunities to shape public policy (Awortwi, 2013). Here, public participation interactions, dialogue and, ideally, deliberation take place to make substantially better decisions. This contributes to better regulation and factually higher quality decisions with implementation likely to meet less resistance. The highest order of participation is control or empowerment. It allows stakeholders to participate by taking initiatives independent of external institutions to change systems. Stakeholders develop contacts with external institutions for resources and the technical advice they need, but retain control over how resources are used.

Different levels of participation targeted at potential influence depend on the goals (priority), time frames, resources, and decision or action to be considered. The participation matrix (see Table 2) identifies how various stakeholders are involved at different stages of SWM in PPP arrangements. It looks at stakeholders who need to be informed of activities, consulted in undertaking the activities, partnered with to achieve the intended outputs, and those who need to have ultimate control at the various stages in PPP.

SWM seems to effectively work by fostering a constructive interaction and cooperation among all the actors, including central or national government, municipality, community, private sector and other stakeholders such as NGOs, CSOs, CBOs, the media, scientific community and all financial institutions. Oino, Towett, Kirui and Luvega (2015) assert that when communities are involved from the onset of development initiatives and during their implementation, there is assurance of sustainability, subject to

some conditions, unlike when they have no idea about the initiatives or when the initiatives are imposed on them.

Table 2: Participation Matrix

Stages/ Activities of SWM in PPP	Types of Participation			
	Information	Consultation	Partnership/ Participation	Control/ Empowerment
	Providing balanced and objective information to aid understanding problems, alternatives and/or solutions	Obtaining feedback from citizens and stakeholders on analysis, alternative and/or decisions	Partnering with citizens and stakeholders in each aspect of the decision, alternatives and preferred solutions	Placing decision making in the hands of citizens and stakeholders
Initiating action and priority (goal) setting	Public sector (MMDAs); Private sector	Public sector; Private sector; Traditional authorities; Assembly members	Public sector; Private sector; CSOs; NGOs; Traditional authorities; Assembly members; Community	Public sector; Private sector; CSOs; NGOs; Traditional authorities; Assembly members; Community
Programme design and planning	Public sector; Private sector; Assembly members	Public sector; Private sector; CSOs	Public sector; Private sector; NGOs; CSOs	Public sector; Private sector; NGOs; CSOs

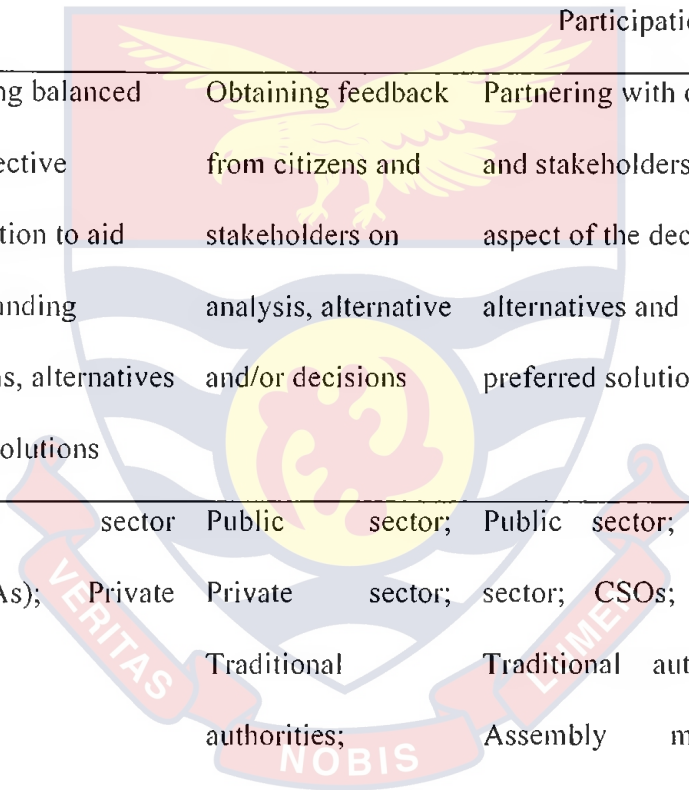
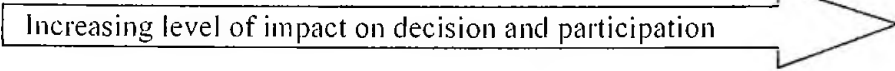


Table 2, continued

Designing of regulatory scheme and PPP contract	Public sector; Assembly members	Public sector; CSOs; Assembly members	Public sector; NGOs; Assembly members	Public sector; CSOs; Assembly members	Private Public sector; CSOs; NGOs; Assembly members	Public sector; Private sector; CSOs; NGOs; Assembly members
Selecting the contractor	Public sector; CSOs; NGOs	Public sector; CSOs; Assembly members	Public sector; NGOs; Assembly members	Public sector; CSOs; Assembly members	Private Public sector; CSOs; NGOs; Assembly members	Public sector; Private sector; CSOs; NGOs
Implementation	Public sector; Private sector; Assembly members; Community	Public sector; Private sector; Assembly members; Community	Public sector; Private sector; Assembly members; Community	Public sector; CSOs; NGOs; Assembly members; Community	Private Public sector; CSOs; NGOs; Assembly members; Community	Public sector; Private sector; CSOs; NGOs; Assembly members; Community
Monitoring and evaluation	Public sector; Private sector; Assembly members; Community	Public sector; Private sector; Assembly members; Community	Public sector; Private sector; Assembly members; Community	Public sector; CSOs; NGOs; Assembly members; Community	Private Public sector; CSOs; NGOs; Assembly members; Community	Public sector; Private sector; CSOs; NGOs; Assembly members; Community
Techniques/ Tools to be used for participation levels	Information event, Press conferences, campaigns and broadcasts (radio and TV); Newsletter; Briefings; TV and radio debates; Fact sheet; Web sites; Open houses or space events; Public hearings and inquiries	Public comment/hearings; Focus groups; Surveys; meetings	Public sector; Private sector; Assembly members; Community	Advisory committees; Consensus-building; Participatory decision making; Town or residents meeting	Citizen juries; Ballots (Referendum) Delegated decisions	

Source: Adapted from Davidson (1998) and IAP2 (2014)

SWM seems to effectively work by fostering a constructive interaction and cooperation among all the actors, including central or national government, municipality, community, private sector and other stakeholders such as NGOs, CSOs, CBOs, the media, scientific community and all financial institutions. Oino, Towett, Kirui and Luvega (2015) assert that when communities are involved from the onset of development initiatives and during their implementation, there is assurance of sustainability, subject to some conditions, unlike when they have no idea about the initiatives or when the initiatives are imposed on them.

Sustainability Analysis

Mladenovic, Vajdic, Wundsch and Temeljotov-Salaj (2013) postulate that the performance and sustainability of PPPs are influenced by many factors and their interactions during the partnership. Appropriate tools are needed to ensure the complete coverage of environmental, social and economic aspects of sustainability and allow for multiple stakeholders participation. Therefore, a well-defined performance criteria and sustainability framework are needed for sustainability analysis to ensure sustainable partnership in SWM.

Sustainability analysis is the identification and analysis of degree of presence or absence of the factors that are likely to impact, either positively or negatively, on the prospects of sustained delivery of PPP project or programme benefits. It is one of the most complex types of appraisal methodologies that entails multidisciplinary aspects and is conducted for supporting decision-making and policy development (Sala, Ciuffo & Nijkamp, 2015). Many tools, indicators system and frameworks (see Table 3) have been

proposed to characterise, assess and analyse sustainability at different levels (Bell & Morse, 2012; Binder, Feola & Steinberger, 2010).

This study adapted Khan (2000), Muhia (2014) and the United Nation’s (2015) measurement of sustainability in assessing SWM in PPP in CCMA and STMA to cover multi-stakeholder partnerships, relevancy, acceptability, technology, policy and institutional coherence, economic and financial viability, implementation and monitoring strategy, and post-implementation operation.

Table 3: Indicators and Measurement of Sustainability

Author	Sustainability indicators	Sustainability measurement
Ernst & Young Global Limited (2010)	Building sustainability into regulatory compliance and risk	Relevant laws and regulations; compliance with mandatory reporting requirements and voluntary reporting standards
	Focusing and reporting on economic benefits	Financial benefits from sustainability initiatives
	Integrating sustainability into the core strategy and culture	Sustainability goals are inextricably tied to strategic goals; institutional or organisational support (management-level commitment); ambitious goals and clear accountability
Khan (2000) and Muhia (2014)	Relevancy	Consistency of objectives with national, sectoral, district and community priorities
	Acceptability	Alignment with local traditions and core values; benefits to target beneficiaries; availability of the necessary resources, logistics (trained manpower, vehicles, etc.) to support implementation

Table 3, continued

Acceptability	Alignment with local traditions and core values; benefits to target beneficiaries; availability of the necessary resources, logistics (trained manpower, vehicles, etc.) to support implementation
Economic and financial viability	Post-implementation project operations with/without subsidy; project benefits vis-à-vis costs (cost-benefit analysis – CBA) and externalities; continuation of free project services; cost recovery plan; sources of project funds; sufficiency of available funds for project implementation
Environmental sustainability	Positive and negative environmental impacts
Implementation and monitoring strategy	Realistic implementation period; well-defined implementation plan with clearly-defined responsibilities; monitoring and evaluation (M&E) plan; levels of accountability and review mechanisms for monitoring progress; placement of necessary provisions for implementation and monitoring; efficiency, effectiveness and impact
Post-implementation operation and maintenance	Determination of responsibility for post-implementation operation, budgetary provisions, institutional arrangements, community/beneficiary agreement

Table 3, continued

McConville and Mihelcic (2007)	Social sustainability	Socio-cultural respect (incorporation of local traditions and core values); community participation in development decision-making; political cohesion (alignment with country priorities and coordinating efforts at local, national and international levels)
	Economic sustainability	Sufficient local resources and capacity to complete tasks
	Environmental sustainability	Non-renewable and natural resources are not depleted nor destroyed for short-term improvements
United Nations (2015)	Financial sustainability	Domestic financial resource mobilisation; external sources of financial resources; investment promotion implementation
	Technology	Access to science, technology and innovation; development, transfer, dissemination and diffusion of environmentally sound technologies and improved coordination mechanisms
	Capacity building	Effective and targeted capacity-building for implementation
	Policy and institutional coherence	Macroeconomic stability through policy coordination and policy coherence

Table 3, continued

Multi-stakeholder partnerships	Effective multi-stakeholder partnerships that mobilise and share knowledge, expertise, technology and financial resources; effective public, public-private and CSO partnerships
Monitoring and accountability	Monitoring of activities and accountability of functions and responsibilities

Source: Author's construct (2018)

Concept of Solid Waste Management

Waste management is an important facet of human and environmental hygiene. The storage, collection, treatment and disposal of waste can lead to several human and environmental risks apart from being eyesores. Waste management is a practical discipline that seeks solutions to specific waste problems. To Nabegu (2010), waste management is supervised handling of waste materials from source through recovery processes to disposal; and it involves control of generation (waste-related activities), storage, collection, transportation, processing and disposal of waste with the aim to protect environmental quality and human health, and preserve natural resources.

The SWM is a major public health and environmental concern in rural and urban areas of countries worldwide, but particularly in developing countries. It is a critical element towards sustainable development, comprising segregation, storage, collection, relocation, carry-age, processing, and disposal of solid waste to minimise its adverse impact on environment. SWM is

defined as the direct generation, collection, storage, transport, source separation, processing, treatment, recovery and disposal of solid waste (Alam & Ahmade, 2013). Ombaba, Arogo, Murey and Kipngetich (2014) describe SWM to entail the management of household waste, non-hazardous solid waste from industrial, commercial and institutional establishments, market waste, yard waste and street sweeping. Their description, however, excludes the management of radioactive waste, hazardous waste and hospital waste.

This study aligns with the definition of SWM by Nabegu (2010) and Ombaba *et al.* (2014). It conceptualised SWM as the collection, transportation, processing, recycling or disposal of waste materials with the aim of protecting environmental quality and human health as well as preserving natural resources, where the waste management covers household waste, non-hazardous solid waste from industrial, commercial and institutional establishments, market waste, yard waste and street sweeping, but excludes radioactive waste, hazardous waste and hospital waste.

Pap *et al.* (2014) point out that SWM includes the generation of waste, storage, collection, transportation, processing and final disposal. Thence, it starts with the collection of solid wastes and ends with their disposal and/or beneficial use. Oguntoyinbo (2012) and Dasgupta (2014) stress that proper SWM requires separate collection of different wastes, called source separated waste collection. However, Piippo *et al.* (2015) reveal that source separated collection is common in high-income regions such as Europe, North America and Japan where the infrastructure to transport separate waste streams exists.

Amritha and Anilkumar (2016), thus, argue that waste management encompasses more than merely treatment of waste, but rather, involves a lot of applicable waste management actions in order to turn wastes to non-wastes as depicted in the concept of Integrated Sustainable Waste Management (ISWM). Sustainable management of SWM demands an integrated approach based on waste management strategy or system as shown in Figure 1.

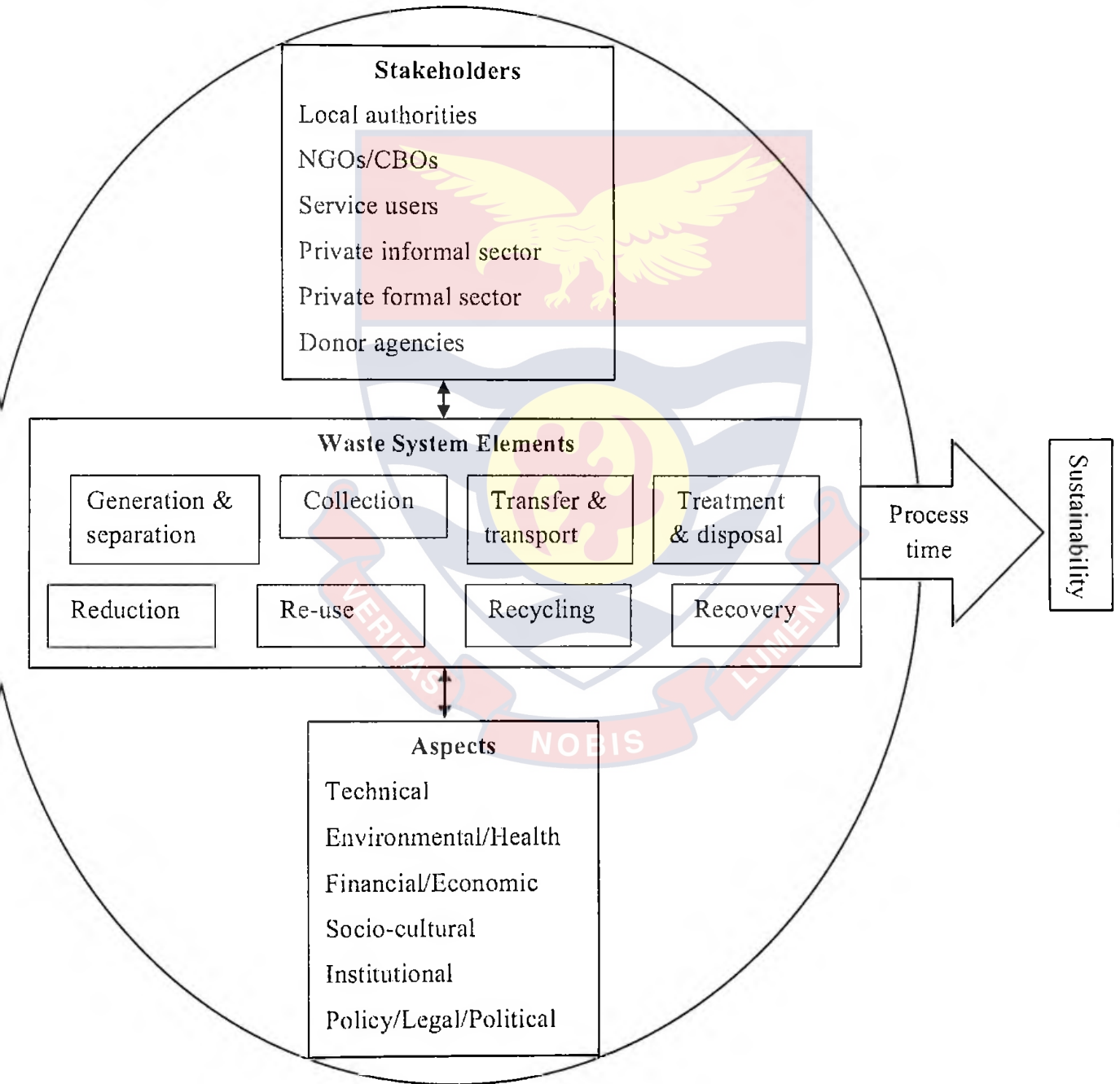


Figure 1: The Integrated Solid Waste Management Model.

Source: Anschütz, IJgosse and Scheinberg (2004)

The ISWM model recognises three dimensions – participation of stakeholders, waste system elements, and the sustainability aspects of the local context. This calls for strategic planning, prescribing options, preventing the contamination of environment and conserving resources, and minimising the amount and toxicity of waste creation. Thus, the choice of a best waste treatment option is critical in handling waste management.

Service Quality in Solid Waste Management through Public-Private Partnership

Public sector services are responsible and accountable to communities and citizens. Service quality has received a great deal of attention from both scholars and practitioners because of its relevance to sustainability of management services. Several researchers, including Caron and Giauque (2006) and So, Kim, Cheong and Cho (2011), have studied SWM service quality in public services with the use of service quality (SERVQUAL) model or scale. According to Stafford, Prybutok, Wells and Kappelman (2011), SWM service provision is more complex in the public sector because it is not simply a matter of meeting expressed needs, but of finding out unexpressed needs, setting priorities, allocating resources and publicly justifying and accounting for what has been done.

In this study, service quality was defined as the difference between customer's expectation for SWM service performance prior to the service encounter and their perception of the service received. Customer expectation serves as a foundation for evaluating service quality because, So *et al.* (2011) reason that quality is high when performance exceeds expectation and quality

is low when performance does not meet their expectation. Expectation is viewed in service quality as desires or wants of consumer, while perceived service is the outcome of the consumer's view of the service dimensions, which are both technical and functional in nature (Stafford *et al.*, 2011).

The development of the SERVQUAL model to define and assess service quality was spearheaded by Parasuraman, Zeithaml and Berry (1985). The model was based on the interpretation of qualitative data from extensive exploratory research (focus groups and in-depth executive interviews) performed in several service businesses. In particular, SERVQUAL is a gauge of how customers perceive an organisation's quality of service when they receive it. This measurement is achieved through a comparison between customers' expectations of how they should be provided a service and what they ultimately obtain. Five key determinants or dimensions of service quality - reliability, assurance, tangibility, empathy, and responsiveness - were identified by Parasuraman, Zeithaml and Berry (1988) as defined in Table 4.

Table 4: Service Quality (SERVQUAL) Dimensions

Dimension	Definition
Reliability	The ability to perform the promised service dependably and accurately
Assurance	Competency and courtesy extended to the users and the security (trust and confidence) provided by the operations
Tangibility	The appearance of physical facilities, equipment, personnel and communication materials
Empathy	The provision of caring, individualised attention to customers
Responsiveness	The willingness to help customers and to provide prompt service

Source: Parasuraman *et al.* (1988)

Reliability is the most important factor in selecting SWM service (Berry, Parasuraman & Zeithaml, 1994). It is the ability of the supplier to execute the service in a safe and efficient manner. While reliability is related to the service outcome (e.g. consistency of time in solid waste collection and other related SWM services), tangibles, responsiveness, assurance and empathy are more concerned with the service process (Brady & Cronin, 2001). Responsiveness is the ability to attend to the users and provide the service promptly, capturing the notion of flexibility and ability to adapt to the needs of the service user (Brady, Cronin & Brand, 2002). The SWM service providers benefit by returning phone calls, emails and responding on-site promptly. With the dimension of assurance in the SERVQUAL model, it is important for SWM experts to have communicating expertise, competences and skills to boost the confidence of service beneficiaries in the SWM service.

Empathy shows that SWM services can be performed completely to specifications by understanding the needs of users and caring about service beneficiaries (Brady *et al.*, 2002). According to So *et al.* (2011), tangibility is the least important dimension under the SERVQUAL model. It concerns the physical facilities, equipment, personnel and materials that can be perceived by the five human senses. This is reflected in the appearance of employees, uniforms, equipment and work areas on-site (e.g. service offices).

Notwithstanding its popularity and widespread application, the SERVQUAL model has been subjected to a number of theoretical and operational criticisms. Some academics, practitioners and authors (Brady & Cronin, 2001; Brady *et al.*, 2002) have criticised that the model may not always be applicable to companies of different sectors in the same manner.

However, Stafford *et al.* (2011) argue that it can be applied to a large and diverse number of services and enterprises.

In PPPs, while the public sector has the ultimate responsibility for providing services, actual delivery becomes the responsibility of the private sector under contractual arrangements (Awortwi, 2013). Awortwi further indicates that the purpose for entering into partnerships with private contractors is to improve service delivery in terms of improved facilities, reliability of service, customer satisfaction, increased amount of waste collection, responsiveness to customers and environmental cleanliness. Wilson, Rodic, Scheinberg, Velis and Alabaster (2012) also emphasise that PPPs in SWM enable the project to be delivered ahead or on time, access new skills, lower rates over the long-term, improve SWM service levels, better understand the utility, and improve technology and benefits to the end users. The SERVQUAL model was used in this study to assess the level of quality of SWM service through PPP. It helped to identify knowledge (competency) gap, standards gap, delivery gap, communications gap and satisfaction gap in the delivery of SWM through PPP.

Challenges of Public-Private Partnership in Solid Waste Management

Many countries have embraced the global PPP practice. Nonetheless, providing projects through PPPs is saddled with challenges ranging from seeking appropriate partnership through financing projects to formulating a balanced relationship among the partners. One of the major challenges that PPPs in SWM face is the non-cooperation between the public and private sectors in achieving a common goal. This is contingent on the differences in

working styles and motive of the two sectors. Clearly, the private sector is profit-oriented and hence uses all means and approaches that will yield them the needed profits, whereas the public sector's motive in SWM is merely social attractiveness (Mheta, 2012). Vecchi, Hellowell and Gattic (2013) contend that getting two conflicting motivated organisations to put resources and ideas together is difficult, especially on issues of profits and investment.

PPPs in SWM also face accountability challenges which are quite prevalent. Fombad (2013) disclosed that there are many challenges related to accountability in PPPs in public service delivery such as SWM. To him, the factors include the lack of disclosure and transparency, underbidding to win a tender, citizen distrust of service development through PPPs, risk allocation, optimistic forecast to tariff and higher cost of private capital versus government finance.

Insufficient PPP implementation guidelines affect sustainable PPP in SWM. Wilson *et al.* (2012) point out that there are usually no clear frameworks for monitoring or performance auditing as well as the tendering mechanisms to benchmark performance in PPP projects. This causes conformity issues pertaining to government's objectives and need of evaluation criteria. Coupled with this challenge is the lack of transparency in the tendering process and managing key performance indicators, making it difficult to implement and monitor PPP performance. There is always a loss of transparency with PPPs because private companies can and do withhold much information on the grounds of commercial confidentiality. The subjectivity in output specifications leads to different interpretations, unclear risk allocation and problems in change negotiations (Sankoh *et al.*, 2013).

Service delivery failure is typical of PPP projects in SWM. Service failure is often reported within PPP projects, whereas the liabilities of the failure are taken under responsibility of the facility management function (Oteng-Ababio *et al.*, 2013). Rana, Yadav, Ayub and Siddiqui, (2014) content that service delivery failures occur due to character changes in PPP at certain critical points, most frequently when SPV has finalised its financial arrangements and design of the asset or when the asset or service is due for handing over prior to service delivery commencement.

Inadequate finance causes undue delays in payment of work done in PPPs. As such, the challenge of huge sums of money owed to private waste collection institutions hampers effective waste management operations. The financial predicament stems from poor revenue mobilisation through limited funds from general taxes at the district level and the decision taken by the local authorities to charge low-income communities very small amount of money as waste disposal levies (Oteng-Ababio & Amankwaa, 2014).

Inadequate physical and human resource capacity in the waste management business is militating against the effort to provide a better waste management service. According to Ali (2010), waste management companies are usually understaffed, considering their workload, and cannot attract workers to the company due to low remuneration, poor service conditions, and the stigma attached to being a waste collection worker. Oguntoyinbo (2012) emphasises that the human capacity of the public and private sector organisations may not be adequate for SWM. The efficiency and effectiveness of solid waste collection require system analysis and optimisation of operations. The inability to do this usually leads to inefficient use of time and

resources, and which eventually leads to high cost of collection service, low productivity and poor service quality.

Poor equipment and inappropriate technologies to carry out waste collection activities is another challenge of PPPs in SWM. Katiyar, Suresh and Sharma (2013) indicate that most of the facilities of private waste management companies are broken down with the ones working also in a very deplorable state. The lack of adequate equipment of the companies confirms that most of them lack the capacity to operate in their contract area. In some cases, the contract area assigned to the companies is so large that the inadequacy of their equipment becomes a limiting factor to the provision of waste management services and, thus, a major cause of the poor waste situation in local areas.

Political will and priority related to solid waste service and social prestige of waste workers are still very low, although most governments increasingly acknowledge solid waste problems as immediate and serious. The lack of priority, political will and public sector commitment limit rapid and sustainable improvements in PPP in SWM (Yahaya & Ebenezer, 2012). PPPs can also drive rent-seeking behaviour of the public sector [e.g. Zoomlion Ghana Limited and Roagams Link Ghana (RLG Communications Ghana Limited)]. This harms not only taxpayers, but also the economy at large, as political considerations distort critical investment decisions. Such shady dealings also serve to delegitimise and discourage privatisation efforts and commercial infrastructure investment in general.

Alam and Ahmade (2013) state that weak enforcement of by-laws for SWM contributes to the lax attitude of people towards indiscriminate disposal at unauthorised places, waste littering and free riding in waste management.

The enforcement of regulation by government officials appears to be weak and this may be due to lack of capacity, resources and political will. The non-enforcement of by-laws on waste disposal creates a lack of fear for the law and encourages indiscriminate disposal of waste (Katiyar *et al.*, 2013).

PPPs in SWM create huge incentives for corruption, both to ensure that the work is done through a PPP rather than the public sector, and to take the only opportunity to capture the contract. Corruption can be observed in a wide range of contracts, involving various services and projects, particularly in long-term purchase agreements. Krugman (2012) hypothesises that bribes or political donations form the currency with which these benefits are obtained. He adds that the more government functions get privatised, states or nations become pay-to-play paradises, in which both political contributions and contracts for friends and relatives become a quid pro quo for getting government business, signifying a corrupt nexus of privatisation and patronage that is undermining government across many nations.

Public-Private Partnership and Public Policy Implementation

Effective implementation of public policy is key to the success of the policy. Bhuyan, Jorgensen and Sharma (2010) explain policy implementation as activities and operations undertaken by various stakeholders towards the achievement of goals and objectives defined in an authorised policy. Policy implementation encompasses the mechanisms, resources and relationships that link policies to programmes of action. Implementation is highly interactive and more complex than it appears, accounting for the many challenges faced in translating policy goals into actual outcomes (Sapru (2011)).

the context, resources, and operational issues that shape decisions and actions at various levels are key elements in policy implementation. Consequently, different stakeholders have divergent perspectives on the strategies of implementation and what constitutes successful policy implementation regarding the approaches adopted, extent and form in which activities are carried out and the nature of issues emerging during implementation.

The top-down approach (or classical approach) rests on major preconceptions that there is a clear division of labour between policy makers who set goals and policy implementers who carry out these goals into practical effect. It assumes that policy implementers possess the technical capability, the obedience and the will to carry out policies (Bhuyan *et al.*, 2010). Hill and Hupe (2014) contend that the top-down approach takes a prescriptive format that interprets public policy as an input and public policy implementation as output factors. The approach is characterised by clear objectives, hierarchical and control themes, causal theory, legal structure of the implementation process, committed officials, and supportive interests groups.

With the aim to improve performance and achieve the intended goals of the policy, the top-down approach stresses the ability of decision makers to produce clear public policy objectives and control the implementation stage. As indicated by Spicker (2014), the approach seeks to develop generalizable policy advice and detect consistent recognisable patterns in behaviour across many policy areas. The approach is, however, criticised for using legislative language, failing to consider actions before implementation, and for not considering local actors in the implementation process (Hill & Hupe, 2014).

should be clear and consistent goals that are articulated at the top of the hierarchy, knowledge of pertinent cause and effects, clear hierarchy of authority, rules established at the top, policies which are aligned with the rules, and resources, including capacity to carry out the commands from the top. The approach requires that adequate bureaucratic procedures should be established to ensure that the policy is executed as accurately as possible. It also implies that sufficient resources, established implementation system, clear responsibilities and hierarchical control to supervise the actions of the implementers are prerequisites for effective PPP policy implementation. All these will provide ample accountability in the PPP implementation process.

The bottom-up approach (integrationist approach) is a critique of the top-down approach. It initiates with the target groups and service deliverers, because it considers the target groups as the actual implementers of policy. It assumes that increasing emphasis should be placed on the qualities of the implementers as key actors in the public policy process. The role of public officials in this model is not a mere instrument of implementation as depicted in the classical model. It suggests that a public policy can only be implemented successfully, if a network of stakeholders is built between the planning, financing and execution agents of programmes and there is interaction among actors in the local sphere (Mthethwa, 2012). Hill (2013) argues that stakeholders should indicate their goals, strategies and activities which are incorporated in the policy development. In this sense, local implementers are to adapt policy strategies to meet local needs and concerns. Implementers of this approach seek to achieve greater allegiance between

policy-making and policy implementation when the bottom role players inform top players of implementation decisions and plans.

Adopting the bottom-up approach in PPP implementation suggests that local bureaucrats (implementers) should be allowed some discretion in the implementation process with respect to local conditions. Accordingly, goals, strategies and activities must be deployed with special attention to the local people that the policy will directly impact. PPP implementation under this approach should take into account delegation of authority and discretion by stakeholders in order to increase the likelihood of successful implementation.

Even though this approach helps policy developers and implementers to adapt to the local contextual social, political and economic environment, Joja (2016) contends that the bottom-up approach to policy implementation overstates the influence of local stakeholders, particularly in relation to accountability which is created and stimulated by sovereign voters instead of local stakeholders. Thus, the influence of local stakeholders on the policy and its implementation plan and process is not very significant.

There is a gradual shift from both top-down and bottom-up dichotomies to a centrist (combined) approach underscoring how stakeholders from different institutional contexts influence the policy to be implemented. The hybrid public policy implementation approach embraces both the central steering process (an attribute of a top-down approach) and local autonomy (an attribute of the bottom-up approach). The approach is assumed to assist in the elimination of the weaknesses of the respective approaches and increase the impact of their strengths (Sapru, 2011). However, Hill (2013) suggests that transformation of public policy goals into actions depends upon the interaction

of stakeholders with diverse interests and strategies, thus giving more weight to public policy processes of co-ordination and collaboration.

Another approach to successful policy implementation is New Public Management (NPM) which argues for less bureaucratic rigidity and emphasises a union between public and private resources and processes, including public-private cooperative arrangements and networks; strategic planning and management techniques; outsourcing and privatisation of public services; and non-profit service delivery organisations (Joja, 2016). NPM seeks to transform the public policy implementation exercise from mainly a direct responsibility of state employees to involve more collaborative efforts of stakeholders, including public, private and NGOs, in a network during public policy implementation. This approach facilitated the formation of public-private partnerships in the management of public goods.

Project management theory is another approach to implementing policies successfully. It aims to explain the causal relationship between how teams work to achieve specific goals and meet specific success criteria set out by a policy. According to Gareis *et al.* (2011), project management is about managing work to implement policies by breaking up the total work effort into smaller more manageable portions of work called activities and tasks that are related sequentially. Project management processes are divided into initiating, planning, execution, controlling and closing for successful implementation of public policy. In this instance, diverse PPP arrangements could be subscribed to manage different stages of a public good. Other approaches of public policy implementation process include structural approach, procedural approach, behavioural approach and political approach.

implementation and their relevance to PPP processes. Models, which describe public policy implementation process and options, to accelerate implementation performance comprise rational, management, organisational development, bureaucratic, and political model.

Rational model

This model is primarily based on the assumption that policy implementation requires the clarification of goals, missions and objectives, detailed planning, appropriate job assignments, effective monitoring and evaluation, comprehensive and efficient operating procedures, and techniques required to assist implementers to define the scope of their responsibilities in line with policy objectives (Bhuyan *et al.*, 2010). It is based on the view that individuals are motivated by the wants or goals that express their preferences. As such, in PPP implementation, public officials may pursue their own self-interest instead of national-interest. This calls for individuals anticipating the outcomes of alternative courses of action and calculate that which will be best for them in PPP implementation. In using this model in PPP, clear roles and duties are assigned to each stakeholder. This enables the partnership to link the contribution of each stakeholder to achieving specific goals and objectives.

Management model

This model is based on the belief that the performance of policy implementation depends on factors such as organisational structure, personnel and human resources, the activities of front-line implementers, equipment and technology, the level of coordination and cooperation, the exercise of authority, and place/location as implementation infrastructure (Gareis *et al.*,

2011). This model also attempts to identify problems to policy implementation caused by any shortages in resources or delays to resource acquisition. Under this model, the success of PPP implementation is mainly dependent on the effectiveness of the structures and systems established to coordinate and monitor activities of various stages in the policy implementation process.

Organisational development model

This model assumes that the performance of policy implementation depends on organisational leadership capacity, team building, engagement of the various parties involved, participation, motivation, coordination and commitment (Sapru, 2011). Accordingly, the level of participation by the various stakeholders in PPP process through this model is paramount to maximise their interests in policy implementation.

Bureaucratic model

The bureaucratic model, based on the bottom-up theory of policy implementation, considers the role of front-line members of staff in the implementation of policy. The idea is that successful policy implementation relies heavily on the role of staff members who directly come into contact with people and other stakeholders (Hill, 2013). This model is intended to ascertain social reality of the discretionary power of front-line implementers. With this model under PPP, the capacity of personnel from both private and public sectors to effectively execute their roles in the contract is critically considered.

Political model

This model suggests that the performance of policy implementation depends on the outcome of interactions between agent capacity, either institutional or representative, bargaining power, conflict resolution and

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environmental factors from an economic, political and social perspective (Hill, 2013). The performance of policy implementation is an outcome of the degree of conflict and the efficiency of conflict management in society. The implication of this model for policy implementation depends on the interplay among agencies, actors and interest groups in a PPP arrangement.

Functional process model

It suggests a serious consideration of effective generation of other public policy process alternatives, which can be achieved through active grassroots participation during the public policy process. It focuses on the functional activities involved in the policy making process and is concerned with the “how” aspect of policy making (Bhuyan *et al.*, 2010). This implies that an effective and sustainable PPP should forge collaboration with the public policy process by consulting actors involved at grassroots level.

Systems model

This model is a response by the political system to the goals, problems, needs, wants and demands of society compromising both individuals and interest groups. It allows for debates, proposals, counterproposals, adaptations, consensus on public policy, review of implementation and feedback. It is also indicative that the public policy implementation will be influenced by the system to which it has been subjected (Hill, 2013). This means that the PPP will be affected by those responsible for public policy making and the appropriateness of the needs of society.

Institutional model

The institutional model is premised on the basis that public policy is the product of public institutions, whose structures are responsible for public

policy implementation (Hill & Hupe, 2014). This, therefore, highlights the dependency factor of public policy to Institutional model. It can be deduced that institutions, both governmental and non-governmental, have an impact on the implementation and sustainability of PPPs.

Social interaction model

It is seen as a tool through which social relationships are systematically approached, modelled and channelled in a way that allows composition of rules derived from social exchanges (Hill, 2013). It encourages participation, negotiation, mediation and conflict resolution for public policy processes, including implementation of PPPs. Additional models are process model (policy as political activity), incremental model (policy as variations on the past), group model (policy as group equilibrium), elite model (policy as knowledge possession), public choice model and game theory model.

Various factors exert an enormous influence on public policy implementation. Marume, Mutongi and Madziyire (2016) state that effective implementation of a policy requires consistent, clear and accurate communication of the responsibilities of the stakeholders and the aims of the policy. Policy regulations, frameworks and legislations in PPP implementation should carefully express to political office-bearers, public officials and the public what is expected of them. Official documents on PPPs should precisely articulate accountability of all stakeholders, especially those in public and private sectors, during decision making and action taking periods by indicating clear performance indicators – both quantity and quality.

Lack of resources limits effective policy implementation. The resources include staff, finance, machines, equipment, information and

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authority. Without resources, the implementation of policy which is viewed as the effective phase may become the ineffective phase (Hill, 2013). It is also important to institute control measures to ensure that policy objectives are indeed being pursued, and policy results evaluated. Effective implementation of PPPs will therefore be based on the availability of resources to carry out the activities of the PPP policy and to comply with control measures.

Disposition of implementers are indispensable to effective implementation and sustainability of PPPs. A competent, efficient and effective workforce to provide relevant service to clients a prerequisite for successful implementation and sustainability of PPPs (Mthethwa, 2012). Having the capacity to implement a PPP policy and the desire to carry it out counts towards a successfully implemented PPP policy. The way in which public officials exercise their discretion will be influenced by how they see the policy in question and how they project its effect on the public's interest and their personal and organisational interests (Marume *et al.*, 2016).

Understanding the nature of PPP policy implementation is, therefore, important since most policies, once adopted, are not always implemented as envisioned and do not necessarily achieve the intended results.

Empirical Review

This section presents empirical studies that have been undertaken on PPPs, covering the various theories, themes, concepts and research methods adopted for such works. Numerous studies have been conducted with respect to PPPs in SWM services across the globe. Table 5 illustrates a summary of empirical literature.

Table 5: Summary of Empirical Literature

Authors	Title of research	Research objectives	Research design	Sampling techniques	Research instruments	Analytical techniques	Findings	Recommendations
Nasreen (2012)	A study of PPP for SWM system in Lahore, Pakistan	Assessed the level of people satisfaction in about the SWM services through PPP with focus on health, environmental, social and aesthetic impacts	Mixed method	Stratified and purposive sampling	Interview schedule and In-depth Interview (IDI) guide	Descriptive and inferential statistics, and content analysis	Key performance indicators, service quality, billing system, sanctions and partner obligations were well defined in the competition among private entities. The PPP system was more sustainable than the service by the public sector in isolation. Challenges the SWM were poor regulatory framework, non-involvement of informal private sector in negotiations, and poor monitoring structures.	PPP in SWM should be replicated in other high Cost of services should be reduced to sustain the PPP. Registration and training of informal private sector could improve PPP.

Saei	Application	Explored the	Qualitative	Purposive	IDI guide	Content	PPP had increased the level of	Institutional capacity
(2012)	of PPP in sustainable SWM in Delhi (India) and Manila (Philippines) Metropolitan	practices and associated problems in Delhi and Manila cities	research design	sampling	analysis	people's knowledge of SWM practices. Coordination between partners was strong, mainly with community members for waste segregation. Challenges included corruption, political interference, poor monitoring, and non-cooperation among the partners.	information and building in the public sector is very important for having a successful PPP to enable them properly manage the contract and monitor the quality of services.	
Aliu, Adeyemi and Adebayo (2014)	Municipal household solid waste collection strategies in an African megacity: Lagos, Nigeria	Examined the performance of PPP in household solid waste collection	Quantitative	Stratified and systematic sampling	Interview schedule and inferential statistics	Descriptive and inferential statistics	PPP performance was significantly influenced by development payment flexibility, consistency, cleanliness, coverage, vehicle maintenance, trip rate, as well as number and quality of waste collection personnel.	Community was developed by development associations and NGOs should be more involved in waste collection processes to increase

Analysis of
PPP
performance
in Lagos

Economic status was important for explaining PPP service reliability performance, even though it was less relevant for evaluating the PPP performance.

Oduro (2015)	Assessed the processes and outcomes of Business District of the city in Nairobi	Mixed and method of implementing PPP in SWM	Random and purposive sampling and IDI and guide	Interview schedule and content analysis	Descriptive statistics and content analysis	The service quality of SWM was poor, following its mismanagement. This was evidenced by the collection of wastes which was done in a maximum of twice a day, instead of a 24-hour basis, as stipulated in the signed contract.	There should be law enforcement and good government support for the partnership in SWM in Nairobi to enable the partners to easily and effectively manage the wastes.
						Financial constraints, poor budget allocation, non-collection of wastes, negligence and illegal dumping were the major problems in the private sector involvement in SWM in the city.	

Table 5. continued

Spoann,	Assessment	Assessed the	Mixed	Purposive	Interview	Descriptive	Inadequate	waste	collection	The key measures for
Fujiwara,	of PPP	in performance	method	sampling	schedule	statistics	frequency and tipping fee	were	successful	
Seng, Lay	municipal	of public and					the major public concerns	and	stakeholder	
and Yim	SWM	in private					affect users' satisfaction	with	participation	
(2019)	Phnom	institutional					service.		considering	public
Penh,	Penh,	arrangements							interest,	economic
Cambodia	in municipal	waste					Working conditions	for waste	interest,	and
	collection in	Phnom Penh					collection personnel	were	preventing	political
	Phnom Penh						unattractive and unhygienic;	this	manipulation	and
							was coupled with	low wages.	will of municipal.	
							Other challenges	of PPP	in	Revisiting the legal
							SWM were	poor service quality,	framework,	
							poor institutional	arrangement,	establishing	a
							and low level	of stakeholder	facilitating	agency
							involvement.		that will assist	in the
									design.	

Source: Author's construct (2019)

Conceptual Framework

Given the limited resources of the public sector, partnership with private sector is purported to provide the necessary financial and expertise support in the provision of public infrastructure and services such as SWM. However, PPP arrangements are typically formed with clear goals and agreements for delivery of public infrastructure or services in order to ensure quality of service delivery and their sustainability. The study was guided by the conceptual framework presented in Figure 2.

Figure 2 presents a framework for analysing sustainable partnership in the management of a public good. The framework is organised under four stages – pre-partnership engagement, partnership formation, post-partnership management, and sustainable partnership. In accordance with the stakeholder theory, the pre-partnership stage comprised the engagement of all major stakeholders in the partnership, which will guarantee its success. The stakeholders constitute institutions, agencies and groups of people whose activities will influence or are likely to be influenced by the activities of the partnership. In the PPP arrangement for SWM in Ghana, the major stakeholders are the public sector, private sector and service users who are expected to interrelate in executing their roles and responsibilities.

As part of the pre-partnership engagement, the technical, financial and operational capacities of the stakeholders are examined to ensure that they have the skills and resources to execute the tenets of the partnership. In line with the neo-liberal theory, the private sector is believed to be more efficient, productive and cost-effective in service delivery than the public sector. Hence, the participation of the private sector in the management of public goods. In

SWM, for example, the capacity of the private sector to collect, transport and treat wastes is critically examined before committing to the partnership.

The interests of the stakeholders are also analysed to ensure compatibility. At this stage, each stakeholder tries to maximise its interests in the process to derive the maximum benefits from the implementation of the activities of the partnership, as stipulated by the public choice theory. Before the partnership is constituted and formalised, each partner must be satisfied with the contribution and benefits to all others. However, the interests of stakeholders should be rated equally with no specific stakeholder interest dominating the interests of other stakeholders. The participation of the stakeholders is believed to ensure transparency in the partnership. The levels of participation of stakeholders in the pre-partnership stage are essential, as it enables them to have their interests factored into the contractual processes and to influence the decision-making process.

The partnership is constituted and formalised afterwards through contractual arrangements and establishment of institutional framework to execute the functions of the partnership. The contractual arrangements define service quality standards expected of the partners, frequency of waste collection, and rewards and sanctions to each partner in the implementation process. Thus, contractual arrangements in SWM specify the types of waste bins, trucks and safety gadgets to be used by the private sector (Sankoh *et al.*, 2013). The institutional framework constitutes the legal and policy guidelines for the implementation of activities of the partnership. It also defines the roles and responsibilities of each partner, monitoring strategies and mechanisms, and conflict resolution structures for the implementation processes.

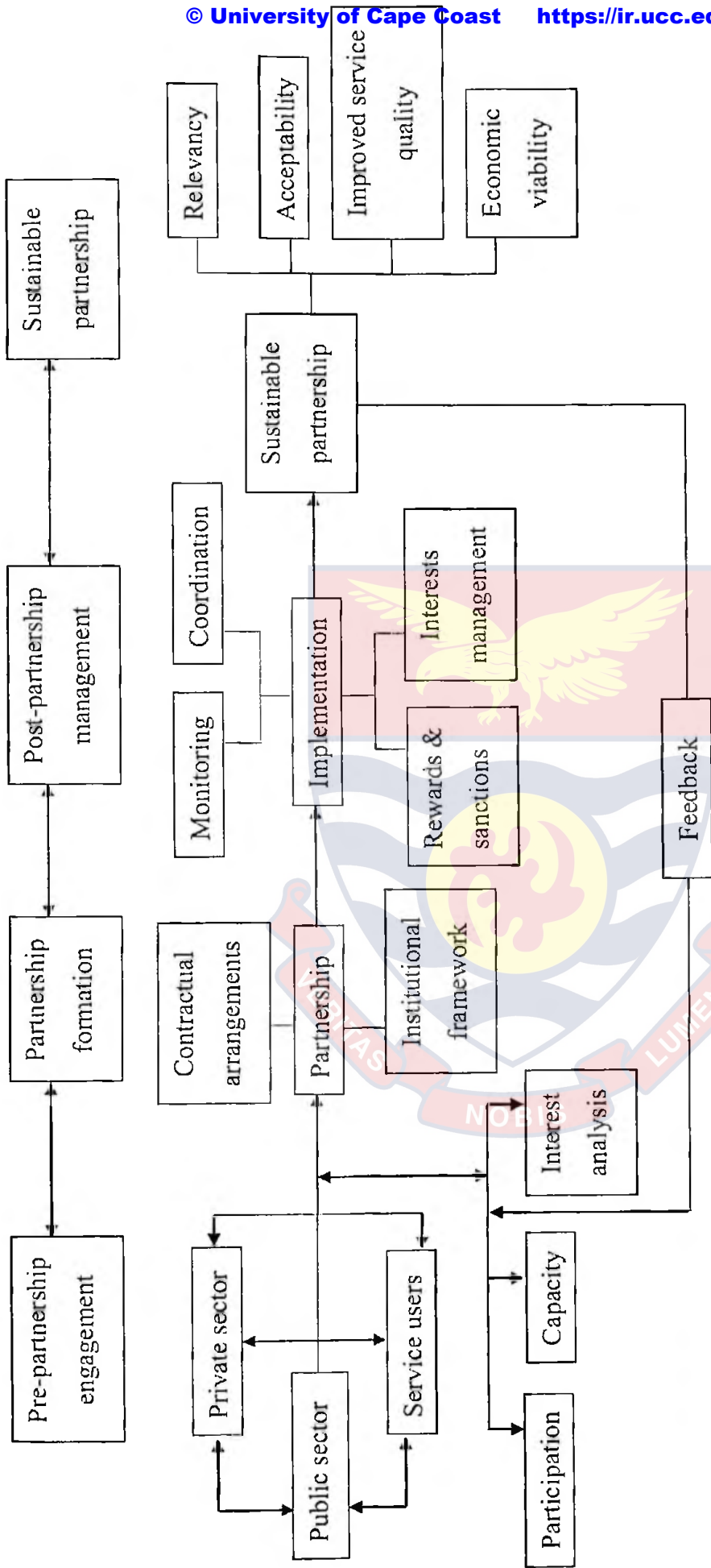


Figure 2: Framework for Analysing Sustainable Partnership.

Source: Author's construct (2018)

Implementation of the tenets of the partnership occurs at the post-partnership management stage. This stage requires monitoring of the activities to ensure that each partner plays its roles as expected. Monitoring is also undertaken to ensure compliance to service quality standards, as defined in the contractual arrangements. Rewards and sanctions are applied at this stage to ensure that the partnership delivers the agreed and expected service quality by frequently collecting waste as designed in the contract. According to Boardman and Vining (2012), the application of rewards and sanctions is imperative to ensure order in the partnership. Boardman *et al.* (2016) also reported that coordination among the partners is essential to ensure cooperation and reduce conflicts at the implementation stage. One other critical issue at the implementation stage is interest management. This is done to sustain the interests of partners in the partnership and to ensure that each one has its interest maximised as expected.

Mostepaniuk (2016) found a strong positive correlation between interest maximisation in partnership and the sustainability of the partnership. In other words, stakeholders are more likely to stay in a partnership when they continue to derive the expected benefits. This is in accordance with the public choice theory. Sustainable partnership has been contextualised as when the functions of the partnership remain relevant and acceptable to the partners, service quality has improved, and project is considered economically viable. Improved service quality is defined in terms of the reliability, tangibility, empathy, assurance and responsiveness in implementing the activities of the partnership. The partnership is also economically viable when the financial benefits exceed the costs of operations.

However, Sarmento and Renneboog (2016) emphasise that the extent of the sustainability of a partnership is largely dependent on the effectiveness of the pre-partnership engagements and post-partnership management. As a result, actors or partners, who are not satisfied with the partnership or consider it to be less sustainable, further engage the others to streamline the processes and actions to ensure continuous operations of the partnership. It is, thus, necessary for stakeholders in the management of a public good to review the tenets of the partnership for sustainability.

Summary of the Chapter

PPPs have been hyped as a strategic and innovative approach to addressing sustainability issues in implementing and managing public goods and services. PPPs in public infrastructure and services involve many stakeholders who play different roles to ensure the effective delivery of service and sustainability of the partnership. However, due to quality improvement and the profiteering aim of private actors, PPP projects impact negatively on the poor and contribute to the increase in gap between the rich and the poor.

Having an effective and sustainable PPP demands the effective interaction and cooperation of all the stakeholders in the partnership. The different forms of PPPs, which dictate the degree of risk sharing as well as the roles and functions of the various partners, are covered within the contract of the partnership. However, there are many factors, especially the implementation of legal, regulatory and policy frameworks, which could positively or negatively affect the sustainability of PPPs.

CHAPTER THREE

INSTITUTIONAL, LEGAL AND POLICY FRAMEWORKS FOR PUBLIC-PRIVATE PARTNERSHIP AND SOLID WASTE MANAGEMENT IN GHANA

Introduction

Achieving a sustainable PPP in SWM depends on a range of programmes and policies. PPP projects should be carried out within the framework of well-regulated legal systems and legislation. The success or failure of PPPs in SWM can often be traced back to the initial design of PPP and SWM policies, legislation, guidelines and other forms of institutional frameworks. This chapter covers the evolution of PPP in SWM in Ghana as well as the various institutional, legal and policy frameworks related to PPP and SWM in Ghana.

Evolution of Public-Private Partnership in Solid Waste Management Services in Ghana

City authorities in Ghana have historically been responsible for providing sanitation services to residents, dating back to the colonial and post-colonial periods. The Accra City Council was established in 1898 under the provisions of the Town Council Ordinance of 1894 and charged with the responsibility of refuse and sanitation management (Acquah, 1958). According to Oteng-Ababio *et al.* (2013), systematic waste collection and disposal services commenced during the period and by 1925, public dustbins emptied by two pushcarts and later, replaced with large carts drawn by mules were introduced. Incinerators were also introduced in 1929 for handling waste

in the Ghana's urban centres.

After independence in 1957, the Public Works Department (PWD) was established to provide sanitation services in urban and rural areas (Adarkwa, 2005). Ghana enjoyed economic prosperity with a relatively high growth rate, substantial foreign exchange reserve and a strong civil service to guide economic growth. In 1965, Ghana was faced with the challenge of dealing with an economic downturn. Requiring an external bailout, Ghana approached the IMF in 1966. The IMF, as stipulated by Addo, Korboe, Williams and Mensah (2010), proposed the following conditionalities which influenced the adoption of PPPs in Ghana:

1. Reduction in government spending to levels that could be covered by government revenues in order to fight inflation
2. Reduction in bank credits to both the public and private sectors; wage and salary controls
3. Large-scale retrenchment in public and private sectors
4. Devaluation of the national currency
5. Short-term rescheduling of the external debt and restrictions on fresh short- and medium-term borrowing

In the late 1970s, according to Awortwi (2004), Ghana's economy experienced poor performance, which affected waste management in the country, particularly due to the lack of financial resources to acquire facilities for the sector. The public service provision deteriorated badly in the cities, and the central government could hardly manage the wide range of services. With worsened economic conditions in the early 1980s, there were insufficient funds for acquisition of capital equipment, resulting in regular breakdown of

vehicles, plant and equipment (Benneh *et al.*, 1993). Most of the people had no access to solid waste collection services at all and dumped their waste anywhere they wanted. The collection and disposal of solid waste in Ghana, mainly Accra, continued to worsen from 1976, reaching a peak crisis in 1985.

Under the influence of the World Bank and IMF, Ghana implemented the Economic Recovery Programme (ERP) from 1983 to 1986, followed by a Structural Adjustment Programme (SAP). As the ERP was adopted to arrest the downward economic spiral, the SAP was intended to correct some structural imbalances to ensure a sustained healthy economic growth. However, the Programmes included policies of trade liberalisation, public sector retrenchment, reduction of government spending through cuts in social services (removal of subsidies on food, petrol and social services as education and health), increased taxes, wage suppression, privatisation, adoption of flexible foreign exchange regime and devaluation of the Cedi.

The private sector-led developments in developed countries (e.g. United Kingdom and United States of America) and the SAP in the 1980s in Ghana stirred criticisms about the service delivery role of Local Governments. In 1985, the WMD was established in Kumasi with support from the UNDP. Similar arrangements were made in Accra, Tema, Takoradi, and Tamale which were equipped and funded by the GTZ prior to the establishment of the Local Governments. The waste management problems were tackled more seriously through regular replacement of worn-out vehicles and equipment, and provision of funds for capital and recurrent costs, but beneficiaries did not pay service charges to the WMDs. After the GTZ project, the city authorities could not maintain and sustain the equipment to enable the WMDs to operate

satisfactorily (Awortwi, 2004). The WMDs failed to live up to expectation.

In 1988, the provision and management of some of the basic public services, including solid waste and sanitation, were decentralised to local governments (Adarkwa, 2005). Following decentralisation of basic services, the local governments set up service units and offered the services virtually free of charge, in the same way that the central government had done in the past. The ability of local governments to deliver solid waste and sanitation services deteriorated severely due to weaknesses in service operations, management, planning, attitudes of residents towards waste management, lack of enforcement of solid waste and sanitation by-laws, and unmotivated waste management personnel (Awortwi, 2004).

In the early 1990s, there was a policy shift towards private sector-led involvement. The Local Governments of Accra and Tema took the initiative and, started contracting out and franchising SWM and sanitation services to the private sector. However, Oduro-Kwarteng (2011) discloses that there was no provision in the legislation that allowed other actors than the Local Government to provide these services until 1993 when local authority (MMDAs), as legal entity, had powers conferred on it by the Local Government Act 1993 (Act 462) to promulgate by-laws to govern and regulate SWM, sanitation, cleansing and reduction of waste in the city.

Private sector involvement in urban SWM was an integral part of Urban Environmental Sanitation Project (UESP). The World Bank in collaboration with the Government of Ghana established the UESP in 1999, which was funded with World Bank loan and implemented in five major cities (Accra, Tema, Kumasi, Takoradi and Tamale) in Ghana (MLGRD, 2010).

Under the project, the World Bank provided the funds and technical assistance for the privatisation of refuse collection. This was attributed to the increasing financial burden on the MMDAs and the inefficiency of the public sector. As part of the private sector involvement in SWM, Ghana engaged Zoomlion Ghana Limited in all its MMDAs to help provided sustainable solutions to its waste menace.

The District Assemblies Common Fund (DACF) is basically a Development Fund designed to ensure a more equitable distribution of national resources for development in every part of the country. The DACF, which was characterised by limited funding and delayed release, was the main source of income for the MMDAs. It was created under Article 252 of the 1992 Constitution of Ghana, but it is now enshrined in the 1993 DACF Act (Act 455) to mainly undertake development projects and some specific programmes, including SWM, geared towards improving the lives of the people at the local level. It was purposely established to encourage local governance, deepen commitment to the decentralisation programme in general, and fiscal decentralisation in particular, promote sustainable self-help development, make up for development deficiencies in deprived Districts or communities, complement the Internally Generated Funds (IGF) of the MMDAs and ensure equitable distribution of development resources among the MMDAs. Other objectives of the DACF are to help create and improve socio-economic infrastructure in Ghana, and improve social services delivery by the MMDAs.

The DACF constituted a minimum of five per cent (now increased to 7.5%) of total national revenues and shared among all MMDAs in Ghana with

a formula approved by Parliament (Article 252 of the 1992 Constitution of Ghana). Before the DACF is disbursed to the MMDAs, there is a central deduction of funds for sanitation and waste management. MMDAs are expected to adhere to the guidelines on the utilisation of the funds, which was previously categorised into two – Earmarked funds (39%) [covering productivity improvement and employment generation fund (20%), self-help projects (10%), district education fund (2%), establishment and strengthening of substructures of the Assemblies (5%), district response initiative such as HIV/AIDS issues (1%), and malaria prevention (1%)]; and Expenditure based on priority areas (59%) which focused on economic ventures, social services, administration, and environment (including waste management).

However, in April 2018, new guidelines on the use of the DACF were issued, directing that 40 per cent of the MMDA's allocation should be spent on the Ghana School Feeding Programme (GSFP), 20 per cent for the Nation Builders Corps (NABCO), 20 per cent for the operations of the Planting for Food and Job programme, and the remaining 20 per cent goes to fund the Assembly's programmes or projects, including SWM (Graphic.com.gh, 2018).

As a shared responsibility, the Government, particularly the Ministry of Finance and MLGRD, CSOs, CBOs, households, individuals and organisations in the various Districts as well as the general public have a duty to ensure strict adherence to the guidelines for the application of the Fund. The private sector's involvement was, thus, to overcome the government failures in public direct service delivery which resulted in too many workers, not enough supervisors, and limited and delayed release of funds (i.e. the DACF) (Post, Broekema & Obirih-Opareh, 2003).

Recently, the Ministry of Sanitation and Water Resources (MSWR) decided to facilitate the deployment of Sanitation Guards, popularly known as ‘saman saman’ by July 2019 in the MMDAs to strengthen the enforcement of the sanitation by-laws to maintain cleanliness in Ghana’s cities, towns and households with the issuance of genuine fines and receipts to offenders. This move was part of the strategies and measures adopted by the MSWR to improve on the sanitation situation in Ghana.

By involving the private sector, it was envisaged that, in the short to medium term, local governments would provide about 60 per cent of the basic services, while the private sector takes the 40 per cent. Local governments were also required to set tariffs at realistic and economically viable levels, with due allowance for recurrent cost recovery and depreciation of capital investments, and to build private sector capacity through access to investment funds. The move from direct provision to contracting out the solid waste collection services to the private sector implied that local governments had to totally re-organise, re-orient their management and regulatory apparatus and strengthen their human capabilities (Awortwi, 2004) to facilitate, regulate and monitor the private sector provision of SWM services. PPPs in SWM services in Ghana, to date, have resulted in contracting out, franchising and concession (Owusu-Sekyere, Bagah & Quansah, 2015).

Institutional Framework for Solid Waste Management in Ghana

Institutions are mandated to carry out government policies. Effectively implemented and sustainable SWM requires competent and responsible institutions. The onus, thus, lies on national, regional and district level

authorities to collectively act in ensuring sustainable SWM.

Ministry of Local Government and Rural Development (MLGRD)

In Ghana, the MLGRD promotes the establishment and development of a vibrant and well-resourced decentralised system of local government for the people of Ghana to ensure good governance and balanced rural-based development of MMDAs. As an institution, MLGRD derives its mandate from the 1992 Constitution of Ghana and Section 12 of the PNDCL 327 which provides the responsibilities of Ministries. It is principally responsible for waste management services at the national level. It is responsible for formulating waste and sanitation policies, and providing oversight role to the decentralised MMDAs. The Ministry also provides subsidies for the provision of SWM services and supervises or monitors the activities of MMDAs in addition to passing order as required by law to the various WMDs of the decentralised MMDAs who are directly responsible for SWM services. Thus, the MLGRD play a key role in ensuring improved sanitation through effective SWM services for the citizenry and MMDAs.

Other functions of the MLGRD are as follows:

1. Co-ordination and formulation of environmental sanitation policy, including monitoring and evaluation;
2. Developing and issuing technical guidelines on environmental sanitation services and their management;
3. Promulgation of national legislation and model bye-laws;
4. Direction and supervision of the National Environmental Sanitation Policy Coordination Council; and

5. Facilitating the mobilisation of funds for sector plans and programmes.

Environmental Protection Agency (EPA)

The EPA is an agency established by EPA Act 490 (1994) under the auspices of the MESTI to replace the Environmental Protection Council (EPC). The EPA Act 490 also provided for the establishment of a National Environment Fund from grants from government, levies collected by the EPA in the performance of its duties, and donations from the general public. The EPA is the regulatory agency for environmental quality and effluent standards. The EPA Act of 1994 (Act 490) empowers the EPA, among other things, to prevent and control the release of waste into the environment, and to issue environmental permits and pollution abatement notices. It is dedicated to improving, conserving and promoting the country's environment and striving for environmentally sustainable development with sound, efficient resource management, in view of social and equity issues. It oversees the implementation of the National Environment Policy. The EPA's mission is to manage, protect and enhance the country's environment and seek common solutions to global environmental problems.

The Agency seeks to achieve this through an integrated environmental planning and management system with broad public participation, efficient implementation of appropriate programmes and technical services, advice on environmental problems and effective, consistent enforcement of environmental law and regulations. As an institution for sound environmental stewardship, EPA is in charge of supervision and monitoring of activities of service providers. It sets the standards for operation at the national level for

the service provider to comply with.

Metropolitan, Municipal & District Assemblies (MMDAs - Local Governments)

Ghana's local government is provided in the 1992 Constitution of the Republic of Ghana, which provides that a District Assembly is the highest political authority in the district, and that the District Assembly has deliberative, legislative and executive powers. The composition, powers and duties of the different types of District Assemblies are prescribed in the Local Government Act (1993) (Act 462) [revised Local Governance Act, 2016 (Act 936)]. The Local Governance Act, 2016 (Act 936) presents details on the Local Government, Local Government Service, planning functions of District Assemblies, emergency relief by District Assemblies, financial matters of District Assemblies, decentralisation at the regional level, etc. Under the 1993 Act, the MMDAs (local governments) provide appropriate environmental sanitation services, including sanitary sites and final disposal sites at strategic location in urban, peri-urban and rural areas. However, many institutions participate in policy making and execution of various tasks in the sectors.

The structure of Ghana's local government system is essential in assessing its efficiency and effectiveness in promoting healthy sanitation and environment, and demanding accountability from their development authorities. It comprises MLGRD, the National Development Planning Commission (NDPC), Regional Co-ordinating Councils (RCCs), MMDAs, Urban/Zonal/Town Councils, Assembly persons and Unit Committees. The MLGRD is responsible for the coordination of local government functions as

the Local Government Secretariat, with the political role to nominate Metropolitan/Municipal/District Chief Executives and 30 per cent of the MMDA members to be appointed by the President.

MMDAs are the pivot of administrative and developmental decision-making at the local level, and are assigned with deliberative, legislative and executive functions. They are responsible for the integration of political, administrative and development support to achieve a more equitable allocation of power, wealth and geographically dispersed development in the country. They are the planning authority at the district level, and have the authority to prepare and implement development plans and draft budgets for implementing the development plans. They mobilise resources, develop local infrastructure and promote the development of local productive activities with the help of some central government institutions that operate as part of the MMDAs.

The Local Governance Act empowers the MMDAs to provide municipal services, including undertaking waste management and enacting by-laws to regulate the effective management of waste in their respective jurisdictions. The MMDAs are responsible for all operations and technical aspect of waste management in the districts. Defaulters of the waste management by-laws are prosecuted by the Environmental Health and Sanitation Directorates (EHSDs) through the sanitation courts. Within MLGRD, the EHSD and the Regional Environmental Health Offices (REHOs) play the leading role in supporting environmental sanitation.

The functions of the EHSD include:

1. Provision of guidance to MLGRD on environmental sanitation sector planning, policy and legislation;

2. Provision of technical assistance to MMDAs and service providers;
3. Co-ordinating and disseminating the results of research in the environmental sanitation field; and
4. Regulation of all service providers, both public and private.

The functions of the EHSD imply that the Directorate must have some level of expertise to effectively perform its roles. The EHSD is thus mandated to draw on specific expertise from outside as and when necessary.

According to the ESP, MMDAs are principally responsible for co-ordinating waste management with the other aspects of environmental sanitation, and allowing for effective monitoring of environmental sanitation activities with respect to environmental quality standards. MMDAs are required to carry out five distinct functions with respect to environmental sanitation – waste management, public health management, environmental monitoring, provision of Works related to environmental sanitation facilities, and planning, monitoring and public relations.

MMDAs' waste management role covers the collection and sanitary disposal of wastes, including the following:

1. Solid waste, liquid wastes, excreta, industrial wastes, health-care and other hazardous wastes; and
2. Storm water drainage, and cleansing of thoroughfares, markets and other public spaces.

MMDAs' specific roles in relation to SWM are as follows:

1. Ensure that all premises to have primary storage facilities (dustbins) which meet the approved size, material, and capacity.

2. Prescribe the minimum standard of collection service (including the sorting of refuse, if applicable), taking into account household incomes, housing patterns, and the infrastructure in the service area.
3. Require that the collection service be rendered on the basis of cost recovery. In deprived areas, where the ability to pay may be low, service charges may be related to the recovery of operation and maintenance cost only.
4. Designate communal storage sites where solid waste can be discharged into a fixed or movable container in communities where house-to-house collection is not appropriate. The caution is that these sites should be formally and suitably developed for the purpose, so as to contain the wastes dumped and maintain the sanitary conditions of the surrounding area. The containers should also be readily accessible to those dumping wastes, including to children.
5. Require that the collection and removal of wastes from individual premises and communal storage sites be collected at least twice a week. Use of intermediate transfer stations may be considered where haulage distances are uneconomical.
6. Require that treatment and disposal sites be located so as not to create safety and health hazards or aesthetic problems in the nearby areas.
7. Produce medium- and long-term plans for the provision of treatment and disposal sites, including preparation of Environmental Impact Assessments.

The ESP (2009) mandates MMDAs to acquire sites for treatment and disposal of wastes (landfills, composting facilities, waste stabilisation ponds,

trickling filters, septage treatment plants, etc.). However, these sites are to be located such that they do not create safety and health hazards or aesthetic problems in the surrounding area(s). In order to ensure adequate provision of such sites, all MMDAs are required to:

1. Produce medium- and long-term plans for the provision of treatment and disposal sites, and the preparation of Environmental Impact Assessments;
2. Acquire sufficient land and secure title with payment of due compensation for the land for immediate and future use and protect such acquisitions by proper demarcation, fencing, etc.; and
3. Ensure that the sites are managed so as to satisfy approved environmental protection standards.

The ESP also tasks MMDAs to review relevant legislation on the acquisition of land for treatment and disposal sites, and establish legislative and administrative provisions to facilitate site valuation, negotiation and payment of compensation by MMDAs.

MMDAs' functions are expected to be undertaken by the Environmental Waste Management Departments (EWMDs), within Metropolitan and Municipal Assemblies, or by Waste Management Departments of District Works Departments (DWDs) and District Environmental Health and Management Departments of District Assemblies. The services can be provided either directly or indirectly through private contractors or franchisees. However, the ESP points out that MMDAs should, in all cases, maintain an in-house capacity to provide at least 20 per cent of the services directly.

MMDAs environmental sanitation tasks cut across public health management functions which comprise control of pests and vectors of disease, food hygiene, environmental sanitation education, inspection and enforcement of sanitary regulations, disposal of the dead, control of rearing and straying of animals and port-health services. These services are carried out by the Environmental Health and Management Departments of MMDAs, with private sector inputs, where appropriate.

Within the Environmental Health and Management Department, an Environmental Protection and Standards Enforcement Division are, in collaboration with the EPA, responsible for monitoring and enforcing environmental standards and regulations set by the EPA and other national regulatory agencies, and for organised and continuous public education on safeguarding the environment. This includes responsibility for monitoring the environmental impact of Assemblies' own waste management activities. In cases, where the WMDs contract, franchise or license private sector service providers, the WMDs are responsible for imposing sanctions on and correcting any infractions against environmental standards by such service providers according to the provisions of the relevant agreement or license.

At the District Assembly level, the DWD is responsible for the provision of infrastructure facilities. The District Environmental Health and Management Departments liaise with DWDs in preparing plans and costs for environmental sanitation facilities. MMDAs are again required to monitor their effectiveness, take action to resolve any problems identified, make short-term and strategic environmental sanitation plans to respond to community needs and wider environmental considerations, and ensure good public

relations. In smaller Assemblies, these functions may be undertaken by the Head of the Environmental Health and Management Department, whilst in larger ones, a small-specialised unit may be established under the WMD.

Generally, the WMDs are responsible for the liquid and solid waste collection and disposal, public cleansing, education of the public on waste management and supervision of activities of private contractors engaged by the Assemblies. They are in charge of supervising and monitoring activities of service providers, such as private companies, which the MMDAs release funds to. The Town and Country Planning Department is also responsible for all land-use planning in the MMDAs and the country as a whole, which has wide implications for environmental sanitation management. It supports MMDAs in physical planning of towns and provides layouts of towns that give land-use and directs development of services like roads, drainage and sewerage networks, disposal sites and water supply distribution lines.

Sub-divisions under MMDAs are not left out in SWM services. Some aspects of environmental sanitation services are to be provided and managed at the local level, within the Assembly's sub-divisions. Whenever possible, operational sub-divisions for service provision should be coterminous with the political-administrative sub-divisions. Responsibilities of the sub-divisions focus on the tasks performed by the Sub-Metro/Zonal/Urban Councils and the Town/Area Councils. The Sub-Metro/Zonal/Urban Councils are assigned the responsibility of selected common services best rendered from the sub-district office, which include (a) Food hygiene and other inspection work; (b) Environmental sanitation education; (c) Cleansing; (d) Supervision of contractors; (e) Co-ordination, support and supervision of services within the

sub-district. The Town/Area Councils provide services for the towns and adjoining villages, such as (a) supervising Assembly workers; (b) supervising the performance of contractors and franchisees; (c) operating facilities not franchised or contracted to the private sector; (d) community mobilisation and fee collection; and (e) promoting clean-up and self-help programmes.

Generally, MMDAs are required to routinely undertake effective environmental health inspections (sanitary inspections), dissemination of sanitary information (hygiene education), pests/vector control, and law enforcement. They are tasked to collect and dispose of solid waste through several functional departments such as the WMDs, EHSDs, District Planning office, District Coordinating office, DWDs, and District Spatial Planning Unit. They supervise and monitor the activities of service providers, rendering of services to service beneficiaries or private companies, release of funds to private companies for services rendered. They are required to develop waste management and environmental health plans to help solve SWM problems. Currently, there are 260 MMDAs across the country.

Local development is financed from IGF mainly from MMDAs' own source revenues, and Externally Generated Funds (EGF) in the form of transfers from the central government and development partners or donors. The IGF includes rates, licences, lands, royalties, dividends, fees and fines collected at the local level for financing development, including SWM services. It also includes the collection of own revenue through some local taxes, which could service some SWM activities at the district level.

The Central Government transfers covers ceded revenue which is a form of revenue from a number of lesser tax fields that central government has

ceded to the District Assemblies. Ceded revenue is collected by the Internal Revenue Service (IRS) and then transferred to MMDAs through MLGRD. It takes the form of entertainment duties, casino revenue, betting tax, advertisement tax and others which have contributed quite a substantial sum to local governments.

In order to bridge the financing gap and improve the performance of the MMDAs, the Government of Ghana has introduced a performance-based grant system (the District Development Facility - DDF) for MMDAs, where access to additional development funds is linked to regular performance assessment under the Functional and Organisational Assessment Tool (FOAT, but now the District Assembly Performance Assessment Tool – DPAT). The aim was to ensure efficient provision of basic community infrastructure and service delivery through judicious use of resources.

The DDF is to mobilise additional financial resources for MMDAs, provide incentives for complying with policy and legal mandates, establish a link between assessments and capacity building support, and ensure harmonised systems for investment funding and capacity building support to MMDAs (MLGRD, 2010). The annual assessment uses the DPAT as a set of indicators covering five thematic areas, namely management and organisation, planning and budgeting, human resource management, financial management and administration, and accounting and auditing.

Under the DPAT framework, MMDAs are assessed against their legal obligations and other mandates. The indicators focus on the legal, political, administrative and fiscal environment in which MMDAs operate and capture both the technocrats and elected representatives in the MMDA structure. In

order to minimise discretion in the assessment process, the indicators were made objectively verifiable and the assessment evidence-based. The assessment process facilitates identification of capacity building needs and corresponding institutional strengthening requirements and ensures that capacity building is fully integrated into the budgeting cycle of the MMDAs (MLGRD, 2010).

The District Assemblies Common Fund (DACF) is the main source of MMDA revenue since its establishment in 1994 by an Act of Parliament (DACF Act 455, 1993). Prior to this, the DACF was enshrined in Article 252 of the 1992 Constitution of the Republic of Ghana. As a funding mechanism, DACF constitute not less than five (5) per cent of the national revenue to MMDAs. However, this has been increased to 7.5 per cent of the national revenue to embark on development activities such as education, health, transport, sanitation and SWM services. The activities of the Assembly persons are also to promote popular participation in SWM activities and compliance with SWM policies.

Legal and Regulatory Frameworks

The policy environment that regulates waste management in Ghana is primarily reflective of legislations enacted at the national level and decisions made in pertinent case law. The regulatory authority is vested in the EPA which was established in 1994 under the auspices of Ministry of Environment, Science, Technology and Innovation (MESTI). The MESTI is the principal environment ministry responsible for the formulation and coordination of policies covering the environment, and supporting environmental sanitation in

regulation and provision of technical standards and manuals. It promotes sustainable environmental management and the adoption and application of science and technological innovations through the formulation of policies, monitoring and evaluation of the implementation of sector plans, programmes, and projects for national development.

Among its core functions, METSI initiates, simulates and coordinates research, including the continuous development and review of policies, laws, rules and regulations in the environment, science, technology and innovation sector of the economy; and ensures effective environmental management and governance, in line with the functions of the Act 490, with the EPA as the main implementing agency and the MESTI playing an oversight, coordination and facilitating role.

The MLGRD is equally principally responsible for waste management services at the national level. The Ministry is responsible for formulating waste and sanitation policies and also providing oversight role to the decentralised MMDAs. It is responsible for the provision of subsidies for the provision of SWM services and supervises or monitors the activities of MMDAs in addition to passing order as required by law to the various WMDs of the decentralised MMDAs who are directly responsible for SWM services. It thus provides environmental sanitation services, including the selection of technologies for waste treatment and disposal, governed by specifications and guidelines that are issued from time to time by the Ministry or its designated agencies.

The MSWR derives its core mandate primarily from Article 190 of the 1992 Constitution of the Republic of Ghana, the Civil Service Law, 1993

(PNDCL 327) and the Civil Service (Ministry) Instrument, 2017 (EI 28). The Ministry initiates and formulates water, environmental health and sanitation policies taking into account the needs and aspirations of the people; undertakes water and environmental sanitation sub-sectors development planning in consultation with the NDPC; and co-ordinates, monitors and evaluates the efficiency and effectiveness of the performance of the sanitation and water sub-sectors. It is also mandated to facilitate private sector participation in the provision of safe water and adequate improved sanitation services and infrastructure; promote creative and innovative research in the production and use of improved technologies and approaches for effective provision of water and sanitation services; and promote environmental health and hygiene education. Therefore, the goal of the Ministry is to contribute to the improvement in the living standards of Ghanaians through increased access to and use of safe water, sanitation and hygiene practices and sustainable management of water resources.

Under MSWR, the Community Water and Sanitation Agency (CWSA) of the Ministry of Water Resources, Works and Housing (MWRWH) lead public sector Agency in Rural Water, Sanitation and Hygiene (WASH) within the sub-sector, with the object of facilitating the provision of safe water and related sanitation and hygiene services to rural communities and small towns through a decentralised service delivery approach. It is the lead facilitator of the rural water supply and water-related sanitation (in rural communities and small towns), and is responsible for external liaison and co-ordination of the National Community Water and Sanitation Programme (NCWSP). The key functions of CWSA are set out in the CWSA Act, 1998 (Act 564).

Considering the various functions of the Ministries in charge of waste management and environmental sanitation programmes in general, it can be deduced that some of the functions under the various Ministries overlap.

The Central Government confers local authority status (MMDAs) on any urban area in line with the local government law which was amended in 1993 (Act 462) to replace the previous Act enacted in 1988. It appoints chief executives to run the MMDAs, and the MLGRD approves the MMDAs' by-laws, budgets, and proposals to tap new sources of revenue or increase existing taxes. The Central Government also sometimes issues directives affecting the MMDAs, and releases DACF to the MMDAs for local development and SWM services.

Constitutionally, the MMDAs are responsible for the management of sanitation and solid-waste collection and disposal. Oduro-Kwarteng (2011) suggests that the central-local government relationship is believed to have implications for the governance of solid waste collection in local areas. The waste management functions were transferred from the Central Government to the Local Governments, as part of the decentralisation process in Ghana in 1988. All these are to ensure that SWM services are carried out efficiently at the local communities.

There are model by-laws, regulatory and legislative instruments for SWM in Ghana. The legal framework guiding the management of hazardous, solid and radioactive waste includes the Local Government Act (1994) Act 462 [revised Local Government Act, 2016 (Act 936)], the EPA Act (1994), Act 490, the Pesticides Control and Management Act (1996), Act 528, the Environmental Assessment Regulations 1999, (LI 1652), the Environmental

Sanitation Policy of Ghana (1999, revised in 2009), the Guidelines for the Development and Management of Landfills in Ghana, and the Guidelines for Bio-medical Waste (2000). All these Acts and Regulations emanate from the National Environmental Action Plan (MLGRD, 2010).

The laws in Ghana mandate the owner of the waste generated in the city, which is the Assembly, to collect, recycle and dispose the solid waste. The National Building Regulations, 1996 (LI 1630) stipulates that a building for residential, commercial, industrial, civic or cultural use shall have a facility for refuse disposal. It further states that each dwelling unit shall have a standardised dustbin or other receptacle approved by the Assembly in which all refuse generated shall be stored temporarily in order to achieve quality SWM services in Ghana.

The other relevant legal provisions for the MMDAs' functions are: Procurement Act and Assembly Tender Board regulation, By-law of the Assemblies, Environmental Protection Agency Act, 1994 (Act 490); Environmental Assessment Regulations, 1999 (LI 1652); National Building Regulations, 1996 (LI 1630); Town and Country Planning Ordinances, 1944 (Cap 84); Vaccination Ordinance Cap 76; Food and Drugs Law 305b (1992); and Mortuaries and Funeral Facilities Act, 1998 (Act 563). All these legal frameworks have provisions for sanitation and SWM services and, therefore, require the effort of the public sector institutions to implement and enforce the laws for effective SWM (Oduro-Kwarteng, 2011).

Policy Framework

The policy guiding SWM in Ghana is the national Environmental Sanitation Policy (ESP) (1999) which was revised in September 2010 (ESP, 2009). The overall goal of the revised policy is to develop a clear and nationally accepted vision of environmental sanitation as an essential social service and a major determinant for improving health and quality of life in Ghana. This policy assesses the causes of the poor sanitation and waste management conditions that prevail, establishes the basic principles and objectives for better environmental management, and specifies the institutional responsibilities in the pursuit of these objectives.

The policy responds to the following broad principles:

1. The principle of environmental sanitation services as a public good;
2. The principle of environmental sanitation services as an economic good;
3. The polluter-pays principle;
4. The principle of cost recovery to ensure value-for-money ensuring economy, effectiveness and efficiency;
5. The principle of subsidiarity in order to ensure participatory decision-making at the lowest appropriate level in society;
6. The principle of improving equity and gender sensitivity;
7. The principle of recognising indigenous knowledge, diversity of religious and cultural practices;
8. The precautionary principle that seeks to minimise activities that have the potential to negatively affect the integrity of all environmental resources; and

9. The principle of community participation and social intermediation.

In order to achieve the overall goal, the ESP (2009) outlines seven policy focus and challenges that need to be addressed and these are capacity development; information, education and communication; legislation and regulation; levels of service; sustainable financing and cost recovery; research and development; and monitoring and evaluation. As a public good, waste management is the responsibility of all citizens, households, communities, private sector enterprises, NGOs and institutions of Government. All these actors have an essential part to play in maintaining a high standard of environmental sanitation to ensure that domestic and commercial activities have no prejudicial effect on the health or the living environment of others.

The Policy stipulates that every individual or household, establishment or institution shall be responsible for:

1. Cleansing within and in the immediate environs of the property they occupy, including access ways and the drains and roads abutting the property;
2. Temporary storage of wastes within the property and disposal thereof outside the property, as may be directed by the competent authority;
3. Taking measures to prevent the breeding of pests and disease vectors within and in the immediate environs of the property they occupy;
4. Ensuring that the wider environment is not polluted or otherwise adversely affected by their activities;
5. Hygienically disposing of all wastes they generate in public areas by use of an authorised public toilet or solid waste container as appropriate; and

6. Participating in all communal environmental sanitation exercises organised by the community or its representatives.

This suggests that individuals or households have a major stake in SWM. Where individuals, establishments or institutions fail to discharge these responsibilities, the competent authorities shall take any necessary remedial action at the expense of those in default.

Communities also play a major role in effective and sustainable SWM.

Their specific roles include the following:

1. Establish community environmental sanitation norms in line with national sanitation policy;
2. Undertake community sanitation and hygiene education to create awareness of environmental sanitation issues;
3. Maintain a clean, safe and pleasant physical environment in their settlement;
4. Under the leadership of Urban/Town/Area Councils, organise participatory neighbourhood cleansing once every two months on dates determined by communities;
5. Mobilise all citizens to participate in observing National Environmental Sanitation Day (ENSADA) once every year on a date to be fixed by Government;
6. Sanction citizens who fail to participate in neighbourhood cleaning exercises or ENSADA, or who omit or commit acts contrary to community sanitation norms;
7. Take the needed steps to develop appropriate environmental sanitation infrastructure such as domestic toilets and waste disposal sites; and

8. Prevent soil, water and air pollution.

According to the policy, the bulk of environmental sanitation service shall be provided by the private sector, including CBOs and NGOs under the supervision of the public sector, especially MMDAs. Specifically, CBOs and NGOs are expected to assist communities in community mobilisation; and assist the MMDAs, Town Councils, Unit Committees and communities in the planning, funding and development of community sanitation infrastructure for the safe disposal of wastes and the prevention of soil, water and air pollution.

In SWM, the majority of environmental sanitation services shall be provided by the private sector under the supervision of the public sector, especially the MMDAs. The private sector operates within policies, regulations, supervisory and licensing arrangements set up by the public sector to promote efficiency and competitiveness. Its services are provided in accordance to the laws of Ghana and the Public Procurement Act. Where possible, environmental sanitation services, including SWM are to be provided by the private sector on full cost recovery basis, under franchise, concession agreements or through contracting.

The following services are to be undertaken by the private sector:

1. Provision and management of septage tankers, on a fully commercial basis subject to licensing and the setting of maximum tariffs by the Assemblies;
2. Construction, rehabilitation and management of all public baths and toilets, subject to the supervision and setting of maximum tariffs by the Assemblies;

3. Solid waste collection from individual institutional or domestic customers, subject to the supervision and setting of maximum tariffs by the MMDAs;
4. Solid waste collection from communal containers under contract to the MMDAs, Unit Committees or community groups or as part of a franchise covering both high and low income areas;
5. Cleansing of designated areas and facilities (streets, drains, markets, lorry parks, etc.) and maintenance of drains, under the agreements covering solid waste collection;
6. Provision and management of waste treatment, recycling and disposal facilities, transfer stations and bulk waste transfer to disposal under contract, franchise, concession, BOT, Build-Own-Operate (BOO), BOOT or other arrangements;
7. Operation and maintenance of sewerage collection and treatment systems by contract, franchise or concession, supervised by the MMDAs;
8. Equipment leasing and maintenance/workshop services; and
9. Provision and management of abattoirs and meat shops subject to regulation by the Assemblies.

The Policy further states that primary role of SWM rests with MMDAs. However, in general, the private sector shall be invited to provide the actual services under contract or franchise as appropriate. In the case of franchise, the ESP specifies that the franchisee may propose services above the minimum specified standard, as long as the users' willingness and ability

to pay can be relied upon. The franchisee may also propose tariffs and subsidy levels, subject to final approval by the MMDAs.

Ghana has an existing Guiding Policy on PPPs, launched in October 2011, as part of the Ghana PPP programme. The policy defines a PPP as a contractual arrangement between a private sector party and public entity, which provides public infrastructure and services that are traditionally provided by the public sector. According to the policy, a PPP must involve a transfer of risk to the private party in return for remuneration based on service tariffs or user charges, government budget, which may be fixed, partially fixed, periodic payments or contingent, or a mix of these. The Ghana PPP Bill, which is currently under consideration for approval by Parliament, seeks to establish a legal framework for the development, implementation and regulation of PPP arrangements and projects between public institutes and private entities for the provision of public infrastructure and services.

Summary of the Chapter

The key elements of any functional partnership in a management system such as SWM call for well-defined exposition of the service as well as performance benchmarks regarding the service. Private sector involvement in SWM in Ghana dates back to the 1990s when the public sector was unable to manage the increasing volume of waste in the country. The chapter presented the institutional, legal, regulatory and policy frameworks that are relevant to PPP and SWM in Ghana.

CHAPTER FOUR

METHODOLOGY

Introduction

This chapter describes the stages and processes used to collect and analyse data for the study. It also explains the philosophical underpinning of the various processes adopted for the study. Issues presented under the chapter include research paradigm, research design, study population, sample and sampling procedures, data collection method, research instruments, fieldwork, ethical consideration, and data analysis. The chapter also presents detailed description of the study area in relation to the study topic.

Research Paradigm

The research process has three major dimensions: ontology, epistemology and methodology. According to Neuman (2011), a research paradigm is an all-encompassing system of interrelated practice and thinking that define the nature of enquiry along these three dimensions. Creswell (2012) defines research paradigm as a way of describing a worldview that is informed by philosophical assumptions about the nature of social reality (ontology), ways of knowing (epistemology), and ethics and value systems (axiology). It guides researchers to ask critical questions and use appropriate approaches to systematic inquiry (methodology). According to Creswell, the choice of a research paradigm is essential because particular paradigms may be associated with certain methodologies. Shannon-Baker (2016) classifies research paradigms into three philosophically distinct categories as positivism, interpretivism and pragmatism.

This study was enshrined in the pragmatist research paradigm. Pragmatism is the view that considers practical consequences or real effects to be vital components of both meaning and truth. Pragmatism argues that the meaning of any concept can be equated with the conceivable operational or practical consequences of whatever the concept portrays (Shannon-Baker, 2016). Pragmatists believe that truth is not 'ready-made', but that truth is made jointly by reality and people. Pragmatism rejects the notion of absolute dualism such as objectivism versus subjectivism, or rationalism versus empiricism (Frels, Frels & Onwuegbuzie, 2011), but prefers more moderate and common-sense versions of philosophical dualisms based on how well they work in solving problems. It endorses fallibilism and views truth as contemporary, ever changing and a matter of degree (Mertens, 2012). Since research conclusions will never be viewed as perfect and absolute, pragmatists argued that the purpose of research inquiry was simply to solve situations.

Pragmatist supporters begin with the research question to determine their research framework. Freshwater and Cahill (2013) report that pragmatists view research philosophy as a continuum, rather than an option that stands in opposite positions. They believe that objectivist and subjectivist perspectives are not mutually exclusive. Hence, a mixture of ontology, epistemology and axiology is acceptable to approach and understand social phenomena. Here, the emphasis is on what works best to address the research problem. Neuman (2011) reported that pragmatists favour working with both quantitative and qualitative data because it enables them to better understand social reality.

According to Mertens (2012), the crux of the argument of adherents of pragmatism appears to rest in the contention that although positivism and

interpretivism adopt different approaches and discourses for knowledge construction, there is an opportunity for both perspectives to be mixed with the view to balancing out any of the potential weaknesses in each perspective. Pragmatists view combined research methods as adopting a pragmatic philosophy (Creswell, 2012) based on the premise that the researcher, in order to answer complex research questions, must make use of all the tools and methods at his or her disposal, implying interplay of methods as opposed to a compromise (Freshwater & Cahill, 2013). Methodological pragmatism is concerned with how knowledge is created. Pragmatists draw upon the strength of both quantitative and qualitative methods to address certain research questions. As a result, pragmatist paradigm explains and justifies the use of mixed methods research design.

Per the descriptions on the tenets of the various research paradigms, the study adopted the pragmatist research paradigm to guide the methods of data collection, analysis and interpretation in relation to the research questions. The researcher agrees with Creswell (2013) that pragmatist researchers favour working with both quantitative and qualitative data because it enables them to better understand social reality. The researcher also believes that sustainability of PPP in SWM is a complex and multifaceted issue, and as such, multiple or mixed methods approach is required to address the central theme of the study.

Research Design

Research design is the overall plan for connecting the conceptual research problems to the pertinent and achievable empirical research (Neuman, 2011). It is a strategic framework for action that serves as a bridge

between research questions and the execution, or implementation of the research strategy. Thus, Creswell (2012) explains that research design articulates the type of data required for a study, appropriate methods to be used to collect and analyse the data, and how the entire process answers the research question. The function of a research design is to configure data and methods in research projects to diagnose research problems and ensures that the evidence obtained enables the researcher to effectively address the research problem logically and as unambiguously as possible (Bryman, 2012).

Silverman (2011) indicates that pragmatist research paradigm supports the adoption of a multiple approach, where qualitative and quantitative methods are combined in a single study. As a result, mixed methods research design was adopted by the study. Frels *et al.* (2011) indicate that mixed methods research is a natural complement to using either of the traditional qualitative or quantitative research methods in isolation. Creswell (2012) argues that mixed methods research is more than simply collecting both qualitative and quantitative data; it implies that data are integrated, related, or mixed at some stage of the research process. He further indicates that the underlying logic to mixing is that neither qualitative nor quantitative methods are sufficient in themselves to capture the trends and details of the situation.

According to Creswell (2013), mixed methods approach is justified because both qualitative and quantitative methods share the goal of understanding the world. Mixed methods share a unified logic, and the same rules of inference apply to both. A combination of both approaches, therefore, provides a variety of perspectives from which a particular phenomenon can be studied and they share a common commitment to understanding and

improving the human condition, a common goal of disseminating knowledge for practical use (Frels *et al.*, 2011). Mixed methods research design also provides for cross-validation or triangulation – combining two or more sources of data to study the same phenomena in order to gain a more complete understanding of that phenomenon (interdependence of research methods).

Aning-Agyei (2017) argues that societal problems are complex and multifaceted, and as a result, mixed methods design is required to adequately understand such issues. The adoption of mixed methods design was informed by the research objectives. The assessment of the level of sustainability of PPP in SWM entails the use of both qualitative and quantitative methods. Qualitative and quantitative methods were used to assess and explain the issues on relevancy, acceptability, implementation and monitoring strategies, post-implementation operation and maintenance, and economic and financial viability of the PPP arrangement in SWM.

The study adopted the concurrent triangulation design. With the adoption of the concurrent triangulation mixed methods design, the study collected and analysed the qualitative and quantitative data on the research problem separately yet simultaneously. This enabled the researcher to integrate the findings from qualitative and quantitative data sources for cross-validation or corroboration and for a more complete understanding of the levels of sustainability of PPP in SWM in the two Metropolises.

The study adopted evaluative, ex post facto and descriptive study designs. Evaluative study design is an applied form of research that involved finding out how well a programme, practice, procedure or policy is working (Neuman, 2011). According to Creswell and Plano (2011) and Creswell

(2012), the purpose of evaluative research is to examine the processes and outcomes associated with a particular solution to a problem or assess the success of a particular practice or policy. Evaluative research may be formative in that it attempts to improve the intervention or solution or it may be summative and attempt to evaluate the effectiveness of solution or programme (Creswell, 2013). The study employed the summative evaluative design to assess the effectiveness of the PPP arrangements in addressing issues about SWM in CCMA and STMA.

Ex post facto study design was also used to conduct comparative analysis between CCMA and STMA in terms of the quality of service delivery and levels of sustainability of PPP in SWM. This design facilitated the comparison of a before-and-after situation in a less restrictive social environment. According to Bryman (2012), ex post facto design is appropriate for assessing the effectiveness, efficiency, acceptability and effect of programmes, interventions and services. Ex post facto design was used to analyse differences in the levels of sustainability and quality of service of PPP in SWM following the intervention of World Bank in the PPP arrangements in STMA as against the naturally evolved PPP processes in CCMA.

The study employed the descriptive study design to describe the contractual arrangement processes of PPP in SWM, quality of service delivery, and the challenges encountered by the stakeholders in the PPP arrangement. Figure 3 presents the sequence with which mixed methods research design was applied in this study.

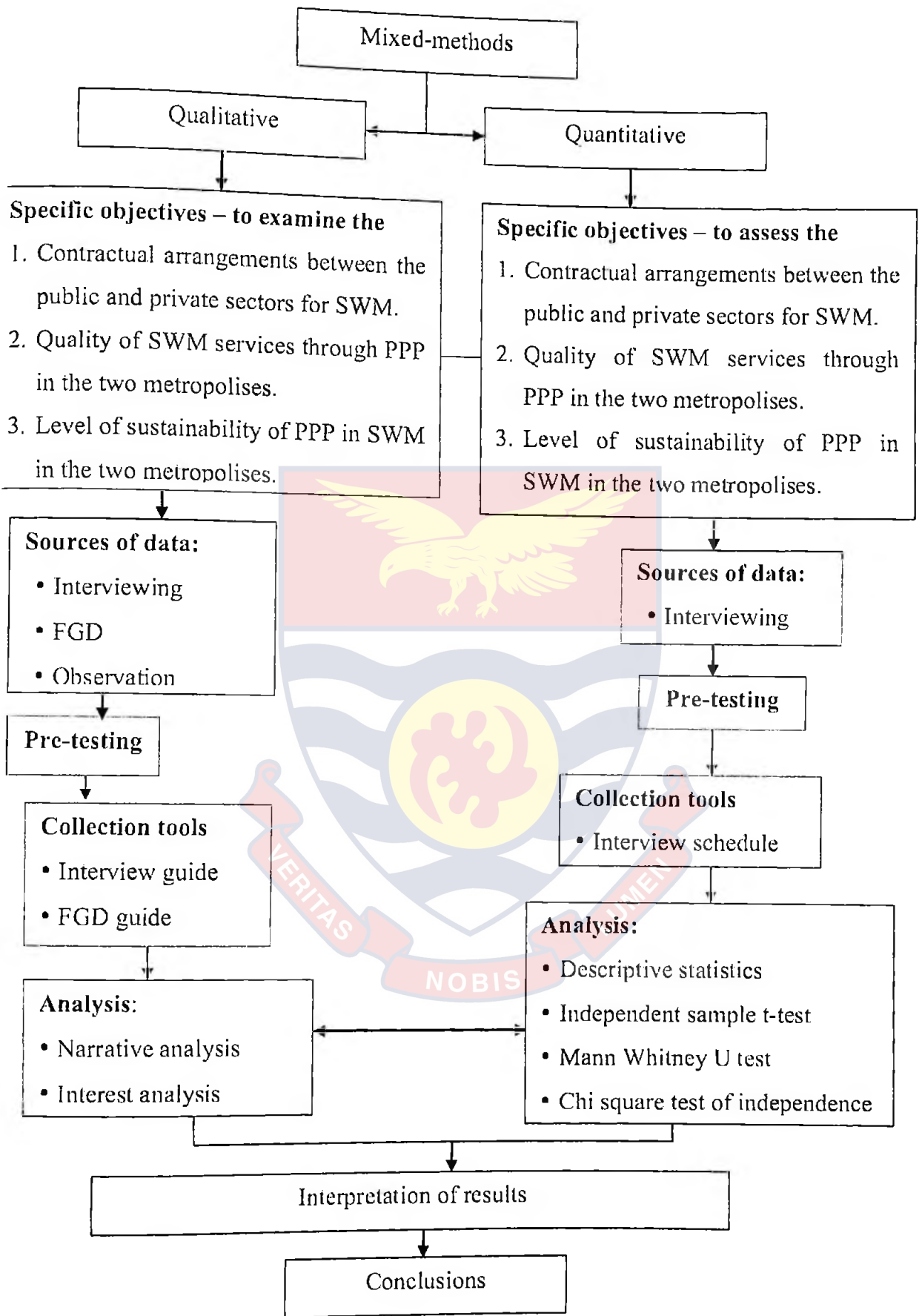


Figure 3: Sequence of Application of Mixed Methods Design in the Study.

Source: Adapted from Aning-Agyei (2017)

Study Area

The study areas were the Cape Coast Metropolitan Area (CCMA) and Sekondi-Takoradi Metropolitan Area (STMA). The study focused on metropolitan areas because the volume of waste generated is highest in these areas with huge financial implications on the Assemblies in waste management. It centred on STMA as the third largest metropolis and CCMA as the smallest in terms of population sizes. The selection of CCMA and STMA was also premised on the fact that there was a higher budget allocation for CCMA regarding the management of a comparatively lower volume of solid wastes as against that of STMA.

The CCMA is one of the oldest districts in Ghana. It was raised to the status of municipality in 1987 by LI 1373 and upgraded to metropolitan status in 2007 by LI 1927. It is bounded to the south by the Gulf of Guinea, west by the Komenda-Edina-Eguafo-Abrem Municipality (at Iture bridge), east by the Abura-Asebu-Kwamankese District and to the north by the Twifo-Heman-Lower Denkyira District. The Metropolis occupies an area of approximately 122km², with the farthest point at Brabadze, about 17km from Cape Coast, the capital of the Metropolis, and the Central Region.

The population of the Cape Coast Metropolis, according to the 2010 Population and Housing Census in GSS (2014b), is 169,894 representing 7.7 per cent of the region's total population. Males constitute 48.7 per cent and females represent 51.3 per cent. Twenty three per cent of the population live in rural localities. The Metropolis has a sex ratio (number of males per 100 females) of 95. The proportion of the metropolis' youth (less than 15 years) is 28.4 per cent depicting not too broad base a population pyramid which tapers

off with a small number of elderly (60 years and older) persons (4.5%). The total age dependency ratio for the Metropolis is 49.1 and the age dependency ratio for males is lower (48.2) than that of females (49.9).

In terms of household size, composition and structure, the Metropolis has a household population of 140,405 with a total number of 40,386 households. The average household size in the Metropolis is 3.5 persons per household. Children (0-15 years) constitute the largest proportion of the household structure, accounting for 37.1 per cent. Nuclear households [head, spouse(s) and children] constitute 47.7 per cent of the total number of household composition in the Metropolis.

The private informal sector is the largest employer in the Metropolis, employing 68.4 per cent of the population followed by the public sector with 21.4 per cent. Due to widespread poverty in the Metropolis and consequent low financial capacity of the residents, people are neither able, nor prepared to pay for waste (especially secondary collection). As a result, waste collection is a heavy burden on the overall CCMA budget (CCMA, 2014). Consequently, the most widely-used method of solid waste disposal is by public dump in the container, accounting for 56.7 per cent. About two in 10 households (21.9%) dispose their solid waste by public dump in the open space. House-to-house waste collection accounts for 5.5 per cent. The SWM operators in the Metropolis are Zoomlion Ghana Limited, and Alliance Waste Company Limited. Figure 4 shows the map of the CCMA showing the study communities.

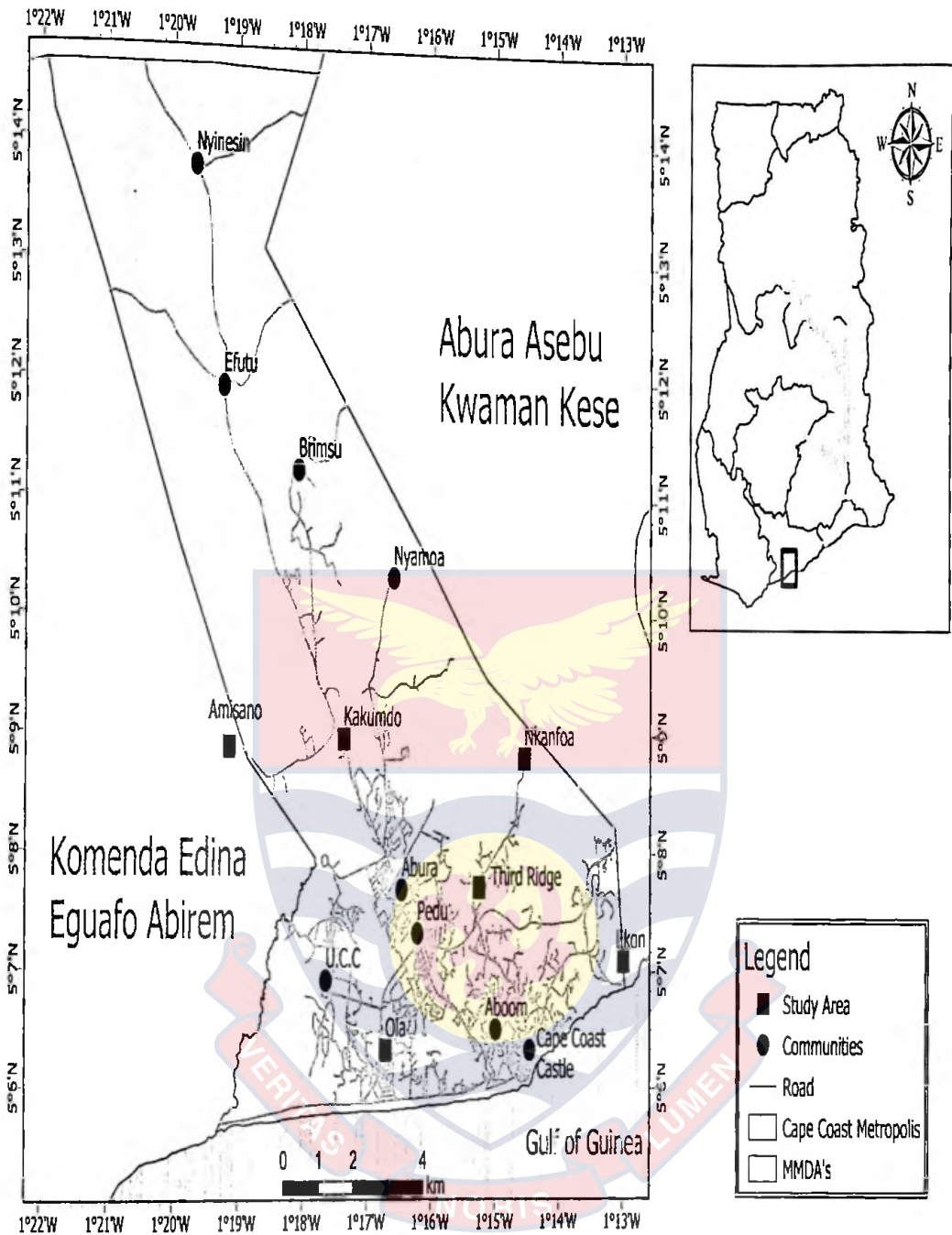


Figure 4: Map of Cape Coast Metropolitan Area.

Source: Geographic and Information Section, UCC (2019)

The STMA, as one of the local authorities in Ghana, is established under L.I 1928 in 2008. It is one of the 22 districts in the Western Region. The Metropolis is bounded to the north by Mpohor-Wassa East District, to the south by the Gulf of Guinea, west by Ahanta West District and to the east by

the Shama District. It has a total land area of 192km², with Sekondi as the administrative headquarters. The Metropolis is located on the west coast with the Trans West African Highway passing through. It is about 280km west of Accra and 130km east of La Côte d'Ivoire. It is, thus, strategically located considering its closeness to the sea, the airports and also accessibility to major cities by rail and road.

From the 2010 census, the population stood at 559,548 and was projected to be 656,636 in 2015 and 700,034 in 2017. The projection was based on the average annual growth rate of 3.2 per cent. The age-sex composition of the population, which is of much importance for planning, is 44.8 per cent below the age of 14, with 51.9 per cent between 15 and 64, while those above 65 are only 3.3 per cent. The economically active population is about 60 per cent of the population. However, GSS (2014a) adds that the figure may be misleading since there are people within the active age group who are unemployed.

The population density is 2,998 persons/km². The Metropolis has a household population of 532,516 with a total number of 142,560 households. The average household size in the Metropolis is 3.7 persons per household. Nuclear households [head, spouse(s) and children] constitute 30.1 per cent of the total number of households in the Metropolis. The proportion for rural (58.4%) population is higher than that of urban (48.8%).

In economic terms, the Metropolis is the third most industrialised city in Ghana. The STMA is gradually emerging as the "Oil City" since the discovery of oil in commercial quantity in the country. The services sector contributes 59.9 per cent, agriculture (21%) and manufacturing (19.1%) to the

local economy. Concerning infrastructure and social services, the STMA is well developed with the best of socio-economic infrastructure and facilities in terms of electricity, water, telecommunication, education, health with industrial set-ups and other several economic activities. Most of the socio-economic infrastructure are densely concentrated in the core urban centres of the Metropolis such as Takoradi and Sekondi with sparsely distributed facilities at the peri-urban areas.

The GSS (2014a) further states that the most widely method of solid waste disposal is by public dump in the container accounting for 47.1 per cent. About 1.4 per cent of households dump their solid waste indiscriminately. House-to-house waste collection accounts for 7.9 per cent. Generally, sanitation and waste management in the STMA is the sole responsibility of the Metropolitan Assembly. Presently, three Waste Management service are engaged to perform this major responsibility through the adoption of the polluter-pays principle. Solid wastes generated amount to 280 tonnes per day totalling 102,200 tonnes per year. The final disposal system is a controlled tipping at the engineered landfill site for solid waste and an oxidation system for liquid waste disposal. The waste collection system being operated in the Metropolis is a mix of door-to-door refuse collection system and communal container lifting systems. SWM operators in the Metropolis are Zoomlion Ghana Limited, Waste 360, and Deloved WMC. Figure 5 is a map of STMA showing the study communities.

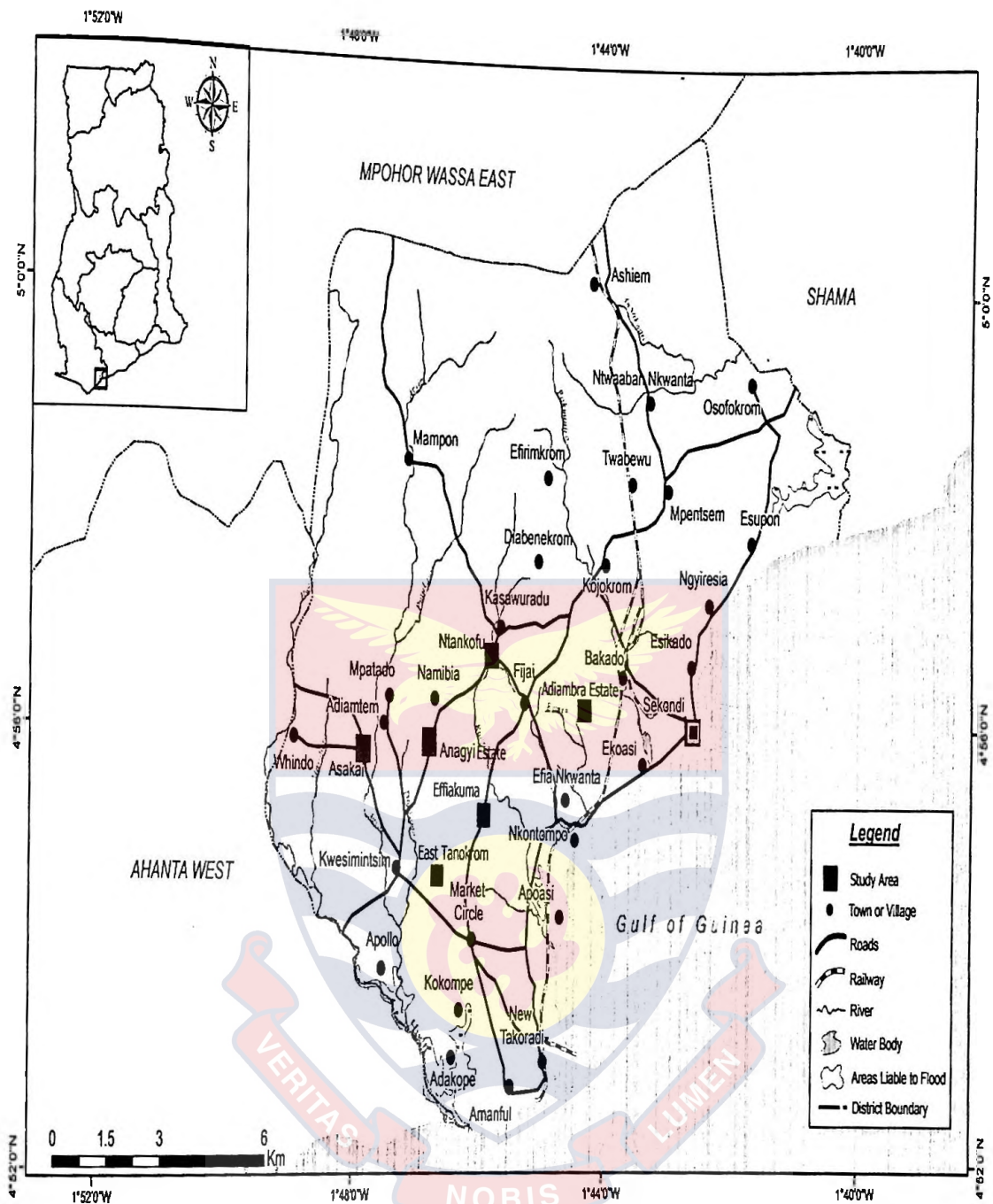


Figure 5: Map of Sekondi-Takoradi Metropolitan Area.

Source: Geographic and Information Section, UCC (2019)

Study Population

The study population comprised staff of CCMA, STMA and Waste Management Companies (WMCs) [CCMA: Zoomlion Ghana Limited and Alliance Waste Company Limited (previously Zoom Alliance Company

Limited); STMA: Zoomlion Ghana Limited, Waste 360, and Deloved WMC] in the two Metropolises. Others were Assembly members, and household heads in the two Metropolises. The total study population was 185,694, comprising 41,397 from CCMA and 144,297 from STMA. A household in this study was defined as a person or a group of persons who live together in the same house or compound and share in the same house keeping arrangement. Table 6 presents the details of the study population.

Table 6: Population of the Study

Study population	CCMA	STMA	Total
Staff of Metropolitan Assembly	118	195	313
Assembly members	45	49	94
Number of households	40,386	142,560	182,946
Staff of WMCs	848	1,493	2,341
1. Zoomlion CCMA	826	-	-
2. Alliance Waste	22	-	-
3. Zoomlion STMA	-	1,425	-
4. Waste 360	-	37	-
5. Deloved WMC	-	31	-
Total	41,397	144,297	185,694

Source: Author's construct (2018)

Sample and Sampling Procedures

The simple random sampling technique was used to sample the STMA and CCMA from the six metropolitan areas (Accra, Kumasi, Takoradi, Tema,

Tamale and Cape Coast) in Ghana. The use of simple random sampling was to give each beneficiary metropolis an equal chance of getting selection into the sample. The lottery method was used for the simple random sampling. The approach of sampling a beneficiary and non-beneficiary of intervention in the PPP arrangements for SWM was to ascertain the differences and similarities in the contractual processes, quality of service delivery and levels of sustainability of the partnership. The aim was to assess the impact of the interventions from the external institutions on the sustainability of PPP in SWM.

A total of 812 respondents were engaged in the study. This comprised 403 respondents from CCMA and 409 from STMA. Details about the samples for the various categories of respondents are presented in Table 7.

Table 7: Sample Details for the Various Categories of Respondents

Study population	CCMA	STMA	Total
Staff of Metropolitan Assembly	4	4	8
Assembly members (Social Services sub-Committee)	7	7	14
Number of households	376	374	750
Staff (including the Head) of WMCs	16	24	40
1. Zoomlion CCMA	8	-	-
2. Alliance Waste	8	-	-
3. Zoomlion STMA	-	8	-
4. Waste 360	-	8	-
5. Deloved WMC	-	8	-
Total	403	409	812

Source: Author's construct (2018)

The sample size for the study was estimated using the sample size formula for a finite population by Yamane (1967).

$$n = \frac{N}{(1 + Ne^2)}$$

n = required sample size

N = population (CCMA = 41,397; STMA = 144,297)

e = confidence level (0.05)

Per this formula, the sample size for CCMA was 396 and STMA was 399, giving a total of 795. Israel (2009), however, recommended that it is mostly important to add between 10 per cent and 30 per cent of the sample size to cater for non-response. Consequently, 15 per cent of the calculated sample size for the two Metropolises was added. The addition of 15 per cent to the actual sample size was based on the experiences from the pre-testing as some of the households had moved to other areas without any forwarding address, while others could not be located. The 15 per cent added 120 respondents to the actual total sample for the two Metropolises. Equal proportion was used to distribute the additional 120 to the actual sample sizes for the two Metropolises. As a result, the sample size for CCMA was 456 and STMA was 459, giving a total of 915. However, a total of 812 respondents (CCMA – 403; STMA – 409) responded to the study, representing a response rate of 88.7 per cent of the expected sample size.

With respect to the sampling of staff of the Metropolitan Assemblies, purposive sampling was used to sample the Heads of Department or Unit who were related to contract administration and SWM. The aim was to enable the

researcher to obtain direct information on contractual arrangements on PPP in SWM, post implementation strategies to ensure sustainability of the PPP, and challenges encountered by the various stakeholders in the implementation of the PPP. As a result, the study purposively sampled four staff [i.e. head of the Metropolitan Coordinating Directorate (MCD), Metropolitan Planning Office (MPO), Environmental Waste Management Department (EWMD), and Finance and Budget Office (FBO)] each from CCMA and STMA.

Purposive sampling was also used to sample the heads of the five WMCs in the two Metropolises. Further, purposive sampling was used to sample seven union heads of workers each from the five WMCs in the two Metropolises. This comprised the workers' union Chairpersons, Vice Chairpersons, Secretaries, Organisers, Deputy Organisers, Treasurers, and Deputy Treasurers. The aim was to secure information about the SWM facilities and equipment used to ensure the safety of workers in the performance of their duties. A total of 40 respondents were sampled from the WMC, comprising 35 workers' union heads and five heads of the WMCs.

The study further used purposive sampling to sample Assembly members of the Social Services sub-Committee under the two Metropolises (14 – seven each for the two Metropolises). Assembly members of the Social Services sub-Committees were selected for the study because they were directly responsible for issues on sanitation in the Metropolises. The purpose for selecting Assembly members for the study was to secure information on the monitoring mechanisms adopted to oversee the activities of the waste management companies, and the involvement of their electorates in the fixing sanitation charges with the private sector. These were essential to enhance

quality of service delivery and ensure the sustainability of the PPP arrangements in SWM.

Stratified random sampling procedure was used to sample household heads for the study. Thus, household heads constituted the sampling frame. This was based on the assumption that waste is generated and managed at the household level. As a result, it is mostly the responsibility of the household head to pay for waste management services adopted by the household and, thus decides on how waste is managed in the house. Further, the economic status of the household head determines the choice of waste management services used by the household. The lists of household heads organised under various communities from the two Metropolises were obtained from the Regional offices of the Ghana Statistical Service. Based on the metropolitan categorisation of waste management services, the communities were further organised under three strata, namely high-, middle- and low-income residential areas. These categorisations were done because Fei-Baffoe, Nyankson and Gorkeh-Miah (2014) reported that waste management practices of people are largely determined by their levels of income. Following the uniformity in the waste management services, two communities each were randomly sampled from each categorisation in a metropolitan area, making a total of 12 communities (see Table 8) for the two Metropolises.

The lottery method was used to select the communities from the various categories. With the lottery method, the names of communities for the various categories in a metropolitan area were written on equally-sized papers and folded into a bowl. The papers were shuffled to ensure that they were not in any pre-determined position. The first draw from a particular category

under a metropolitan area was made without replacement and the name was noted. The process was repeated to sample the other communities in the other categories and from the other metropolitan area to sample all the 12 communities. Proportionate sampling approach was used to determine the sample sizes for the various communities (see Table 8).

The Rand function in Microsoft Excel was used to sample the household heads from the selected communities. With this, the list of the household heads in a particular community was entered into Microsoft Excel 2013 Professional Edition. The Rand function was used to shuffle the names. The first names that agreed to the sample size of the community were selected for the study. The process was repeated for the other communities to sample the total number of household heads as defined by the sample size. Table 8 presents details of the population and actual sample sizes engaged from the selected communities in the two Metropolises.

Table 8: Population and Sample Sizes of Household Heads in Selected Communities in Cape Coast Metropolitan Area and Sekondi-Takoradi Metropolitan Area

Categories	Communities	No. of households	Sample proportion	Sample
CCMA				
High	Nkanfoa	1,361	0.206	78
	Third Ridge	963	0.146	55
	Sub-total	2,324	0.352	133
Medium	Ola	1,125	0.170	64
	Ekon	1,450	0.220	83
	Sub-total	2,575	0.390	147

Table 8, continued

	Amisano	367	0.056	21
Low	Kakumdo	1,333	0.202	75
	Sub-total	1,700	0.258	96
Total		6,599	1.000	376
STMA				
	Anaji Estate	7,668	0.228	85
High	East Tanokrom	3,384	0.101	38
	Sub-total	11,052	0.329	123
	Effiakuma	16,101	0.479	179
Medium	Adiembra	2,278	0.068	25
	Sub-total	18,379	0.547	204
	Assakai	2,147	0.064	24
Low	Ntankoful	2,052	0.061	23
	Sub-total	4,199	0.125	47
Total		33,630	1.000	374

Source: Author's construct (2018)

Sources of Data

The study organised data from both primary and secondary sources. Creswell (2013) defines primary data as the data collected originally for the purpose of a particular study, while secondary data is defined as the use of data originally gathered for a different purpose in a new study. The primary data for the study was gathered through the administration of research instruments, including interview guide, focus group discussion (FGD) guide, observation guide and interview schedule. However, the secondary data were

organised from journals, articles and books related to the sustainability of PPP and SWM. Other documents were sanitation reports at the Assemblies.

Research Instruments

The study adopted interview guide, FGD guide, observation guide, and interview schedule as instruments (see Appendix A – G) for gathering data. Interview guides were developed for the representatives from MCDs and MPOs, EWMDs, FBOs, and WMCs. These were used to collect data from these categories of respondents because of their in-depth knowledge and experience in the planning, implementation and management of the PPP agreement in SWM. Open-ended questions were employed for all the interview guides. The aim was to obtain as much information as possible from the respondents. The focus of the interview guides for the representatives from the MCDs and MPOs was on contractual issues regulating the implementation and sustainability of the PPP agreement. Some of the issues considered under the instrument were performance management, sanctions and rewards, determination of fixing of fees and charges, challenges in the implementation of PPP in SWM, and sustainability of the partnership in SWM.

The interview guide for the representatives from the EWMDs focused on the quality of SWM services through PPP. The issues captured under this instrument included collaboration between the EWMDs and WMC for SWM through the PPP agreement, effectiveness of the activities of WMCs in SWM, and challenges in managing SWM through PPP. Another interview guide was developed for the FBOs of the two Metropolises. It concentrated on the financing of the activities in the PPP arrangements. Some of the issues

considered under the instrument were mode of financing SWM budgets, sustainability of the financing schemes for SWM, and challenges associated with financing SWM budgets.

The study further designed an interview guide for the WMCs to assess the effectiveness of private sector participation in SWM. Some of the issues captured under the instrument were factors influencing the determination of fees and charges of SWM services, proportions of the city controlled or serviced by the WMCs, effectiveness of the collaboration with the Metropolitan Assemblies in SWM, challenges of PPP in SWM, and personnel and logistic capacities of the WMCs executing their functions in the PPP agreement on SWM.

The FGD guides were developed to obtain data from the executives of workers' unions of the WMCs and the Assembly members of the Social Services sub-Committees of the two Metropolises. The FGD guide for the executives of the workers' unions of WMCs focused on their operational welfare and how they feel motivated to work. Some of the questions were feeling safe to work, having adequate safety gears to work, and satisfaction with the remuneration levels. With respect to the FGD guide for the Social Services sub-Committees, some of the questions were role of the committee in the formation of the partnership, satisfaction with the performance of the partnership, complaints received from constituents about the performance of the partnership, and mode of addressing such complaints.

An observation guide was developed and used to observe the sanitation conditions in the sampled communities within the two Metropolises. Some of the items in the observation guide were conditions at the sites of skip

containers, protective gears used by workers of WMCs in their operations, and types of trucks used by WMCs.

Interview schedule was used as the research instrument for collecting data from the household heads. Interview schedule were used for the household heads because it was perceived that not all of them could read, understand and self-administer the instruments without the supervision, directions and support from the researcher. Similarly, the researcher wanted to conduct quantitative analysis on the responses from the interview schedule, and as a result, needed a fixed questions-bound instrument for data aggregation and comparison. Only close-ended questions were employed under this research instrument. The interview schedule was organised into five sections.

The first section was on the background characteristics of the respondents in relation to the sampling frame (list of households). Some of the issues captured under the section were educational level, occupation, monthly income and SWM mechanisms used in the households. Section two was on the contractual arrangements between residents and the partners in SWM. The section considered issues such as having formal contractual arrangement with private entities to manage solid waste, mode of entering into such agreements, payment for SWM services, amount of money paid for SWM services in a month, person(s) responsible for fixing fees and charges for SWM, and participation in the fixing of fees and charges in SWM. The third section was on the quality of SWM services provided by the partners.

The SERVQUAL model by Parasuraman *et al.* (1985) was adopted to assess the quality of SWM service through PPP. The SERVQUAL model is a

five-point Likert scale type of questions used to assess the quality of service delivered by an entity to people. It included satisfaction with the frequency and timeliness in waste collection as well as issues on reliability, assurance and empathy. Section four was on the challenges faced in SWM through PPP arrangements. The final section, five, was on the sustainability of PPP in SWM. Some of the issues considered under the section were residents' willingness to continue to use the partnership for SWM, having alternatives to the current system for SWM, and willingness to continue to pay, if fees are increased in the short-to-medium term.

Pre-testing

The research instruments were pre-tested in the Accra Metropolitan Area. The AMA was selected because it had similar characteristics such as the CCMA and STMA. Thus, they all fall within the coastal regions of Ghana with similar waste issues such as untidy beaches and fish waste. With the pre-testing exercise, the Accra Metropolitan Area was organised under three residential classes (high, medium and low) depending on the average monthly income of the residents. Roman Ridge and East Legon were selected from the high-class residential area, Dansoman and Lapaz were selected for the medium-class residential area, whereas Old Fadama and Mamobi were selected for the low-class residential area. Out of the 60 (10 for each community) interview schedules prepared, 51 were administered, signifying 85 per cent of the expected number.

The management and staff of Nabok WMC Limited were also interviewed, while representatives of the various structures in waste

management delivery and contract issues under the Accra Metropolitan Assembly, as described under the population of the study, were also interviewed. Lessons and experiences from the pre-testing exercise were used to restructure and improve the research instruments in terms of the length of time used in administering them, clarity of questions, and the necessity of questions in line with the research objectives. Suggestions from the policy makers and implementers of the PPP arrangements on SWM were also used to enhance the validity of the research instruments. A Cronbach alpha test was used to test for the reliability of the Likert scale adopted for the study. From the analysis on the pre-test data, a Cronbach alpha score of 0.743 shows that the scale could explain about 74.3 per cent of the variables being measured, which further implied that it was reliable.

Methods of Data Collection

The study used interviewing, observation and FGD as methods for collecting data. Interviewing involves the act of engaging participants in a research study by asking pre-design and probing questions and recording their answers as data to be processed for critical analysis and establishing relationships to establish trends that provide scientific explanation to social reality. In the application of interviewing as a data collection tool, the researcher engaged the institutional representatives and residents in the households by asking them some sets of questions and recording their answers as data for analysing the sustainability of PPP in SWM in Ghana. Interviewing was used because some of the respondents were perceived as illiterates who could not read, understand and independently administer the research

instruments. In addition, interviewing as a data collection tool was used to ensure high response rate in the data collection process.

Observation is a method of data collection in which researchers observe naturally occurring situations within a specific research field (Bryman, 2012). It was used to observe the current waste management situation within CCMA and STMA. FGD was also used as a tool for gathering data. It involves the interviewing of a group of people over a common issue. It was adopted for the study because the researcher was interested in the corporate response of Assembly members of the Social Services sub-Committee under the Metropolitan Assemblies in respect of policy formulation, implementation and management of the PPP in SWM.

Fieldwork

The secured ethical clearance (see Appendix H) from the University of Cape Coast (UCC) Institutional Review Board and the introductory letter (see Appendix I) from the Institute for Development Studies (now School for Development Studies) aided the data collection process. The ethical clearance ensured that the study and its methodological processes did not cause any discomfort or harm to the research subjects by respecting their consent of participation (see Appendix J), confidentiality of responses and anonymity of their personality. The introductory letter from the Institute stipulated the title for the study, purpose and the name of the researcher. This aided the introductory processes in the data collection process.

The researcher employed the services of six research assistants to aid the data collection. They were trained in the expected conduct of an

interviewer, and observation of protocol in data collection. They were also taken through the research instruments for common understanding and interpretation. During the data collection, the research team reported to the Metropolitan Planning Offices, and introduced themselves and the purpose of the study. With the aid of the introductory letter, the research team was directed to the appropriate representatives of the various departments that made the institutional respondents of the Assemblies. The research team introduced themselves to the representatives and the purpose of the study. They sought their consent to participate in the study and scheduled interview dates to engage them. The research team honoured the appointment dates of the representatives of the Assemblies and interviewed them. The process was repeated until all the representatives under the Assemblies and WMCs were interviewed.

The research team proceeded to the Presiding members of the two Assemblies. They facilitated the organisation of the Assembly members under the Social Services sub-Committee for FGD to be held. At the WMCs, the research team reported to the offices of the General Managers. After observing the necessary protocol, the appropriate officers assigned to the research team to team to engage with them. The interviews were done with the assigned officers. The assigned officers also facilitated the organisation of the workers' union heads for FGDs.

With the interviewing of household heads, the research team reported to the Assembly members of the selected communities. The researcher introduced the team and the purpose of the team to the Assembly members. The Assembly members facilitated data collection process by announcing to

the community members through their information centres and also assisting the research team to identify the sampled household heads. Upon the identification of the household heads, the research team introduced themselves and the purpose of the study to them. The research team sought their consent to participate in the study. The interviewing was done following their agreement to participate in the study. The process was repeated until the research team exhausted all the household heads in the pre-determined sample. The fieldwork was organised between 3rd September, 2018 and 30th November, 2018.

Field Challenges

Some of the field challenges encountered during the data collection exercise were rescheduling of appointments with the institutional representatives due to their busy working schedules, and delays in securing the consent of representatives from some of the WMCs. There was also unavailability of records at the various health and sanitation related institutions on the financial savings made over the years as a result of the PPP in SWM for managing sanitation-related diseases. The representatives had to recollect some of the data. Such records were necessary for analysing the economic viability of the partnership through Economic Rate of Returns (ERR).

Additionally, the households did not have records on financial savings made on healthcare treatment as a result of improved sanitation. The respondents had to recollect some of such financial savings which may not be the true reflection of the issues. The other challenges were difficulties in identifying some of the households, long distances between the sampled

households in a community, and scepticisms from some of the respondents about the data exercise.

Ethical Consideration

Ethical issues considered by the study included anonymity of respondents, confidentiality of information, and seeking participants' consent to participate in the study. As a result, data were not gathered on the personal identity of the respondents in terms of names, house numbers, and office portfolios. Similarly, data reference were not linked to area jurisdiction of Assemblypersons and particular office portfolios of institutional representatives. Permission was sought from the participants for both manual and electronic recordings during the interviewing and FGDs. The study also secured an ethical clearance form from the UCC Institutional Review Board to ensure that the study could not cause any discomfort to the research participants during and after their engagements.

Data Analysis

The qualitative data from the institutional respondents were transcribed. Narrative enquiry or narrative analysis was used to analyse the qualitative data. According to Holstein and Gubrium (2012), narrative analysis is a method of qualitative research that involves the collection of stories, conversations and interviews from the research subjects, and establishes trends and relationships between their experiences and the occurrence of a social phenomenon. Thus, the responses from the institutional respondents were considered as narratives.

The Labov's thematic synchronic organisation under narrative analysis (as cited by Holstein and Gubrium) was used to analyse the qualitative study. This requires the organisation of research data in the form of narratives into themes and sub-themes to analyse trends, draw implications on social reality and associate the findings to existing knowledge or literature to explain social phenomena. Synchronic thematic organisation enables researchers to track the extent to which an objective has been addressed. The data were organised under themes and sub-themes. The broad themes were in line with the research objectives, while the sub-themes were issues under the main themes. Trends and relationship were analysed to explain the sustainability of PPP in SWM.

The quantitative data from the residents were processed with the Statistical Product for Service Solutions (SPSS) version 21 and Microsoft Excel 2013 Professional Edition. Descriptive statistics such as frequencies, percentages, means and standard deviations were used to analyse the data. Inferential statistics such as independent sample t-test and Mann Whitney U-Test were used to analyse significance of difference on issues between the two Metropolises. Chi square test of independence was also used to test for significance association between the variables. The choice of the inferential analytical tools was informed by the normality of the distributions. An error margin of five per cent was used for all inferential analyses. Table 9 shows details of the analytical techniques and tools for the research objectives.

Table 9: Summary of Framework for Data Analysis

Research objectives	Sources of data	Types of data	Techniques of analysis
Contractual arrangements between the public and private sectors for SWM	<p><i>Primary data:</i> MCDs; BFOs; EWMDs; WMCs; Residents</p> <p><i>Secondary data:</i> Contract documents</p>	<p>Quantitative;</p> <p>Qualitative</p>	<p>Document review;</p> <p>Narrative analysis;</p> <p>Descriptive statistics; and</p> <p>Independent sample t-test</p>
Quality of SWM service through PPP	<p><i>Primary data:</i> Residents; EWMDs; MPOs; MCDs; WMCs; Workers of WMCs; Assembly members</p>	<p>Quantitative;</p> <p>Qualitative</p>	<p>Narrative analysis; and</p> <p>Descriptive statistics</p>
Level of sustainability of PPP in SWM	<p><i>Primary data:</i> Residents; EWMDs; MPOs; MCDs; Assembly members; Workers of WMCs</p>	<p>Quantitative;</p> <p>Qualitative</p>	<p>Narrative analysis;</p> <p>Interest analysis;</p> <p>Descriptive statistics;</p> <p>Chi-square test of independence and Mann Whitney U-Test</p>

Source: Author's construct (2018)

Summary of the Chapter

The study adopted the mixed method research approach and evaluative, ex post facto and descriptive study designs. A total of 812 respondents were sampled from a population of 185,694. Purposive and stratified random sampling techniques were used to sample respondents for the study. The study used interview, FGD and observation guides, and interview schedule as instruments for gathering data. The quantitative data were processed with Statistical Product for Service Solutions version 21. The data were analysed using descriptive and inferential statistics. Narrative analysis was used to analyse the qualitative study.



CHAPTER FIVE

CONTRACTUAL ARRANGEMENT BETWEEN THE PUBLIC AND PRIVATE SECTORS FOR SOLID WASTE MANAGEMENT

Introduction

Contractual arrangements between public and private sector players in SWM are crucial to guide the effective execution of PPP agreements by ensuring that the interests of each stakeholder are adequately represented and addressed. The contractual arrangements provide standards and benchmarks for measuring or assessing the effectiveness and sustainability of PPPs in the management of a public good. This chapter discusses the contractual arrangements between the public and private sector stakeholders in the management of solid waste in the Cape Coast and Sekondi-Takoradi Metropolises. The analysis of the contractual arrangements was preceded by a description of the background characteristics of the respondents.

Background Characteristics of Respondents

This section describes the background characteristics of the respondents. The background description focused on the household heads who were responsible for the payment of the SWM services provided by the private sector and also front the contractual arrangement with WMCs. The focus on the household heads emanated from a hypothesis that the background characteristics explain the choices of household's SWM practices, amount willing to pay for the management of solid waste, and willingness to continue to subscribe to a particular SWM practice to ensure sustainable partnership in the sector (Amritha & Anilkumar, 2016). Some of the issues considered under

the section were sex, age, occupation, and level of education. The results on the background characteristics of the respondents are presented in Table 10.

Table 10: Background Characteristics of Respondents

Characteristics	Categories	CCMA (%)	STMA (%)	Total (%)
Sex	Male	252 (67.0)	233 (62.3)	485 (64.7)
	Female	124 (33.0)	141 (37.7)	265 (35.3)
	Total	376 (100.0)	374 (100.0)	750 (100.0)
Age (years)	19 – 25	17 (4.5)	–	17 (2.3)
	26 – 50	235 (62.5)	264 (70.6)	499 (66.5)
	51 – 60	55 (14.6)	64 (17.1)	119 (15.9)
	Above 60	69 (18.4)	46 (12.3)	115 (15.3)
	Total	376 (100.0)	374 (100.0)	750(100.0)
Level of education	None	–	22 (5.9)	22(2.9)
	Basic	128 (34.0)	62 (16.6)	190(25.3)
	SHS	79 (21.0)	114 (30.5)	193(25.7)
	Tertiary	169 (55.9)	176 (47.1)	345(46.0)
	Total	376 (100.0)	374 (100.0)	750(100.0)
Monthly household income (GH¢)	Below 1000	158 (42.0)	136 (36.4)	294(39.2)
	1000 – 2000	105 (27.9)	51 (13.6)	156(20.8)
	2001 - 3000	32 (8.5)	5 (1.3)	37(4.9)
	3001 – 4000	59 (15.7)	44 (11.8)	103(13.7)
	4001 – 5000	11 (2.9)	85 (22.7)	96(12.8)
	Above 5000	11 (2.9)	53 (14.2)	64(8.5)
Total	376 (100.0)	374 (100.0)	750(100.0)	

Source: Field survey (2018)

Table 10 showed that the majority (64.7%) of the respondents were males, while 35.3 per cent were females. This was due to the fact that males socio-culturally assume the leadership or headship role in the households in Ghana. The majority (66.5%) of the respondents were within the economically active age cohorts. The mean age of the respondents was 39.3 years with a standard deviation of 13.4. Table 10 further showed that the majority (97.1%) of the respondents had received some level of formal education. This was important as Alam and Ahmade (2013) emphasise that people with high levels of education appreciate the need for improved sanitation practices and would demand for improved service quality in any PPP arrangements to ensure that their interests are met. With respect to the monthly household income of the respondents, the table showed that 39.2 per cent of the respondents earned below GH¢1,000.00. The mean income of the respondents was GH¢1,873.60 with a standard deviation of 136.3. Piippo *et al.* (2015) report that the determination of sanitation cost in PPP should be in relation to the average incomes of people who will benefit from the system.

Contractual Arrangements between Public and Private Sector Players in Solid Waste Management

Analysing the contractual arrangements between public and private sector stakeholders in SWM is deemed important to ascertain the extent to which the interests of all the major actors were represented, and mechanisms for checks and balances to guarantee the smooth implementation and the delivery of quality services. According to Mutandwa and Zinyama (2015), the sustainability of any partnership largely depends on the kind of contractual

arrangements that bind the various parties as well as the effectiveness in the activation of rewards and sanction systems to ensure that the contract is executed as planned. The analysis of this objective was organised under the following major themes: processes of selecting private sector stakeholders to partner public sector stakeholders for SWM, monitoring and sanction mechanisms to ensure compliance in the partnership, and processes of fixing fees under the PPP contract in SWM.

Processes of selecting private sector stakeholders to partner the public sector in solid waste management

This section described the processes leading to the formulation of the contract to guide the partnership for SWM in the two Metropolises. It also included the level of stakeholder participation in the preparation of the contract to ensure that the needs of the major actors were factored into the agreement to sustain their interests in the partnership. According to Liu *et al.* (2015), examining the processes in selecting private sector players in PPP arrangement is crucial in evaluating the effectiveness of using PPP to address a public problem. The authors assert that objectivity, transparency, cost effectiveness, and fairness are some of the elements that should be considered in the process of contracting private sector companies for public activities.

The study found that the decision to engage the private sector in SWM emanated from a change in the policy direction of the government in 2006, following pressure from the World Bank and IMF to allow for greater private sector participation in SWM in the country. The representative of EWMD at STMA attributed the change in policy direction of the government in SWM to the increasing rate of waste generation across cities, high cost burden on the

government's SWM, delays in waste collection from MMDAs due to use of obsolete equipment, and the negative impact of the poor waste management system on the health of the populace. This suggests that the government's invitation to the private sector to participate in SWM was borne out of a genuine need or concern and pressure from development partners.

The representatives of MCD at both STMA and CCMA reported that the government through the MOFEP and MLGRD entered into PPP arrangement with Zoomlion Ghana Limited in 2006 on behalf of the Assemblies, subject to renewal every four years based on the quality of service delivery. All the MMDAs were made to sign the agreement to allow for the operations of Zoomlion Ghana Limited. The renewal clause, which was pegged to the quality of performance, was imperative to ensure that the private sector participation delivers to meet the needs and expectations of the MMDAs. However, none of the Assemblies had ever failed to renew the contract of the company, suggesting it is performing to meet the expectations of the Assemblies. Nonetheless, representatives of EWMD from both Assemblies admitted that Zoomlion Ghana Limited is the biggest WMC in the country and mostly sets the standards for the other companies to meet.

Both representatives of FBOs from the two Assemblies indicated that the Assemblies did not participate in the initial agreement with Zoomlion Ghana Limited. The top-down approval of the PPP agreement at the national level meant that the citizenry and other local stakeholders did not get the opportunity to participate in the preparation of the contract, which could affect people's appreciation about the tenets of the contract, and their ability to demand improved services from the private sector. It implies that transparency

in the contract process was not ensured and other stakeholders' interest may not be represented and/or maximised as suggested by the public choice theory. According to Lang (2016), the citizenry is the direct beneficiary of all PPP arrangements and, as such, their neglect or non-consultation in the preparation of such contracts could cripple them from demanding accountability from state and private actors as well as monitor the quality of service delivery from the system.

The representative of the EWMD at STMA stated:

The whole thing started in Accra and all the Assemblies appended their signature. However, the sub-metro contract was awarded through competitive bidding.

The representative of Zoomlion Ghana Limited reported that it was the only WMC with the capacity to assume national coverage at the time, hence the decision by the government to enter into a national agreement with the company. The MCD at CCMA added that since the overall plan with Zoomlion Ghana Limited was approved at the national level, there was no way any of the Assemblies could have rejected the bid from the company. The implication is that the PPP arrangement did not consider competition among private sector actors at the beginning, which could have affected the cost of purchasing the service. The representative of FBO at the CCMA asserted that the cost could have been high in relation to the scope of work then, however, there was no alternative or reference point to do such a comparison. According to the theory of public choice theory, there are information asymmetries between the private sector and the public sector, and as such, there is the high

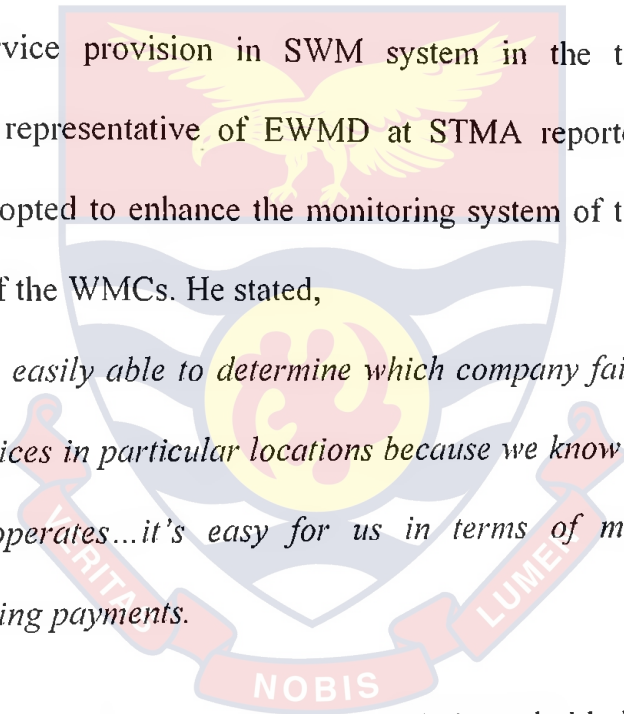
likelihood of the private sector could capitalise on that to charge exorbitantly (Liu *et al.*, 2015).

To help promote competition in SWM, the representative of the EWMD at STMA reported that the Assemblies were subsequently directed to use competitive bidding processes to select their WMCs. This enabled the Assemblies to engage other private sector companies in waste management services. The CCMA, through this directive, further engaged the services of Alliance Waste Company Limited as an additional WMC, while STMA engaged the services of Waste 360, and Deloved WMC. The study found that the selection and awarding of contracts to these WMCs were done through competitive bidding. The criteria used by both Assemblies in the selection of WMCs were inspection of insurance policy to cover one's operations, bank statement indicating the financial health of the company, physical inspection of the types and number of waste management equipment owned or available to the companies, service charges of the companies, and previous experiences of the companies in waste management services.

According to the MCD of CCMA, these criteria, as enshrined in the Public Procurement Act 2003 (Act 663), are employed to examine the capacity of the applicants to effectively execute their mandates. The MCD of STMA also added that the use of such criteria in the selection and awarding of contracts to WMCs is to stimulate competition among the companies to ensure value for money in waste management services by the Assemblies. These show that the Assemblies were very much concerned about the capacity of the WMCs in executing the contract. According to Taylor *et al.* (2017), one of the critical elements in ensuring the sustainability of partnership is that each

partner has the requisite skills, experience and capacity to execute its part in the agreement to guarantee the realisation of each one's stake or interests.

The study, however, found that both Metropolitan Assemblies operated a block contract awarding system, where the metropolises were organised into lots for companies to bid for. The implication is that after awarding a particular lot to a WMC, residents would not have the option of switching from one company to the other when one company is underperforming or not performing to their satisfaction. This block or lot system did not encourage competition among the WMCs in service provision which could affect the quality of service provision in SWM system in the two Metropolises. However, the representative of EWMD at STMA reported that the block system was adopted to enhance the monitoring system of the Assembly over the activities of the WMCs. He stated,



We are easily able to determine which company failed to provide its services in particular locations because we know where each of them operates...it's easy for us in terms of monitoring and approving payments.

From the study, all the sampled household heads from both Metropolitan Assemblies denied being consulted or involved in the contractual process in selecting WMCs for their communities. Considering the critical role that household heads play, as the direct beneficiaries of waste management services in the partnership, their non-involvement in the contractual process could affect the extent to which their interests would be reflected and addressed in the partnership. According to Boardman *et al.* (2016), the involvement of all major stakeholders in the contractual process is

important to ensuring the maximisation and achievement of their interests as well as promoting the sustainability of the partnership. However, the MPO at STMA reported that the Assembly members participated in the contractual process on behalf of their electorates.

Nonetheless, all the Assembly persons at CCMA intimated that they only participated in the agreement to approve the contract between the Assembly and the WMCs. They also could not give detailed specifications about the contract that established the partnership. This showed that the people's representatives were not engaged at the highest level of participation, which could also imply that the Assembly persons could not solicit views and inputs from their electorates, in terms of their interests and ability to pay for the services, and incorporate them into the contract.

The Assembly persons from STMA, on the other hand, asserted that they participated in approving the contracts as well as occasional reviewing of the charges of the WMCs. Thus, the STMA had established a fee fixing resolution committee responsible for approving all fees and charges from the Assembly and any other private organisation performing services on behalf of the Assembly. This enabled the people's representatives (Assembly persons) to have some control over the activities of the WMCs in the STMA to ensure that their fees match up to the quality of their services. This is in consonance with one of the tenets of the public choice theory in PPP arrangements that the public sector should protect the social and economic welfare of its citizenry by ensuring value for money in its decision-making.

The study inquired from the household heads about how they entered into the SWM partnership. Table 11 presents results on household respondents having contractual arrangements with the WMCs to collect solid wastes.

Table 11: Households having Contractual Arrangements with Waste Management Companies

Residential class	CCMA (%)		STMA (%)		Total (%)	
	Yes	No	Yes	No	Yes	No
High	90 (45.0)	43 (24.4)	123 (32.9)	-	213 (37.1)	43 (24.4)
Middle	80 (40.0)	67 (38.1)	204 (54.5)	-	284 (49.5)	67 (38.1)
Low	30 (15.0)	66 (37.5)	47 (12.6)	-	77 (13.4)	66 (37.5)
Total	200 (53.2)	176 (46.8)	374 (100.0)	-	574 (76.5)	176 (23.5)

Source: Field survey (2018)

The majority (76.5%) of the household heads reported to have entered into a contractual arrangement, either formal (written) or informal (verbal), with a WMC (see Table 11). The table shows that, whereas all the household respondents from STMA had some form of agreements with WMCs in the management of solid wastes, a little over half (53.2%) of the respondents from CCMA had such arrangements with WMCs. The study found that all the household heads in CCMA who had contractual arrangements with WMCs were those receiving door-to-door services from the companies. This was because they had entered into private or individual contracts with the WMCs for door-to-door services at a fee. However, the household heads in CCMA using communal skip containers (mostly within the middle- and low-class

residential areas) for dumping their wastes denied having any contractual arrangements with the WMC. The Assembly entered into such agreements on their behalf, and also there was no other obligation on such persons, apart from dumping their wastes into the skip containers, in the agreement. Thus, the contract process did not follow the tenets of stakeholder theory.

In other words, the lack of obligations on some of the household heads in the CCMA made them feel less part of the partnership. The denial of all such respondents in the CCMA about having contractual arrangements with the WMCs suggests that they were not consulted by their representatives at the Assembly during the consideration and approval of such agreements. This could affect the effective implementation and sustainability of the partnership as described by Sorenson and Torfing (2011) in the stakeholder theory that poor knowledge of some of the partners about the tenets of the partnership could affect the effective execution of their roles to sustain others' interests.

With respect to STMA, the study found that the Assembly has adopted a polluter-pays principle, which compels each household to pay for dumping and collection of their household wastes. As a result, respondents who registered for door-to-door services and those using communal skip containers were paying for the services they enjoyed in the partnership. Accordingly, both sets of household respondents from STMA considered themselves as important partners in the SWM partnership, and also felt empowered to negotiate for improved services or reduction in charges. The results imply that the level of obligations on partners and their ability to demand changes in the contract arrangements influence the extent to which they own the partnership.

about the extent to which the contract met their SWM needs (see Table 12). This was important because the extent to which the needs of stakeholders are met helps to sustain their interests in the partnership and perform their assigned roles to keep the partnership (Thorpe & Maestre, 2015). From the table, the majority (82.6%) of the household heads who had contract with the WMCs reported that their needs were highly met in the agreement.

Table 12: Extent to which Solid Waste Management Contract Meets the Needs of Household Heads

Response	CCMA (%)			STMA (%)			Total (%)		
	High	Middle	Low	High	Middle	Low	High	Middle	Low
Low	37 (41.1)	33 (41.3)	15 (50.0)	-	41 (20.1)	9 (19.1)	37 (17.4)	74 (26.1)	24 (31.2)
Don't know	-	-	-	-	10 (4.9)	10 (21.3)	-	10 (3.5)	10 (13.0)
High	53 (58.9)	30 (37.5)	15 (50.0)	64 (52.0)	117 (57.4)	24 (51.1)	117 (54.9)	147 (51.8)	39 (50.6)
Very high	-	17 (21.3)	-	59 (48.0)	36 (17.6)	4 (8.5)	59 (27.7)	53 (18.7)	4 (5.2)
Total	90 (45.0)	80 (40.0)	30 (15.0)	123 (32.9)	204 (54.5)	47 (12.6)	213 (37.1)	284 (49.5)	77 (13.4)

Source: Field survey (2018)

*n = household heads who had SWM contract with WMCs (574)

The majority of respondents from both Metropolises had their needs highly addressed by the contract. This has the potential of sustaining the

partnership as indicated by Caneba (2015) <https://ir.ucc.edu.gh/xmlui> that stakeholders are more likely to remain in a partnership when their needs and interests are largely or fully addressed or reflected in the contract that binds them. From the study, the main concern of the household heads was to have their wastes easily disposed of from their homes. As a result, having designated areas to dump their refuse and frequently lifting the wastes from their vicinities and homes was seen as having their immediate needs addressed through the PPP arrangement.

Monitoring mechanisms to ensure compliance to the public-private partnership contract

The respondents were requested to indicate the monitoring and sanction mechanisms established in the contract to ensure compliance of standards. Boardman and Vining (2012) opine that monitoring and sanction systems are crucial in PPP arrangements to ensure that partners are held accountable for their actions to promote effective implementation of activities. The study found that the EWMD of CCMA had trained field monitors who go round to prepare weekly reports on the activities of the WMCs using monitoring sheets. Information on the weekly monitoring sheet comprises number of staff (sanitation guards) from the WMCs at post on the field, hours they spent working, size of the area, environmental conditions in the communities, and conditions at the communal skip container sites.

Information from the monitoring sheet is used to validate the performance reports submitted by the WMCs to the Assembly for payment purposes. In areas where there are conflicts, both the Assembly and the WMCs resolve them through meetings and sometimes directing the WMCs to

work extra days to make up for the differences before their documents are processed for payment. The above shows that the CCMA has systems in place to ensure that the WMCs operate according to the agreed performance benchmarks. Mostepaniuk (2016) emphasises that proper and effective monitoring system in PPP arrangements is necessary in maintaining a balance between public sector payments and private sector performance.

The STMA, on the other hand, used quarterly meetings with the WMCs to review their performance reports in terms of the number of households one is providing door-to-door services to, number and state of equipment, and financial statement. This suggests that the STMA does not have field monitors to validate the weekly performance reports provided by the WMCs. Thus, the STMA only compared the performance reports to the agreed performance standards to consider approving the activities of the WMCs for payment.

The absence of field monitors to validate the performance reports of the WMCs could create information asymmetries in favour of the WMCs to receive payments for less work done. According to Mostepaniuk (2016), the private sector is more efficient and resourced in information generation and could capitalise on that to benefit unfairly from a partnership with the public sector. The main reasons for the absence of field monitors over the activities of the WMCs in the STMA were increasing cost in SWM, as well as inadequate number and poor state of logistics to enable the field monitors to effectively perform their functions.

The above shows that each of the Metropolises had different monitoring mechanisms to supervise the activities of the WMCs. This is likely

to produce different results in terms of the quality of SWM services provided by the WMCs. The differences in the monitoring strategies could largely be attributed to the differences in the area sizes of the two Metropolises and their inability to develop and resource the sub-decentralised structures such as the sub-metro and zonal councils to perform some of the monitoring functions. The CCMA occupies an area size of approximately 122km², while STMA occupies an area of about 192km².

The relatively large size of STMA implied that the Assembly had to employ the services of more field monitors to weekly validate the performance reports from the WMCs. This was considered as an additional cost to the Assembly which it was not ready to bear. The relatively small size of the CCMA made it possible for the Assembly to engage the services of field monitors to provide direct supervision over the activities of the WMCs. However, in both cases, the study found that the non-involvement of the sub-structures of the Metropolitan Assemblies in providing direct supervision and monitoring over the activities of the WMCs was either adding cost to the monitoring function or making it less robust to validate the information provided by the private sector in the partnership. According to Boardman *et al.* (2016), the onus always lies on the public sector to develop innovative strategies to reduce its cost burden in its partnership with the private sector.

The study further inquired from the respondents about the sanctions available to ensure that each stakeholder performs its functions as agreed. From the study, there were various types and levels of sanctions available to various stakeholders to be applied when others were not performing their roles as expected. The representative of the EWMD at STMA stated,

We first give the WMCs a verbal warning when they fail to perform as expected...We follow it up with official written caution when they still under perform...We later invite them to a meeting to understand their issues and how best we can help them...When we discover that the area load is too heavy for the contractor, then another contractor is added...However, when the problem persists after all the initial cautions and support, we then abrogate the contract.

The above response shows that the ultimate sanction that the Assembly could apply on the WMCs is to terminate the contract. However, lesser cautions were first applied to encourage or compel the contractors to increase their performance at par with the agreed standards. The availability of the various levels of sanctions to the Assembly enables it to keep the private sector players in check to ensure quality of service delivery in the partnership. This was because the representative of the FBO at STMA reported that most of the contractors would not want their contracts to be abrogated and, as such, adopt the suggestions and recommendations from the Assembly. He added,

Unless the contractors have genuine problems, which are mostly finance and logistical constraints, they will not wait for the contract to be abrogated...However, we have had cause to terminate some of the contracts.

The statement confirms the effectiveness of using sanctions to enhance the quality of service produced by the private sector in PPP arrangements. According to Mutandwa and Zinyama (2015), clear sanctions and their firm

applications are required to maintain cohesion in a partnership and also ensure that the envisaged performance quality is achieved and sustained.

The representative of the EWMD at CCMA also reiterated that the Assembly usually sends reports to the local government service to withhold the payments to the WMC when they underperform. This sanction strategy was adopted by the CCMA because it has only Zoomlion Ghana Limited (from which Alliance Waste Company Limited was established) as WMC whose contract was signed at the national level. Thus, Alliance Waste Company Limited is a partner organisation to Zoomlion Ghana Limited and as a result, any punitive sanction could only be applied at the national level. The implication is that the awarding of PPP contracts at the national level limited the capacity of the CCMA to sanction the companies when they failed to perform as expected. This was because the responsibility to apply the sanctions moves away from the local authority, whose jurisdiction the private sector operates and not satisfied with the quality of performance, to a higher entity which might not be under any pressure to apply the sanctions to streamline operations under the partnership.

Eadie *et al.* (2013) opine that a major importance in implementing PPP within the decentralised structures of governance is to ensure greater control in the monitoring and application of sanctions to ensure value for money for the citizenry. Accordingly, the signing of the PPP contract on SWM away from the CCMA has taken part of the oversight responsibility and control of the local authority to the central government which could affect the quality of service in relation to the amount being charged on the Assembly to pay. The representative of the EWMD at CCMA, however, added that

the WMCs mostly would not want such reports to be written about them since it's an indictment on the competences of the managers...As a result, they usually comply, following the initial correspondence.

The statement shows that even though the Assembly does not possess maximum control in the application of sanctions to the WMCs, the performance requirements within the internal operations of the private sector companies compel them to perform to the expectations of the Assembly.

The study further found that the Assemblies could deliberately delay the preparation and submission of the performance reports to the Local Government Service and MOFEP for onward payments to be made to the WMCs. This was confirmed by the representative of Zoomlion Ghana Limited at both CCMA and STMA, which is also considered as a form of sanction to cause the delay of payments to the WMCs. The representative of Zoomlion Ghana Limited at the CCMA stated that, *until we address such differences in performance data, they would not process and forward our documents to MOFEP for payments.* The representative of the MCD of CCMA indicated that such delays are ways for the Assemblies to exert some controls over the activities of the private sector companies operating under the PPP in their jurisdictions.

With respect to the WMCs in relation to the application of sanctions to ensure that other stakeholders adhere to the tenets of the PPP contract, the main sanction against the Metropolitan Assemblies was to suspend operations. The representative Zoomlion Ghana Limited at CCMA indicated,

It is the responsibility of the Assembly to prepare and engineer the landfill site for the WMCs and also ensure that the road leading to the site is good for easy access...However, the road is so bad that we find it very difficult to access the site during the rainy season, thereby affecting our turnaround time and causing significant damages to our vehicles...In protest, we suspend operations to compel the Assembly to do something on the road and site for us.

Such suspensions usually raised agitations among the citizenry which mostly compelled the Assembly to act.

The representatives of the WMCs also reported that subscribers to their door-to-door services in the PPP arrangements are sanctioned by not lifting their refuse. This sanction is applied when individuals fail to pay for the services for three months. The representative of Deloved Company Limited added that most of the defaulters comply by making payments immediately the company fails to lift their refuse. This shows the level of effectiveness of the sanction in compelling the citizenry to abide by the principles in the PPP contract.

The study also inquired from the household heads about the strategies they use or their reactions to cause other stakeholders in the PPP to act as planned. The results are presented in Table 13. The results show that the majority (62.7%) of the respondents did nothing when the WMCs failed to collect their solid wastes on scheduled or as planned, while 19 per cent complained to the WMCs. The above showed that the household heads had no punitive sanction system to be applied to compel the WMCs to perform up to the standard agreed on. This was because they did not know of any sanctions

Table 13: Reactions by Household Heads when Wastes are not collected on Schedule

Response	CCMA (%)	STMA (%)	Total (%)
Nothing	156 (78.0)	204 (54.5)	360 (62.7)
Complained to Assembly person	–	84 (22.5)	84 (14.6)
Complained to WMCs	44 (22.0)	65 (17.4)	109 (19.0)
Demand explanation from WMCs	–	21 (5.6)	21 (3.7)
Total	200 (76.5)	374 (23.5)	*574 (100.0)

Source: Field survey (2018)

*n = household heads who had SWM contract with WMCs

According to Boardman *et al.* (2016), the highest sanction available to consumers of any service is their ability and flexibility to switch from one provider to the other. However, the block system, where areas are assigned to particular WMCs, had failed to promote local competition among the WMCs where subscribers could easily switch from one company to the other. In other words, the lot system did not create alternatives for individuals to switch from

one service provider to the other. <https://ir.ucc.edu.gh/xmlui>
© University of Cape Coast. They are not satisfied with their service provision. As a result, any time the WMCs failed to perform as expected, individual subscribers had nothing to do than to wait or complain to their Assembly members. The Assembly person from East Tanokrom reported that whereas the WMCs had the capacity to sanction individual subscribers to their services when they failed to pay for their services, the subscribers did not have such luxury to also hold them to task or be accountable. He added,

when they fail to lift our refuse for a week or two, we cannot deduct it from their payment...but when we generate more than the 240ft of waste in a week, the workers demand additional money before lifting them...and when we fail to make payments for some time, they will cease to empty our bins.

The statement showed that the application of sanctions in the PPP contract for SWM is skewed against the citizenry. This could create tension between the citizenry and the WMCs.

Processes of fixing fees under the public-private partnership contract in solid waste management

Fee fixing under PPP arrangements has been identified as a critical element which when not managed properly could cause some stakeholders or partners to lose confidence in the system. Pap *et al.* (2014) suggest that fee-fixing processes under PPP should be transparent by engaging all major stakeholders to agree and justify the need for the charged amount, while fixing the fee amount, frequency or rate of payment and the mode of payment should be guided by the socio-economic characteristics of the payee. As a result, the

respondents were requested to indicate the amount they paid for SWM services under the PPP, control over the fee fixing process, and role in fee fixing. Table 14 presents the amount paid as fees by the household respondents for SWM services under the PPP arrangements in the Metropolises.

The table shows that the mean monthly fees paid for waste collection services in CCMA was GH¢15.07 (stdv. = 14.26), while that of the STMA was GH¢20.08 (stdv. = 7.48). Even though the mean monthly payment for waste collection services in the STMA was higher than the CCMA, the modes in the table create a different scenario with household heads in the CCMA (GH¢30.00) mostly paying higher monthly fees than those from the STMA (GH¢20.00). This was because quite a significant proportion (46.8%) of the household heads from CCMA was not paying waste collection services. The implication was that most of the household heads from CCMA were paying higher monthly fees for waste collection services than those from the STMA.

Table 14: Amount Paid as Fees for Waste Collection in a Month

Metropolis	Freq.	Mean	Stdv.	Median	Mode
CCMA	376	15.07	14.26	25	30
STMA	374	20.08	7.48	20	20
Total	750	17.57	11.66	20	30

F-statistic = 994.0 df = 748 p-value = 0.001

Skewness = -0.42 (CCMA = -0.09; STMA = 0.05)

Source: Field survey (2018)

From the table, a skewness value of -0.42 showed that the distribution was normally skewed (i.e. within +/-0.5). As a result, an independent sample

t-test was used to assess the statistical significance of difference between CCMA and STMA in relation to the amount of fees paid for waste collection services. A p-value of 0.001 (F-statistic = 994.0; df = 748) in relation to the error margin of 0.05 showed that there was a statistical difference in the mean monthly fee payment for waste collection services between CCMA and STMA. This was because the p-value of 0.001 was within the acceptable margin of error of 0.05, which suggests that the observed difference in the mean monthly payments between CCMA and STMA was statistically significant. In other words, household heads from the STMA paid significantly higher mean monthly fees for waste collection than those in the CCMA.

This was attributed to the absence of the polluter-pays principle in the CCMA and the resultant lack of financial obligations on some household heads towards waste collection services. The study found that all the respondents from the CCMA who used communal skip containers and did not have any direct contractual arrangements with the WMCs were not financially accountable to benefiting from the waste management partnership. The Assembly paid on behalf of such households. Consistent with the findings of Abalo *et al.* (2018), this was increasing the Assembly's budget on sanitation and as a result, was unable to deploy more skip containers to effectively collect waste from communal sites in the Metropolis.

The representative from the EWMD at CCMA indicated that increasing cost of sanitation was making it a disincentive for the Assembly to deploy more communal skip containers in some areas and communities for effective waste management services. This system could affect the quality of

service to be delivered from the PPP arrangement as well as pose a major threat to the sustainability of the partnership in the CCMA as argued by Boardman and Vining (2012) that high financial, regulatory and technical burden on a single major stakeholder in PPP arrangement is a source for reducing the effectiveness of the partnership in delivering on its mandate to the satisfaction of all stakeholders and also a threat to the continuous bonding among partners.

According to Osei-Kyei and Chan (2015), fee determination in PPP arrangement is a function of a number of factors, including the relative bargaining powers of each of the stakeholders in fee negotiations, and cost of operations of the private sector. As a result, the study inquired from the respondents about the mode of determining fees in the PPP arrangement for SWM in the two Metropolises. The study found from the interactions with the institutional representatives of the STMA that the Assembly had Fee Fixing Resolution Committee responsible for fixing all fees and charges in the Metropolis, including fees for the WMCs. The agreed fees had to be subjected to debate during the General Assembly with the people's representatives.

The Assembly persons represented their electorates in fixing fees under the PPP arrangements. The responsibility at this point relied on the Assembly members to engage their electorates about the amount they were willing to pay. However, the study found that some of the Assembly persons failed to solicit views from their electorates about the determination of fees for waste collection services. The engagement of multiple stakeholders in PPP arrangements in determining fees for waste service delivery is likely to increase transparency in the fee fixing process. According to Fombad (2013),

transparency in fee fixing in PPP arrangements is essential in ensuring the sustainability of the partnership, as it promotes useful engagements for stakeholders to interact to address their differences.

Although the CCMA also had a Fee Fixing Resolution Committee in place, the Committee did not determine the amount to be charged as fees for door-to-door waste collection services in the Metropolis. The WMCs had the sole responsibility of determining such fees in the Metropolis. This could explain the reason for the high monthly fees for waste collection services by most of the household heads in the CCMA as compared to that of the STMA. De Schepper *et al.* (2014) emphasise the fundamental aim of the private sector in PPP arrangement is to make profit from the system, and it is the responsibility of the state agency to check this motive and ensure that the public is not overburden with high fees and charges that will discourage them from continuously subscribing to the services provided by the partnership. This could also increase the gap between the rich and the poor. The representative from Zoomlion Ghana Limited at the CCMA stated,

The resistance is always high at the initial stages anytime we increase our charges...Some clients discontinue using our service, while others suspend our operations for some time because of the change in fees...but in the long run, they mostly come back.

The narrative agrees with the assertion of Pap *et al.* (2014) that the lack of participation in fee fixing processes in PPP is a recipe for collapsing the partnership. The greater role given to the private sector without any public control in the determination of fees in a PPP arrangement could cause some people to lose interest in the partnership. From the study, some of the

aggrieved persons resumed receiving services from the WMCs, following the unilateral increase in the waste collection fees due to the block allocation system, which did not encourage competition. Thus, the block allocation system, where WMCs were given specific allocations in the Metropolises, defeated the basic argument of the neoliberal theory of driving down prices due to increasing competition from private sector participation in the delivery of public services.

The study found that the WMCs had classified communities in the two Metropolises into three classes i.e. high, middle and low. This classification was used to determine fees for household heads living in communities within the categorisations. It was found from the STMA that households living in high class communities paid GH¢30.00 as monthly fees for waste collection services, while those living in middle and low class residential areas paid GH¢20.00 and GH¢10.00, respectively. In addition, household heads using communal skip containers in the STMA were paying an average of 50 pesewas per container of refuse. This was largely driven by the polluter-pays principle, thus making citizens more responsible for their waste generation and also relieving the Assembly from making such payments on their behalf.

On the other hand, residents living in high-class residential areas in the CCMA paid GH¢30.00 and those living in middle-class residential communities paid GH¢25. The WMCs, however, did not provide door-to-door services for persons living in low-class residential areas in the CCMA. The representative of Zoomlion Ghana Limited in CCMA reported that it was not financially viable to operate in such communities at reduced monthly charges. This argument is in line with the neo-liberal theory that the private sector is

profit-oriented and is less encouraged to invest in sectors of public concerns, which are not financially viable (Brown, 2015). As a result, households living in low-class residential communities in the CCMA relied on communal skip containers provided and paid for by the Assembly, which corroborates the assertion of Lang (2016) that the state has to deliberately intervene in critical sectors which do not attract private sector capital to promote social cohesion and development.

The use of residential categorisation for the payment of waste collection services was to promote fairness in the fee fixing and payment process. This was important because Liu *et al.* (2015) assert that fairness should be a major consideration in any fee fixing processes to promote compliance. However, the study found that households in such residential classes did not have uniform income levels, which implied a low income earning person living in a community classified as a high-class residential area had to pay fees meant for the high-income earners. As a result, some of such household heads complained about the use of residential classes to determine fees for waste collection services.

The effects were that, while some were compelled to pay for fees meant for the high-income earners, others had to either create their own dumpsites in their homes and burn the refuse or commute long distances to low-class residential areas to dispose of their solid wastes. This situation created environmental and sanitary challenges in some of the high-class and middle-class residential areas as some household heads complained about the public nuisance created through the creation of household dumpsites and burning of refuse in their vicinities. The result suggests that the use of

residential classification at Cape Coast. <https://ir.ucc.edu.gh/xmlui> measure for promoting fairness in the fee paying process in the PPP arrangement in the two Metropolises was not refined enough to target subscribers with the fees they deserve.

However, the lack of such accurate data on the monthly earnings of households in the country to target different categories of people in the society with particular fees and tax policies implies that the low-income earners will continue to suffer with the current strategy. The representative of Zoomlion Ghana Limited at STMA reported that New Takoradi hosts many wealthy individuals, but the area is classified as a low-class residential area by the Assembly and, as such, subscribers to door-to-door waste management services pay GH¢10.00 which most of them default as well. This implies that the lack of appropriate data for fair levying in the PPP arrangement affected both the service providers and service users. The on-going registration of the national identification exercise in the country could, therefore, be an important record to target the particular fees and tax policies to various categories of income earners irrespective of their residential class status in the two Metropolises.

Table 15 presents results on the views of the household heads about the mode of determining amount to be paid as fees for waste collection services. The majority of the household heads in both STMA (63.6%) and CCMA (53.2%) reported that fees for waste collection services was determined by the WMCs. Quite significant proportion (46.8%) of the household heads in the CCMA reported that they were ignorant about the stakeholders determining the fees for waste collection services in the Metropolis.

participated in the fixing of fees in the two Metropolises. Considering the important role of the household heads in the sustainability of the entire partnership, their continuous relegation from the fee fixing processes poses a serious threat to the continuous functioning of the PPP in SWM in the two Metropolises. The implication is that the household heads who are the ultimate beneficiaries of the waste management services delivery from the PPP arrangement did not have any control and played no role in the fee fixing process. According to Bal *et al.* (2013), PPP arrangements mostly breakdown when some significant stakeholders feel that they do not have the necessary authority to cause change or control some processes to ensure that their interests in the partnership are met.

Table 15: Stakeholders Determining Amount to be paid as Fees for Waste Collection Services

Response	CCMA (%)	STMA (%)	Total (%)
Don't know	176 (46.8)	-	176 (23.5)
Assembly	-	136 (36.4)	136 (18.1)
WMC	200 (53.2)	238 (63.6)	438 (58.4)
Total	376 (100.0)	374 (100.0)	750 (100.0)

Source: Field survey (2018)

One of the Assembly persons in the CCMA indicated that low participation of the citizenry in the PPP processes could be attributed to their poor initial engagement about the role of citizens in the entire partnership.

Thus, the initial processes were largely focused on measures to get rid of the solid wastes from the communities to improve environmental sanitation and reduce infirmity associated with poor sanitation. This is in consonance with the assertion of Middlemiss (2014) that the initial conceptualisation of PPP arrangements is crucial in ensuring sustainability. Another Assembly person from STMA reported,

I represent nine communities as an Assembly member with different sanitation problems...I found it very difficult to engage my electorates on fee-fixing discussions at the Assembly because we are not remunerated in any way to enable us perform such roles...everything is money.

This shows that the size of the electoral areas of some of the Assembly members makes it a disincentive to engage their electorates on critical issues relating to SWM in the PPP arrangement.

Summary of the Chapter

Contractual arrangements between public and private sector players in SWM are critical to guide the effective execution of PPP agreements by ensuring that the interests of each stakeholder are adequately represented and addressed. It is deemed important to ascertain the extent to which the interests of all the major actors were represented, and mechanisms for checks and balances to guarantee the smooth implementation and the delivery of quality services. The contractual arrangements provide standards and benchmarks for measuring or assessing the effectiveness and sustainability of PPPs in the management of a public good. The chapter discussed the processes of

selecting private sector stakeholders to partner public sector stakeholders for
SWM, monitoring and sanction mechanisms to ensure compliance in the
partnership, and processes of fixing fees under the PPP contract in SWM.



QUALITY OF SOLID WASTE MANAGEMENT SERVICES THROUGH PUBLIC-PRIVATE PARTNERSHIP

Introduction

The chapter assesses the quality of SWM services through the PPP in the two Metropolises. This was central to ensuring the sustainability of the partnership in SWM. The assessment of the quality of service delivery in SWM from the PPP arrangements in the two Metropolises was guided by the SERVQUAL model, which involves the examination of tangibility, assurance, empathy, responsibility and reliability of service delivered through the system.

Tangibility of Solid Waste Management Service from the Public-Private Partnership Arrangement

One of the key determinants of service quality is tangibility. It concerns the physical facilities, equipment, personnel and materials that can be perceived. The study examined the personnel and logistical resources available to the WMCs to effectively execute their roles in the PPP arrangement. This was important because the adequacy of such resources is essential for delivering quality service to stakeholders in the partnership. Thus, the WMCs were asked to indicate the adequacy of their expertise and equipment (machinery) for an effective SWM service. Table 16 presents the results on the personnel availability of the WMCs in the two Metropolises. The table shows that the WMCs had less than the required numbers for all the categories of personnel across the two Metropolises. This is likely to affect the capacities of the WMCs in effectively delivering their mandates in the PPP

arrangements. According to Be et al. (2011), personnel capacity, in terms of adequacy and skills, is an important factor in determining the capacity of business organisations to execute their mandates.

Table 16: Personnel Availability of the Waste Management Companies

Personnel type	CCMA (Number required)		STMA (Number required)		
	Zoomlion	Alliance waste	Zoomlion	Waste	Deloved WMC
Truck drivers	8 (10)	1 (2)	15 (21)	1(2)	1 (2)
Safety officers	1 (2)	-	1 (3)	-	-
Environmental officers	1 (2)	-	1 (3)	-	-
Janitorial staff	10 (12)	2 (2)	29 (42)	3 (4)	2 (4)

Source: Field survey (2018)

The study, however, found that the number of truck drivers and janitorial staff were enough for delivering the daily operations of the WMCs. The main issue was that they needed additional personnel to ensure continuous operations when the regular ones fail to attend to work for various reasons, including sickness and family issues. With respect to safety and environmental officers, it was only Zommlion Ghana Limited which had them. Nonetheless, such roles were given as additional responsibilities to the Human Resource Officers of the company. As a result, the Human Resource Officers of the Zoomlion Ghana Limited in the two Metropolises doubled as safety officers and environmental officers.

WMCs suggests that the WMCs did not consider such personnel as important or core to their operations. The main personnel categories considered as core for the WMCs were truck drivers and janitorial staff. This situation could affect compliance to safety and health standards among some staff of the WMCs. According to Oguntoyinbo (2012), environmental and safety officers are important in waste management services as they help to monitor the quality of work executed by staff as well as monitor the compliance of staff to safety standards and mechanisms in their operations.

The interactions with the union executives of the WMCs revealed that the Human Resource Officer had limited time to perform such monitoring roles to ensure compliance of workers to safety standards. However, they reported that the Human Resource Officers were more concerned about the quality of work done and, as such, they regularly go round to inspect the quality of work executed by staff. The study found that the doubling of the Human Resource Officers as Environmental and Safety Officers was for strategic reasons to have lean staff to reduce cost of operations. This is in consonance with the neo-liberal argument that the operational strategy of the private sector is always designed to minimise cost and increase profit.

This section also examined the equipment availability of the WMCs (see Table 17). The results from the table show that the WMCs were missing out on most of the equipment requirements for effective service delivery in the two Metropolises. The study found that the WMCs needed backups for some of the equipment such as compaction trucks and skip trucks for continuous operations when some of the trucks break down. Some of the Assembly

persons across the two Metros lamented that the frequent breakdown of trucks of the WMCs was a major challenge for the effective service delivery of their mandate in the PPP arrangement. Thus, waste collection services in some areas in the Metropolises had to be suspended any time some of the trucks break down. The absence of backup trucks sometimes frustrates service reliability and quality of service delivery from the WMCs. The implication is that tangibility of service has effect on the reliability of services in the SERVQUAL model. In other words, the elements in the model influence each other to produce the overall quality of service delivery.

Table 17: Equipment Availability of the Waste Management Companies

Equipment	CCMA (Number required)		STMA (Number required)		
	Zoomlion CCMA	Alliance waste	Zoomlion STMA	Waste	Deloved WMC
Skip containers	63 (100)	-	30 (40)	4 (6)	2 (4)
Motorised tricycles	4 (4)	-	8 (12)	-	-
Skip trucks	5 (7)	-	5 (5)	1 (2)	1 (1)
Compaction trucks	3 (5)	1 (1)	5 (6)	1 (2)	1 (1)
Roll-on and roll-off trucks	1 (1)	-	1 (1)	-	-

Source: Field survey (2018)

The study, however, found that the number of skip containers was determined by the Metropolitan Assemblies. This was because the operations of each skip container attracted a cost to the Assemblies. As a result, the

Assemblies [University of Cape Coast https://ir.ucc.edu.gh/xmlui](https://ir.ucc.edu.gh/xmlui) have to make sure that it can accommodate any new skip containers in their budgets before authorising the WMCs to provide skip containers at some points in the Metropolises. It was found that the skip containers were provided for low-class residential areas whose residents could not afford door-to-door services, and public areas such as markets.

Table 17 shows that CCMA had more skip containers than the STMA. This was because the STMA had allowed for more penetration of door-to-door waste collection services even in low-class residential areas, whereas the CCMA had allowed for the use of skip containers in even some middle-class residential areas. The above suggests that budgetary constraints on the Metropolitan Assemblies could also influence the tangibility of service and, for that matter, the quality of service to be delivered by the WMCs in the SWM partnership.

Interactions with the members of the Social Services sub-Committee of the two Assemblies showed that quite a number of the skip containers were in poor state (see Plate 1), while many skip container sites were unkempt. However, the representatives of Zoomlion Ghana Limited from the two Metropolises attributed that to poor handling of refuse by the service users as some deposited their refuse around the containers (see Plate 2) instead of putting them in the containers. The poor state of some of the skip containers was attributed to the high cost in their maintenance and corrosion from sea breeze leading to their swift deterioration.



Plate 1: Deteriorated Communal Skip Containers.

The members of the Social Services sub-Committee acknowledged that the situation was better than before the coming into force of the partnership, which had heaps and mountains of refuse dotted in and around the Metropolises that created awful scenes to both residents and visitors. This positive comparison is likely to help sustain the interests of the people's representatives at the Assemblies in the partnership as described by the public choice theory that actors in partnerships are rational and would work to sustain the agreement when service provision though the partnership helps to address some of their basic challenges that existed prior to the actualisation of the partnership (Velotti *et al.*, 2012).

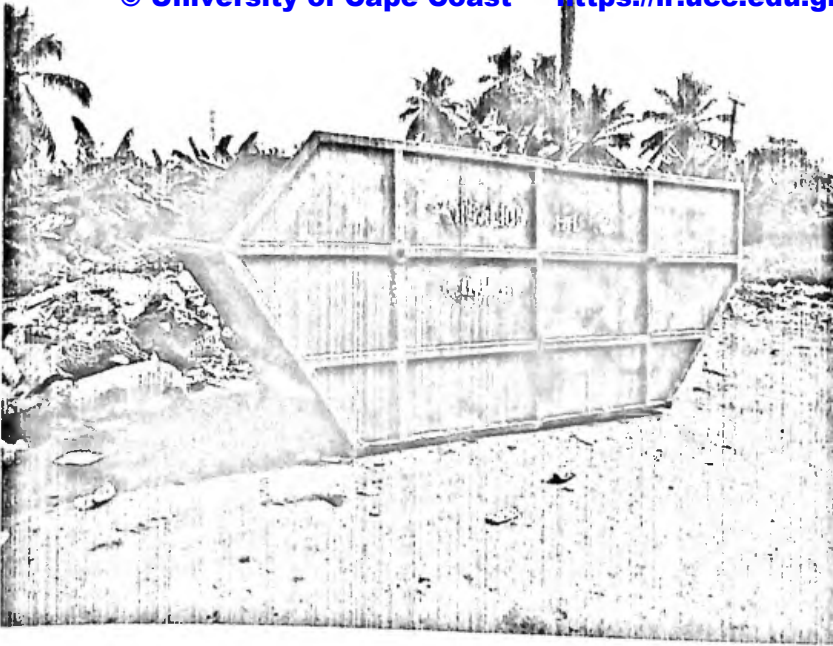


Plate 2: Empty Communal Skip Container with Refuse Around.

The representative of the EWMD at CCMA indicated that the partnership has enabled the Assembly to secure a number of skip containers from the private sector for use, which hitherto had to be purchased from the coffers of the Assembly. This shows that the provision of some waste management facilities had helped to reduce the financial burden on the Assembly in reference to the acquisition of sanitation facilities. However, the representatives of Zoomlion Ghana Limited at both CCMA and STMA complained about the poor usage of the skip containers leading to their quick degradation (see Plate 1) and need for replacement, which adds cost to their operations. The representative of Zoomlion Ghana Limited at CCMA stated,

People dump hot coal and fire elements in the skip containers which sometimes catch fires... We have had to always rush to the scene to salvage the situation anytime we get information about skip containers catching fires which cause the quick deterioration of the containers which are very expensive.

The sand particles from household wastes also act to cause quick deterioration of the skip containers in the Metropolis...They make the containers full when they are not supposed to be and make the load very heavy during lifting...The major problem arises when the site is muddy, making it difficult to lift the containers...The most significant element is the sea breeze which causes the skip containers to corrode quickly...We constantly have to check and perform some repair works on skip containers close to the beaches and their maintenance is highly costly to us.

The above narrations show the frustrations the WMCs face in the maintenance of sanitation facilities in the two Metropolises. Thus, the effective maintenance of such facilities has implications on the tangibility of the service being provided in the partnership. The results suggest that efforts to maintain good or positive tangibility of service in a PPP arrangement is a cost to the private sector. The results also suggested that actions of the citizenry or beneficiaries of the service had serious repercussions on the tangibility of the quality of service provided by the private sector. The implication is that tangibility in service quality in PPP arrangements in SWM has a symbiotic relationship, as the actions of each partner or stakeholder has implications on the conditions of facilities to be used to provide the needed quality of service. This, therefore, requires that intensive education be given to the populace about the appropriate usage of the sanitation facilities for long-term maintenance and improved quality of service.

The study engaged the household heads on the tangibility of service from the WMCs in the partnership (see Table 18). The table shows that the majority of the household heads from both CCMA (71.5%) and STMA (81.6%) were satisfied with the conditions of trucks and facilities used by the WMCs to collect waste. Table 16 further shows that the majority of the respondents from both CCMA (67.5%) and STMA (57.8%) were satisfied with the neatness and safety of personnel of the WMCs in the delivery of their services.

Table 18: Tangibility of Service

Tangibility	Metropolis	VS (%)	S (%)	I (%)	LS (%)
Conditions of trucks and facilities	CCMA	108 (28.7)	161 (42.8)	15 (4.0)	92 (24.5)
	STMA	93 (24.9)	212 (56.7)	15 (4.0)	54 (14.4)
	Total	201 (26.8)	373 (49.7)	30 (4.0)	146 (19.5)
Neatness and safety of personnel	CCMA	132 (35.1)	122 (32.4)	-	122 (32.4)
	STMA	25 (6.7)	191 (51.1)	50 (13.4)	108 (28.9)
	Total	157 (20.9)	313 (41.7)	50 (6.7)	230 (30.7)

Source: Field survey (2018)

Legend: VS = Very satisfied, S = Satisfied, I = Indifferent, LS = Less satisfied

The results suggest that the majority of the household heads had confidence in the personnel and facilities of the WMCs in delivering the expected quality of service from the partnership. Thus, Sarmiento and Renneboog (2016) report that positive perception about the tangibility of

service implies that people have confidence in the personnel and facilities of service providing companies to deliver up to expectations. This is positive for the sustainability of the partnership, as most of the household heads would have the confidence to remain in the partnership for continuous service delivery from the WMCs.

Assurance of Solid Waste Management Service from the Public-Private Partnership Arrangement

Another element in the SERVQUAL model used to measure the quality of service is assurance. This involves the competency and courtesy extended to the users of the service, and the security (trust and confidence) provided by the service providers to the service users. Stafford *et al.* (2011) emphasise that it is essential for service providers to communicate effectively with their service users about changes in service provision and engage them to understand and accept the need for the service change. An Assembly member from CCMA narrated the following:

Personnel from the WMCs do not regard us a bit...Most at times, they don't mind us when we call them about our problems...They only respond promptly when it is coming from the Assembly. The last time, for instance, our skip container had overflowed with spill overs all around at the site, when they came they only lifted the container without clearing the site, creating an awful scene in the area...I called them on countless occasions when my people made complaints to me, but they didn't mind me. The situation was very bad because people living in the area were finding it difficult to contain the stench coming from the refuse. It was until people complained on the media and the Assembly called them before they

responsibility. In an interrogation with the personnel, they said their business is to lift the container not the spill overs.

The above response shows that the WMCs were more responsible towards the Metropolitan Assemblies than the citizenry who are the major service users. This could be attributed to the low participation of the citizenry in the contractual processes. Fombad (2014) states that partners are more accountable to major stakeholders regarding the achievement of their interests in PPP arrangements. In other words, the service beneficiaries had been relegated to become secondary stakeholders in the partnership, with relatively lower level of influence as described by Mutandwa and Zinyama (2015) and Sorenson and Torfing (2011). This situation may not give positive assurance about the commitment of the WMCs in addressing the needs of the service beneficiaries in the partnership.

The main reason for the low regard for the concerns of the citizens may be the lack of competition in service usage, which does not allow the citizens to switch from one WMC to the other. The block system of area allocation to particular WMCs did not encourage competition that would give the ultimate power to the citizens to cause significant changes in SWM service provision in the PPP arrangement. That is, the power of the citizens in PPP arrangements lies in competition with the power and will to change a service provider. The ability of the citizens could cause the service providers, mostly the private sector, to always get along with the citizens in their operations.

Another important aspect of assurance in the SERVQUAL model is cost of service. With this, many of the institutional representatives and Assembly persons reported that sanitation cost to the Assemblies was very

The representatives of the WMCs reported otherwise and insisted that their charges were based on cost of operations. For example, the representative of Zoomlion Ghana Limited at CCMA indicated,

The Assembly pays way below the cost of service provided. The contract is fixed and does not cater for changes in the economy in terms of inflation and cost of fuel and equipment...The last time it was reviewed was in 2013.

The fixed contract system may not enable the WMCs to provide positive assurance to the service users. This is because the economy keeps on changing and, as such, contractual elements had to be adjusted to cater for such changes. However, failure of the major stakeholders to review the contract over a period of five years, would compromise the quality of service delivery by the WMCs. This is because it is out of such contract cost elements that the WMCs invest in their operations to acquire more equipment and facilities to improve the quality of their service delivery to the populace. That is, the financial elements under assurance in the SERVQUAL model has the capacity to influence the tangibility element thus, confirming the assertion that elements in the SERVQUAL model influence each other to produce the overall service quality required from service providers (Sorenson & Torfing, 2011). It also confirms the mutual relationship required among stakeholders to uphold the elements in the SERVQUAL model to achieve the expected quality of service.

The representative of Zoomlion Ghana Limited at STMA also narrated that the Assemblies have limitations in paying for waste management services

because of University of Cape Coast <https://ir.ucc.edu.gh/xmlui>
dependence on the DACF. As a result, the delays in the release of the DACF affect prompt payment of the services of the WMCs by the Assemblies. This sometimes stifles the operations of the small WMCs. Another complaint from all the representatives of the WMCs was non-payment by citizens for waste management services. It was learnt that many of the door-to-door subscribers of waste management services were highly indebted to the WMCs across the two Metropolises. However, the WMCs mostly failed to apply the sanction of not lifting the refuse of such subscribers because of communal sanitary reasons.

The representatives of the WMCs admitted that such delays had significant impact on their operations in terms of paying for the remuneration of workers and acquiring new and improved sanitation facilities for effective service delivery. The Zoomlion Ghana Limited's representative of STMA stated that the Assembly had requested and had been furnished with the names and addresses of such defaulters, but they had not taken any action. The default in payment for waste management services and the continuous inaction by the actors in the partnership pose a threat to the sustainability of PPP arrangement in SWM in the two Metropolises. This is because the high default payment in the PPP agreement stifles growth and development of the private sector players by denying them access to funds for investments. The low level of investments arising from high default payment rate among the service user could also cause negative assurance in the service delivery process.

The study also found that the Assemblies had, over the years, failed to collect dumping fees from the WMCs. It was agreed in the contract that every

load of skip or compaction truck dumped at the final disposal site or landfill site attracts a cost of GH¢30.00. This amount had neither not been reviewed since 2013 nor paid by the WMCs to the Assemblies. Thus, the continuous denial of the Assemblies of financial benefits from the partnership could also affect monitoring and supervisory role to ensure that the private sector players deliver up to their expectations.

The representative of Zoomlion Ghana Limited at CCMA reported that the Assembly had requested business-operating permit to enable it levy taxes on the company for its administrative and supervisory role in the waste management services in the partnership. All the above shows that finances are a major issue in the execution of the PPP arrangement in SWM in the two Metropolises. This is essential since effective financial flow is a requisite for both effective service delivery and the sustainability of the SWM partnership.

The household heads, as the service users and ultimate beneficiaries of the waste management services, were also asked to indicate issues about assurance in the service delivery (see Table 19). From the table, the majority (70.2%) of the household heads from the CCMA were satisfied with the ability of personnel from the WMCs to inspire confidence and trust in them. This was largely attributed to the neatly dressed personnel of the WMCs with safety gears as well as their professionalism in the performance of waste management services. The ability of organisational employees to inspire confidence and trust in customers is necessary in ensuring the acceptance of service standards and to attract new customers to subscribe to the services of the organisation (Singh *et al.*, 2012). The implication is that the trust and

confidence in household heads could translate into continuous subscription to the services of the WMCs to enhance sustainable partnership in SWM.

Table 19: Assurance of Waste Management Service Provision through Public-Private Partnership

t-	CCMA (%)				STMA (%)			
	VS	S	I	LS	VS	S	I	LS
Personnel inspiring trust and confidence								
42 (40.8)	64 (39.8)	-	27 (24.1)	17 (77.3)	41 (36.9)	42 (25.8)	23 (29.5)	
46 (44.7)	59 (36.6)	-	42 (37.5)	-	46 (41.4)	107 (65.6)	51 (65.4)	
15 (14.6)	38 (23.6)	-	43 (38.4)	5 (22.7)	24 (21.6)	14 (8.6)	4 (5.1)	
103 (27.4)	161 (42.8)	-	112 (29.8)	22 (5.9)	111 (29.7)	163 (43.6)	78 (20.9)	
Politeness and courteousness of personnel								
26 (35.6)	53 (35.6)	-	54 (40.0)	51 (71.8)	58 (38.4)	-	14 (9.9)	
47 (64.4)	58 (38.9)	-	42 (31.1)	15 (21.1)	71 (47.0)	5 (50.0)	113 (79.6)	
-	38 (25.5)	19 (100.0)	39 (28.9)	5 (7.0)	22 (14.6)	5 (50.0)	15 (10.6)	
73 (19.4)	149 (39.6)	19 (5.1)	135 (35.9)	71 (19.0)	151 (40.4)	10 (2.7)	142 (38.0)	


Cost of services							
43 (35.0)	-	-	90 (45.0)	7	24 (13.8)	8 (18.2)	84
				(22.6)			(41.0)
67 (54.5)	-	-	80 (40.0)	10	117	36 (81.8)	41
				(32.3)	(67.2)		(20.0)
13 (10.6)	49	4 (100.0)	30 (15.0)	14	33 (19.0)	-	80
	(100.0)			(45.2)			(39.0)
123	49 (13.0)	4 (1.1)	200	58	67 (17.9)	44 (11.8)	205
(32.7)			(53.1)	(15.5)			(54.8)

Source: Field survey (2018)

Legend: VS = Very satisfied, S = Satisfied, I = Indifferent, LS = Less satisfied

The table also shows that the majority of the household heads from both CCMA (59%) and STMA (59.4%) were satisfied with the politeness and courteousness accorded to them by personnel from the WMCs. The results disagree with the earlier submission from an Assembly member complaining about the low level of concern shown by the WMCs to the challenges associated with the overflow of a communal skip container in the CCMA. This is attributed to the fact that the contract on the lifting and handling of skip containers were signed with the Metropolitan Assembly. As a result, the WMCs were more concerned about directives from the Assemblies than from the citizenry.

Thus, Taylor *et al.* (2017) posited that players in PPP arrangements are more critical about concerns of major stakeholders who could cause significant changes in contractual processes. The same argument could be extended to explain why the majority of respondents from both the CCMA

and STMA  <https://ir.ucc.edu.gh/xmlui> University of Cape Coast. The results from the table suggest that personnel from the WMCs show high level of concern about issues raised by the household heads. This was because the contract on the door-to-door services was entered into with the household heads. As a result, any demonstration of insolence could cause some subscribers to abrogate the contract.

The results from Table 19 further show that the majority of the household heads in both CCMA (53.1%) and STMA (54.8%) were less satisfied with the cost of waste management services. The majority of the household heads from the two Metropolises perceived the cost as higher than the value of service being provided. According to So *et al.* (2011), satisfaction about cost of service in the SERVQUAL model is reached when customers place same value on the type of service provision. Thus, customers are satisfied when the perceived value of the service is same or higher than the price being charged for the service and vice versa when the perceived value is lower than the price being offered for the service.

The analysis on the cost of waste management services in the two Metropolises shows that, apart from the WMCs, all the other stakeholders were not satisfied with the cost of waste management services. This concern is critical for the sustenance of the PPP arrangement in SWM, as issues about cost of service could either encourage or discourage stakeholders to subscribe or abrogate their waste management service contracts with the WMCs. Issues relating to high cost of SWM services could also explain the reason for the increased defaulters to the payment for sanitation services in the partnership.

Empathy in the SERVQUAL model involves the provision of caring, individualised attention to subscribers of waste management services. According to Brady *et al.* (2002), empathy shows that SWM services can be performed completely to specifications by understanding the needs of users and caring about service beneficiaries.

From the study, the representatives of the WMCs explained that the actions and strategies towards achieving empathy in their service provision were conditioned in the provision of options of subscribing to either skip container services or door-to-door services. The selection of the service type is done according to the taste and preference of the individual subscribers. Table 20 presents results on empathy in the waste management services through the PPP arrangements in CCMA and STMA from the point of view of the service users or the household heads.

Table 20 shows that the majority (53.7%) of the household heads from the two Metropolises were satisfied with the individual attention given to them by personnel from the WMCs. In addition, the majority (6.7%) of the household heads were satisfied with the caring manner in which personnel from the WMC deal with them. The results suggest that the majority of the household heads were satisfied with the empathy associated with operations of the WMCs in waste management services under the PPP arrangement. According to So *et al.* (2011), empathy in service provision is used to attract and retain customers to sustain the operations of business organisations. In reference to the WMCs' operations in the PPP arrangement, empathy could

help sustain the University of Cape Coast <https://ir.ucc.edu.gh/xmlui> by encouraging subscribers of waste management services in the two Metropolises to continuously maintain the contract.

Table 20: Empathy in Waste Management Services through the Public-Private Partnership

Residential class	CCMA (%)				STMA (%)			
	VS	S	I	LS	VS	S	I	LS
Providing individual attention to customers								
High	26 (63.4)	64 (40.3)	-	43 (31.6)	41 (82.0)	68 (44.4)	-	14 (10.8)
Middle	-	80 (50.3)	16 (40.0)	51 (37.5)	5 (10.0)	71 (46.4)	36 (87.8)	92 (70.8)
Low	15 (36.6)	15 (9.4)	24 (60.0)	42 (30.9)	4 (8.0)	14 (9.2)	5 (12.2)	24 (18.4)
Total	41 (10.9)	159 (42.3)	40 (10.6)	136 (36.2)	50 (13.4)	153 (40.9)	41 (11.0)	130 (34.8)
Dealing with customers in caring manner								
High	53 (52.0)	37 (26.1)	43 (64.2)	-	8 (14.8)	51 (26.2)	17 (63.0)	47 (48.0)
Middle	34 (33.3)	71 (50.0)	-	42 (64.6)	46 (95.2)	117 (60.0)	-	41 (41.8)
Low	15 (14.7)	34 (23.9)	24 (35.8)	23 (35.4)	-	27 (13.8)	10 (37.0)	10 (10.2)
Total	102 (27.1)	142 (37.8)	67 (17.8)	65 (17.3)	54 (14.4)	195 (52.1)	27 (7.2)	98 (26.2)

Source: Field survey (2018)

Legend: VS = Very satisfied, S = Satisfied, I = Indifferent, LS = Less satisfied

The fourth element considered under the SERVQUAL model was responsiveness. According to Brady *et al.* (2002), responsiveness is the ability to attend to the users and provide the service promptly, capturing the notion of flexibility and ability to adapt to the needs of the service user. This is essential in the process of enhancing the quality of service provided to customers. Responsiveness in waste management services involves the provision of prompt services, and willingness of personnel to help customers with waste collection services.

From the study, the representatives of the WMCs indicated that the responsiveness of their activities stems from the weekly lifting of refuse from houses through the door-to-door services. They describe their services as responsive as they often meet their obligations by collecting refuse from their subscribers. The representative of Zoomlion Ghana Limited added that the responsiveness in their operations is demonstrated in the timely lifting of communal skip containers whenever they get full. The CCMA representative added,

This is what we are paid for and we do not have any excuses for failing to act when the containers are full. We perform our role even when the Metropolitan Assembly has not reimbursed us.

The response above shows the demonstration of commitment from the company in ensuring prompt waste management services within the partnership. Representatives of the FBOs from the two Metropolises, however, reported that delays in the payments of waste management services

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were due to delays in processing and approval of funds from MOFEP. This was because the contracts on the management of communal wastes were signed at the national level.

An FGD with the members of the Social Services sub-Committee revealed that there had been many instances where skip containers had been left unattended to for weeks, thereby creating awful scenes in the two Metropolises. The Committee members also reported about instances that their electorates had complained about the failure of the WMCs to collect wastes from their homes leading to the overflow and scattering of refuse in the communities. This raised concerns about the prompt service delivery reported by the representatives of the WMCs.

Nonetheless, the representatives of the WMCs asserted that those were isolated cases which mostly occurred when their vehicles breakdown, access to skip containers were obstructed by bad roads during the raining season, and difficult access to the landfill sites during the raining season due to bad roads. The results agree with the requests from the WMCs of the need to have spare vehicles to help improve their operations. The study found that the siting of some of the skip containers and bad roads in some parts of the Metropolises negatively affected the responsiveness of the WMCs to the service users. This was because bad road network prevented the WMCs to gain access to some houses and skip containers during the rainy season.

During the rainy season, we find it very difficult accessing the landfill site at Nkafoa... Sometimes the Assembly had to use its bulldozer to push the back of the compaction trucks to enable them access the site to discharge the waste... However, the process mostly leads to the denting and destruction of the trucks... As long as the loaded trucks are not emptied in such circumstances, we are

unable to collect waste from other service users, which is a major worry to us. We have complained on a number of occasions to the Assembly, but they have not done anything about it...Sometimes too, the disposal site becomes so congested that it frustrates our drivers to have easy turnaround to attend to other areas (Representative of Zoomlion Ghana Limited at CCMA).

The above narration shows that responsiveness in service delivery in PPP is and should be the responsibility of all stakeholders. In other words, each stakeholder has a major role to play to ensure that the private sector service provider performs up to the expectation of all partners. This corroborates the tenet of the stakeholder theory that each partner is required to play its role to ensure the achievement of the collective interest in partnership.

The study found that responsiveness to service provision in the SWM partnership hinges on the Metropolitan Assemblies siting communal skip containers and landfill sites in areas that are always motorable as well as providing good roads in the Metropolises. The above also showed that conditions of sanitation facilities play a major role in ensuring responsiveness in waste management services in the partnership. This suggests that the element of tangibility in the SERVQUAL model played a central role in the achievement of the overall service quality in waste management services.

Table 21 presents the views of the household heads on the level of responsiveness about the service provision from the WMCs in the partnership. The results show that while most (48.9%) of the household heads in the CCMA were not satisfied with the promptness in SWM services from the WMCs, about half (51.9%) of the household heads in the STMA were satisfied. Further, the majority of the household heads in both CCMA (65.1%)

and STMA (95.8%) were satisfied with the willingness of personnel to help customers with waste collection services. The results show that the household heads were generally satisfied with the level of responsiveness of the WMCs in their waste service provision in the partnership. This was partly attributed to the scheduled period for lifting household wastes and the often timely lifting of communal or municipal wastes.

The positive perception from the service users about the responsiveness on the service provision of the WMCs towards their concerns was important in sustaining the interests of the majority of the household heads in the contract to promote the sustainability of the partnership in SWM. According to Parasuraman *et al.* (1988), responsiveness of service providers is important in sustaining people's interests in partnership as it gives them extra trust and confidence in the actions and strategies of the other actors.

It must, however, be noted from the table that even though the household heads were generally satisfied with the level of responsiveness of the WMCs in waste management services in the two Metropolises, quite significant proportions were not satisfied. Some of the reasons ascribed to their less satisfaction to the responsiveness in the operations of WMCs were occasional delays in lifting both household and municipal wastes from their areas, and the low willingness of some personnel of the WMCs to help them in waste collection services. The suggestion is that such concerns have to be addressed or minimised to increase the trust and confidence that service users have in the partnership to promote sustainable PPP in SWM.

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 Responsiveness in the Service Provision of Waste Management

Companies in the Public-Private Partnership

Residential class	CCMA (%)				STMA (%)			
	VS	S	I	LS	VS	S	I	LS
Receiving prompt SWM services								
High	-	53 (29.9)	-	80 (43.5)	-	84 (46.9)	24 (37.5)	15 (12.9)
Middle	-	79 (44.6)	-	68 (40.0)	-	76 (42.5)	36 (56.3)	92 (79.3)
Low	-	45 (25.5)	15 (100.0)	36 (19.5)	15 (100.0)	19 (10.6)	4 (6.3)	9 (7.8)
Total	-	177 (47.1)	15 (4.0)	184 (48.9)	15 (4.0)	179 (47.9)	64 (17.1)	116 (31.0)
Willingness to help clients with waste collection service								
High	11 (14.7)	79 (46.5)	11 (23.4)	32 (38.1)	17 (29.3)	59 (31.4)	-	47 (57.3)
Middle	49 (65.3)	46 (27.1)	13 (27.7)	39 (46.4)	36 (62.1)	112 (59.6)	36 (78.3)	20 (24.4)
Low	15 (20.0)	45 (26.5)	23 (48.9)	13 (15.5)	5 (8.6)	17 (9.0)	10 (21.7)	15 (18.3)
Total	75 (19.9)	170 (45.2)	47 (12.5)	84 (22.3)	58 (15.5)	188 (50.3)	46 (12.2)	82 (22.0)

Source: Field survey (2018)

Legend: VS = Very satisfied, S = Satisfied, I = Indifferent, LS = Less satisfied, LTS = Least satisfied

Reliability in service provision involves the ability of service providers to perform the agreed service dependably and accurately. It is related more to service outcomes such as consistency of time in solid waste collection and other associated SWM services. As a result, Mutandwa and Zinyama (2015) emphasise that service provision contracts should agree and specify deliverables expected from service providers as well as schedules for the provision of such deliverables. From the study, the representatives of the EWMDs in the two Metropolitan Assemblies reported to have agreed with the WMCs to lift skip containers anytime it is full. The aim was to clear the Metropolises from filth to prevent the outbreak of sanitation-related diseases. The results suggest that both the EWMDs of the Assemblies and the WMCs should regularly monitor the skip containers to ensure that they do not overflow before they are lifted.

When similar questions were posed to the representatives of the WMCs in the two Metropolises, they reported that they had developed timelines for each skip container based on their experiences, historical records on the containers, and population of the areas being served to inform them on the frequency and schedules for lifting each of the skip containers. Thus, these factors influenced the reliability in the waste collection services of the WMCs in the two Metropolises. However, the representative of the EWMD of CCMA reported that there are instances that the containers spill over without being attended to by the WMC due to some technical and operational challenges such as breakdown of vehicles. Thus, such challenges influenced the

Assembly of services provided by the WMCs. The representative added that the Assembly of the University of Cape Coast <https://ir.ucc.edu.gh/xmlui> maintains constant communication with the WMCs and are always aware of their issues. The representative of EWMD of CCMA further stated,

When you are aware that that the companies are facing technical challenges which are somehow beyond their control, it becomes difficult for you to apply any sanctions...Besides, they perform some activities freely to the Assembly because they have the equipment and facilities to do so...It takes constant communication and transparency to maintain such partnership with the private sector.

The above narration shows that communication enhances transparency in PPP arrangements and helps in sustaining such partnerships even when some stakeholders face operational challenges that make it difficult to execute their portions of the contract. The results agree with the assertion of Große-Puppenthal *et al.* (2016) that one of the fundamental strategies to sustain PPP arrangements is to promote transparency through the creation of a common platform for stakeholders to interact and share their concerns. The narration was also corroborated by the representative of Zoomlion Ghana Limited at CCCMA who stated that when the delays in lifting communal or municipal wastes persist, the WMC compensates the other stakeholders by fumigating the affected areas and performing vector control services freely. The additional works performed by the company was targeted at reducing the health and environmental impact of the spill overs on the service users and the communities. Such common understanding between the Assemblies and the WMCs was necessary in promoting the sustainability of the partnership.

In reference to the door-to-door services, all the representatives of the WMCs stated that they currently have agreement with the subscribers to lift their household waste once in a week. This timeline, according to the representatives, was based on their historical records with the use of the 240-litre household waste bin (see Plate 3), as well as cost efficiency to ensure continuous operations. The representative of the Alliance Waste Company Limited indicated that the company initially was lifting household wastes twice a week, but realised that most of the bins were not full on the second visit. In addition, the cost of operating such a contract was found to be too high to sustain the operations of the company. As a result, the management of the company revised the contract to lift the household waste once a week.

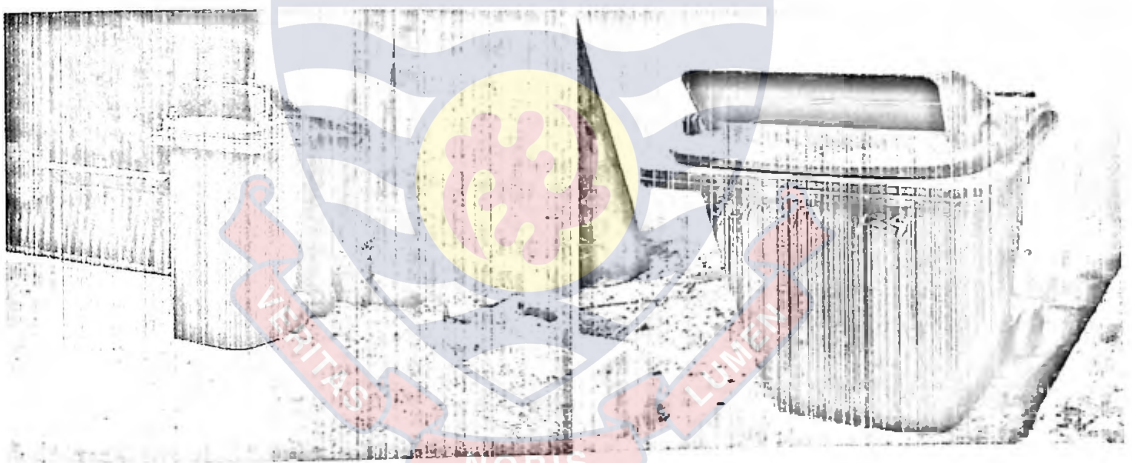


Plate 3: Samples of 240-Litre Household Waste Bin.

The result shows that efforts to ensure sustainable partnership in waste service provisions should critically consider the element of operational cost of the private sector vis-à-vis the frequency with which the service users will require the service. Thus, such a balance is required between service providers and service users to enhance reliability of service in a partnership. However, Pap *et al.* (2014) suggested that such balances in service contractual

arrangements should be based on service standards and operational records to promote fairness and sustainability of partnerships.

The household heads were also requested to indicate the level of reliability of the services from the WMCs (see Table 22). The table shows that the majority of the household heads from both CCMA (80.8%) and STMA (54.3%) agreed that the WMCs provided the services as established in the contract. Whereas the majority (53.7%) of the household heads from CCMA disagreed that the WMCs provided services as scheduled, the majority (55.4%) of the household heads from STMA agreed. The results suggest that even though the WMCs were providing waste collection services as agreed, quite a significant proportion of the service users perceived that the companies were less reliable. This was attributed to the occasional failure of the WMCs to collect household waste as scheduled.

Table 22: Reliability in the Service Provision of Waste Management Companies in the Private-Public Partnership

Resident- ial class	CCMA (%)				STMA (%)			
	SA	A	DK	D	SA	A	DK	D
WMCs provide services as promised								
High	16 (55.2)	117 (42.5)	-	-	51 (92.7)	48 (32.4)	-	24 (30.4)
Middle	13 (44.8)	89 (32.4)	-	45 (78.9)	-	81 (54.7)	82 (89.1)	41 (51.9)
Low	-	69 (25.1)	15 (100.0)	12 (21.1)	4 (7.3)	19 (12.8)	10 (10.9)	14 (17.7)
Total	29 (7.7)	275 (73.1)	15 (4.0)	57 (15.2)	55 (14.7)	148 (39.6)	92 (24.6)	79 (21.1)

WMCs provide services on schedule								
High	-	53 (34.2)	-	80 (39.6)	17 (77.3)	58 (31.4)	8 (13.6)	40 (37.0)
Middle	-	72 (46.5)	-	75 (37.1)	-	112 (60.5)	41 (69.5)	51 (47.2)
Low	15 (100.0)	30 (19.4)	4 (100.0)	47 (23.3)	5 (22.7)	15 (8.1)	10 (16.9)	17 (15.8)
Total	15 (4.0)	155 (41.2)	4 (1.1)	202 (53.7)	22 (5.9)	185 (49.5)	59 (15.8)	108 (28.9)

Source: Field survey (2018)

Legend: SA = Strongly agree, A = Agree, DK = Don't know, D = Disagree

An FGD with the Social Services sub-Committee revealed that the WMCs sometimes change their regular schedules without any prior information to the subscribers, which creates sanitary problems in the communities. It was stated during the FGD,

Some of our people living in gated houses send their waste bins outside their gates, when they are away to work, to enable the WMCs gain access to the refuse on the scheduled waste collection days. In some occasions, the companies fail to attend to them on the scheduled days which attracts stray animals to scatter the refuse around in the process of feeding on them.

The response above shows a poor communication between the WMCs and the door-to-door subscribers of waste collection services in the Metropolis. Thus, the WMCs failed to communicate to the subscribers of

door-to-door waste collection services anytime they were unable to attend to their duties as scheduled. It is the poor communication between the WMCs and service users that led to sanitary problems in the communities. This confirms the submission by Marume *et al.* (2016) that communication and transparency are critical basic elements required to maintain cohesion in partnerships as well as promote sustainable partnership. Große-Puppenthal *et al.* (2016) emphasise that service reliability is important in the overall quality of service provision as well as ensuring sustainable partnership between service providers and service users. As a result, efforts to promote sustainability of the PPP in SWM should essentially enhance service reliability.

Summary of the Chapter

The chapter assessed the quality of SWM services through the PPP in the CCMA and STMA. The assessment of the quality of service delivery in SWM from the PPP arrangements in the two Metropolises was guided by the SERVQUAL model, which involves the examination of tangibility, assurance, empathy, responsibility and reliability of service delivered through the system. for the sustainability of the partnership in SWM.

LEVEL OF SUSTAINABILITY OF PUBLIC-PRIVATE PARTNERSHIP IN SOLID WASTE MANAGEMENT

Introduction

The chapter examines the level of sustainability of the PPP in SWM in the two Metropolises. This is important since sustainability has been a major issue in most PPP arrangements in Ghana. The chapter provides an assessment of the possibility of sustaining the partnership in the management of solid wastes, as environmental sanitation has been a major issue in the development discourse. This chapter was organised under four indicators for measuring sustainability – relevancy, acceptability, economic and financial viability, and implementation and post-implementation operations.

Relevance of the Public-Private Partnership Arrangement in Solid Waste Management

Relevancy as an indicator for measuring sustainability is concerned with the consistency of local and sector priorities with national priorities. It is also concerned about the importance of interventions in addressing a particular development problem. In analysing the consistency in SWM policy between local and national priorities, all the institutional representatives indicated that the policy was conceived and developed at the national level before handing the implementation processes to the MMDAs. This suggests that waste management aligns with national priorities and hence the national actors have strong support for the PPP arrangement in SWM. The implication

is that the national actors are likely to support the Metropolises to ensure the sustainability of the partnership.

According to Byiers *et al.* (2016), the importance of congruence or agreement between local and national policy goals and priorities lies in the backing and support from superior authorities which gives extra confidence and approval from local implementing agencies to be innovative in their actions to bring change. In other words, policy relevance in terms of consistency between local and national priorities gives credibility to local actions and confidence to implement innovative strategies to ensure the successful achievement of developmental goals.

The institutional representatives in the study further stated that the national government realised the sanitation challenges in major towns and cities in the early 2000s. The central government in collaboration with its international partners (such as GiZ, DFID, UNDP and World Bank) decided to make a policy shift from a public-led management of solid waste to a private-led management system. The PPP arrangement is also consistent with the operational focus of the country's international development partners. Such consistency in policy direction between the national government and the international development partners is also important to promote the sustainability of the partnership in SWM in the two Metropolises. This is because such partners provide critical financial and technical support in the implementation of government programmes and policies. As a result, having a policy that is compatible with the priorities of the international development partners could help secure funding and technical support to sustain the implementation of PPP in SWM.

For example, representatives of the MCD, MPO, EWMD and FBO at the STMA reported that the Assembly initially received technical and financial support from Ghana's development partners, including GiZ and World Bank. They further attested that such support enabled the Assembly to better engage the private sector in the monitoring of waste management services in the Metropolis. The representative of the MCD added,

It was a new thing to the MMDAs, so support from the international partners and the Central government was very necessary...It was part of the reasons I think the contract was handled at the national level to have a uniform policy and implementation structure across all MMDAs.

The above quotation shows that the compatibility in policy direction between state actors and international development partners helped in the pre-implementation and implementation stages in the operationalization of the PPP process in the MMDAs. The response confirms the importance of the element of 'relevance' in the determination of sustainable partnership. Thus, the policy congruence affords the various actors and players the opportunity to support the Metropolis to ensure that all the critical elements in the pre-partnership engagement section are factored into the partnership formation to maintain balance in roles, responsibility and power to guarantee effective post-partnership management for sustainable partnership. According to Sarmiento and Renneboog (2016), the important factors for sustainable partnership are formulated at the pre-partnership engagement period and, as a result, the capacity of the major stakeholder to engage each other and be satisfied with the partnership arrangements are important.

The representatives from CCMA also generally reported that even though the Assembly did not receive technical and financial support from the international development partners, they depended largely on the experiences of the other MMDAs who had already engaged the private sector in waste management services. The representative of the MCD reported that it was almost the same contract with the other MMDAs that was adopted for the CCMA. This saved the Assembly a lot of time and resources in the pre-partnership engagement with the private sector in waste management services.

The above findings were corroborated by the representative of Zoomlion Ghana Limited at CCMA. According to the representative, since the previous contracts had been signed with MMDAs at the national level, it was simple securing agreement with the management of CCMA and other MMDAs in the waste management partnership. This shows that the relevance attached to a partnership is important for ensuring smooth operations. However, members of the Social Services sub-Committee indicated that there was no ample time to enable them to properly engage their constituents to shape the tenets of the contract in line with their local context. Thus, the centralisation of the PPP contracts may not consider the uniqueness of local situations into the partnership to ensure effective implementation and post-partnership management. The centralisation of the PPP contract could explain the low participation of service users, which also affected their level of influence to cause changes in the partnership.

The study also analysed the element of relevance in sustainable partnership from the viewpoint of the household heads in terms of SWM

services. © [University of Cape Coast https://ir.ucc.edu.gh/xmlui](https://ir.ucc.edu.gh/xmlui) Table 23 presents the results on the perception of the household heads about the relevance of the PPP in SWM services.

Table 23: Relevance of the Current Form of Public-Private Partnership in Solid Waste Management Services

Relevance	CCMA (%)	STMA (%)	Total (%)
Very relevant	49 (13.0)	90 (24.1)	139 (18.5)
Relevant	232 (61.7)	238 (63.6)	470 (62.7)
Don't know	58 (15.4)	5 (1.3)	63 (8.4)
Less relevant	37 (9.8)	41 (11.0)	78 (10.4)
Total	376 (100.0)	374 (100.0)	750 (100.0)

Source: Field survey (2018)

The table shows that the majority (81.2%) of the respondents perceived the current form of PPP in SWM services as relevant. This was positive for ensuring the sustainability of the partnership in SWM in the two Metropolises. Stafford *et al.* (2011) indicate that the views and perceptions of service users about the importance and appropriateness of particular services towards their peculiar needs are necessary to sustain their interest in the demand for the service. As a result, Stafford *et al.* suggest that service providers should always consider the needs and interests of service users to increase loyalty and sustainable partnership.

The positive endorsement by the majority of service users from the two Metropolises was an indication that the current form of the PPP in SWM services was responding to the waste management needs of the respondents.

This could be attributed to the fact that prior to the incorporation of the private sector in SWM, household had to travel long distances to dispose of their solid wastes. The refuse dumping sites created in the process produced awful scenes and raised a lot of environmental health issues in the communities. As a result, the basic function of having solid wastes lifted in the households by a service provider was enough for the partnership to remain relevant to the service users.

Acceptability of the Public-Private Partnership Arrangement in Solid Waste Management

The extent of acceptability about the execution of a contractual arrangement among the major stakeholders is deemed vital in the assessment of project sustainability. Khan (2000) and Tufinio *et al.* (2013) explained acceptability in sustainable partnership as the satisfaction of the stakeholders about the benefits accrued to them through the available resources in supporting implementation. From the study, the institutional representatives were satisfied with the benefits generated by the partnership in SWM. For example, the representative of the EWMD at the CCMA reported,

The waste management partnership has helped to clear all the mountains of refuse dumps in the Metropolis, which the Assembly found it difficult to manage. The WMCs have supported the Assembly in SWM with logistics such as skip containers which are regularly lifted and emptied at the landfill site. The skip containers had come to replace the old refuse dump site system which created awful scenes in the Metropolis with serious implications on

people's health... Even though there are some issues with the partnership, I believe looking at where we are coming from, it has really helped in improving environmental sanitation.

From the narration, it could be deduced that the acceptability of the SWM partnership was derived through the comparison with the previous situation. That is, the Metropolis considers the current system in terms of the deliverables being better (see Plate 4) than the situation before when SWM was the responsibility of the public sector.

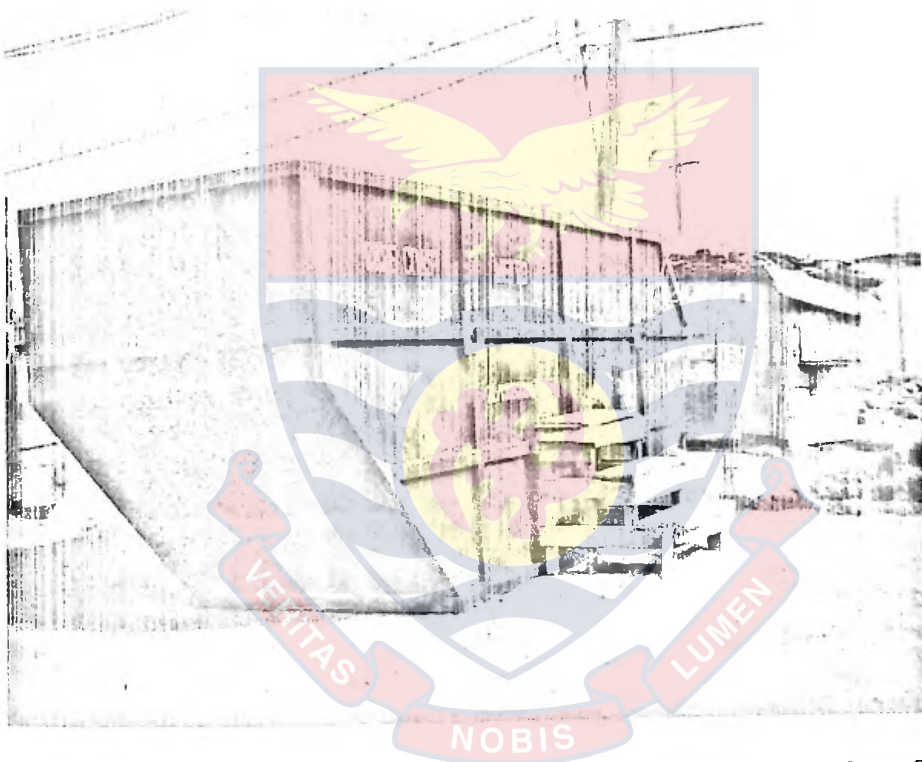


Plate 4: Improved Sanitary Conditions around Skip Container Site.

The result corroborates the central argument of the neo-liberal theory that the private sector has information, capital and logistics superiority over the public sector and, as such, could be more effective in performing some public sector functions through collaboration and partnership arrangements.

The EWMD representative from STMA also narrated that:

Currently, the partnership is producing good results by improving environmental sanitation compared to the previous situation... The only problem is that some of the WMCs do not have many compaction trucks to ensure much more effective waste collection from the households.

It is deduced that the representative perceived the current state of SWM as better than the previous conditions. This is positive for the sustainability of the partnership in SWM, as the major stakeholders would not want to experience the situation prior to the execution of the PPP contract in SWM. According to Piipo *et al.* (2015), positive perceptions about the acceptability of a partnership enable the stakeholders to work together to ensure the sustainability of the partnership.

The above responses on the acceptability of the partnership show that the institutional representatives accepted the partnership through the comparison of the current situation and the situation prior to the execution of the contract. However, such a comparison to derive acceptability of the partnership could be problematic as the level of change may be lower than the standards set in the contractual arrangements. Consequently, Mostepaniuk (2016) cautions that acceptability of any partnership should be derived from the comparison between deliverables and standards established in the contractual arrangements that bind the stakeholders to the partnership. According to Mostepaniuk, accepting partnership deliverables through a comparison with the contract standards enables stakeholders to conduct effective monitoring and apply sanctions to achieve the objectives set for the partnership.

Even though the WMCs were generally satisfied with the nature of the contract, they wished some aspects of the contract are changed to improve the effectiveness of the implementation processes to enhance their ability to continue providing the service. The representatives of Zoomlion Ghana Limited from both Metropolises reported that delays in revising the terms of the contract were having serious implications on the turnover of the company. They further reported that the company was still charging the same prices as agreed with the Assemblies some years ago, which has been depreciated in value due to inflationary pressures and exchange rate differentials. This concern is critical as fees and charges are central to the sustainable operations of service providers in PPP arrangements. De Schepper *et al.* (2014) indicate that private service providers would have to generate adequate profit levels from their engagements in PPP arrangements to enable them invest in equipment and machinery to continuously improve on their service provision to other stakeholders.

Another issue raised by the WMCs about their acceptability of the execution of the PPP contract in the two Metropolises was delays in the payment of receipts for waste management services for the Assemblies. This was reported by both representatives of Zoomlion Ghana Limited from the two Metropolises as they were responsible for communal or municipal waste collection services in the two MMDAs. The representative of Zoomlion Ghana Limited at the CCMA stated,

Sometimes first quarter services could be paid in the third or fourth quarter, which affects some aspects of our operations... We need to buy fuel for our operations and perform regular

in advance on our vehicles and other equipment to ensure continuous operations. The irregular mode of payments affects our ability to plan to acquire new sets of major equipment to improve our operations.

The narration shows the extent to which delays in payments frustrate the smooth operations of the WMC in the execution of its mandate in the PPP arrangements. Such delays could make it a disincentive for the WMCs to operate in the partnership, which could affect their sustainable operations. However, the representative of FBO at the CCMA reported that monitoring reports would have to be prepared on the service provision by the company, while other check and clearance had to be done from both MLGRD and MOFEP before payments could be effected. This means that the delays in the payment for the service provision to the WMCs provide avenues to verify the quality of service executed by the WMCs. Such verification checks were used to ensure that the public sector was not short-changed by the private sector in the execution of the partnership. In as much as such verification checks are justified in the execution of every PPP arrangements, Zhang *et al.* (2014) report that the public sector could sometimes use some justifiable reasons to cover their inefficiencies and cause undue delays to the private sector.

Furthermore, all the WMCs within the two Metropolises complained that many of the beneficiary households for door-to-door services were heavily in debt, which was frustrating their capacity to operate effectively. The representative of Deloved Waste Management Company indicated,

Many people have registered for our services, but are reluctant to pay. They only rush to make part payment when we suspend lifting

the refuse... some of them do not respond again, even if we fail to lift their refuse.

The response shows that some of the households did not attach importance in honouring their part in the waste management contract. This suggests that the WMCs should be strict on timelines for suspending the lifting of refuse from defaulting households. The high rate of default payment could also be attributed to the fact that, the PPP contract between the WMCs and the household clients was silent on the punishments for either defaulting payments or delays on the part of the WMCs in lifting the refuse. This suggests that the current happenings in the implementation of the agreement are offshoots of the omissions and commissions of the PPP contract. The result corroborates the assertion of Sarmiento and Renneboog (2016) that the tenets of a contract direct the nature of implementation and, thus, some critical successes and failures in PPP could be attributed to the tenets in the contracts that established the partnership.

However, the high rate of defaulting among the household clients is a threat to the sustainability of the PPP arrangement in SWM in the two Metropolises. This was because the private sector requires such monetary payments to break-even and make profits to improve its service operations in the partnership. Thus, the neo-liberal theory indicates that the private sector is driven by profit motives and requires such profit margins to offset its cost and expand operations to other sectors and areas. The implication is that increasing default payment for waste management services could reduce the operational viability of the WMCs and the sustainability of their operations. Additionally, the high default payment could affect investments in the

operations of the WMCs to improve on their efficiencies, reliability and effectiveness in the partnership. © University of Cape Coast <https://ir.ucc.edu.gh/xmlui>

On the part of the Assembly persons, they generally admitted that the partnership has contributed significantly to improve SWM in the two Metropolises. It was stated during the FGD with Assembly persons at CCMA, *It has helped to improve sanitary conditions in the communities...We do not have to commute long distances to dump our refuse due to the door-to-door services and the placement of skip containers in our communities.*

The statement above was also corroborated by the Assembly persons at STMA. The implication is that the Assembly persons from Metropolises have admitted the benefits they were deriving from the PPP arrangement in SWM. This could enable the Assembly persons to encourage their electorates to sustain the partnership for improved environmental sanitation in the communities.

However, the Assembly persons from CCMA added that the major complaints they received from their electorates were high charges and occasional delays in lifting wastes from the communities. The result could imply that the high default payment among the households could be due to high charges and non-affordability. The implication is that even though the beneficiary households had admitted to the benefits of the operations of the WMCs in SWM, they had not accepted the amount they charge as fees for the door-to-door services. The situation could be adduced to the poor participation in the determination of waste management charges in the two Metropolises. Thus, the absence of a fee resolution committee at the CCMA compelled the

As part of the measures of analysing the level of acceptability of the operations of the WMCs among the service users, respondents were asked to rate the availability of logistics of the companies in effectively managing solid waste in the future (see Table 24).

Table 24: Rating the Logistics Availability of Waste Management Companies to Effectively Manage Solid Waste in the Future

Response	CCMA (%)	STMA (%)	Total (%)
Very low	-	9 (2.4)	9 (75.6)
Low	-	5 (1.3)	5 (0.7)
Medium	23 (6.1)	142 (38.0)	165 (22.0)
High	353 (93.9)	203 (54.3)	556 (74.1)
Very high	-	15 (4.0)	15 (2.0)
Total	376 (100.0)	374 (100.0)	750 (100.0)

Source: Field survey (2018)

Table 24 shows that the majority (76.1%) of the respondents rated the logistics capacity of the WMCs to effectively manage solid waste in the two Metropolises to be high. This suggests that the majority of the service users had high confidence in the operations of the WMCs. This is likely to motivate the service user to maintain their relationship with the WMCs to continue providing waste management services in the two Metropolises.

Economic and financial viability in PPP arrangements is central to ensuring sustainability of the partnership. According to Muhia (2014), the service providers should generate adequate returns to enable them perform their roles effectively, while the service users also have to get value-for-money and be satisfied with the quality of service delivery in relation to the cost they incur for the service. The study engaged the various stakeholders in the partnership in the examination of the economic and financial viability of the PPP arrangement in SWM. The service users were requested to describe their level of satisfaction with the fees for SWM in relation to the quality of services provided in the PPP arrangements (see Table 25).

Table 25: Level of Satisfaction with Fees for Solid Waste Management in relation to the Quality of Services Provided by the Partnership

Description	CCMA (%)				STMA (%)				Total (%)
	High	Middle	Low	Total	High	Middle	Low	Total	
S	-	39 (59.1)	27 (40.9)	66 (17.6)	7 (25.9)	10 (37.0)	10 (37.0)	27 (7.2)	93 (12.4)
L	-	28 (41.8)	39 (58.2)	67 (17.8)	23 (11.1)	148 (71.2)	37 (17.8)	208 (55.6)	275 (36.7)
DK	43 (100.0)	-	-	43 (11.4)	-	-	-	-	43 (5.7)
S	90 (49.2)	63 (34.4)	30 (16.4)	183 (48.7)	76 (62.3)	46 (37.7)	-	122 (32.6)	305 (40.7)
S	-	17	-	17 (4.5)	17	-	-	17 (4.5)	34 (4.5)
Total	133 (35.4)	147 (39.1)	96 (25.5)	376 (100.0)	123 (32.9)	204 (54.5)	47 (12.6)	374 (100.0)	750 (100.0)

Source: Field survey (2018)

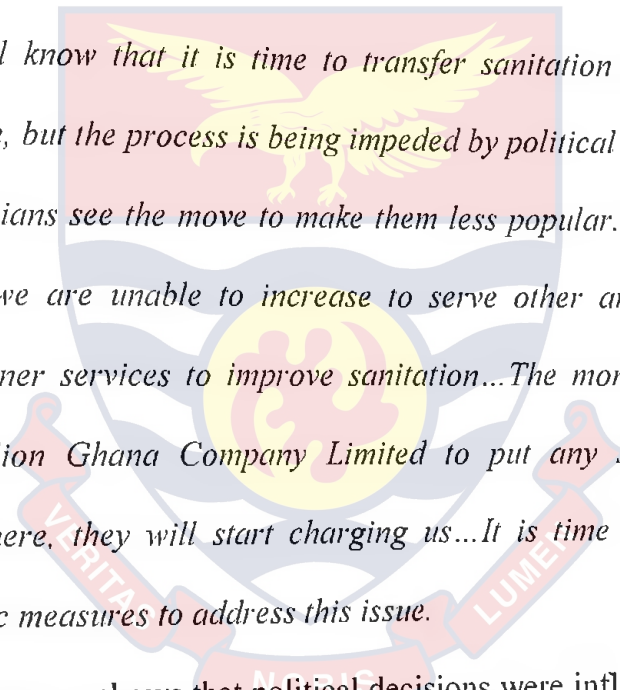
Legend: LTS = Least satisfied, LS = Less satisfied, DK = Don't know, S = Satisfied, VS = Very satisfied

Table 25 shows that 49.1 per cent of the household heads were not satisfied with the fees paid for SWM in relation to the quality of services provided through the PPP arrangements. Byiers *et al.* (2014) opine that service users are more willing to maintain PPP operations when they perceived service charges to be reasonable in relation to the scope and quality of service being offered by service providers. From the study, the main reason for the non-satisfaction with the fees for SWM across the two Metropolises was high cost. This implies that quite significant proportions of the service users may want the fees for SWM services to be reviewed downwards to reflect the quality of services provided by the WMCs. The table also shows that, whereas the majority (53.2%) of the service users in the CCMA were satisfied with the fees paid for SWM in relation to the quality of services provided through the PPP arrangements, the majority (62.8%) of the service users in the STMA were not satisfied.

The difference in the level of satisfaction between service users in the CCMA and STMA was attributed to the fact that many of the household heads in the CCMA were not paying for the SWM services under the partnership. Thus, whereas the STMA is implementing the polluter-pays principle, which compels service users from low-income neighbourhoods to pay for the SWM services, CCMA pays the service fees for the low- and middle-class residents using communal skip containers. This suggests that the satisfaction of the majority of the service users from the CCMA was at the expense of the financial viability and sustainability of the operations of the WMCs and the Assemblies. Thus, the sustainability of the current PPP arrangement is dependent on the ability of the CCMA to continuously disburse service fees to

the service providers in the manner that will help to maintain the financial viability of the operations of the WMCs. In addition, sustainability of the PPP arrangement in SWM at the CCMA is more likely to be frustrated when the Assembly becomes overwhelmed by the quantum of service fees to be paid to the WMCs without any alternative arrangements.

From the interaction with the MCD and FBOs at CCMA, it was confirmed that the Assembly is getting overwhelmed by its sanitation budget, as it takes almost 50 per cent of its budget. The representative of EWMD at CCMA added,



We all know that it is time to transfer sanitation budget to the people, but the process is being impeded by political reasons as the politicians see the move to make them less popular. As a result of that, we are unable to increase to serve other areas with skip container services to improve sanitation...The moment we allow Zoomlion Ghana Company Limited to put any skip container anywhere, they will start charging us...It is time we take some drastic measures to address this issue.

The above response shows that political decisions were influencing the ability of the CCMA to develop strategies to enhance the financial sustainability of the PPP arrangement in SWM. The high proportion of sanitation budget of the Assembly was also frustrating the ability and capacity of the CCMA to effectively manage solid waste through the PPP arrangements. This was because it was contributing to denying other areas in the Metropolis from securing improved communal skip containers for improve sanitation in the Metropolis. According to Sankoh *et al.* (2013), the sustainability of PPP

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arrangement is threatened anytime political decisions overrides financial and economic decisions.

The representatives of the WMCs in both Assemblies also reported that their fees and charges were based on the agreed amounts in the contractual arrangements, which were also fixed or determined in relation to the cost of operating SWM services in the Metropolises. This implies that the financial viability of the PPP arrangement in SWM would significantly be dependent on the ability of the WMCs to offset their cost of operations with their financial inflows.

As part of the measures to assess the sustainability of the partnership in SWM, the respondents were asked if they were willing to pay higher fee for improved SWM services, the reason behind their willingness or otherwise, and the amount willing to pay. The results are presented in Table 26. From the table, the majority (82.7%) of the service users in the two Metropolises denied their willingness to pay higher fees for improved SWM services. Comparing results of Table 25 with that of Table 26 show that some of the respondents who were satisfied with the fee charges for SWM were not willing to pay higher fees for improved services. This means that the majority of the service users in the two Metropolises perceived the quality of service provided by the WMCs as below the fees they charge for the service.

A chi square test of independence was used to examine the association between those willing to pay higher fees and those not willing to pay across the two Metropolises. From the table, a p-value of 0.008 ($\chi^2 = 7.116$; $df = 1$) shows that there was a statistical significant association between service users willing to pay higher fees for improved SWM services and those who did not

across the two Metropolises. This depicts that large numbers of service users from both Metropolises were unwilling to pay higher fees for improved SWM services in the PPP arrangement. The implication is that the WMCs have to be more engaging in any upward reviewing of their fees to avoid losing more customers. Both Assemblies should also play key roles in the fixing of fees for the door-to-door services to help sustain the partnership to avoid creating environmental problems.

Table 26: Willingness to Pay Higher Fees for Improved Solid Waste Management Services

Residential class	CCMA (%)		STMA (%)		Total (%)	
	Yes	No	Yes	No	Yes	No
High	-	133 (44.8)	-	123 (38.1)	-	256 (41.3)
Middle	55 (69.6)	92 (31.0)	51 (100.0)	153 (47.4)	106 (81.5)	245 (39.5)
Low	24 (30.4)	72 (24.2)	-	47 (14.6)	24 (18.5)	119 (19.2)
Total	79 (21.0)	297 (79.0)	51 (13.6)	323 (86.4)	130 (17.3)	620 (82.7)

$\chi^2 = 7.116$ $df = 1$ $p\text{-value} = 0.008$

Source: Field survey (2018)

The study requested the respondents who were willing to pay higher fees for improved SWM services to indicate the amount they were ready to pay (see Table 27). The results from the table show that the service users were willing to pay an average of GH¢1.02 higher for improved SWM services across the two Metropolises. This shows that the service users did not want to pay much higher than what they were paying for SWM services. This posture of the service users could be traced from their socio-cultural history, where

people do not pay for dumping refuse on communal dumping sites. According to Amritha and Anilkumar (2016), many people consider waste as something they do not have to spend additional resources on. Another issue could be that service charges for SWM are quite new to the people in the two Metropolises. Unlike water and electricity which have been with them for more than five decades, extensive service charges for SWM is less than two decades and the service users are gradually accepting it. It, therefore, requires some level of education and public sensitisation to encourage the service users to understand the need to pay for SWM services.

Table 27: Amount Willing to Pay for Improved Solid Waste Management Services

	CCMA				STMA				Total
	High	Middle	Low	Total	High	Middle	Low	Total	
Freq.	-	55	24	79	-	51	-	51	130
Mean	-	2.304	1.203	1.203	-	0.739	-	0.739	1.021
Stdv.	-	0.404	0.463	0.405	-	0.0918	-	0.918	0.392
Median	-	1.00	2.00	1.00	-	0.700	-	1.00	1.00
Mode	-	1.00	1.00	1.00	-	0.700	-	1.00	1.00
Mean rank	-	43.49	32.00	89.01	-	26.00	-	29.09	
Sum of ranks	-	-	-	7031.50	-	-	-	1283.50	

U-statistic = 157.5000 z = -9.757 df = 128 p-value = 0.001

Skewness = 1.778

Source: Field survey (2018)

Mann-Whitney U-test was used to test for significance of difference in the average amounts willing to be paid by service users for improved SWM services between CCMA and STMA. This was because the skewness value for the distribution was 1.778, which was outside ± 0.5 . From Table 27, a p-value of 0.001 (U-statistic = 157.5000; $z = -9.757$; $df = 128$) in relation to the alpha value of 0.05 shows that there was a statistical significant difference in the average amount of money the service users were willing to pay for improved SWM services between CCMA and STMA.

From the study, all the institutional representatives admitted their willingness to subscribe to the partnership for SWM over the next five years. The representative of Zoomlion Ghana Limited at STMA added,

The Company has the financial and technical capacity to execute its mandate in the contract. We also have the capacity to expand our operations to cover newly developed areas of the Metropolis and other forms of waste management. As part of our demonstration, we are planning to build a waste treatment plant in the Metropolis over the next five years.

The narration above demonstrates the willingness of the service provider in maintaining the partnership. The willingness of the company to further invest in the treatment of solid waste is also a demonstration of the service provider to sustain the partnership.

Table 28 presents results on the willingness of the household heads to continue with their subscription of the PPP in SWM over the next five years. The table revealed that the majority (75.6%) of the household heads were willing to continue to subscribe to the current form of the PPP arrangement in

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 SWM over the next five years. This was a positive demonstration to ensuring the sustainability of the partnerships in SWM across the two Metropolises. In other words, their willingness to continue to subscribe to the current form of the PPP arrangement was an indication of their commitment to sustain the partnership.

Table 28: Willingness to Continue to Subscribe to the Current Form of Public-Private Partnership Arrangement in Solid Waste Management for the Next Five Years

Residential class	CCMA (%)			STMA (%)			Total (%)		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
High	59 (24.7)	-	74 (54.0)	123 (37.5)	-	-	182 (32.1)	-	74 (54.0)
Middle	84 (35.1)	-	63 (46.0)	158 (48.2)	46 (100.0)	-	242 (42.7)	46 (100.0)	63 (46.0)
Low	96 (40.2)	-	-	47 (14.3)	-	-	143 (25.2)	-	-
Total	239 (63.6)	-	137 (36.4)	328 (87.7)	46 (12.3)	-	567 (75.6)	46 (6.1)	137 (18.3)

Source: Field survey (2018)

From the study, some of the reasons given by the respondents for their willingness to continue with the subscription of PPP arrangement in SWM were cleanliness of the environment, provision of quality waste collection services, household collection of waste, and not having any other option or alternative in waste management services. On the other hand, some of the

reasons ascribed for the unwillingness of some of the respondents to continue with the subscription of the PPP arrangement in SWM were high cost of service, low participation in fee fixing, lack of sanctions for poor performance, and poor flow of information. The results show that the above elements are factors which could influence the sustainability of the partnership in SWM across the two Metropolises. As a result, there is the need for all the partners to consider them in the contractual arrangement to ensure the sustainability of the partnership in SWM.

Interviewing the representatives of the WMCs revealed that delays in payment from the Assemblies and service users as well as the delays in reviewing contract figures for municipal waste collection posed major threats to the sustainability of their operations. The representatives of Zoomlion Ghana Limited in both CCMA and STMA reported that revising service charges of municipal waste collection services to reflect current economic indicators and cost of operations was necessary to improve the finances of the company to sustain their operations.

Implementation and Post-Implementation Operations

The nature of implementation and post-implementation operations has critical implications on the extent of sustainability of PPP arrangements. This is the stage for the actualisation of the tenets of the contract. For this reason, stakeholders will be more willing to work to sustain the partnership when their interests are adequately represented and managed in the implementation process and vice-versa when they feel that their interests are underrepresented. The section employed interest matrix to analyse the interests of the

stakeholders in the implementation processes of the PPP arrangements in SWM in the two Metropolises.

Interest analysis for stakeholders in the public-private partnership arrangement for solid waste management

Table 29 presents the interest matrix for stakeholders in the PPP arrangement for SWM. It examines the extent to which the various stakeholders perceived the representation of their interests in the implementation of the contract and their effects on the sustainability of the partnership.

Interest analysis for Environmental Waste Management Department

The interests of the EWMD in the partnership are to supervise the WMCs to ensure that they provide services up to the agreed quality standards, and also ensure improved environmental sanitation in the metropolises. From the study, the representatives of the EWMDs of the two Metropolises reported that they were largely satisfied by the extent to which such interests were represented in the implementation of the contract. This was because they monitor the WMCs to ensure their compliance to the agreed service standards before preparing monthly and quarterly reports for the payment of sanitation fees to the WMCs. They, however, suggested the need to be provided with some logistics, including vehicles and protective gears for effective monitoring. They also suggested the need to sensitise the public to desist from self-managing solid wastes from their homes and subscribe to any of the services of the WMCs to improve environmental sanitation in the Metropolises.

Table 29: Interest Matrix for Stakeholders in the Public-Private Partnership Arrangement for Solid Waste Management

Stakeholders	Interests	Satisfaction with interest representation in contract execution	Reasons for level of satisfaction	Recommendations for sustainable partnership
EWMD	<ol style="list-style-type: none"> 1. Prompt collection of waste 2. Improved environmental sanitation 3. Supervise WMCs on quality service 	Largely satisfied	Monitor WMCs for prompt services, but still has to improve	<ol style="list-style-type: none"> 1. Require logistics for monitoring 2. Sensitise the public to use WMC services to improve sanitation
WMCs	<ol style="list-style-type: none"> 1. Regular collection of waste 2. Make profit from operations 3. Meet the service expectations of clients 4. Attract more clients 5. Use improved technology in SWM 	Partially satisfied	Delayed payments affecting profits and investments	Prompt payment from Assemblies and service users
FBO	<ol style="list-style-type: none"> 1. Ensure prompt payment to WMCs 2. Maintain proper accounts on WMCs 	Very satisfied	Have a robust accounting system in place for payments	Maintenance and training on accounting system
PICD	<ol style="list-style-type: none"> 1. Ensure prompt payment to WMCs 2. Monitor contract execution 3. Address issues with contract execution 	Satisfied	Maintained good cohesion among partners	Continuous dialogue among stakeholders

Table 29, continued

MPO	1. Determine areas to be served with various SWM services	Largely satisfied	Significantly addressed sanitation problem	Provide skip containers in other areas to reduce time and distance for dumping refuse
Assembly persons	<p>2. Monitor feedback on health outcomes</p> <p>1. Scrutinise SWM contracts</p> <p>2. Monitor contract implementation</p> <p>3. Ensure that fair fees are charged</p> <p>4. Prompt collection of waste</p> <p>5. Improved environmental sanitation</p>	<p>Somehow satisfied</p> <p>1. Play little role in contract preparation</p> <p>2. Receive many complaints</p> <p>3. Having little power to cause WMCs to work</p> <p>4. Little participation in fee fixing</p>	<p>1. Engage Assembly persons to review contract</p> <p>2. Empower Assembly persons to cause WMCs to work</p> <p>3. Involve Assembly persons in fee fixing</p>	
Service users	<p>1. Prompt collection of waste</p> <p>2. Pay fair prices for SWM</p> <p>3. Sanction WMCs who perform poorly</p> <p>4. Participate in fee fixing</p> <p>5. Participate in contract preparation</p> <p>6. Improved environmental sanitation</p>	<p>Somehow satisfied</p> <p>1. High fees for waste collection</p> <p>2. Lack of transparency in fee fixing</p> <p>3. No sanctions for poor performance</p>	<p>1. Engage service users in fee fixing</p> <p>2. Assembly applying sanctions to compel WMCs to improve performance</p>	

Source: Author's construct (2018)

The interests of the WMCs in the PPP arrangement are to ensure regular collection of waste, making profits from operations, and adopt improved technologies in SWM services. The representatives of the WMCs reported to be partially satisfied with the extent to which their interests had been represented in the implementation of the contract. Some of the reasons why the WMCs were partially satisfied with the implementation of the contract were delayed payments from both the Assemblies and service users, and occasional congestion at the final disposal site. Delayed payments affected the capacities of the WMCs in acquiring new and improved logistics for effective SWM services. They recommended prompt payment from both the Assemblies and service users to promote sustainability of the partnership by enabling them to be financially viable to continuously invest in improved technology to deliver up to the expectations of the partners.

Interest analysis for Finance and Budget Offices

The role of the FBOs is to prepare and maintain proper accounts on the WMCs for prompt payments. The importance of their role is to promote transparency and accountability in all public payments to the WMCs in the partnership. The representatives of the FBOs were very satisfied with the extent to which their interests were represented in the execution of the contract because MOFEP had installed a robust accounting system under the Public Financial Management Reform Programme to manage and track all payments. The recommendation was that the current accounting system should be maintained to promote accountability and transparency in the partnership for sustainability.

The roles of the MCDs in the PPP arrangement for SWM are to monitor the implementation of the contract, and also address conflicts and concerns among stakeholders in the process. The offices of the MCDs were satisfied with their involvement in the implementation of the contract because they had been able to maintain cohesion among the implementing partners over the years. They, therefore, recommended for continuous dialogue among stakeholders to address their differences to sustain the partnership.

Interest analysis for Metropolitan Planning Offices

The MPOs were responsible for categorising the communities into residential classes for the WMCs based on the population characteristics. This classification is used to determine the waste collection service types for the various residential classes and fee collection strategies by the WMCs. The representatives of the MPOs were largely satisfied with their roles in the execution of the contract because they had contributed to improve sanitation significantly in the Metropolises. They suggested the need for the provision of additional skip containers in other areas of the Metropolises to improve environmental sanitation.

Interest analysis for Assembly persons

The Assembly persons had interest in scrutinising SWM contracts, monitoring contract implementation, ensuring fair fees for SWM services, and prompt collection of wastes from the communities. They were generally somehow satisfied with the extent to which such interests were reflected in the implementation of the PPP contract. This was because they complained of

playing little role in the preparation of the contract and fee fixing, and having little power to cause the WMCs to respond to the concerns of their electorates. In order to ensure the sustainability of the partnership, the Assembly persons recommended the need to engage Assembly persons to review the PPP contract to give some powers to the people's representatives to influence the implementation processes.

Interest analysis for service users

The interests of the service users in the PPP arrangement for SWM included prompt collection of waste, payment of fair prices, participating in fee fixing and contract preparation, having sanction system for poorly-performed WMCs, and having improved environmental sanitation. They, however, described the extent to which the above interests were represented in the implementation of the PPP contract as somehow satisfied. This was because they complained of paying high fees for waste collection, lack of transparency in fee fixing, and lack of sanctions for poor performance by WMCs. In order to ensure the sustainability of the partnership, they suggested that there is need to engage service users in the fixing of fees, and the Assemblies should be willing and ready to sanction the WMCs who perform below the quality standards.

Prediction about the Sustainability of the Partnership

The study further inquired from the service users about their prediction on the quality of service delivery of the WMCs in the future. This was important because such perceptions were necessary to sustain their interests in the partnership for effective SWM. The results are presented in Table 30. The

table shows that the majority (57.1%) of the service users perceived that the future quality of service delivery by the WMCs would improve.

Table 30: Future Prediction about the Quality of Service Delivery of Waste Management Companies

Description	CCMA (%)	STMA (%)	Total (%)
Improve	207 (55.1)	221 (59.1)	428 (57.1)
Same	169 (44.9)	143 (38.2)	312 (41.6)
Deteriorate	-	10 (2.7)	10 (1.3)
Total	376 (100.0)	374 (100.0)	750 (100.0)

Source: Field survey (2018)

The results indicate that the majority of the service users across the two Metropolises had confidence in the capacities of the WMCs to improve their service delivery in the partnership. This perception is very critical in sustaining the PPP arrangement in SWM across the two Metropolises. According to Wilson *et al.* (2012), the perception of service users about the future performance of service performance has critical influence about their decision to remain or sustain the partnership with a service provider. The implication of the above results is that irrespective of the concerns raised by the service users in the interest analysis, they have positive outlook about the future service performance under the PPP arrangement.

The main reasons for the positive perception about the future performance of service providers in the SWM PPP arrangements in the two Metropolises were WMCs showing commitment to improve service, possible increase in competition among WMCs, and the readiness of the service users

to demonstrate against the WMCs and Assemblies, if they failed to improve performance. This suggests that the service users were willing to revolt to cause improvement in the service provision by the WMCs in the future. The implication is that there is the urgent need for the Metropolitan Assemblies to create common platforms for all the stakeholders to interact to address their concerns to avoid disrupting the cohesion in the partnership. The above results further show that the service users had confidence that the number of the WMCs will increase to improve their service provision. In other words, the perceived increased competition among the WMCs as part of the solution for future improvement in the quality of service from the partnership.

Summary of the Chapter

Sustainability has been a major issue in most PPP arrangements in Ghana. The chapter provided an assessment of the possibility of sustaining the partnership in SWM, as environmental sanitation has been a major discourse in the development process. The issues covered include relevancy, acceptability, economic and financial viability, and implementation and post-implementation operations.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents a summary of the study, including the major findings. The chapter again presents the overall conclusions of the study as well as recommendations to enhance the sustainability of the PPP arrangement in SWM in CCMA and STMA.

Summary

PPPs are widely peddled to offer improved accountability, greater innovation and long-term efficiencies. However, to achieve the anticipated benefits of PPP in SWM, it is necessary to recognise the circumstances under which PPPs will be sustainable. This study sought to assess the factors contributing to the effective operations of the PPP agreements in SWM and how the stakeholders are managing the operational challenges in CCMA and STMA. The study also aimed at examining the contractual arrangements between the public and private sectors for SWM, the quality of SWM services through PPP in the two Metropolises, and the level of sustainability of PPP in SWM in the two Metropolises. The study was guided by the neo-liberal theory, public choice theory and stakeholder theory.

The study adopted the pragmatist research paradigm. Accordingly, the mixed methods research design was adopted for the study. The study adopted evaluative, ex post facto and descriptive study designs. The study population comprised staff of CCMA, STMA and WMCs [CCMA: Zoomlion Ghana Limited and Alliance Waste Company Limited; STMA: Zoomlion Ghana Limited, Waste 360 company Limited, and Deloved Waste Management

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Company] in the two Metropolises. Others were Assembly members, and household heads in the two Metropolises. The total study population was 185,694, comprising 41,397 from CCMA and 144,297 from STMA. A total of 812 respondents were engaged in the study. This comprised 403 respondents from CCMA and 409 from STMA. Both purposive and stratified random sampling techniques were used to sample respondents for the study.

The study adopted interview guide, FGD guide, observation guide, and interview schedule as instruments for gathering data. The Labov's thematic synchronic organisation under narrative analysis was used to analyse the qualitative study. The quantitative data were processed with SPSS version 21 and Microsoft Excel 2013 Professional Edition. Descriptive statistics such as frequencies, percentages, means and standard deviations were used to analyse the data. Inferential statistics such as chi square test of independence, Mann Whitney U test, and independent sample t-test were used to test for significance of difference on issues between the two Metropolises. An error margin of five per cent (0.05) was used for all inferential analyses.

Major Findings

This section presents a summary of the major findings of the study. The section is organised under the research objectives.

Contractual arrangements between public and private sector players in solid waste management

1. The study found that the policy document that established the PPP arrangement in SWM for the two Metropolises was prepared and approved at the national level among the MOFEP, MLGRD and Zoomlion

- Ghana Limited. This depicts that the top-down approach was employed, which denied the local stakeholders the opportunity to participate in the contract preparations to ensure that their interests were adequately represented.
2. The criteria used by both Assemblies in the selection of WMCs included inspection of insurance policy to cover one's operations, bank statement indicating the financial health of the company, physical inspection of the types and number of waste management equipment owned or available to the companies, service charges of the companies, and previous experiences of the companies in waste management services. These criteria were employed to examine the capacity of the applicants to effectively execute their mandates as well as stimulate competition among the WMCs to ensure value for money in SWM services by the Assemblies.
 3. The block or lot system in the allocation of operational areas to WMCs did not encourage competition among the service providers. Thus, the lot system did not create alternatives for service users to switch from one service provider to the other when they are not satisfied with their service provision of a particular WMC. As a result, any time the WMCs failed to perform as expected, individual subscribers had nothing to do than to wait or complain to their Assembly members. This limited the powers of the service users in the partnership to cause significant changes in the PPP arrangement for SWM in the two Metropolises. However, the block or lot system allowed the Metropolitan Assemblies to effectively monitor the performance of the WMCs.

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From the study, whereas the STMA had instituted polluter-pays principle to compel all service users to pay for SWM services, the CCMA pays for all municipal waste collection on behalf of low-class and middle-class residents. This has contributed to increased sanitation budget of the CCMA and, as a result, makes it difficult for the Assembly to add more communal skip containers in other growing communities to effectively address sanitation problems in the Metropolis. Nonetheless, the polluter-pays principle has enabled the STMA to increase the number of communal skip containers to newly developed areas and growing communities to address their sanitation problems.
5. The use of residential classification as a measure for promoting fairness in the fee-paying process in the PPP arrangement in the two Metropolises was not refined enough to target subscribers with the fees they deserved. This was because residents in the residential cohorts did not have uniform income levels, which implied a low-income earning person living in a high-class residential area had to pay fees meant for the high-income earners. The effects were that, while some low-income service users were compelled to pay for fees meant for the high-income earners, others had to either create their own dumpsites in their homes and burn the refuse or commute long distances to low-class residential areas to dispose of their solid wastes. This situation created environmental and sanitary challenges in some of the high-class and middle-class residential areas as some household heads complained about the public nuisance created through the creation of household dumpsites and burning of refuse in their vicinities.

1. The study found that the poor handling of the communal skip containers such as filling waste with sand and hot coal caused the fast deterioration of the containers. This partly increased the cost of operations of the WMCs and also affected the cleanliness at the dumping sites. The sand caused the containers to be full quickly and increased the weight of the skip containers during lifting. The hot coal sometimes catches fire and cause severe damage to the skip containers.
2. From the study, both Metropolises had less number of personnel and logistics as required for effective SWM service delivery. This partly affected the tangibility in the quality of SWM services in the Metropolises as the absence of some personnel or breakdown of some equipment disrupted the operational time-tables of the WMCs. It was, however, found that the maintenance of lean staff was a strategy to reduce the cost of operations of the WMCs.
3. From the study, the stakeholders admitted that the sanitation situation in the two Metropolises had improved over the previous situation, where there were mounts of refuse dumps dotted in and around the Metropolises. The use of skip containers and regular lifting of the containers had contributed to improve sanitation in the Metropolises. This positive experience is likely to help sustain the interests of the stakeholders in the partnership for effective SWM services.
4. Delays in payment from both the Assemblies and service users were found to be affecting the quality of service provision from the WMCs as well as

the sustainability of their operations. Thus, the delays in payment stifled the capacity of the WMCs to invest in new and improved technologies for effective and reliable waste collection service delivery. This affected the logistic capacities of the WMCs in the two Metropolises.

Level of sustainability of public-private partnership in solid waste management

1. Low participation of major stakeholders such as service users and in the case of CCMA Assembly persons in the determination of waste collection charges posed major threats to the sustainability of the partnership. This has resulted in high default payment among service users, which threatened the financial viability of the operations of the WMCs as well as the unilateral abrogation of door-to-door waste collection contract by some service users, which also threatened the sustainability of the partnership.
2. Many (49.1%) of the service users were not satisfied with the fees paid for SWM in relation to the quality of services provided through the PPP arrangements. The main reason for the non-satisfaction with the fees for SWM across the two Metropolises was high cost. This implies that quite a significant proportion of the service users may want the fees for SWM to be reviewed downwards to reflect the quality of services provided by the WMCs.
3. The study found that the CCMA was overwhelmed by sanitation budget which threatened the sustainability of the partnership in the Metropolis. This was because the CCMA had assumed the waste collection cost of

service users in low- and some middle-class residential areas. This has contributed to increase the proportion of the sanitation budget to almost 50 per cent of the Assembly's annual budget. The high proportion of sanitation budget of the Assembly was also frustrating the ability and capacity of the CCMA to effectively manage solid wastes through the PPP arrangements. This was because it was contributing to denying other areas in the Metropolis from securing improved communal skip containers for improve sanitation in the Metropolis.

4. The majority (57.1%) of the service users perceived that the future quality of service delivery by the WMCs would improve. This showed that the majority of the service users across the two Metropolises had confidence in the capacities of the WMCs to improve their service delivery in the partnership. This perception is very critical in sustaining the PPP arrangement in SWM across the two Metropolises.

Conclusions

The contractual arrangements between the public and private sector players in SWM emanated from a change in the policy direction of the government, following pressure from the World Bank and IMF to allow for greater private sector participation in SWM in the country. However, the top-down approach was employed in the contract signing, which denied the major local stakeholders the opportunity to participate in the contract preparations to ensure that their interests were adequately represented. Although the competitive bidding system was later used to select WMCs in the MMDAs, the block system of allocating particular areas to specific service providers did

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not encourage competition among the WMCs to improve service quality, offer competitive service charges to subscribers, and empower service users to influence the contract execution process. The pricing strategy of using residential classes as the basis for determining the SWM service types and charges by the Assemblies was also less robust and unfair to encourage high rate of subscription to SWM services under the partnership.

Generally, the quality of SWM services through the PPP arrangements has improved, thus improving the sanitation situations in the both STMA and CCMA. The efficiency of the private sector was exhibited through regular periods of lifting refuse from the communities, which had contributed in reducing open dumping sites in the Metropolises. However, due to quality improvement and the profiteering aim of private actors, the partnership in SWM impacted negatively on the poor and contributed to the increase in the gap between the rich and the poor. Thus, some low-income household heads could not subscribe to the SWM services by the WMCs. The occasional delays in the lifting of refuse due to personnel and logistic challenges from the WMCs were also a major setback in the service delivery under the partnership. Delays in the payment of services from the Assemblies and service users to the WMCs were also stifling investments in the sector.

As evidence of commitment to improved sanitation conditions in the STMA and CCMA through PPP, all the stakeholders were willing to help sustain the partnership. However, high service charges, and the low level of participation and transparency in the fixing of sanitation fees in the partnership would pose serious threats to the sustainability of the partnership in SWM.


Based on the conclusions of the study, the following recommendations were made to enhance the sustainability of the partnership in SWM in the two Metropolises.

1. The study recommends that the CCMA and STMA should allow for open competition among the WMCs, which could help bring down the service charges on service users, and improve the service quality in the implementation of the contract as practised in Ireland, Germany and Sweden. This could be done by eliminating all the blocks for particular WMCs and encouraging open competition among the WMCs. The strategy will give the free will to the service users to determine and select their own service providers based on the quality of performance. With this strategy, the Assemblies only have to vet and approve of the WMCs they deemed fit to operate in their jurisdictions. The onus, therefore, lies on the WMCs to convince service users to subscribe to their services based on their service packages, including service fees, number of times waste will be lifted within a particular time period, and regularity in service provision. The strategy will also encourage the WMCs to devise various strategies for service users with different income levels in different residential classes.
2. As in the case of the STMA, the CCMA should adopt a polluter-pays principle to reduce the proportion of its sanitation cost in its total budget. The implementation of this principle will help to make residents responsible for the payment of their own sanitation fees and charges. It will also enable the Assembly to allocate additional skip containers to

- newly developed and growing communities to address their sanitation problems. This would help to improve the total sanitation situation in the Metropolis. It will again help to address the situation by which people have to commute long distances to access skip containers in the Metropolis.
3. The study recommends the passing or enactment and enforcement of a by-law by the General Assemblies of CCMA and STMA to prohibit the management of solid wastes in the households through burning and dumping in bushes, among others, that create awful scenes in the Metropolises and also have severe adverse health effects in neighbourhoods. The by-law should make it compulsory for all households to subscribe to the services of the WMCs. This will help to promote the financial viability of the operations of the WMCs as well as the sustainability of the partnership in SWM. It will also help to improve the environmental situations in neighbourhoods with respect to the management of solid waste. Offenders of the by-law should be fined to compel household heads to subscribe to the services of the WMCs in the Metropolises.
 4. It is recommended that both the CCMA and STMA should use income levels of household heads to determine the SWM service user fees instead of using residential classification. This could be done by the Assemblies tapping into the database of either the Population and Housing Census or the National Identification Exercise, when completed. These databases have proposed to capture the income of Ghanaians, especially the informal sector, to be able to direct development interventions to the relevant

beneficiaries. The use of these databases could also help refine the use of residential classifications to determine the SWM services to be provided and the fees to be charged on households by using income brackets. It will also encourage more low- and middle-income earners to subscribe to SWM services that are affordable to sustain the partnership. It will again help to eliminate situations where some low-income earners living in high-class residential areas are compelled to pay the service user fees for high-income earners, or dump refuse in bushes around the communities and burn refuse in their homes because they could not afford the service user fees.

5. The WMCs in collaboration with the EWMD and the Assembly persons should educate the populace about the need to properly handle the skip containers to ensure their sustainable use. This will help to reduce the cost of operations of the WMCs and also improve the sanitary conditions at the skip container sites. The education should focus on issues, including the need to avoid dumping hot coals and sand into the skip containers to help reduce the rate at which the containers catch fires. It should also focus on the importance of maintaining good sanitary conditions at the skip container sites to help reduce the dumping of refuse around the site instead of dumping them in the containers. This education is important to reducing environmentally-related diseases in the Metropolises. Such public education could be done through radio stations, and the Information Service Departments under the Assemblies. The education programme could be complemented by the promulgation of a by-law to fine people who dump their refuse around the sites to deter such acts.

6.  <https://ir.ucc.edu.gh/xmlui> The management of the WMCs should increase investments in the sector in terms of acquiring additional logistics and equipment as well as engaging the services of more personnel. This will help to ensure the continuous and reliable provision of waste management services to the service users. Accordingly, the increased investments in the operations of the WMCs will help to sustain the WMCs in business. This recommendation could be implemented by using the verified subscriber base of the WMCs as a demonstration of their capacity to secure financial facilities from banking institutions. It is expected that the improved service quality from the increased investments in the WMCs could help attract more people to subscribe to the operations of the service providers to enable them to repay the financial facilities on time.
7. With respect to the delays in the payment of service fees from the Assemblies, it is recommended that the EWMD and FBOs should timely prepare their monitoring reports and financial reports, respectively for onward submissions to the MOFEP for the necessary payments be made to the WMCs. This is important because delays in the payment of sanitation fees to the WMCs were caused by the delays in the preparations of the monitoring and financial reports. It is expected that the timely payment of the service fees to the WMCs will help to encourage investments in the SWM sector to improve on the quality of service provisions, the financial viability of the operations, and the sustainability of their operations in the sector.
8. It is also suggested that the General Assemblies of CCMA and STMA should enact a by-law that makes it an offense for subscribers to default

payment to the WMCs over a period of three months. This is to help compel the subscribers to make prompt payment to reduce delays in payments from SWM service users. It is expected that increasing regular payments from the subscribers could help to improve the financial positions of the WMCs, which would contribute to increase investment in the sector to enhance the sustainability of their operations in the partnership. However, part of this by-law should stipulate clearly the service quality standards expected of the WMCs to ensure that the regular payments from subscribers commensurate with improved service. The by-law should also state the punishment or charges for the WMCs when they fail to perform according to the stated service standards.

9. Similar to the STMA, the Fee Fixing Resolution Committee of the CCMA should determine and approve the service fees from the WMCs. It is expected that the Assembly persons of the Committee will consult their constituents for their inputs in the determination and approval of service fees from the WMCs. This will promote stakeholder participation and transparency in the fixing of sanitation fees in the Metropolis. It will also ensure that service fees charged by the WMCs fall in line with the quality of service provided by the service providers as well as the income levels of the service users. This will eventually help to promote the sustainability of the partnership in SWM in the Metropolis.
10. The study suggests that the General Assemblies of CCMA and STMA in collaboration with the WMCs should revise the SWM contract to reflect current economic situations and sanitation standards. Such reviews will afford the WMCs the opportunity to revise their service charges for

municipal waste collection to enable them offset their operational costs and generate adequate profits to expand and improve their operations. The review will also enable local actors and stakeholders to make critical inputs into the PPP contract to ensure that their interests are adequately represented and maximised. It will again help to improve the level of responsiveness of the operations of the WMCs to the needs of the respective Assemblies within which they operate. This will help give greater control to local stakeholders to cause critical changes in operational standards of the WMCs as well as the implementation of the contract. It is expected that the Assembly persons will consult their constituents in the contract revision process.

Contribution to Knowledge

The tenets of the neo-liberal theory about the need to engage the private sector in the management of public resources have been proposed to increase transparency, efficiency, innovation, stakeholder participation, and improving quality of service. The engagement of the private sector in SWM contributed to improve waste collection services and also eliminated mounds of refuse dumps in the two Metropolises. This was largely due to the investments made by the private sector players in the sanitation sector coupled with the monitoring roles of the MMDAs. However, issues about increasing transparency and greater stakeholder participation in public resource management through PPP had not been fully realised, as described by the neo-liberals.

The processes leading to the engagement of the private sector in the management of public resources are essential in enhancing transparency and participation among stakeholders. Thus, centralised process in engaging the private sector players denied many local actors from participating in the contractual arrangements and negotiating for their maximum interests as well as incorporating local needs and controls into the agreement to compel stakeholders to execute their functions as stipulated in the contracts. This was at variance with the cardinal goals of the public choice theory and stakeholder theory, which respectively advanced the arguments for interest representation and maximisation in stakeholder engagements, and greater involvement of all partners in contractual arrangements. The effectiveness of the neo-liberal, public choice and stakeholder policies in promoting transparency, interest maximisation and participation should critically consider the operational approaches. In other words, operationalization of these theories into practice should, as much as possible, avoid top-down decision-making processes and focus on bottom-up decision-making processes in order to realise the benefits and principles associated with the theories.

Further, the neo-liberal theory argues about relieving the public sector from financial responsibilities by allowing the citizenry or service users to pay for such public services. The STMA had promoted this principle through the polluter-pays principle by allowing service users to pay for different SWM services. This enabled the STMA to allow the WMCs to site more communal skip containers to improve communal sanitation services. However, the situation was different in the CCMA, as the Assembly was still paying for communal sanitation services for political reasons. The high financial burden

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on the CCMA resulting from increased solid waste generation in the Metropolis discouraged the Assembly from recommending the allocation of more communal skip containers in the Metropolis. Thus, the operationalization of the neo-liberal theory should be devoid of politics and be determined by rationality and market forces.

In terms of innovation, the partnership had developed various service systems for the citizens living in different residential classes to promote fairness in service charges. However, the residential classification approach was not robust enough to promote fairness in the payment of SWM service charges under the PPP arrangement. This was because income levels of residents were not uniform across residential classes. As a result, residents with low-income levels living in high-class residential areas were unable to benefit from the PPP arrangements in SWM. This deprived the poor in benefiting from the SWM services and widened the gap between the rich and the poor in accessing SWM services. The suggestion for using data on income levels of service users as stipulated in the National Identification Authority and the Population and Housing Census' databases as the basis for determining the service charges for SWM under the PPP arrangements is considered as a more innovative approach in encouraging service users to subscribe to the partnership and maintain their membership to sustain the PPP system in SWM.

Another important element in the neo-liberal theory was the promotion of competition among private sector players to help ensure fair prices for service users. From the study, the Assemblies adopted the block system to allocate operational areas to the WMCs and for monitoring purposes.

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Nonetheless, this system did not encourage competition among the private sector players to unleash the full benefits of PPP in SWM. This was a major setback that threatened the sustainability of PPP in SWM. The recommendation to allow for the open participation of private sector players in SWM is, therefore, an innovative way to empower service users to demand service accountability and also compel service providers to increase investments in SWM. All these are expected to help enhance the sustainability of PPP in SWM.

Suggestion for Further Studies

The study suggests that further studies should be conducted into the impact of the PPP arrangements in SWM on the health status of the residents in the two Metropolises. This is important, as health condition is one of the critical reasons for the adoption of improved PPP to effectively manage solid wastes in the Metropolises. The findings of such a study will enable the management of the two Metropolises to ascertain the health achievements of the PPP arrangements in SWM and the importance to either maintain the partnership or review part of the partnership to enhance its effect on improving the health conditions of the people in the Metropolises.

The study could compare health trends in the Metropolises before and after the implementation of the PPP arrangements in SWM to ascertain the disease trends. The study could also analyse disease trends during the implementation of the PPP contract in SWM to ascertain whether there are reductions in environmentally-related diseases or not. The study could also examine differences in the trends of diseases among persons from varied

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residential classes to ascertain whether some SWM service types have critical impact in reducing environmentally-related diseases or not. Thus, further study could be undertaken to assess the nexus among solid waste management, environmental sanitation policy, and health of residents under the PPP arrangement.



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APPENDICES

Appendix A: Interview Schedule for Heads of Households

Dear Sir/Madam,

I am Millicent Abigail Aning-Agyei, a PhD student at the School for Development Studies at the University of Cape Coast. I am conducting a study into the sustainability of public-private partnership (PPP) in solid waste management (SWM) in Ghana. The study specifically seeks to assess the contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. This is an academic investigation toward the award of a doctoral degree in Development Studies at the University of Cape Coast. I, therefore, entreat you to spare me some time to respond to issues in the instrument. The interview will last for about an hour. You are please assured of anonymity, and any information provided would be treated with utmost confidentiality. Please note that the accuracy of your information is also very critical to the success of this study.

Thank you

Section A: Background information of respondents

1. Name of Metropolis: [1] CCMA [2] STMA
2. Name of community (Specify):
3. Household identification number:
4. Residential class: [1] High [2] Middle [3] Low
5. Date of interview:
6. Sex: [1] Male [2] Female

7. Age (in years): **University of Cape Coast** <https://ir.ucc.edu.gh/xmlui>

8. Main occupation: [1] Self-employed [2] Salaried worker [3] Casual worker/Domestic [4] Student [5] Unemployed [6] Not able to work/Handicapped

9. Marital status: [1] Single [2] Married [3] Separated [4] Divorced [5] Widowed

10. Level of education: [1] None [2] Basic [3] SHS [4] Tertiary

11. Monthly household income (in GH¢): [1] Below 1,000 [2] 1,000 – 2,000 [3] 2,001 – 3,000 [4] 3,001 – 4,000 [5] 4,001 – 5,000 [6] Above 5,000

12. Residential tenure status: [1] Owner [2] Tenant [3] Rent-free occupant [4] Others (Specify)

13. Mode of storing solid wastes: [1] Refuse bin [2] Basket/ Bucket [3] Polythene bag [4] Carton boxes [5] Others (Specify)

14. Type of waste disposal: [1] Door-to-door [2] Skip container [3] Open space [4] Open burning [5] Others (Specify)

15. Reason for the type of waste disposal: [1] Standard in community [2] Convenience [3] Unable to afford others [4] Long distance [5] No skip containers [6] Others

16. How often are your wastes collected in a week? [1] Daily [2] Once [3] Twice [4] Thrice [5] Others (Specify)

17. How will you describe the sanitation conditions around the waste containers? [1] Very good [2] Good [3] Indifferent [4] Poor [5] Very poor

18. Give reason(s) for your answer to Question 17: [1] Litters around
[2] Overloaded waste containers [3] Worn out waste containers
[4] Covered waste containers [5] Scattering of wastes by animals and
birds [6] Others (Specify)

**Section B: Contractual Arrangements between Households and Partners
in SWM**

19. Which waste management entity collects wastes in your area for disposal?
[1] Metropolis Waste Management Department (WMD)
[2] Zoomlion CCMA [3] Alliance Waste [4] Zoomlion STMA
[5] Waste 360 [6] Deloved Waste Management Company [8] Others
(Specify)
20. Do you have any contractual arrangement with any company to collect
household or communal waste? [1] Yes [2] No
*If Yes to Question 20, please answer the following questions (If No to
Question 20, please skip to Question 31)*
21. Type of waste: [1] Household waste [2] Communal waste
22. Contractual entity for waste collection: [1] Assembly

[2] Waste Management Company (WMC)

- a. Zoomlion CCMA
- b. Alliance Waste
- c. Zoomlion STMA
- d. Waste 360
- e. Deloved
- f. Others (Specify)

- [1] Informed about the contract
[2] Consulted about the contract
[3] Entered into the agreement myself

24. How did you enter into the contract?
[1] Entered myself
[2] Assembly entered into the agreement on my behalf
[3] Community leaders

25. To what extent does the contract meet your SWM needs?
[1] Very low [2] Low [3] Don't know [4] High [5] Very high

26. What sanctions do you apply when your wastes are not collected as scheduled?
[1] Nothing [2] Complain to Assembly person
[3] Complain to WMC [4] Demand explanation [5] Abrogate contract
[6] Others

27. How much do you pay for waste collection in a month?

28. Who determines how much to be paid for waste collection services?
[1] Don't know [2] Assembly [3] WMC

29. To what extent do you have control over the fee fixing process?
[1] Very low [2] Low [3] Medium [4] High [5] Very high

30. What role do you play in the fee fixing process? [1] None
[2] Informed of how much pay [3] Bargain with WMC/Assembly

If No to Question 20, please answer the following questions

31. How much do you pay for waste collection (use of skip containers) in a month?

32. Who do you pay the money to? [1] Assembly [2] WMC
[3] Others

33. What sanctions do you apply when your wastes are not collected as scheduled?

- [1] Nothing [2] Complain to Assembly person [3] Complain to WMC [4] Demand explanation [5] Others

34. Who determines how much to be paid for waste collection services?

- [1] Don't know [2] Assembly [3] WMC

35. To what extent do you have control over the fee fixing process?

- [1] Very low [2] Low [3] Don't know [4] High [5] Very high

36. What role do you play in the fee fixing process? [1] None

- [2] Informed how much pay [3] Bargain with WMC/Assembly [4] Others (Specify)

Section C: Quality of SWM Services

37. How satisfied are you with the following about the quality of SWM services? Using 1 = Very satisfied, 2 = Satisfied, 3 = Indifferent, 4 = Less satisfied, and 5 = Least satisfied

SERVQUAL indicators	1	2	3	4	5
Tangibility					
Conditions of trucks and facilities used to collect waste					
Neatness and safety of personnel					
Assurance					
Ability of personnel to inspire trust and confidence					
Personnel are polite and courteous					
Cost of services					
Empathy					

Personnel provide individual attention to customers					
Personnel deal with customers in a caring manner					
Responsiveness					
Receives prompt SWM services					
Personnel are willing to help customers with waste collection services					
Reliability					
WMC/Assembly provides services it promises to deliver					
WMC/Assembly provides services on schedule					

Section D: Challenges of PPP in SWM

38. How do you agree to the following as challenges encountered in PPP in SWM? Using 1 = Strongly disagree, 2 = Disagree, 3 = Don't know, 4 = Agree, and 5 = Strongly agree

Challenges	1	2	3	4	5
High cost of waste collection services					
Low participation in contractual arrangements					
Lack of sanctions for poor performance					
Poor coordinating role from the Assembly					
Low reliability of services					
Poor accountability mechanism in the arrangement					
Lack of service standards					
Poor equipment and inappropriate technologies					

Weak enforcement of standards					
-------------------------------	--	--	--	--	--

Section E: Level of Sustainability of PPP in SWM

39. What are your interests in the partnership for SWM? *[Please tick as apply]*

Interests	Have interest been met?	Explain
Have cleaned environment		
Timeliness in waste collection		
Pay reasonable cost for waste collection		
Participate in fee fixing process		
Sanction partners who fail to perform as agreed in the contract		
Others (Specify)		

40. To what extent have these interests been met through the partnership?

- [1] Very low [2] Low [3] Medium [4] High [5] Very high

41. How would you rate the coordinating role of the Assembly in ensuring that

- your interests in the partnership are met? [1] Excellent [2] Very good

- [3] Good [4] Bad [5] Very bad

42. To what extent has the current arrangement in SWM contributed to addressing your waste management problems?

- [1] Very successful [2] Successful [3] Don't know [4] Less

- successful [5] Least successful

43. Reason(s) for your answer:

- [1] Addressed household waste collection problems
- [2] Improved environmental sanitation
- [3] Mounds of waste still exist in communities
- [4] Delays in waste collection
- [5] Less reliability in waste collection
- [6] Others (Specify)

44. How would you describe your level of satisfaction with the fees for SWM in relation to the quality of services provided?

- [1] Very satisfied
- [2] Satisfied
- [3] Don't know
- [4] Less satisfied
- [5] Least satisfied

45. Reason(s) for your answer: [1] High cost [2] Poor service quality [3] Addressing solid waste collection problem [4] Others (Specify)

46. Would you pay a higher fee for improved SWM services? [1] Yes [2] No

47. Reason(s) for your answer: [1] To have clean environment [2] To improve timeliness and reliability of service [3] They are not trustworthy [4] SWM charges already high [5] Others (Specify)

48. How much more are you willing to pay?

49. How relevant is the PPP arrangement in its current form in effectively managing solid waste in the Metropolis? [1] Very relevant [2] Relevant [3] Don't know [4] Less relevant [5] Least relevant

50. Would you want to continue to subscribe to the current arrangement for the next five years? [1] Yes [2] No

51. If Yes to Question 50, give reason(s) for your answer: [1] Tidying up the environment [2] Provision of prompt and quality waste collection services [3] Innovative ways of collecting wastes [4] Others (Specify)

52. If No to Question 50, give reason(s) for your answer: [1] High cost [2] Low participation in fee fixing [3] Low competition among WMCs [4] Lack of sanctions for poor performance [5] Poor quality of waste management service [6] Poor flow of information [7] Others (Specify)

53. Based on past experiences, how would you rate the logistics capacity of the WMC to effectively manage solid waste in the near future? [1] Very low [2] Low [3] Medium [4] High [5] Very high

54. What will be your prediction about the quality of service delivery of your WMC in the future? [1] Improve [2] Same [3] Deteriorate

55. Reason(s) for your answer: [1] Company showing commitment to improve service [2] Sanctions from Assembly [3] Agitations from customers [4] Lack of competition [5] Non-application of sanctions to poor performance [6] Little concern shown by the Assembly [7] Others (Specify)

56. Any additional information:

Thank you

Appendix B: Interview Guide for Representatives from Metropolitan Coordinating, Planning and Environmental Waste Departments

Dear Sir/Madam,

I am Millicent Abigail Aning-Agyei, a PhD student at the School for Development Studies at the University of Cape Coast. I am conducting a study into the sustainability of public-private partnership (PPP) in solid waste management (SWM) in Ghana. The study specifically seeks to assess the contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. This is an academic investigation toward the award of a doctoral degree in Development Studies at the University of Cape Coast. I, therefore, entreat you to spare me some time to respond to issues in the instrument. The interview will last for about an hour. You are please assured of anonymity, and any information provided would be treated with utmost confidentiality. Please note that the accuracy of your information is also very critical to the success of this study.

Thank you

1. Is there a policy on waste management for the Metropolis? [Collect a copy, if Yes]
2. How many WMCs currently operate under the Assembly? List them
3. How did you select these companies for partnership in SWM?
4. How long has the Assembly been in partnership with WMCs for SWM?
5. How would you describe the financial capacity of the WMCs to execute their roles in SWM in terms of the following?

a. Salaries to engage competent personnel

b. Funds to acquire relevant equipment and machinery

6. How would you describe the technical capacity of the WMCs to execute their roles in SWM in terms of the following?

a. Relevant equipment and machinery

b. Skilled personnel

7. What are your equipment needs in SWM:

Equipment	Number Available	Number Required
Safety gears		
Skip containers		
Obofo bicycles		
Motorised tricycles		
Graders		
Skip trucks		
Compaction trucks		
Roll-on and roll-off trucks		
Bulldozers		
Others (Specify)		

8. What are your personnel needs in SWM:

Personnel	Number Available	Number Required
For waste collection		
For waste segregation		

For waste disposal		
For waste treatment		
For waste recycling		
Landfill engineers		
Truck drivers		
Safety officers		
Environmental officers		
Others (Specify)		
.....		

9. What are the interests of the Assembly in the PPP arrangement for SWM?
10. Apart from the WMCs, which other stakeholders did you consult in the preparation of the contract?
11. What is the role of the Assembly in the implementation of the contract for SWM?
12. What are the roles of the other stakeholders in the implementation of the contract?
13. What are the roles of the WMCs as defined in the contract for SWM?
14. What performance management indicators do you use to assess the WMCs?
15. When was the last time the performance standards for the partnership were reviewed?
16. What were the changes made in the review?
17. How do you monitor the performance of WMCs to ensure their adherence to contract specifications?

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18. What mechanisms are used to resolve conflicts in the implementation of the contract?
 19. What sanctions do you apply when the WMCs fail to perform as expected?
 20. How effective have the sanctions been in improving the operational performance of the WMCs?
 21. How would you describe the effectiveness of the PPP arrangement with the WMCs in managing solid waste in the Metropolis in terms of the following?
 - a. Waste collection services
 - b. Waste segregation
 - c. Waste disposal
 - d. Waste treatment
 - e. Waste recycling
 22. What do you think could be done to improve the effectiveness of the PPP arrangement in managing solid waste in the Metropolis?
 23. What informed the frequency with which WMCs are to collect municipal wastes from a particular location in a week?
 24. Please share with me the amount of payments made by the Assembly to the WMCs over the past three years
 25. How much has the Assembly received from the WMCs to the Assembly over the past three years? [*Ask for details, if payments were made*]
 26. What are the amounts received for?
 27. How relevant is the PPP arrangement in its current form in effectively managing solid waste in the Metropolis?
 28. How has the Assembly benefited from this partnership?

29. How will you describe the quality of service of the WMCs regarding the following?
- Timeliness in collecting waste
 - Willingness to execute its mandate in the contract
 - Cost of services
 - Inspiring trust and confidence in the Assembly
 - Safety of personnel used by the WMCs in waste collection
 - Conditions of equipment and facilities used to collect wastes
30. How satisfied are you with the execution of the contract?
31. How satisfied are you with the performance of the WMCs?
32. How satisfied are you with the role of the Assembly in the execution of the contract?
33. What challenges do you face in the performance of your roles in the contract?
34. How do you think the challenges could be addressed?
35. What role does the Assembly play in the partnership between WMCs and households for the collection of household waste?
36. How are the fees for household waste collection determined?
37. Who are involved in the decision for fixing fees for household waste collection?
38. What feedback do you get from the general populace about charges for household waste collection?
39. How do you manage such feedback?
40. How do you perceive the nature of the partnership in SWM in the next five years?

41. Does the Assembly have a waste transfer station? State area/community
42. What is the size of the area?
43. What is the distance between the nearest community and the waste transfer station?
44. What is the distance between the city centre and the waste transfer station?
45. Which location/area has the Assembly chosen as its final waste disposal site?
46. What contractual arrangement does the Assembly have with the host community for the final waste disposal site?
47. What are the obligations of the Assembly to the host community for the final waste disposal site?
48. Which activities have been implemented to meet the obligations?
49. Have all the obligations been met? Ask for reasons
50. What is the distance between the nearest community and the final waste disposal site?
51. What is the distance between the city centre and the final waste disposal site?
52. Is the final waste disposal site well engineered? Ask for reasons [*Visit site and take pictures*]
53. How long has the Assembly been using the final waste disposal site?
54. In your estimation, how long will it take the disposal site to be full up?
55. How does the Assembly treat the wastes at the final disposal site?
56. What are the strategies being put in place to ensure sustainable waste disposal site?

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57. What challenges does the Assembly face in managing the final waste disposal site?
58. How do these challenges affect the relationship between the Assembly and the host community for the final waste disposal?
59. How do these challenges affect the partnership between the Assembly and the WMCs?
60. Any additional information?

Thank you



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**C: Interview Guide for Representatives from Metropolitan
Finance and Budget Offices**

Dear Sir/Madam,

I am Millicent Abigail Aning-Agyei, a PhD student at the School for Development Studies at the University of Cape Coast. I am conducting a study into the sustainability of public-private partnership (PPP) in solid waste management (SWM) in Ghana. The study specifically seeks to assess the contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. This is an academic investigation toward the award of a doctoral degree in Development Studies at the University of Cape Coast. I, therefore, entreat you to spare me some time to respond to issues in the instrument. The interview will last for about an hour. You are please assured of anonymity, and any information provided would be treated with utmost confidentiality. Please note that the accuracy of your information is also very critical to the success of this study.

Thank you

1. How are the metropolitan SWM budgets financed?
2. What is the current financing scheme for the payment of SWM services to the Assembly?
3. How sustainable is the current financing scheme for SWM in the Metropolis?
4. What challenges do the Assembly face with respect to the current financing scheme for SWM budgets?

5. What percentage of the Metropolis' Funds (DACF) is spent on SWM?
6. Please indicate the payments made to WMCs for SWM over the past three years?
7. How would you describe the quality of service provided by the WMCs in relation to the amount of payments?
8. How would you rate the financial capacity of the WMCs to continue executing the contract over the next five years?
9. What financial sanctions are applied to WMCs when they fail to perform as expected?
10. Any additional information?

Thank you



Appendix D: Interview Guide for Representatives of Waste Management Companies

Dear Sir/Madam,

I am Millicent Abigail Aning-Agyei, a PhD student at the School for Development Studies at the University of Cape Coast. I am conducting a study into the sustainability of public-private partnership (PPP) in solid waste management (SWM) in Ghana. The study specifically seeks to assess the contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. This is an academic investigation toward the award of a doctoral degree in Development Studies at the University of Cape Coast. I, therefore, entreat you to spare me some time to respond to issues in the instrument. The interview will last for about an hour. You are please assured of anonymity, and any information provided would be treated with utmost confidentiality. Please note that the accuracy of your information is also very critical to the success of this study.

Thank you

1. What is your company's role in waste management?
2. How long has the company been in partnership with the Assembly for SWM?
3. How was the company selected to partner the Assembly for SWM?
4. Apart from the Assembly, which other stakeholders are part of the partnership for SWM?
5. How does your company involve such stakeholders in its activities?

6. What are the roles of the other stakeholders in the partnership for SWM?
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7. What are the roles of your company as defined in the contract for SWM?
8. What are the roles of the Assembly in the partnership for SWM?
9. How much do you pay to the Assembly in a year?
10. What are the amounts paid for?
11. What performance management indicators are used to assess the company in SWM?
12. How often are you expected per the contract to collect waste in a month?
13. How often do you meet this requirement, and any reasons?
14. What sanctions are applied to your company upon poor performance?
15. How would you describe the financial capacity of your company in executing the contract over the next five years?
16. How would you describe the effectiveness of the partnership for SWM in the metropolis?
17. What do you think could be done to improve the effectiveness of the PPP arrangement in managing solid waste in the Metropolis?
18. How has the company benefitted from the partnership?
19. How will you describe the quality of service of your company regarding the following?
- Timeliness in collecting waste
 - Willingness to execute your mandate in the contract
 - Cost of services
 - Safety of personnel used in waste collection
 - Conditions of equipment and facilities used to collect waste

20. What are your company's personnel and equipment/machinery needs in SWM:

Personnel/ Expertise	Number Available	Number Required	Equipment/Machinery	Number Available	Number Required
Truck drivers			Safety gears		
Waste collection			Skip containers		
Waste segregation			Obofo bicycles		
Waste treatment			Motorised tricycles		
Waste recycling			Graders		
Landfill operators			Skip trucks		
Quality officers			Compaction trucks		
Environmental officers			Roll-on and roll-off trucks		
Others (Specify)			Bulldozers		
.....					
			Others (Specify)		
				

21. How satisfied are you with the execution of the contract?

22. How satisfied are you with the role of other stakeholders in partnership?

23. What challenges do you face in the performance of your roles in the contract?

24. How do you think the challenges could be addressed?

25. How are the fees for household waste collection determined?

26. Who are involved in the decision for fixing fees for household waste collection?

27. What feedback do you get from the general populace about charges for household waste collection?
28. How do you manage such feedback?
29. Which area/location serves as waste transfer station?
30. What is the size of the area?
31. What is the distance between the nearest community and the waste transfer station?
32. What is the distance between the city centre and the waste transfer station?
33. What is the turnaround time for waste disposal at the transfer station?
34. How easy is it to get to the waste transfer station?
35. What is the turnaround time in final waste disposal?
36. How easy is it to get to the final waste disposal site?
37. How will you describe the conditions of the final waste disposal site under the following:
 - a. Congestion
 - b. Sufficiency of equipment and facilities
 - c. Others (Specify)
38. What challenges do you face at the final waste disposal site?
39. How do the challenges impact your waste management services and activities?
40. How do the challenges affect your company's partnership with the Assembly?
41. What do you think should be done to ensure the sustainable utilisation of the final waste disposal site?

42. How do you perceive the nature of the partnership in SWM in the next five years?

43. Any additional information?

Thank you



Appendix E: Focus Group Discussion Guide for Executives of Workers

Union of Waste Management Companies

Dear Sir/Madam,

I am Millicent Abigail Aning-Agyei, a PhD student at the School for Development Studies at the University of Cape Coast. I am conducting a study into the sustainability of public-private partnership (PPP) in solid waste management (SWM) in Ghana. The study specifically seeks to assess the contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. This is an academic investigation toward the award of a doctoral degree in Development Studies at the University of Cape Coast. I, therefore, entreat you to spare me some time to respond to issues in the instrument. The discussion will last for about an hour. You are please assured of anonymity, and any information provided would be treated with utmost confidentiality. Please note that the accuracy of your information is also very critical to the success of this study.

Thank you

1. What training programmes are organised for workers to improve their operations?
2. What safety gears are made available to workers in their operations?
3. How will you describe the adequacy of the safety gears in ensuring the complete safety of workers?
4. How will you describe the level of remuneration of workers in the company?

5. What kind of complaints do you receive from your members?
6. How do you address such complaints?
7. How will you describe the level of commitment of management towards staff welfare and safety?
8. How will you describe the level of motivation of workers towards their work?
9. How satisfied are you with the logistics used in your operations?
10. How will you describe the relationship between workers and customers?
11. What challenges do you encounter in your operations?
12. How satisfied are you with the levels of salaries of workers in waste management?
13. How satisfied are you with the partnership in waste management?
14. How will you describe the level of capacity of your company to waste management
 - a. Financial
 - b. Technical
 - c. Logistics
15. How will you describe the level of responsiveness of the Company to waste management in the Metropolis?
16. How do you perceive the operations of your company in the next five years?

Thank you

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Focus Group Discussion Guide for Members of the Social
Services sub-Committee

Dear Sir/Madam,

I am Millicent Abigail Aning-Agyei, a PhD student at the School for Development Studies at the University of Cape Coast. I am conducting a study into the sustainability of public-private partnership (PPP) in solid waste management (SWM) in Ghana. The study specifically seeks to assess the contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. This is an academic investigation toward the award of a doctoral degree in Development Studies at the University of Cape Coast. I, therefore, entreat you to spare me some time to respond to issues in the instrument. The discussion will last for about an hour. You are please assured of anonymity, and any information provided would be treated with utmost confidentiality. Please note that the accuracy of your information is also very critical to the success of this study.

Thank you

1. What is the role of the Committee in the PPP arrangement for SWM?
2. How satisfied is the Committee about the performance of the WMCs?
3. How were the constituents involved in the formulation of the PPP contract for SWM?
4. How are the constituents involved in the execution of the contract for SWM?

5. What concerns do you receive from your constituents about the PPP arrangement for SWM?
6. How do you address such concerns?
7. What challenges does the committee face in the execution of the contract?
8. How would you describe the level of sanitation in the metropolis?
9. What might have accounted for the level of sanitation in the metropolis?
10. How would you describe the capacity of the WMCs in executing the contract?
11. How do you perceive the nature of the partnership in the next five years?
12. Any additional information?

Thank you



Appendix G: Observation Guide

1. Identification number:
2. Date of observation:
3. Name of observer:
4. Observe, record and take pictures of the following:
 - a. Conditions of skip containers
 - b. Conditions around the skip container sites
 - c. Conditions of trucks (skip, compaction, roll-on and roll-off, etc.), graders, bulldozers, etc. used in waste collection
 - d. Conditions of Obofo bicycles
 - e. Conditions of motorised tricycles
 - f. Protective gears used by workers of WMCs in their operations
 - g. Types of bin containers used by the households
 - h. Conditions of bin containers used by the households
 - i. Conditions of final waste disposal site
 - j. Equipment and facilities used in managing the final waste disposal site
 - i. Check number available
 - ii. Check their conditions
 - k. Final disposal site [*Check engineering works*]
 - l. Distance between nearest community and final waste disposal site

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12TH SEPTEMBER, 2019

Ms. Millicent Abigail Aning-Agyei
School for Development Studies
University of Cape Coast

Dear Ms. Aning-Agyei,

ETHICAL CLEARANCE – ID: (UCCIRB-CHLS/2019/27)

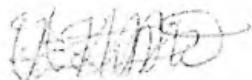
The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research protocol titled **Assessing the sustainability of Public-Private partnership in solid waste management in Ghana**. This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,



Samuel Asiedu Owusu, PhD
UCCIRB Administrator

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Your Ref:

26th July, 2018

TO WHOM IT MAY CONCERN
LETTER OF INTRODUCTION

We write to introduce to you Millicent Abigail Aning-Agyei, a student pursuing PhD (Development Studies) programme with registration number SS/DSP/15/0003 at the Institute for Development Studies, University of Cape Coast.

Mrs. Aning-Agyei is writing her thesis on the topic: "*Assessing the Sustainability of Public-Private Partnership in Solid Waste Management in Ghana*". We shall be grateful if you could accord her all the necessary assistance she requires for her thesis.

Please note that the information she requires is strictly for academic purposes.

Thank you.

Yours faithfully,

Afua Anima Gyamera
Assistant Registrar

For Director

Assistant Registrar
INSTITUTE FOR DEVELOPMENT STUDIES
UNIVERSITY OF CAPE COAST

cc: Director, IDS

Appendix J: Informed Consent Form

Title: Assessing the Sustainability of Public-Private Partnership in Solid Waste Management in Ghana

Principal Investigator: Millicent Abigail Aning-Agyei

Address: School for Development Studies, UCC, Cape Coast

General Information about Research

The research is on the sustainability of public-private partnership (PPP) in solid waste management (SWM) in Ghana. It specifically seeks to assess the contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. This is an academic investigation toward the award of a doctoral degree in Development Studies at the University of Cape Coast.

Procedures

Focus group discussion: You have been invited to take part in this focus group discussion because we feel that your experience as either an executive of workers of the waste management companies (WMCs) or the Social Services sub-Committees of the STMA or CCMA can contribute much to this discussion on SWM in PPPs. You have been invited to participate in this study by providing responses to issues in the research instrument. The questions will cover issues on contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. If you accept, you will be required to take part in a discussion with 7 other persons with similar experiences. This discussion will be moderated by Millicent Abigail Aning-Agyei, the Principal Investigator.

During this discussion, however, we do not wish you to tell us your personal experiences, but give us your opinion on the questions that we will pose to the

group based on your personal experiences and your experience within your community. If you do not wish to answer any of the questions or take part in any part of the discussion, you may say so and keep quiet. The discussion will take place in the conference room of your WMC/Metropolitan Assembly, and no one else but the people who take part in the discussion and the moderator or myself will be present during this discussion. The entire discussion is expected to last for about an hour and will be tape-recorded, but **no one will be identified by name on the tape**. Additionally, the tape will be kept in a folder that is secured by the principal investigator and will be deleted after the recordings have been transcribed and the research report is prepared. The information recorded is considered confidential, and no one else except myself and my principal supervisor (Prof. S. B. Kendie) will have access to the tapes. There will be refreshment after the discussion.

In-depth interviews: You have been invited to participate in the interview because we feel that your experience and in-depth knowledge as head of household, staff of STMA or CCMA, or head of WMC can contribute much to the success of this research. You have been invited to participate in this study by providing responses to issues in the research instrument. The questions will cover issues on contractual arrangements between the public and private sectors for SWM, quality of SWM services through PPP, and level of sustainability of PPP in SWM in CCMA and STMA. If you accept, you will be required to take part in an interview with Millicent Abigail Aning-Agyei who is the Principal Investigator or her representative.

If you do not wish to answer any of the questions posed during the interview, you may say so and the interviewer will move on to the next question. The interview is expected to last for about an hour and will take place in your house or any location of your choice near the house, and no one else but the interviewer will be present. The entire interview will be tape-recorded, but **no one will be identified by name on the tape**. Additionally, the tape will be kept in a folder that is secured by the principal investigator and will be deleted after the recordings have been transcribed and the research report is prepared. The information recorded is considered confidential, and no one else except

myself and my principal supervisor (Prof. S. B. Kendie) will have access to the tapes.

Possible Risks and Discomforts

There are no reasonable foreseeable physical, social and psychological risks or discomforts to participants in this study except in instances where a question may cause you to recall poor sanitary conditions.

Possible Benefits

It is expected that the knowledge to be garnered from this research will help to improve waste management, which will also improve sanitation conditions in your metropolis and Ghana as a whole.

Alternatives to Participation

This does not apply to the present research

Confidentiality

We will protect information about you to the best of our ability. You are assured of anonymity and confidentiality. Any information provided would be treated with utmost confidentiality. You will not be named in any reports. Where necessary, pseudo names will be used in the report. We also assure you that information you provide will be treated confidential and will be used only for purposes of this study. Digital recordings will be immediately destroyed after transcription and report writing. All paper transcripts will be burned, while the soft copies will be electronically saved for 5 years with a secured password which would be known only by the principal investigator after which they will be completely deleted.

Compensation

There are no compensation packages associated with your participation in this research, as this is a purely academic work. It is considered that your participation is part of your commitment to help improve waste management and sanitary conditions in Ghana.

Your participation in this research is entirely voluntary and you may, at any point in time, decide to withdraw from the study, if you find that necessary. You should also let me know if you are not comfortable to respond to any of the questions I will pose to you. I will proceed to the next question, if this situation arises.

Contacts for Additional Information

If you have any questions or clarification on this research, you may contact me on 020-3915027 or maning-agyei@ucc.edu.gh or my Principal Supervisor (Prof. S. B. Kendie) on 020-8123677, skendie@ucc.edu.gh.

Your Rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of University of Cape Coast (UCCIRB). If you have any questions about your rights as a research participant, you can contact the Administrator at the IRB Office between the hours of 8:00a.m. and 4:30p.m. through the phones lines 055-8093143/050-8878309/024-4207814 or email address: irb@ucc.edu.gh.

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title *Assessing the Sustainability of Public-Private Partnership in Solid Waste Management in Ghana* has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Date

Name and signature or mark of volunteer

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Date

Name and signature of witness

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Date

Name and signature of person who obtained consent

