

**Kwame Nkrumah University of Science and Technology
Kumasi, Ghana**



**INSTITUTIONAL ARRANGEMENTS FOR PRIVATE SECTOR
INVOLVEMENT IN SOLID WASTE COLLECTION-A CASE
STUDY OF FIVE CITIES IN GHANA**

GYAPONG-KORSAH, BARBARA
MSc. Thesis
February 2009

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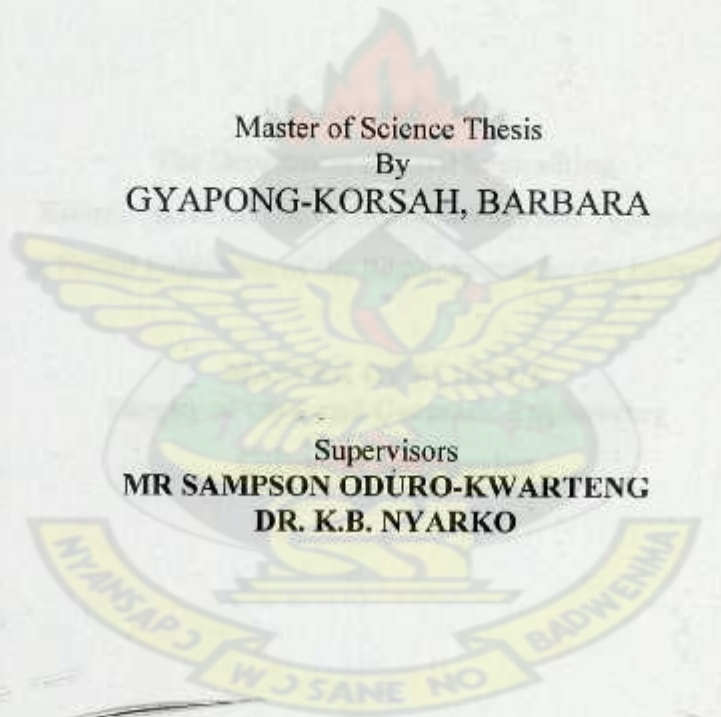
Faculty of Civil and Geomatic Engineering
Department of Civil Engineering

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KNUST

Master of Science Thesis
By
GYAPONG-KORSAH, BARBARA

Supervisors
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STUDY OF FIVE CITIES IN GHANA**

by

GYAPONG-KORSAH, BARBARA, BSc. (Hons)

KNUST

Thesis submitted to

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Kwame Nkrumah University of Science and Technology

In Partial Fulfilment of the Requirements for the Degree of

MASTER OF SCIENCE

Faculty of Civil and Geomatic Engineering

College of Engineering

February 2009

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CERTIFICATION

I hereby declare that this submission is my own work towards the MSc. and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

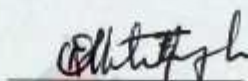
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CERTIFICATION

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ABSTRACT

The study focuses on the institutional arrangements of private sector involvement in solid waste collection in five cities in Ghana namely Accra, Kumasi, Tema, Sekondi-Takoradi and Tarkwa. The specific objectives of the research were to identify the stakeholders, structure, roles and responsibilities of the actors involved in solid waste collection, to assess the legal arrangements for involving the private firms in solid waste collection, to assess the financial arrangements for involving the private firms in solid waste collection and to assess the regulatory framework for involving the private firms in solid waste collection. The research was based on twenty five (25) semi structured interviews in Accra, Kumasi, Tema, Sekondi-Takoradi and Tarkwa (five largest cities) of Ghana. Data were collected from the Ministry of Local Government and Rural Development, Metropolitan, Municipal and District Assemblies private waste collection companies through interviews of their executives and also through structured interviews with the local government and companies and other key informants. The data collected were analysed using the techniques of the existing legislation, contract, regulatory framework for involving private companies in solid waste collection were analysed. The research revealed that there are institutional arrangements (Contract, Lease and Franchising) in place for the privatisation of private sector in solid waste collection. The companies engaged under two main types of contracts namely Lease and Service contract. The duration of the contract type is 10 years and 2 years and 10 years for Franchising and Lease contract respectively. The private firms are engaged in the solid waste collection through the existing regulatory framework. The existing regulatory framework was assessed based on the existing regulatory framework of privatisation and privatisation of regulatory framework. The existing regulatory framework was assessed based on the existing regulatory framework of privatisation and privatisation of regulatory framework. The existing regulatory framework was assessed based on the existing regulatory framework of privatisation and privatisation of regulatory framework.

DEDICATION

To God Almighty

&

My Parents and Siblings



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ABSTRACT

The study focuses on the institutional arrangement of private sector involvement in solid waste collection in five cities in Ghana namely Accra, Kumasi, Tema, Sekondi-Takoradi and Tamale. The specific objectives of the research were to identify the institutional structure, roles and responsibilities of the actors involved in solid waste collection, to assess the legal arrangement for involving the private firms in solid waste collection, to assess the financial arrangements for involving the private firms in solid waste collection and to assess the regulatory framework for involving the private firms in solid waste collection. The research was based on twenty five (25) waste companies in Accra, Kumasi, Tema, Sekondi-Takoradi and Tamale (five largest cities) of Ghana. Data were collected from the Ministry of Local Government and Rural Development, Metropolitan/Municipal/District Assemblies private waste collection companies through administration of questionnaires and also semi-structured interviews with the heads of waste management departments and other key informants. The data collected was analysed and the bottlenecks of the existing legislation, contract, regulation and financial arrangements for involving private companies in solid waste collection were identified. The research revealed that there are institutional arrangements (Contractual, Financial and Regulatory) in place for the involvement of private sector in Solid Waste Collection. The companies operated under two main types of contract which are Franchise and Service contracts. The duration of the contract types awarded to companies are 2 years and 5years for Franchise and Service contracts were respectively. The private companies involved in the solid waste collection are given the opportunity to renew and others undergo competitive bidding. Nineteen (19) companies receive subsidies from the Assembly for the house-to-house service and six (6) companies do not. Regulatory framework was assessed based regulation of quality of service, monitoring of companies compliance to regulations, quantity of waste collected, supervision by the Assemblies and Assemblies adherence to the regulations in the contracts signed with the companies. The conclusions drawn from the research were that the house-to-house service is better than the communal, duration for Franchise is 2years and Service is 5years but companies do not undergo competitive bidding when contract expires and assemblies are not able to pay companies on time and this leads to poor service delivery. Also Companies and Assemblies do not strictly adhere to contract obligations, laws on sanitation are available to sanction offenders but are not strictly enforced and user fees set are not reasonable to recover cost especially the medium to low class residential areas.

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TABLE OF CONTENTS

CERTIFICATION.....	iii
DEDICATION.....	iv
ABSTRACT	v
ACKNOWLEDGEMENTS	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	viii
LIST OF FIGURES.....	ix
LIST OF APPENDICES	xi
LIST OF ABBREVIATIONS AND ACRONYMS	xi
1. INTRODUCTION.....	1
1.1 Background	1
1.2 Problem Statement	3
1.3 Objectives	4
1.4 Justification	4
1.5 Scope.....	5
1.6 Structure of the Report.....	5
2. LITERATURE REVIEW	6
2.1 Solid Waste Management	6
2.1.1 Goals of Municipal Solid Waste Management	6
2.1.2 Mode of Solid Waste collection services.....	7
2.2 Institutional Arrangements.....	7
2.2.1 Contractual Arrangements	10
2.2.2 Legal and Regulatory Framework	13
2.2.3 Financial Arrangements.....	14
2.3 Private Sector Involvement (PSI)	15
2.3.1 Types of Private Sector Involvement in Solid Waste Management	10
2.3.2 Reasons for Private Sector Involvement.....	15
2.4 Roles and Responsibilities of Actors involved in MSWM.....	16
2.4.1 National Government.....	16
2.4.2 Local Government	17
2.4.3 Informal Private Sector.....	18
2.4.4 Households, Communities and other Service Users	18
2.4.5 Non-Governmental Organisations	19
2.4.6 External Support Agencies	20
3. STUDY AREA AND METHODOLOGY.....	22

3.1 Description of study Areas.....	22
3.2 Sample Size.....	25
3.3 Framework for Data collection	26
3.4 Desk Study	26
3.5 Sources of Data	27
3.6 Questionnaires Administration	27
3.7 Structured interviews	27
3.8 Data Analysis	28
4. RESULTS AND DISCUSSION	29
4.1 Roles of stakeholders in the institutional arrangements for solid waste collection in Ghana	29
4.2 Contractual Arrangement.....	33
4.2.1 Waste Collected by Public and Private Sectors and mode of waste collection in the Cities	36
4.2.2 Contract Award.....	37
4.2.3 Contract Duration.....	39
4.2.4 Contract Renewal.....	41
4.2.5 Force Majeure	41
4.2.6 Assembly's Contractual Obligation.....	43
4.2.7 Company's Contractual Obligations.....	45
4.2.8 Enforcement of Legislation.....	47
4.3 Financial Arrangement.....	48
4.4 Regulatory Framework	53
4.4.1 Regulation of Access to Information	53
4.4.2 Regulation of quality of service	55
5. CONCLUSIONS AND RECOMMENDATIONS.....	59
5.1 CONCLUSIONS.....	59
5.2 RECOMMENDATIONS.....	61
REFERENCES.....	62
APPENDIX.....	65

LIST OF TABLES

Table 3.1 Populations of cities and sample size	25
Table 3.2: Framework for data collection.....	26
Table 4.1: Contract Types across cities	33
Table 4.2: Waste Collected by Public and Private Sectors and mode of waste collection.....	36
Table 4.3: Contract Duration across cities.....	38
Table 4.4: Contract Renewal across cities	40
Table 4.5: Companies views on Assemblies contractual obligations across the cities	42
Table 4.6: Companies views on their adherence to obligations specified in the contracts	44
Table 4.7: Companies views on enforcement of legislation across cities.....	46
Table 4.8: Financial Arrangements across cities	49
Table 4.9: Service charges for solid waste service rendered by the companies	50
Table 4.10: Companies views of regulation of access to information across cities	54
Table 4.11: Regulation of quality of service.....	56



LIST OF FIGURES AND PLATES

Figure 3.1: Map of Ghana showing the five selected cities	22
Figure 4.1 Relationships of stakeholders in the institutional arrangement for solid waste collection.....	31
Figure 4.2: organisational chart for the WMD of the KMA	32
Plate 4.1: House-to-house collection	35
Plate 4.2: Communal collection.....	35



LIST OF ABBREVIATIONS AND ACRONYMS

BOO	Build Operate Own
BOOT	Build Operate Own and Transfer
CBO	Community Based Organisation
CC	Communal Collection
CM	Contract Management
DA	District Assembly
DM	Drain Maintenance
EPA	Environmental Protection Agency
ESAs	Environmental Sanitation Agency's
F & A	Finance and Administration
GSS	Ghana Statistical Survey
HtH	House to House
HWM	Human Waste Management
KMA	Kumasi Metropolitan Assembly
LG	Local Government
MA	Municipal Assembly
MLGRD	Ministry of Local Government and Rural Development
MMDAs	Metropolitan/Municipal/District Assembly's
MOF	Ministry of Finance
MSWM	Municipal Solid Waste Management
P & E	Planning & Research
P, R, M & E	Planning, Research, Monitoring and Evaluation
PPP	Public Private Partnership
PSI	Private Sector Involvement
SWC	Solid Waste Collection
SWM	Solid Waste Management
UNDP	United Nation Development Programmes
UNIDO	United Nation Industrial Development Organisation
WD	Waste Disposal
WMD	Waste Management Department

1. INTRODUCTION

The introduction provides background information, the problem statement and the justification for the research study. The chapter also explains the role of institutional arrangement for solid waste collection from the global perspective to the local level.

1.1 Background

Solid Waste Collection (SWC) refers to the collection and disposal of domestic waste generated in households, market places, open spaces, streets and institutions. There are four main types of solid waste collection namely communal, block, kerbside and door -to-door. The technology for the collection methods coincide with the type of residential classification. The door-to-door is mostly employed in the high class residential areas whiles the communal is employed in the low class high density residential areas.

Refuse collection and its disposal are a problem in many cities and small urban centres in Ghana. To address this problem, there has been the involvement of the private sector as a promising alternative to achieve the collection and disposal targets.

Private sector involvement is used in Ghana's five largest cities that are Accra, Kumasi, Sekondi-Takoradi, Tema and Tamale. The population of these five cities account for about 19% of the total population of Ghana and their residents generate 3200 tonnes of solid waste per day (Environmental Sanitation Policy, 2007).

There are institutional arrangements in place for solid waste collection in Ghana. An institutional framework is comprised of both a formal "rule structure" and informal constraints. Formal rules or "institutional arrangements" include judicial laws,

economic rules, and contracts. Economic rules define property rights while contracts contain the provisions specific to a particular agreement in exchange (Nkya, 2004).

According to Awortwi, (2006) there are three main institutions responsible for delivering solid waste collection services in the cities. They are public sector delivery by the Waste Management Department (WMD), private sector delivery by waste companies and community delivery by Community Based Organisations (CBO's). There are different ways for the private companies to deliver SWC services in the cities depending on the contractual, legal, financial and regulatory arrangements between the Local Government (LG) and the private waste companies. In solid waste collection the contractual arrangements include contracting out, franchising and open competition.

The legislative framework for waste management can be traced to legislation at the national level. This consist of the legislation, standards, regulations, institutions and administrations adopted to control activities causing damage to the environment by way of waste generation or pollution within a state. Framework legislation is usually a single law which contains a comprehensive system of waste management. This would include the institutional issues such as which government authority will manage waste by way of collection and disposal. For waste collection the local authorities are usually the focal institutions responsible for the implementation of the law. In the course of their action they may enact by-laws suitable for the specific locality or sectoral laws relating to specific sources of waste, households, factories and health (UNIDO/UNEP, 1998).

1.2 Problem Statement

Municipal Solid Waste Collection (MSWC) in Ghana is a major responsibility of the local government. It is a complex task which requires appropriate organizational capacity and cooperation between numerous stakeholders in the private and public sectors. Although it is essential to public health and environmental protection, solid waste collection in most cities in Ghana is highly unsatisfactory.

This can be attributed to the following;

- ❖ Evidence of solid waste management problems despite decentralization and private sector participation, and little attention to solid waste aspect of urban management,
- ❖ Gaps exist in institutional arrangements for solid waste collection. Thus existing policies, legislation, regulation and financial arrangements are not addressing the solid waste collection issues.

The research areas to be addressed in this study are:

- What are the existing policies, legislation, regulation and financial arrangements for involving private sector in solid waste collection in these five selected cities?
- What are the bottlenecks in the existing institutional arrangements that need to be addressed in order to enhance the performance of the private sector?
- What are the contributions related to contractual, regulation and financial arrangements for improved solid waste collection?

1.3 Objectives

The objective of the research is to assess the institutional arrangement of private sector involvement in solid waste collection in five cities in Ghana

The specific objectives of the research are to assess the;

1. Contractual arrangement for involving the private firms in solid waste collection.
2. Financial arrangements for involving the private firms in solid waste collection.
3. Regulatory framework for involving the private firms in solid waste collection.

1.4 Justification

Private sector involvement in solid waste collection (SWC) has become necessary to achieve the general improvement of waste management systems operating or being planned in Ghana and it is increasingly being used by Municipal, Metropolitan and District Assemblies (MMDAs) in Ghana. It has become very important for all stakeholders to understand the institutional arrangement for involving private sector in SWC to enhance better performance. This research is relevant in bringing to bare the challenges facing the institutional arrangements in place for involving the Private sector in solid waste collection and the way forward in addressing these challenges

1.5 Scope

The research is limited to five cities in Ghana and it will provide the institutional arrangements for solid waste collection in these five cities in Ghana. The cities are Accra, Tema, Kumasi, Sekondi-Takoradi and Tamale.

1.6 Structure of the Report

This research seeks to assess the institutional arrangement of private sector involvement in solid waste collection in five cities in Ghana. The report has five chapters. Chapter one contains the background to the study, problem statement, objectives, scope and justification of the research. Chapter two provides a literature review to the study which includes the contractual, financial and regulatory arrangements between the Metropolitan/Municipal Assemblies and the Private Solid Waste Companies. Chapter three describes the methodology that was used in carrying out the research. The fourth chapter contains the data collected which was further analyzed. The fifth chapter gives conclusions and recommendations.

2. LITERATURE REVIEW

The chapter provides literature on municipal solid waste management and institutional arrangements. It also provides literature on private sector involvement in solid waste collection and roles and responsibilities of actors involved in solid waste collection.

2.1 Municipal Solid Waste Management

Municipal solid waste is defined to include refuse from households, non-hazardous solid waste from industrial, commercial and institutional establishments (including hospitals), market waste, yard waste and street sweepings. Municipal Solid Waste Management (MSWM) encompasses the functions of collection, transfer, treatment, recycling, resource recovery and disposal of municipal solid waste.

2.1.1 The Goals of Municipal Solid Waste Management

- ❖ To protect the health of the population, particularly that of low-income.
- ❖ Promotion of environmental quality and sustainability.
- ❖ Support of economic productivity and employment generation.

Achievement of MSWM goals requires sustainable solid waste management systems, which are adapted to and carried by the municipality and its local communities (Schübeler et al, 1996).

2.1.2 Mode of Solid Waste collection services

Solid waste collection (SWC) refers to the collection and disposal of domestic waste generated in households, marketplaces, open spaces, streets and institutions.

The technology for solid waste collection coincides with the type of residential classification (Awortwi, 2006).

The types of collection service in the cities of Ghana are the communal collection and house-to-house. Communal collection is a system for solid waste collection in which individuals bring their solid waste directly to communal skip containers at secondary collection points, from where the waste is collected and transported to the disposal site by the companies. The communal solid waste collection services are provided under service contract arrangements between the Municipal Authority and the private companies. The Municipal Authorities pay the companies for the services delivered.

House-to-house collection is a method of collecting domestic solid waste in which the individuals place the bins full of waste outside their houses at the curb side or roadside on the specific days for collection. The residents served by the house-to-house waste collection use standard bins (120 or 240 litres). The house-to-house service is rendered to residents in the high and middle income areas. Another form of house-to-house collection called 'block collection' is a predominant mode of solid waste collection in Tema. The house-to-house solid waste collection services are provided under franchise contract arrangements between the Municipal Authorities and the private companies. Under the franchise contract the companies collect revenue from the users and subsidy from the Municipal Authorities for some areas

(Oduro-Kwarteng and van Dijk, 2008).

2.2 Institutional Arrangements

Institution can be understood as the whole set-up of physical and non-physical institutions within an economy.

Non-physical Institution can also be looked as policy instruments which can be built and strengthened in terms of their physical structure, manpower qualification, financial capacity etc. Non physical institutions are represented by the whole set-up of laws (written or unwritten), regulations and rules of society (traditions, social values, norms, customs and habits) (UNIDO/UNEP, 1998).

Physical instrument are those like government, its regional and local structures, the private sector, universities and research institutions and the formal sector.

Formal institutions in the context of this thesis are the physical and established written laws and regulations at all levels of the national structure including legislation and enforcement of compliance, policy formulation and implementation, education and awareness campaigns.

Institutional arrangement depends on the overall set-up of institutions as provided for by the policy statement. In most cases, framework laws lead to the creation of the institutional set-up and usually identify and specify functions, structures and their interrelationships to existing structures.

Institutional aspects of Municipal Solid Waste collection (MSWC) as depicted in Figure. 2.1 concern the institutional structures and arrangements for solid waste collection as well as organizational procedures and the capacity of responsible institutions (Schubeler et al., 1998). This includes the following:

- distribution of functions, responsibilities and authority between local, regional and central government institutions (i.e. decentralization), and among local governments in a metropolitan area and Private sector involvement and participation of communities and user groups.

- organizational structure of the institutions responsible for MSWC.
- Procedures, methods and arrangements for contract, financial and regulation employed for planning and management of SWC
- Capacities of institutions responsible for MSWC and the capabilities of their staff.

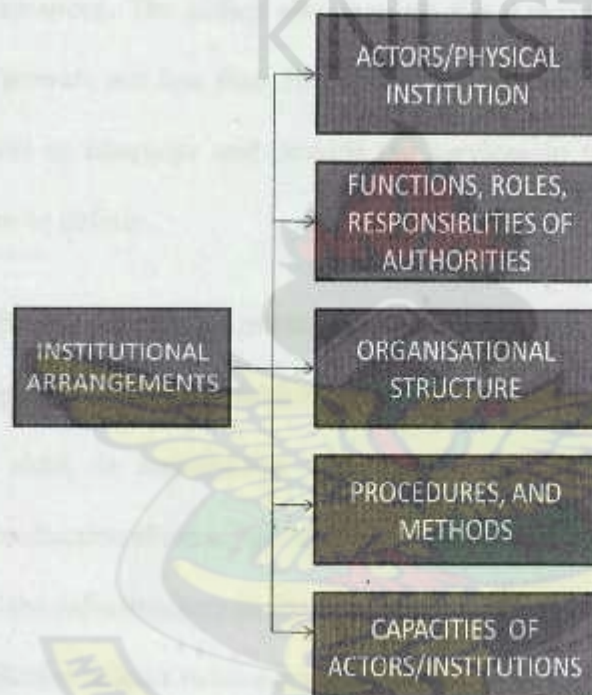


Figure 2.1 : Institutional aspect of solid waste collection.

Whatever the institutional form adopted, the overall goal should be the same...''to collect, treat and dispose of solid wastes generated by all population groups in an environmentally and socially satisfactory manner using the most economical means available'' (Bartone, 1999).

2.2.1 Environmental Sanitation Policy

The National Environmental Policy of Ghana gives the primary responsibility of SWC to Assemblies (ESP, 1999). The national policy mandates the Assemblies to invite the private sector to provide the SWC services on full cost recovery basis, under contract or franchise, where possible. Where cost recovery is not possible, the Assemblies may enter into contracts with contractors to deliver service under which the assembly will pay from revenues generated from other sanitation zones or from their own resources. The policy also requires the Assemblies to maintain adequate capacity to provide not less than 20 per cent of the services and reserve the right to take measures to intervene and provide the services in the event of failure of the private sector to deliver.

The policy further requires all premises to have primary storage facilities which shall meet the approval of the Assemblies with regard to size, material and capacity. The Assemblies shall, in consultation with each community, prescribe the minimum standard of collection service, taking into consideration household incomes, housing pattern, and the infrastructure in the service area. In general, the policy requires that waste be collected at least twice a week (Awortwi, 2002).

2.3 Contractual Arrangements

Contractual arrangement is an agreement between the public private and sector which allows the private sector to do SWC delivery services. The types of contract common to solid waste management are contracting, concession, franchise, and open competition (Cointreau-Levine, 1995).

Contracting: The government awards a finite-term contract to a private firm for the delivery of solid waste collection service. The contract award is made after a competitive procurement process. The private firm is paid for service delivery by the government under the terms of the contract.

To foster competition, a key factor is a good tender document-one that recognizes the capabilities and limitations of the local private sector and enables it to bid competitively toward providing an acceptable standard of service. The contract duration should enable the private companies to depreciate capital expenditures for equipment. Given that collection vehicles have an economic life of six to eight years under single-shift use and a life of four to five years under intense use, in solid waste collection contracts the length of contract should be at least 4 years. In many studies of solid waste services, the normal contract duration has been found to be around four years, a period over which garbage trucks depreciate considerably (World Bank, 1994). In a well-developed market in which substantial competition and private sector participation already exists, the issue of the length of contract is less important, because a private firm can sell its collection vehicles to other contractors if their contract is not renewed. Few developing countries, however, are at this stage, and thus length of contract is an issue to consider (Cointreau-Levine, 1995).

Concession: The government awards a concession to a private firm to set up a facility that utilizes the government-owned resource-refuse. This concession may enable the private firm to recycle materials (paper, plastic, metal, glass) from refuse; to recover resources (compost, heat, electricity) from refuse; or to transfer or dispose of refuse. The concession is in the form of a long-term contractual agreement, whereby the

private firm builds the facility. In some cases, the private firm may maintain indefinitely the ownership and operation of the facility. In others, the private firm may transfer ownership of the facility to the government after a specified period of private ownership and operation.

Franchise: The government awards a finite-term zonal monopoly (a franchise) to a private firm for the delivery of solid waste collection service. The franchise award is made after a competitive qualification process. The private company recovers its cost and profit through direct charges to the households and establishments that are served. Government provides control over the tariff charged to the consumer through development of adequate competition and control of price collusion and price regulation.

Divestiture: Government owned enterprises and their related assets are partially or wholly sold to the private sector, with the expectation that the basic function of the enterprise will continue.

Open Competition: The government freely allows qualified private firms to compete for refuse collection. In open competition of solid waste collection services, each household and commercial establishment hires a private collection firm and pays the solid waste removal fee that the firm charges. No firm holds a zonal monopoly, and any number of firms may compete within the same zone (Cointreau- Levine, 1995). This form of solid waste collection is more expensive than that by government contracting with private firms, also more costly than public service.

Public/Private partnership: Government establishes a joint venture with the private sector to which each party contributes assets and resources and each party assumes certain risks and responsibilities as defined in the contractual agreement.

Heilman and Johnson (1992) also gave a definition of a Public –Private Partnership capturing the interests of both the public and private sectors as “the combination of a public need with private capability and resources to create a market opportunity through which the public need is met and a profit is made”.

Public-Private Partnership is viewed as a development strategy constituting a set of institutional relationships or interactions between public and private sector actors in the development process. Local level socio-economic development activities include provision, production and delivery of goods and services, employment creation, revenue generation for local government, and development of entrepreneurship (Mitchell-Weaver and Manning, 1992).

PPP effectiveness refers to the extent to which the goals and objectives of the partnership are achieved taking into consideration adequacy and responsiveness. The main issue in Public-Private Partnership is how to organize and manage that partnership in order to realize the expected synergy of perspectives, ideas, values, capacities, resources, and techniques in order to improve effectiveness and responsiveness (Nkya, 2000).

2.4 Legal and Regulatory Framework

This is elaborated in the form of bylaws, ordinances and regulations concerning solid waste management, and includes corresponding inspection and enforcement

responsibilities and procedures at national, state, and local levels. These would also include provisions for the management of industrial and hazardous wastes.

Regulations should be few in number, transparent, unambiguous, easily understood and equitable. Furthermore, they should be conceived with regard to their contribution to urban physical and economic development (Schübeler et al, 1996).

Environmental sanitation involves a wide range of actors with different levels of responsibilities and therefore laws are required for regulating activities. Responsive regulations that provide the right incentives are necessary to improve on enforcement (UNIDO/UNEP, 1998).

2.5 Financial Arrangements

Financial arrangement of MSWM according to Schubeler et al. (1996) includes; budgeting and cost accounting systems, resource mobilization for capital investments, cost recovery and operational financing, Cost reduction and control. Adequate budgeting, cost accounting, financial monitoring and financial evaluation are essential to the effective management of solid waste collection systems. In many cities, however, officials responsible for MSWM do not have accurate information concerning the real costs of operations. This is mostly the result of the lack of capacity to use available financial tools and methods. Introduction of improved cost accounting and financial analysis should be introduced to increase the accountability and efficiency of municipal infrastructure management.

The best way to ensure financial sustainability is almost always by cost reduction. That is doing more with less. An Institutional Arrangement may be financially viable if it can sustain itself (Obirih- Opareh, 2003).

2.6 Private Sector Involvement (PSI)

This refers to a partnership between the public and private sectors, which allows the private sector in the MSWM service delivery. PSI is a reduction in government activity or ownership within a given service or industry, as follows:

Government *activity* is reduced when the private sector participates in service delivery. This includes;

Contracting, Franchise (exclusive rights), concession (BOOT, BOO), Open competition (private subscription).

Government *ownership* is reduced when

- a) Government enterprises are divested to unregulated private ownership
- b) Government agencies are commercialized that is reorganized into accountable and financially autonomous semiprivate enterprises (Cointreau-Levine,1995).

2.6.1 Reasons for Private Sector Involvement

Cointreau-Levine and Coad (2002) summarised the major reasons for private sector involvement as follows;

- Private sector service providers are accountable to its consumers and is obliged to react if the customers are not satisfied
- Contestability- competition between the private sector and the public sectors is effective in improving cost-effectiveness

- If clear performance measures are specified in the contract or agreement, and the private sector is supervised effectively, good standards of operation can be achieved
- Private sector management has more flexibility to
 - Hire qualified staff
 - Pay staff according to performance
 - Terminate employment of unsatisfactory workers
 - Adjust working hours according to service demands
- Private sector is less restricted by bureaucracy
 - In obtaining spare parts for repairs
 - So that it can lease equipment when it is needed and subcontract to meet peaks in demand
- Private sector enjoys more freedom from political interference ,
 - So that it can optimize size of workforce
 - To concentrate its resources on the service for which they are intend.

2.4 Roles and Responsibilities of Actors involved in MSWM

2.4.1 National Government

The National government is responsible for establishing the institutional and legal framework for MSWM and ensuring that local governments have the necessary authority, powers and capacities for effective solid waste management. In many countries, responsibility is delegated without adequate support to capacity building at the local government level

2.4.2 Local Government

Local government authorities are generally responsible for the provision of solid waste collection and disposal services. They become the legal owner of waste once it is collected or put out for collection. Responsibility for waste management is usually specified in bylaws and regulations and may be derived, more generally, from policy goals regarding environmental health and protection. Apart from their legal obligations, local governments are normally motivated by political interests. User satisfaction with provided services, approval of higher government authorities and financial viability of the operation are important criteria of successful solid waste management from the local government perspective. The authority to enforce bylaws and regulations, and to mobilise the resources required for solid waste management is, in principle, conferred upon local governments by higher government authorities. Problems often arise when local government's authority to raise revenues is not commensurate with their responsibility for service provision. Besides solid waste management, municipal governments are also responsible for the provision of the entire range of infrastructure and social services. To fulfill their solid waste management responsibilities, municipal governments normally establish special purpose technical agencies, and are also authorised to contract private enterprises to provide waste management services. In this case, local authorities remain responsible for regulating and controlling the activities and performance of these enterprises. Effective solid waste management depends upon the cooperation of the population, and hence local governments should take measures to enhance public awareness of the importance of MSWC, and promote active participation of users and community groups in local waste management (Schübeler et al, 1996).

2.4.3 Informal Private Sector

The informal private sector comprises unregistered, unregulated activities carried out by individuals, families, groups or small enterprises. The basic motivation is self-organise revenue generation; informal waste workers are often driven to work as waste collectors or scavengers by poverty and the absence of more attractive employment possibilities. In some cases, informal waste workers belong to religious, caste or ethnic minorities and social discrimination is a factor which obliges them to work under completely unhygienic conditions as waste collectors or sweepers. Association with an activity which the public perceives to be filth-related tends, at the same time, to perpetuate discrimination against them. Informal waste workers usually live and work under extremely precarious conditions. Scavenging, in particular, requires very long working hours and is often associated with homelessness. Besides social marginalisation, waste workers and their families are subject to economic insecurity, health hazards, lack of access to normal social services such as health care and schooling for children, and the absence of any form of social security (Schübeler et al, 1996).

2.4.4 Households, Communities and other Service Users.

Residential households are mainly interested in receiving effective and dependable waste collection service at a reasonably low price. Disposal is not normally a priority demand of service users, so long as the quality of their own living environment is not affected by dump sites.

Pressure to improve solid waste collection arises as other services become available and awareness mounts regarding the environmental and health impacts of poor waste

collection service. Poorly served residents often form community-based org n the government for service improvements. CBOs, which may arise in middle and upper income neighborhoods as well as in low-income areas, may become valuable partners of the government in local waste management. When sufficiently organised, community groups have considerable potential for managing and financing local collection services and operating waste recovery and composting activities (Schübeler et al, 1996).

2.4.5 Non-Governmental Organisations

Non-governmental organisations (NGOs) operate between the private and governmental realms. Originating outside of the communities in which they work, NGOs are motivated primarily by humanitarian and/or developmental concerns rather than an interest in service improvement for their own members. The self-creation of meaningful employment for members may also be a motivation for NGO formation. NGOs may help increase the capacity of people or community groups to play an active role in local solid waste management by contributing to:

- People's awareness of waste management problems,
- Organisational capacity and the formation of community-based organisations (CBO).
- Channels of communication between CBO and government authorities,
- CBOs voice in municipal planning and implementation processes,
- Technical know-how of locally active CBO, and access to credit facilities.

NGOs may also provide important support to informal sector waste workers and enterprises, assisting them to organise themselves, to improve their working conditions and facilities, increase their earnings and extend their access to essential social services such as health care and schooling for children (Schübeler et al, 1996).

2.4.6 External Support Agencies

Numerous bilateral and multilateral external support agencies (ESAs) are engaged in supporting MSWM in low-income countries. While some ESAs have acquired considerable expertise in the area of waste management, MSWM is often a component within a broader development programs aimed at improving urban management capacities and urban environmental protection (Schübeler et al, 1996).

2.4.7 Private Sector Enterprises

The formal private sector includes a wide range of enterprise types, varying from informal micro-enterprises to large business establishments. As potential service suppliers, private enterprises are primarily interested in earning a return on their investment by selling waste collection, transfer, treatment, recycling and/or disposal services. Operating in various forms of partnership with the public sector, they may provide capital, management and organizational capacity, labour and/or technical skills.

Due to their profit orientation, private enterprises can, under appropriate conditions, provide MSWM services more effectively and at lower costs than the public sector. However, private sector involvement does not, in itself, guarantee effectiveness and low costs. Problems arise when privatization is poorly conceived and regulated and, in

particular, when competition between suppliers is lacking. Private sector waste collectors may be contracted directly by individual households, neighbourhood associations or business establishments. More often, they operate under contractual agreement with municipal authorities. In this case, the authorities commonly retain responsibility for user fee collection. This arrangement ensures more equitable service access when private enterprises depend on the direct collection of user charges (Schübeler et al, 1996).

Map of Ghana, showing the study areas, (cities)



3. STUDY AREA AND METHODOLOGY

This chapter presents brief descriptions of the study areas (Accra, Kumasi, Tema, Sekondi-Takoradi and Tamale) with respect to the population, location and the climate and the methodology employed in the research study. The chapter also shows the methodology and data analysis.

3.1 Description of study Areas

Map of Ghana, Showing the study areas, (cities)

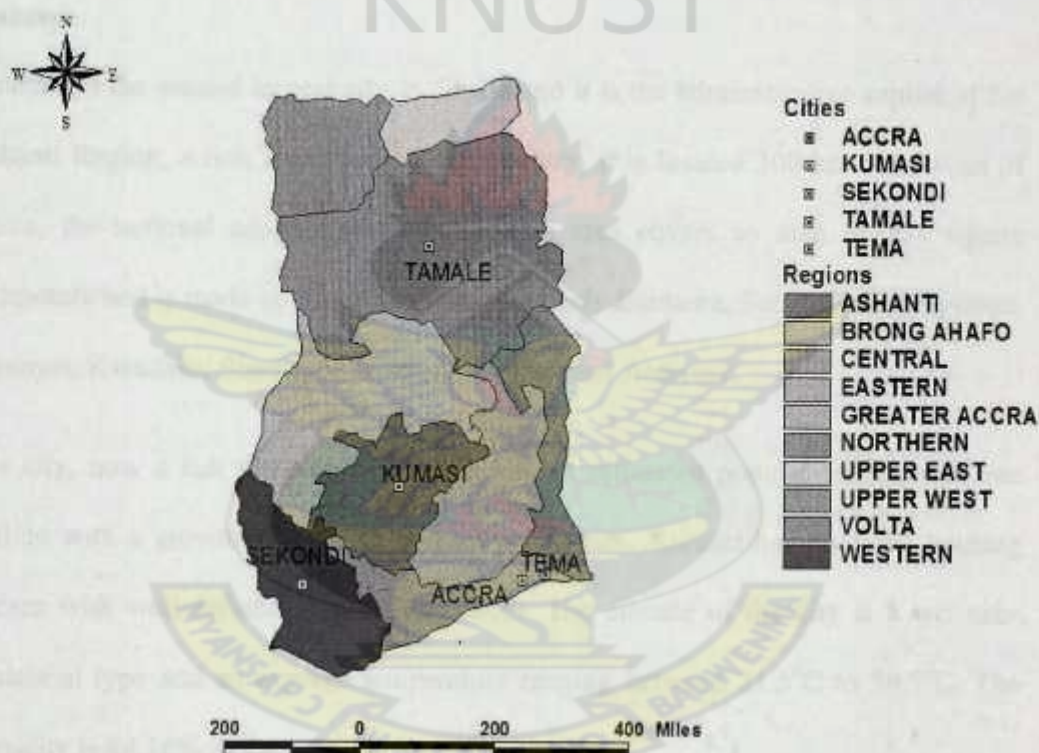


Figure 3.1: Map of Ghana showing the five selected cities

Accra

Accra is the capital, and most populous city of Ghana. The city also doubles as the capital of the Region. It is the administrative, communications, and economic center

of the country. AMA has a total land size of 200 square kilometres and is made up of six sub metros namely Okaikoi, Ashiedu Keteke, Ayawaso, Kpeshie, Osu Klotey and Ablekuma.

The AMA lies in the savannah zone with annual rainfall of about 730mm. There are two rainy seasons with the first beginning in May and ends in mid July while the second begins in August and ends in October. The annual average temperature is 26.8°C and the humidity is 65% in the afternoon and 95% at night.

Kumasi

Kumasi is the second largest city in Ghana and it is the administrative capital of the Ashanti Region, a rich forest area of the country. It is located 300 km Northwest of Accra, the national capital. The Metropolitan area covers an area of 254 square kilometers and is made up of ten sub metros namely Bantama, Subin, Tafo, Nhyiaeso, Manhyia, Kwadaso, Suame, Oforikrom, Asokwa and Asawase.

The city, now a fast growing metropolis has an estimated population of about one million with a growth rate of 2.5 percent per annum. Kumasi has a unique housing pattern with well-defined contiguous sectors. The climate of the city is a wet sub-equatorial type and an average temperature ranging between 21.5°C to 30.7°C. The humidity is 84.16% in the morning and 60% at night.

Tema

Tema city is located in Southeast Ghana, near Accra. Tema, which serves as the administrative capital of the Tema Metropolitan is a coastal city situated 25 kilometres east of Accra, the national capital. The Greenwich Meridian (00

Longitude) passes through the city of Tema. The metropolis shares common boundaries with the Accra Metropolis on the west; The City was built in 1960 as a manmade harbor. Its port, developed in the 1950s and opened in 1961, is the busiest in Ghana. With the opening of an artificial harbour in 1961, Tema developed from a small fishing village to become Ghana's leading seaport and an industrial center. Most of the country's chief export, cacao, is shipped from Tema. The city has industries producing aluminium, refined petroleum, chemicals, food products, and building materials. Tema is considered the "heart of the country's development.

Tema is characterised by a dry equatorial climate. It is the driest part of southern Ghana with an annual rainfall of about 790mm. Generally, temperatures are high all year round.

Sekondi-Takoradi

Sekondi-Takoradi, population 335,000 (2005), is the capital of the Western Region of Ghana. It is Ghana's fourth largest city and an industrial and commercial center. The Sekondi -Takoradi Metropolitan Area, with Sekondi as the administrative capital, occupies the south-eastern part of Western Region.

The city has a main annual rainfall of about 2350mm and a maximum temperature of about 35°C.

Tamale

Tamale is the capital of the Northern Region of Ghana, with a population of 305,000 (2005), and has developed and transformed very fast within the last few years, and often referred to as the fastest growing city in West Africa. It covers an area of about 73.1 square kilometers.

The metropolis lies within the Guinea savannah belt of Ghana. It has an annual rainfall of about 1100mm and a mean temperature ranging from 33°C to 39°C in the morning and 20°C to 22°C at night.

3.2 Sample Size

The research was conducted in five (5) cities in Ghana namely Accra, Kumasi, Tema, Sekondi-Takoradi and Tamale. These cities were chosen for the research because; they are the five largest cities and form 19% of the total population of Ghana and generate large tones of waste per day (3,200) due to rapid urbanization. Also the cities have benefitted from the Urban Environmental Sanitation Project (World Bank, 1990) of the involvement of private sector in solid waste management in the 1990s. There are forty six (46) private companies in the five cities but twenty five (25) private solid waste management companies from all the five (5) cities were surveyed for this research due to limited time factor. Details of population and number of private companies from each city are summarized in the Table 3.1 below;

Table 3.1 Populations of cities and sample size

CITY	POPULATION (2000)	NUMBER OF PRIVATE COMPANIES	SAMPLE SIZE (No. of Companies)
Accra	1,658,937	18	6
Kumasi	1,170,270	8	6
Tema	506,400	11	4
Sekondi-Takoradi	369,166	3	3
Tamale	350,000	6	6

3.3 Framework for Data collection

The framework for data collection of the institutional arrangements for the involvement of private sector in SWC was discussed under contractual, financial and regulatory arrangements. These arrangements were discussed under various variables. The Table 3.2 summarizes the framework that was used for data collection.

Table 3.2: Framework for data collection

ASPECT OF STUDY	VARIABLES
CONTRACTUAL ARRANGEMENT	<ul style="list-style-type: none">• Type of contract• Contract duration• Contract renewal• Adherence to contractual obligations (Assemblies and private companies)• Enforcement of legislations
FINANCIAL ARRANGEMENT	<ul style="list-style-type: none">• Setting of user charges• Subsidies for HtH services• Current level of user charges for the modes of collection
REGULATORY FRAMEWORK	<ul style="list-style-type: none">• Assembly's access to information from companies• Regulation of user charges• Regulation of quality of service and monitoring

3.4 Desk Study

Desk studies were carried out to review literature on research studies done on Institutional Arrangements for solid waste collection. This was done in order to fully understand the issues involved in the institutional arrangement for private sectors involved in Municipal Solid Waste collection.

3.5 Sources of Data

Data used for the research study were obtained from primary and secondary sources. Primary source of information were collected from the private waste management companies through questionnaire formulation and administration and also semi-structured interviews with the heads of waste management departments.

Secondary data were collected from the MLGRD for the Environmental Sanitation Policy. Disposal records on the quantities of solid waste collected and disposed off by the waste companies was gathered from the metropolitan/Municipal/district Assemblies for the analysis of the quantities of waste collected by the waste companies across the cities. Information on the population of the country was obtained from the Ghana Statistical service (GSS).

3.6 Questionnaires Administration

Questionnaires were administered to the private companies within the study area and the Waste Management Department of the five cities. The questionnaires were aimed at seeking information regarding their contractual arrangement with the assemblies, financial arrangement and regulatory frameworks.

3.7 Structured interviews

Staffs of the private companies, Waste Management Department of the various municipal /Metropolitan Assemblies were interviewed to access information on the existing Contractual, Regulatory and Financial Arrangements for solid waste collection.

3.8 Data Analysis

Analysis was performed on questionnaires that were given out to the private companies to access the contractual, regulatory and financial arrangements for involving the companies in solid waste collection in the five selected cities.

The questionnaires were also analysed to identify the bottlenecks of the existing contractual, financial arrangements and regulatory framework for involving private companies in solid waste collection.



4. RESULTS AND DISCUSSION

This chapter brings to bear the principal stakeholders, their roles and how they interrelate to each other in carrying out their tasks effectively. It also discusses the contractual, financial and regulatory arrangements for involving private companies in SWC and also identifies the bottlenecks associated with the arrangements.

4.1 Roles of stakeholders in the institutional arrangements for solid waste collection in Ghana

The principal stakeholders involved in SWC in Ghana are,

- ❖ Ministry of Local Government, Rural Development and Environment (MLGRD&E)
- ❖ Metropolitan /Municipal/District Assemblies (MMDAs).
- ❖ Private Sector
- ❖ Service Beneficiaries

The Ministry of Local Government, Rural Development and Environment (MLGR&E) has the responsibility of;

- ❖ formulating policies to assist the Assembly
- ❖ Providing technical guidelines, funds (subsidies) for solid waste collection services and training.

The local government Act of 1993 (Act 462) mandates the Assembly to promulgate bye- laws to govern and regulate sanitation. These consists of the legislation, standards, regulations and administrations, institutions and

administrations adopted to control activities causing damage to the environment by way of waste generation or pollution within the state.

The MMDAs represents the National Government at the local level and they function to;

- ❖ implement policies from the National Government
- ❖ promulgate bye-laws to assist the private waste companies in carrying out waste collection services
- ❖ Provide solid waste collection by involving the private companies and monitor all solid waste collection services by the private companies within the Districts.
- ❖ Apply the necessary sanctions for non compliance to standards, regulations and terms of the contract by the private companies.

Private waste companies have the following as its functions;

- ❖ provide SWC services according to the terms set out in the contracts
- ❖ provide monthly and annual reports to the Assembly
- ❖ provide quality solid waste services to the beneficiaries
- ❖ collect user charges from service beneficiaries

The Environmental Protection Agency is tasked with the responsibility of;

- ❖ Monitoring the activities of the Assembly and the waste companies in terms of environmental standards and regulations.
- ❖ Conduct regular public education on environmental sanitation issues

The service beneficiaries are responsible for;

- ❖ Paying user charges for service rendered by the waste companies
- ❖ Demanding quality service delivery by the waste companies
- ❖ Complaining to the companies for non performance

The Relationships of principal stakeholders in the institutional arrangement for solid waste collection in Ghana is provided in the Figure 4.1 below.

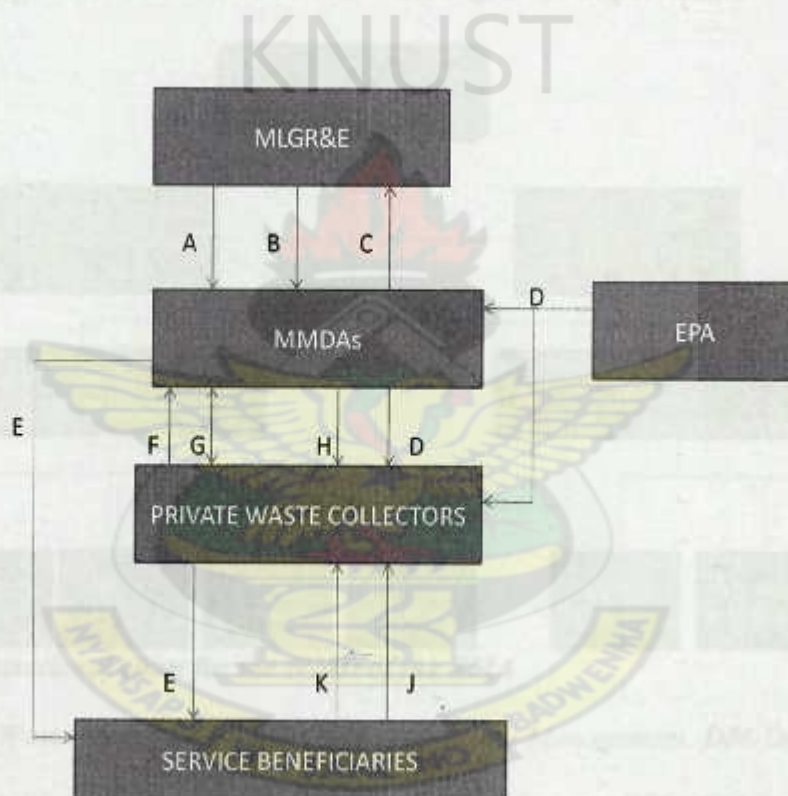


Figure 4.1 Relationships of stakeholders in the institutional arrangement for solid waste collection.

Legend

- | | |
|--|-------------------------------|
| A- Sanitation policies formulated for Assemblies | B- Funds |
| C- Report | D- Monitoring and supervision |
| E- Services and education | F- Annual and monthly reports |
| G- Contract | H- Regulation |
| J- Complaints about service quality | K- Payment of user charges |

Organizational Structure for the Waste Management Departments

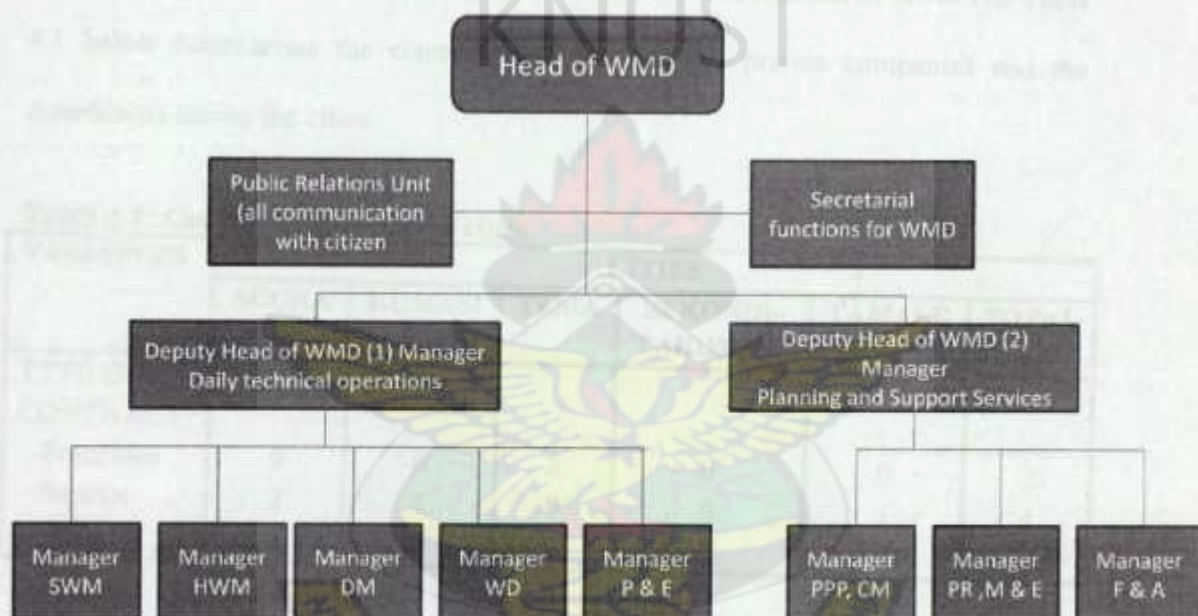


Figure 4.2: organisational chart for the WMD of the KMA

Key: *SWM-Solid Waste Management, HWM-Human Waste Management, DM-Drain Maintenance, WD-Waste Disposal, P&E- Plant and Equipment, PPP, CM-Public Private Partnership. Contract Management, P,R,M&E-Planning, Research, Monitoring and Evaluation, F&A-Finance and Administration.*

The Environmental Sanitation Policy provides a generic organisational chart which serves a guide for the cities Assemblies in the establishment of structures tailored to their own individual situations (ESP, 2007).

4.2 Contractual Arrangement

The contractual arrangements between the local governments and the private sectors involved were assessed based on the type of contracts, contract duration, contract renewal, adherence to contractual obligations and the enforcement of laws. The Table 4.1 below summarises the contract type between the private companies and the Assemblies across the cities.

Table 4.1: Contract Types across cities

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
TYPE OF CONTRACT						
-Franchise	0	0	2	0	0	2
-Service	2	1	0	0	1	4
-Both	4	5	2	3	5	19

The contract type between a company and Metropolitan/Municipalities/District Assemblies (MMDAs) enables the company to work according to the terms of the contract. From the survey and interviews conducted with the various private companies across the cities, it was revealed that the solid waste collection services are provided under two main types of contract. The contracts are Franchise and Service contracts. Twenty five (25) companies across cities were used for the purpose of the research and out of this number, nineteen (19) of the companies practiced both types

of contract forming 76% of the total companies interviewed. Two (2) and four (4) companies practiced the franchise and service contracts respectively forming 8% and 16%.

There are two (2) different types of SWC modes for each type of contract. The mode of collection coincides with the type of residential classification and the willingness and ability to pay for the service delivery. Residential classification is usually done by the Assemblies taking into consideration the housing type, population density, economic status and road access. The contract is mostly house-to-house which is done in medium to high income areas which are well planned with easy access roads as shown in Plate 4.1. With this mode of collection, the waste generator places the waste container outside where the private waste company picks it up for disposal about twice a week. The company collects the fees directly from the service beneficiaries to recover cost. The fee collection is usually done on monthly basis and hence the private company cannot afford to underperform because the service beneficiaries will not be willing to pay for the services rendered.

The service contract comes with the communal collection by the private waste companies. With this type of waste collection, a central collection container is placed at a common place which is accessible to all the residents and this is shown in plate 4.2. The communal collection is done in low income, high population density areas with unplanned houses with poor access roads. Also the communal is done in areas where willingness and ability to pay for waste collection service is very low. Residents in these areas consider such a service as a public good which requires no payment and hence rely on government to do the payment. This mode of collection

generates an environmentally unsound practice especially within cities where waste generating rates are high with low collection frequencies. Most often than not the waste containers overflow owing to low collection frequencies and hence residents are not allowed to dispose of their waste until the container is emptied and so some residents are tempted to dispose their waste of into open drains when no one is watching and hence encouraging free riding. Also some of the containers are lifted without cleaning the site as specified in the contract leading to heaps of refuse at the container sites. These sites breed mosquitoes, produces bad odour and hence threatening the health of residents staying around, site attendants and workers.

The private companies who are into the house-to-house collection deliver better services than the companies doing the communal collection this is because they operate mainly in medium to high class residential areas where willingness and ability to pay is high, better cost recovery is likely to be realised from beneficiaries desire to get value for their money since they demand quality service delivery and also value for their money.



Plate 4.1: House-to-house collection



Plate 4.2: Communal collection

4.2.1 Quantities of Waste Collected by Public and Private Sectors and mode of waste collection in the Cities

The mode of collections that were identified in the five cities was the communal and house-to-house collections. The Table 4.2 below shows the percentage of waste collected by the public and private sector and the mode of collection. The involvement of the private sector in solid waste collection has improved the quantity of waste collected even though there are inherent problems that needs to be addressed.

Table 4.2: Percentages of Waste Collected by Public and Private Sectors and mode of waste collection

City	INSTITUTIONAL MODE OF SOLID WASTE SERVICE DELIVERY		MODE OF COLLECTION	
	Public sector (%)	Private sector (%)	House-to-house (%)	Communal (%)
Accra	0	100	6	94
Kumasi	4.7	95.3	18	82
Tema	21.8	78.2	65	35
Sekondi-Takoradi	63.3	38.7	17	83
Tamale	74.1	25.9	12	88

From the results in the Table 4.2 above, the private sector does a large percentage of waste collection. In Accra solid waste collection is solely done by private companies' whiles in the remaining cities it was the shared responsibility of both the private and public sector.

The mode of waste collection in the cities were mainly of the communal collection system except Tema which does 65% and 35% of house-to-house and communal collections respectively owing to the fact that it was the first to adapt the house-to-

house mode of collection in the 1990's. The involvement of the private sector in SWC has seen an improvement in the volumes of waste collected in the cities.

4.2.2 Contract Award

The model contract prepared by the ministry of LG (1998b) mandates LGs to award Solid Waste contracts transparently through competitive bidding. The contractor shall not have the right to terminate the agreement, unless the LG has not been able to make timely and regular payments and the contractor has not been able to meet its cash flow requirement for personnel and consumables.

The competitive bidding process is the means by which the private waste companies are engaged in solid waste collection. The companies are assessed based on their capacity, resources and technical expertise, the company that meets these requirements is awarded the contract for a particular term. After the term of contract has expired, the company is required to undergo a contract renewal process. This however is not being pursued by the Assemblies because after the contract has ended the Assemblies go into negotiation with the private companies to re-engage their services in solid waste collection.

4.2.3 Contract Duration

This is the duration of the contract agreement between the private waste companies and the Assemblies engaging the private companies to perform the solid waste collection within a particular area assigned by the Assembly. The duration of the contract types awarded to companies are presented in the Table 4.3 below. The result

showed that the duration of the Franchise and Service contracts were 2 years and 5 years respectively. Across the cities two companies were operating under the franchise contract for two (2) years and nineteen (19) had five (5) years contract duration. The companies that had five (5) years contract duration combined both house-to-house and communal collection. The two (2) years contract duration is for the companies doing only house-to-house collection under the franchise contract. The period of the contract to involve the private companies in solid waste collection by the MMDAs should be long enough for the companies to recover cost for the SWC services delivered.

Table 4.3: Contract Duration across cities

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
CONTRACT DURATION						
-Franchise						
*2 years	0	0	2	0	0	2
*5 years	4	5	2	3	5	19
-Service						
*2 years	0	0	0	0	0	0
*5 years	6	6	2	3	6	23

The length of a contract period for SWC is typically related to the life of the underlying asset. The economic life of collection vehicles is estimated to be 6-8 years under use and 4-5 years under intense use for new vehicles and hence the contract length should be at least 4 years (UNIDO/UNDP, 1998). In a well developed market in which substantial competition and private sector participation already exists, the

issue of the length of contract is less important, because a private firm can sell its collection vehicles to other contractors if their contract is not renewed. However, Ghana a developing country has not reached this stage, and hence it will not be out of place not to consider the length of contract and also for the fact that most of these vehicles for waste collection in Ghana are old.

The five year service contract given to the companies in the five cities in Ghana provides sufficient time to enable contractors to repay the cost of the equipment. The duration of the franchise contract is short and hence creates the potential for competition in the market, ensuring quality of service. Even though the contract duration is specified in the contract, the complaints from most of the private companies was that they were not able to recover the cost as they expected owing to irregularities in the payment of services rendered.

4.2.4 Contract Renewal

Contract renewal is a process the private wastes companies involved in SWC across the cities undergo after the term of contract signed with the Assemblies has expired to enable them continue to provide SWC services. The results from the survey are summarised in Table 4.4. The results show that the private companies undergo two forms of contract renewal; these are competitive bidding and Automatic renewal.

Nineteen (19) and eleven (11) companies had undergone competitive bidding under the franchise and the service contract respectively. The competitive bidding process was to engage the services of these companies for the first time in the SWC services. The companies that are given the Automatic renewal are six (6) and fourteen (14) for franchise and service contracts respectively. The companies are given the Automatic

renewal to continue working because their terms of contracts have expired and have had negotiations with the MMDAs to continue working. According to a waste manager, 'it is better to engage the companies with experience than to engage a company without experience'. Also, the companies are not made to undergo the competitive bidding process because at the time the term of contract has expired, the MMDAs owe them so much that they have no other option but to allow them to continue working through negotiations. This has an adverse implication as the quality of service is greatly compromised since the contracts of non performing companies are not terminated.

Table 4.4: Contract Renewal across cities

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
CONTRACT RENEWAL						
-Franchise						
*Automatic Renewal	2	1	1	0	2	6
*Competitive bidding	4	5	3	3	4	19
-Communal						
*Automatic Renewal	5	6	0	0	3	14
*Competitive bidding	1	0	4	4	2	11

Private companies involved in solid waste collection service may have their contracts renewed based on the condition that they have performed satisfactorily.

The research conducted revealed that contract renewal in the five major cities in Ghana is stated in the contract and the

Companies are allowed to continue working even though their contracts have expired because they are already in the business and hence the Assembly do not see the need

to undergo rebidding. Also the companies undergo the competitive bidding process when they are entering into the waste collection to work because. This notwithstanding, a company is liable to have its contract terminated if the company has badly performed.

4.2.5 Force Majeure

The service provider shall not be required to perform the services required under this agreement if prevented from doing so by an 'Act of God', order or direction of government or local authorities, act of state enemies, riots, strikes, substantial destruction to the plant or equipment of any supplier, shortage of fuel or lubricant, or any other circumstances beyond their control. For the purpose of this Agreement the 'Act of God' shall include causes arising from natural calamities such as earthquakes, volcanic eruptions, floods, fires or lightning strikes. In case of such an event the service provider shall notify the Assembly in writing within seven (7) days of its occurrence.

4.2.6 Assembly's Contractual Obligation

The companies were interviewed to assess the adherence of the Assemblies obligations and the results are as summarised in the Table 4.5 below.

The Municipal/Metropolitan Assemblies have the obligations of promulgating bye-laws to assist the private companies in their service, conducting public education regularly, pay companies according to the specifications in the contract to compliment the services rendered by the private waste companies.

Table 4.5: Companies views on Assemblies contractual obligations across the cities

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
■ Promulgates By-laws to assist contractor in the service. -Agree -Disagree	6 0	4 2	4 0	3 0	5 1	22 3
■ Conducts Public education regularly. -Agree -Disagree	4 2	3 3	3 1	1 2	3 3	14 11
■ Pays Contractor within 45 working days after date of claim. -Agee -Disagree	2 4	1 5	1 3	1 2	3 3	8 17
■ Pays interest charges as stipulated in the contract if payment delayed beyond 3 months. -Agree -Disagree	1 5	0 6	3 1	1 2	2 4	7 18

LG Act 1993 (Act 462) mandate the Assemblies to promulgate byelaws to regulate sanitation process. The five (5) cities have bye-laws to assist the contractors in the delivery of their services. These bye-laws were written out of the national laws on sanitation and are to be adhered to by these companies to ensure good sanitation practices. Each flout of the law attracts a sanction from the Assembly.

It is the obligation of the Assembly to conduct public education regularly to educate the populace on sound environmental practices but from the responses gathered from the interviews only 14 out of the 25 agreed that the Assembly conducts public education but not regularly. This is clearly evident in the people's attitude towards environmental cleanliness. In as much as the private companies do their best to keep the cities clean, the attitude of the people towards good sanitation practices leaves much to be desired. This is attributed to the lack of regular education on good sanitation by the Assembly.

The Assembly is also obliged to pay the private contractors within 45 working days after date of claim and if payment delays beyond three months, they are to pay the companies with interest charges as clearly stipulated in the contract. The views from the companies revealed that, that part of the contract is partly fulfilled in that, 17 companies said the payments are delayed beyond the stipulated time and this accounted for 68% of the respondents. As to the payment of interest charges if payment is delayed beyond the 3 months, 18 companies said it is not done and this forms 72% of the respondents but the private companies do not take any legal action against the Assemblies. This in effect, affects the quality of service rendered by these private companies.

4.2.7 Company's Contractual Obligations.

The details of all activities that should be carried out by the private waste companies are specified in the contract. These include achievement of daily collection target, the use of professional and technical personnel in service delivery and ensuring that the container sites are free of litter. Also the company is to ensure that the collection crew

put on protective clothing at all times during the discharge of service, cover all waste containers during the course of transportation.

The Table 4.6 below presents the views of the companies across the cities on the assessment of their adherence to their obligations.

Table 4.6: Companies views on their adherence to obligations specified in the contracts

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
<p>■ Company achieves daily collection target in the contract.</p> <p>-Agree</p> <p>-Disagree</p>	3 3	4 2	3 1	3 0	6 0	19 6
<p>■ Company's use professional and technical personnel required.</p> <p>-Agree</p> <p>-Disagree</p>	6 0	5 0	5 0	3 0	6 0	25 0
<p>■ Company cover waste containers during transporting</p> <p>-Agree</p> <p>-Disagree</p>	6 0	6 0	4 0	3 0	6 0	25 0
<p>■ Company collection crew use protective clothing</p> <p>-Agree</p> <p>-Disagree</p>	6 0	5 1	3 1	3 0	6 0	23 2
<p>■ Company keeps container site free of litters and clean.</p> <p>-Agree</p> <p>-Disagree</p>	5 1	5 0	3 0	3 0	6 0	24 1

Nineteen (19) out of the twenty five companies interviewed were of the view that they were able to achieve their daily targets. This accounted for 76% of the respondents and six (6) said they are sometimes unable to meet the daily target due to vehicle breakdown for lack of funds for regular maintenance thus forming 24% of the total number of respondents.

All the companies used technical and professional personnel in the discharge of their duties which forms 100% of the total companies interviewed.

As to whether the collection crew uses protective clothing during the collection of waste, 23 out of the 25 cities said the collection crew uses the prescribed clothes. The other two in Kumasi and Tema, sometimes do not use the prescribed clothing due to negligence and sometimes may think that they have become used to the waste collection and are immune to any form infection that may result from waste handling. The private companies are obliged to keep the container site free of litters and clean especially with the communal collection. Twenty two (22) companies keep their zones of operation free of litters while the remaining three are not sometimes able to keep their zones of operation free of litters. The latter can be attributed to the fact that large heaps of refuse remain at the container site after refuse has been picked up and this requires extra cost and effort to keep the site clean.

4.2.8 Enforcement of Legislation

Enforcement of bye-laws and contract rules is a mechanism that the Municipal/Metropolitan Assemblies apply to control the management of solid waste collection services. Table 4.7 presents the views of the companies interviewed.

The views of the companies did not vary much and most of them agreed to the fact that the bye-laws were enforced. As can be seen from the Table 6 above, thirteen companies were in a disagreement that the laws on sanitation were not being enforced, nineteen (19) also disagreed that the fines for defaulting the laws were not punitive enough, fourteen (14) were in disagreement that monitoring of compliance was not done effectively and finally twenty (20) of the companies interviewed said the environmental health standards and sanitation were strictly observed and enforced. From the results gathered it can be said that the law enforcement role of the assemblies were being pursued.

Table 4.7: Companies views on enforcement of legislation across cities

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
<p>■ The by-laws of the Assembly and national laws on environmental sanitation are not enforced.</p> <p>-Agree</p> <p>-Disagree</p> <p>-Cannot tell</p>	1 4 1	3 2 1	1 3 0	0 3 0	3 1 2	8 13 4
<p>■ The fine for defaulting by-laws is not punitive enough.</p> <p>-Agree</p> <p>-Disagree</p> <p>-cannot tell</p>	1 4 1	1 5 0	0 3 1	0 3 0	0 4 2	2 19 4
<p>■ The monitoring of compliance to solid waste service standards and regulations set in the contracts are not done effectively.</p> <p>-Agree</p> <p>-Disagree</p> <p>-Cannot tell</p>	1 5 0	1 4 0	1 3 0	1 2 0	2 0 4	6 14 5

<p>■ The environmental health standards and sanitary regulations are not strictly observed and enforced.</p> <p>-Agree</p> <p>-Disagree</p> <p>-Cannot tell</p>	1	0	0	1	0	2
	4	5	4	2	5	20
	1	1	0	0	1	3

There are sanctions in the contract documents which are applied to the service providers when they fail to fulfil any of the obligations set out in the contracts. The fines for non-compliance differ from city to city and the sanctions are subject to review and may be changed by the Assembly after the service provider has been informed of such changes. The fine ranges from GH¢ 5.00 - GH¢ 20.00 across the cities. In Ghanaian cities many citizens are not law abiding in their attitudes to sound environmental practices and these can be attributed to the fact that there were inadequate waste container, low frequency of waste collection especially with the communal collection, long distance to central container and lawlessness in the fact that citizens are not afraid that their actions will lead to sanctions by law enforcement authorities because these laws are not strictly enforced.

The Assemblies are not effective in sanctioning offenders because of the degree to which residents these laws are flouted. Also the Judicial process in Ghana is perceived to be very slow to deal with offenders. The lack of sanitation courts in the cities seems to be another factor which hinders the enforcement of sanitation regulation. Furthermore the bye-laws in the cities places more emphasis on indiscriminate waste disposal by users and contractors but no mention is made of the Assemblies own

obligation to users or possible sanctions if they fail. The MMDAs have not been able to terminate a company's agreement on the basis of non performance with regards to enforcement of the terms in the contract. They are unable to apply the stipulated sanctions in the contract also sometimes fail to adhere to their obligations in the contract. The bottlenecks identified with the contractual arrangements are that after the companies are engaged in solid waste collection through a competitive procurement process, they still remain in business after their term of contract has expired. Also, there are laws on sanitation to sanction offenders but these are not strictly enforced. The obligations of the Assemblies and companies in the contracts are not adhered to by both.

4.3 Financial Arrangement

An institutional arrangement for SWC needs to have financially viable arrangement if it is to sustain itself and a major factor for achieving sustainability is where the services can be designed to earn revenue.

In this case, it is impossible to carry out a cost-benefit analysis of the financial viability of SWC services that would allow firm conclusions to be drawn. This is because the companies were unwilling to disclose data about their finances. The research revealed that there is a financial arrangement in place for the private companies. Nineteen (19) companies receive subsidies from the Assembly for the house-to-house service and six (6) companies do not. Those who do not receive the subsidies are private companies who have been given the permission to collect waste in a particular area but do not have any contract with the assemblies. As to whether these subsidies are paid on time, eighteen (18) companies confirm delay in payments

which is a major stumbling block to quality service delivery. The result on financial arrangement for involving the private companies is presented in the Table 4.8 below.

Table 4.8: Financial Arrangements across cities

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
<ul style="list-style-type: none"> Who set user fee for House-to-House? -Assembly alone -Companies approved by Assembly 	6 0	4 2	4 0	2 1	5 1	21 4
<ul style="list-style-type: none"> User fee set are not reasonable to recover cost? -Yes -No 	4 2	5 1	5 0	2 1	4 2	19 6
<ul style="list-style-type: none"> Are the House-to-House services subsidized by Assembly? -Yes -No 	4 0	5 0	4 0	3 0	5 0	21 0
<ul style="list-style-type: none"> Does Assembly pay subsidy on time? -Yes -No 	0 4	0 5	0 4	0 3	0 5	0 21
<ul style="list-style-type: none"> Assembly pays interest charges as stipulated in contract if payment delays beyond 3 months. -Agree -Disagree -Cannot tell 	4 2 0	3 2 1	1 3 0	1 2 0	1 4 1	15 8 2

Also twenty one (21) companies were of the view that the fees for SWC services for the house-to-house are set by the Assembly alone and four set the fees for approval by

the Assembly. These are normally those who are given the permission to carry out waste SWC services by the Assemblies but do not have contract with the Assembly.

The Table 4.9 below shows the fee charged by the private companies from the beneficiaries with respect to the economic status of individuals and the communal charges per tonne of waste collected. Comparing the fee charged across the five cities, it is obvious that the fee charged per bin for house-to-house is on the high side for people living in areas classified as high class. These differences is attributed to the fact that individuals living in such areas wants services that meets their status in society of which environmental cleanliness is paramount.

Table 4.9: Service charges for solid waste service rendered by the companies

CITIES	CHARGE PER BIN FOR HOUSE-TO-HOUSE (GH¢/bin/month)			COMMUNAL CHARGES (GH¢)	
	Low class	Medium class	High class	Per tonne	per head load
Accra	3.00	6.00	10.0-12.0	10.00	0.10-0.3
Kumasi	3.00	4.00	5.00	9.00	0.10
Tema	2.00	2.40	6.0-11.0	6.0-10.0	0.10-0.20
Sekondi-Takoradi	1.50-2.00	3.00	4.00	9.00	0.10-0.20
Tamale	2.00	3.00	4.00-5.00	9.00	-

However, tariffs should be set at levels that will not discourage the use of the services, especially where this would create health risks. Also fees charged for services differed from city to city which increased from Tamale right up to Accra, ie from GH¢ 2.00-

GH¢3.00 respectively and this can be attributed to the differences in the living standards, ability and willingness to pay and also travelling distances to the dump final disposal sites. For the franchise HtH, each household pays GH¢ 5.00, GH¢4.00, GH¢3.00 respectively for high income, middle income and low income areas.

The CC- system formally did not have user fees, all costs were borne by MMDAs until recently the introduction of the pay- as -you dump in some parts of the cities. Institutional arrangements using this system is, strictly speaking, not viable because most of the service beneficiaries view such SWC service as a public good and hence are not willing to pay for the service. Under the revised communal system, users pay 10-20GP per head load of solid waste dumped. This is intended to supplement the Assembly's fund for solid waste collection.

The private companies delivering waste collection services are paid based on the number of trips record at the final disposal point. The form is signed by the sub metropolitan officer and the WMD officer at the dump site. This is to serve as an authentication for payment by the WMD for services delivered. The main problem faced with the communal collection by all the private waste companies interviewed was late payment by the MMDAs leading to occasional interruptions of service delivery. The house-to-house collection has a better financially viable arrangement than the communal collection.

The communal collection formerly did not have user fee and all cost were borne by MMDAs until recently. The pay- as- you- dump has been introduced in some parts of Accra, Kumasi, Sekondi-Takoradi and Tema with the exception of Tamale. This sort of arrangement has become necessary to help reduce cost of waste collection in the

cities. Also the low class residents who contribute the chunk of waste in the cities unfortunately do not pay for waste collection and hence has necessitated this wise move. In Kumasi the PAYD has been effective since January 2008. The Municipal Chief Executive (MCE) at an interview disclosed that in Kumasi the KMA was managing solid waste at a monthly cost of GH¢ 589,200 arising from the waste collection of 36000 tonnes, at GH¢ 9.00 per tonne at a total monthly cost of GH¢ 324,000 (Kite News, 2008). In Accra the Principal Environmental Health Technologist at the AMA said the Assembly owed various waste management companies over GH¢ 7,500,000.00. This irregular payments for services rendered have made it extremely difficult for the service providers to deliver quality services. The financial viability of the arrangements based on House-to-house collection is considerably better than that of the Communal collection system.

Most of the people think and believe that MSWM is the sole responsibilities of the local government/Assembly and hence feels very reluctant when it comes to issues of paying for waste disposal services especially for the CC- system.

According to the companies, they have been successful in both high and middle income areas, managing to recover about 90% of the fees (the only problem being some delays in payment), as reiterated by most of the companies interviewed. Delay in payment of subsidy from the Assemblies is a major setback which is a source of worry to the private companies. According to the private SWC companies interviewed, they sometimes have to turn to the banks for loans to keep them in business and they pay back to these banks when they are paid by the Assemblies. Most of these companies have a pile up of vehicles which need to be maintained because they have broken down. Despite all of these odds they continue to work to

bring sanity into the environment and they also owe it as a duty to help keep Ghana clean. The bottlenecks identified for the financial arrangement in place are; the Assembly alone set the user charges without consulting the private companies which to them is inadequate for cost recovery. Also there no mechanisms in place to deal with residents who refuse to pay for the Waste collection services. The Assembly delays so much with the payment of monies due these private companies, this in effect affects service quality.

4.4 Regulatory Framework

The EPA is the regulatory agency for protection of the environment. The functions of the EPA are clearly set out in the EPA act, 1994(ACT 490). The EPA through the Metropolitan/Municipal Assemblies (MMDAs) monitors and regulates waste management in the cities, especially disposal of solid waste.

The Assembly is in charge of regulation of access to information from the service providers, regulation of tariffs and ensuring good service quality. The Assembly also carry out monitoring of clearly spelt out regulations available to provide the necessary guidelines to improve on the enforcement management.

Clearly spelt out regulations are available to provide the necessary guidelines to improve on the enforcement management.

4.4.1 Regulation of Access to Information

The Table 4.10 summarises the responses to the variables used to assess the Assemblies' access to information from the private companies.

In order for the Assembly to effectively monitor the quality of service rendered by the waste companies, the Assembly must have access to information from the waste companies. This information includes performance targets, tonnage of waste disposed of and cost incurred. The results show that the companies has a performance standard to which the companies adhere to and are able to provide records on the tonnage of waste disposed of and the cost incurred since they are paid based on the records submitted.

Table 4.10: Companies views of regulation of access to information across cities

VARIABLES	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
<p>■ Clear and measurable performance targets are set in the contracts.</p> <p>-Adequate</p> <p>-Inadequate</p> <p>-Normal</p>	5 1 0	5 1 0	3 1 0	2 0 1	5 1 0	20 4 1
<p>■ Assembly's access to information from company on tonnage of waste disposed.</p> <p>-Adequate</p> <p>-Inadequate</p> <p>-Normal</p>	5 1 0	4 1 1	3 1 1	2 1 0	3 0 3	17 4 4
<p>■ Assembly's access to information from company on cost of waste collection and disposal.</p> <p>-Adequate</p> <p>-Inadequate</p> <p>-Normal</p>	6 0 0	6 0 0	3 0 1	2 0 1	5 0 1	22 0 3

The municipal /metropolitan and District Assemblies role is to monitor and regulate the solid waste companies. The access to information by the Assembly from the

companies is important as this determines the level to which they carry out these regulation procedures. The results above show that twenty (20) out of twenty five (25) companies said the Assembly is able to get access to information pertaining to the regulations from the private waste companies which are clearly spelt out in the contract signed. Also seventeen (17) out of twenty five (25) companies said the Assembly is able to get information on tonnage of waste collected. Twenty two (22) companies provided information on cost of waste disposed of to the Assemblies. The Waste management Department Heads were of the view that even though clear and measurable performance targets are set in the contract with the private companies, these targets are not fully achieved due to lack of capacity and resources on the part of the Assemblies and the private companies.

4.4.2 Regulation of quality of service

Regulation is a guide to good practices in the delivery of solid waste collection services, thus ensuring quality service delivery by the private waste companies.

Regulation of quality of service as regards the SWC activities of the companies were assessed based on monitoring of companies compliance to regulations, quantity of waste collected supervision by the Assemblies and Assemblies adherence to the regulations in the contracts signed with the companies. The results are presented in the Table 4.11 below, representing the views of the private companies involved in SWC across the five cities. According to sixteen (16) respondents, monitoring of the companies compliance to regulations and standards set in the contracts are Adequate. The companies' quantity of waste collected and their outputs are monitored adequately which represents eighteen (18) of the twenty five (25) respondents. The

Assemblies also have an obligation of supervising the private companies in carrying out their waste handling functions. Eleven (11) companies responded that the Assemblies carry out their supervisory role. This role is however not effectively carried out and might be due to peculiar problems faced by the Assemblies. These problems are lack of resources, capacity and funds to carry out these functions. Assemblies' adherence to the regulations in the contracts signed with the companies from the results represents eighteen (18) out of twenty five (25) companies surveyed.

Table 4.11: Regulation of quality of service

VARIABLES	CITIES					
	ACCRA	KUMASI	TEMA	SEKONDI-TAKORADI	TAMALE	TOTAL
<ul style="list-style-type: none"> Monitoring of companies service quality and compliance to regulations and standards set in the contracts. 						
-Adequate	2	3	4	2	5	16
-Inadequate	2	1	0	1	1	5
-Normal	2	2	0	0	0	4
<ul style="list-style-type: none"> Monitoring of quantity of waste collected and output of company. 						
-Adequate	4	4	3	2	5	18
-Inadequate	0	1	1	1	0	3
-Normal	2	1	0	0	1	4
<ul style="list-style-type: none"> Supervision of the private sector by the Assembly. 						
-Adequate	1	1	1	2	2	7
-Inadequate	4	3	3	1	0	11
-Normal	1	2	0	0	4	7
<ul style="list-style-type: none"> Assembly's adherence to the regulations in the 						

contracts signed with the companies.						
-Adequate	0	1	3	2	1	7
-Inadequate	5	4	1	1	2	13
-Normal	1	1	0	0	3	5

General Waste Management in Ghana is the responsibility of the Ministry of Local Government and Rural Development, which supervises the decentralized Metropolitan, Municipal and District Assemblies (MMDAs). However, regulatory authority is vested in the Environmental Protection Agency (EPA) under the auspices of the Ministry of Environment and Science. The Metropolitan, Municipal and District Assemblies are responsible for the collection and final disposal of solid waste through their Waste Management Departments (WMDs) and their Environmental Health and Sanitation Departments. The policy framework guiding the management of hazardous, solid and radioactive waste includes the Local Government Act (1994), Act 462, the Environmental Protection Agency 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), 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.

The only guidelines, which indirectly discourage unsustainable practices and promote sustainable consumption and production, are those on the Environmental Impact Assessment. Standards relating to pollutants into the atmosphere (air, water and land) have also been prepared to ensure that production/consumption activities are

sustainable. Environmental Impact Assessment is a requirement under legislation (Act 490) and guidelines have been prepared through the Environmental Protection Agency with private sector collaboration. The problem identified with the regulatory framework is that, the regulatory and monitoring role of the institutions responsible is not effectively carried out as expected.

The following sub-sections will be tracing down the research study

CHAPTER TWO

The private companies are involved in solid waste collection services in Ghana's leading private sector.

The private sector is responsible for the collection, transport and disposal of solid waste. The private sector is responsible for the collection, transport and disposal of solid waste.

The types of contracts are used to involve the private sector in solid waste collection services in Ghana. The private sector is responsible for the collection, transport and disposal of solid waste.

The private sector is responsible for the collection, transport and disposal of solid waste. The private sector is responsible for the collection, transport and disposal of solid waste.

The private sector is responsible for the collection, transport and disposal of solid waste. The private sector is responsible for the collection, transport and disposal of solid waste.

5. CONCLUSIONS AND RECOMMENDATIONS

This chapter provides conclusions and recommendations drawn from the results of the research study.

5.1 CONCLUSIONS

The following conclusions can be drawn from the research study;

Contractual Arrangements

- The private companies are engaged by the Assemblies to undertake solid waste collection activities through a competitive bidding process but the companies do not undergo this process when the contract term expires and hence quality service delivery is highly compromised.
- The types of contracts available for involving the private companies in solid waste collection are franchise and service contracts. The two main collection modes under these types of contracts are the house-to-house and communal collection for franchise and service contracts respectively. The house-to-house collection performs better than the communal collection because of high collection frequency and residents willingness and ability to pay for the SWC services
- The duration of the franchise contract for house-to-house collection is two (2) years and the communal contract for the communal collection is five (5) years and the private companies are suppose to undergo a post contract bidding process after the contract have expired but they continue to since the

Assemblies will still be owing them at that time and this affect their performance.

Financial Arrangement

- The cost recovery mechanism in place for involving private companies in SWC are tariffs which are direct charges to users with subsidies for the house-to-house collection from the Assemblies and communal collection services with payment by Assembly. The major setback with this arrangement is the frequent delay in payments by the Assemblies.
- The user charges for house-to-house collection and communal collection vary across and within the cities owing to the cost of providing the service. The beneficiaries of the HtH service pay higher charges than those of the communal service.
- The PAYD has been introduced in the cities to help financed the huge cost of SWC incurred by the MMDAs except Tamale.

Regulatory Framework

- There are standards and regulations set in contracts to regulate the private companies in SWC in the Ghanaian cities
- The monitoring and regulatory functions carried out by the Assembly and the EPA suffers setbacks as in resources, logistics, capacities and adequate funds.
- There are sanctions in place for non compliance to regulations and standards are outlined in the contracts for the companies but these sanctions are not

strictly enforced because of the lack of sanitation courts to deal with them promptly.

5.2 RECOMMENDATIONS

- Education should be intensified to create the awareness of the current environmental sanitation situation in Ghana and the need for the people to be more responsible and pay for waste collection and disposal so as not to over burden the budget for waste management in enhancing sound environmental practices
- Given the prevailing high levels of non compliance especially on the part of waste generators, both laid down environmental sanitation rules and regulation need to be strictly enforced.
- The Metropolis/Municipalities and District Assemblies should be well resourced in order to carry out its regulatory and monitoring functions effectively.
- Capacity building of the private companies and the Assemblies stakeholders should be undertaken to enhance high quality service delivery.
- Further research has to be carried out into the financial viability of MSWM in order to come out with lasting solutions to the financial problems attributed to SWC services in Ghana

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APPENDIX 1 PRIVATE COMPANIES' QUESTIONNAIRE

Background of Institutional Arrangements for private sector
Involvement in Solid Waste Collection in Ghana

General Information

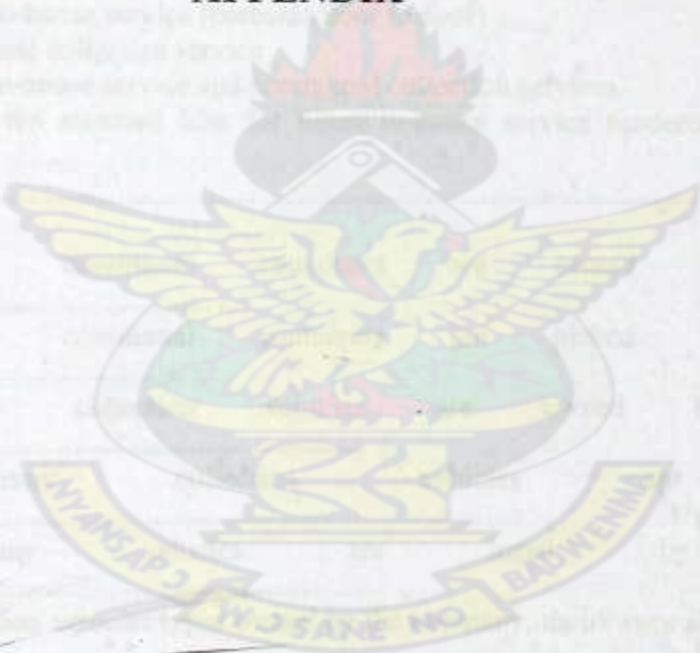
- 1.1 Name of the company _____
1.2 Company type _____
1.3 Name of the office _____ Location _____
1.4 Size of staff (number of employees) _____ Male _____ Female
1.5 How long has the company been in the country? _____
1.6 Products / services offered _____
1.7 Business level of national service education / skill level _____ Working style _____

KNUST

APPENDIX

2. Technical Operations

- 2.1 What type of collection system is used? _____
2.2 How many vehicles are used for collection? _____
2.3 How many staff are employed for collection? _____
2.4 How many vehicles are used for collection? _____
2.5 How many staff are employed for collection? _____
2.6 How many vehicles are used for collection? _____
2.7 How many staff are employed for collection? _____
2.8 How many vehicles are used for collection? _____



Type of vehicle	Number	Age of vehicles (in years)	Register and insured
Truck			
Van			
Motorcycle			
Other			

2.9 Why do you need your vehicle? _____
2.10 Why do you need your vehicle? _____

- 2.10 If your company has no maintenance workshop, where do you
maintain your vehicles?
.....
.....
- 2.11 What is the approximate distance between the service area and the
disposal site?
.....
- 2.12 How would you rate the condition of road used for waste collection
☐ Very poor ☐ poor ☐ fair ☐ good ☐ very good
- 2.13 How would you rate the nature of traffic conditions along collection
routes
☐ Slow/low congestion ☐ moderate congestion ☐ high congestion

Vehicle operations planning

- 2.14 How would you rate vehicle operations planning?
Scales (1) strongly disagree (2) disagree (3) cannot tell (4) agree (5) strongly agree

- | | | | |
|---|---|---|-----|
| a) vehicle route plan is prepared for drivers | 1 | 2 | 3 |
| 4 5 | | | |
| b) Drivers use vehicle route plan for drivers | 1 | 2 | 3 |
| 4 5 | | | |
| c) Drivers have vehicle log book for recording miles and time | 1 | 2 | 3 |
| 4 5 | | | |
| d) Drivers use waste pick-up schedules indicating day and time | 1 | 2 | 3 4 |
| 5 | | | |
| e) Waste pick-up schedules are strictly followed | 1 | 2 | 3 |
| 4 5 | | | |
| f) Drivers use their own discretion about which route to take | 1 | 2 | 3 |
| 4 5 | | | |
| g) Drivers follow specific routes for solid waste collection | 1 | 2 | 3 |
| 4 5 | | | |
| h) Records in vehicle log-books are analysed by supervisor/engineer | 1 | 2 | 3 |
| 4 5 | | | |
| i) Traffic studies are conducted and traffic delays avoided | 1 | 2 | 3 |
| 4 5 | | | |

Who prepare vehicle route plan

Who prepare vehicle schedules (that is waste pick-up)

Vehicle operations Supervision

2.15 How many operations supervisors do you have?.....

2.16 Number of vehicles supervised by each supervisor
.....

2.17 How would you rate vehicle operations supervision?

Scales (1) strongly disagree (2) disagree (3) cannot tell (4) agree (5) strongly agree

- | | | | |
|--|---|---|---|
| a) Supervisor checks records in vehicle log books | 1 | 2 | 3 |
| 4 5 | | | |
| b) Supervisor monitors and follow-up waste collection | 1 | 2 | 3 |
| 4 5 | | | |
| c) Supervisor records the daily number of trips and tonnage of waste | 1 | 2 | 3 |
| 4 5 | | | |
| d) Management sets daily output target for each vehicle | 1 | 2 | 3 |
| 4 5 | | | |
| e) Frequency of waste pick-up are strictly followed | 1 | 2 | 3 |
| 4 5 | | | |
| f) A scheduled waste pick-up delayed, is picked up within 24 hours | 1 | 2 | 3 |
| 4 5 | | | |
| g) The drivers and collection crew put on protective clothing | 1 | 2 | 3 |
| 4 5 | | | |
| h) Waste spillover unto the ground at collection points is collected | 1 | 2 | 3 |
| 4 5 | | | |

Vehicles Maintenance

2.18 Where do you repair your vehicles? 1. in-house workshop 2. elsewhere

2.19 How many mechanics for in-house repairs do you have?.....

2.20 Number of vehicles per mechanic.....

2.21 Breakdown vehicle comes back on road within how many days?.....

2.22 How would you rate vehicle maintenance?

Scales (1) strongly disagree (2) disagree (3) cannot tell (4) agree (5) strongly agree

- | | | | |
|--|---|---|---|
| a) Vehicle maintenance schedules are prepared and followed | 1 | 2 | 3 |
| 4 5 | | | |
| b) Breakdowns occur despite planned maintenance | 1 | 2 | 3 |
| 4 5 | | | |
| c) Minor breakdowns are repaired within 24 hours | 1 | 2 | 3 |
| 4 5 | | | |
| d) vehicle breakdowns affect waste collection | 1 | 2 | 3 |
| 4 5 | | | |

2.23 How is vehicle operations supervised?.....

2.24 What is your collection frequency per week for house-to-house service?

2.25 What is the number of collection crew including driver for each of the following:

a. Compactor vehicle

b. Skip vehicle

c. Roll-on Vehicle.....

d. Side loader.....

e. Tractor.....

f. Tipper truck.....

2.26 What are the reasons for waste spillover at communal container locations?.....

2.27 How would you judge the cooperation of residents served by house-to-house service?

2.28 What complaints are often received from service beneficiaries?.....

2.29 What complaints about service beneficiaries are often received from collection crew?.....

2.30 How are these complaints responded to?.....

- 2.31 Give the 'make' and 'age' of vehicles and the frequency of breakdown for the past year?

Breakdown	'Make'	Ages of vehicle (eg 2, 5 years)
No breakdown in a year		
One breakdown in a year		
Two breakdowns in a year		
Three breakdowns in a year		
Four and more breakdowns in year		

3 Financial and Economic Aspects

- 3.1 What is the total number of registered house-to-house users?

- 3.2 How is user fee charged for house-to-house service?

☐ Fee per household ☐ fee per house ☐ fee per bin ☐ fee per volume of waste

- 3.3 Do you charge the same user fee for all house-to-house service users? ☐ yes ☐ no

- 3.4 If NO, indicate the amount and number of customers in the categories below?

No.	Class of house holds (eg. low income level)	Amount charged per household (¢)	Number of households registered in each class
Class 1	High income level		
Class 2	Middle income		
Class 3	Low income (1)		
Class 4	low income level (2)		

- 3.5 What is the number of house-to-house users/beneficiaries who pay regularly?

- 3.6 How many months are defaulters of fee payment allowed to be in arrears?.....

- 3.7 What sanctions are applied to defaulters of house-to-house service fees payment?.....

- 3.8 What factors contribute to the defaulting of user fee payment for house-to-house service?.....

- 3.9 What is the total amount billed per month for house-to-house service.....

- 3.10 What is the actual total amount collected per month for house-to-house service.....

3.11 What is the cost per tonne of house-to-house waste collected and transported to the disposal site?

3.12 How many people are served by communal collection service?.....

3.13 Do you charge user fee for communal service users? ☐ yes ☐ no

3.14 If yes, indicate the amount being paid?.....

3.15 If no, why are communal service users not paying user fee?.....

3.16 What is the cost per tonne of communal waste collected and transported to the disposal site?

3.17 Does the unit price per tonne for services vary from zone to zone?.....

3.18 Which of the following are included in setting of user fee? Tick for each service

Cost category	house-to-house service	Communal service
(a). Interest on Loan (in case a loan was taken)		
(b). Annual depreciation of collection vehicles		
(c). Annual vehicle operation and maintenance costs		
(d). Employees' salaries and benefits		
(e). Withholding tax		
(f). Insurance of collection vehicles		
(g). Rent of office space		
(h). Profit and overheads		
(i). Other, specify.....		
(j). Other, specify.....		
(k). Other, specify.....		

3.19 How are trucks purchases? (Source (s) of funds for purchasing of trucks?.....

3.20 What is (are) the source(s) for funds for working capital (for paying salaries, buying fuel and repairing vehicle)?.....

3.21 What is the return (annual profits) on your investments (in term of percentage of investment)?.....

3.22 How do you judge the return on your investments?.....

3.23 How do you judge the financial viability (or profitability) of the waste business?.....

3.24 How do you judge the cost recovery of the waste service?.....

3.25 What were the total annual costs of the following items?

Items	2005	2006	2007
Fuel consumption cost			
Salaries and benefits			
Vehicle maintenance and servicing			
Depreciation of vehicles			
Withholding tax			
Rent of office space and utilities			
Insurance of collection vehicles			

3.26 What were the total subsidy for house-to-house, annul turnover (total revenue) and total annul expenditure for the past four years?

Year	total subsidy	annul turnover (including subsidy)	total annul expenditure
2003			
2004			
2005			
2006			

4 Company Characteristics and Human Resource

4.1 What is the type of company ☐ not registered ☐ limited liability by share
☐ partnership

☐ Sole proprietor ☐ Limited liability by guarantee (NGO)

- 4.2 When was the company registered?.....
- 4.3 When did the company commence solid waste services?.....
- 4.4 How do you classify the size of the company? ☐small scale☐medium scale
☐large scale
- 4.5 How many management levels?.....
- 4.6 Give the order of management control and information flow (example:
director→manager→supervisors/mechnics→collection crew/drivers/cleaners)
.....
.....
- 4.7 How are the workers motivated?.....
.....
- 4.8 Has the company sponsored any of the employees to undergo short training to enhance his/her performance?.....
...
- 4.9 If yes, what kind of training?.....
.....
- 4.10 What kind of study leave do you have for the employees?.....
.....

- 4.11 How many people work in the company? Fill the following table.

Posts held	Number of staff	Salary	Highest qualificatio
Managing Directors (<i>Part of ownership</i>)			
Managers/Administrator (<i>Not part of ownership</i>)			
Engineers			
Accountants			
Secretary			
Operations supervisors			
Collection vehicle drivers			
Operators of other plants/pick-up drivers			
Collection workers (loading of waste)			

Sweepers/cleaners			
Workshop staff (Mechanics)			
Sanitary/ Health Inspectors			
Other, specify			
Other, specify			
Total workers			

5 Public-Private Partnership Arrangements

5.1 What type of contract(s) are you operating under ☐ No contract ☐ franchise contract

☐ Service contract ☐ Performance contract ☐ other, specify.....

5.2 How was the franchise contract procured? ☐ No bidding ☐ open competition bidding

☐ other, specify.....

5.3 How is the franchise contract renewed?

☐ Automatic renewal ☐ competition bidding ☐ other, specify.....

5.4 How was the communal service contract procured? ☐ No bidding ☐ open competition bidding

☐ other, specify.....

5.5 How is the communal service contract renewed?

☐ Automatic renewal ☐ competition bidding ☐ other, specify.....

5.6 How do you judge the transparency and level playing field of the contract processes in solid waste business?.....

5.7 Do you think or know of some political interference in awarding contracts to waste contractors.....

5.8 What is the duration of franchise contract?.....

5.9 Is the franchise contract duration enough to recover investment in vehicles?.....

5.10 What is the duration of communal service contract?

5.11 Is the communal service contract duration enough to recover investment in vehicles?

5.12 Is the house-to-house contract signed with ☐the Assembly ☐the residents

5.13 Are the house-to-house service users registered with ☐the Assembly ☐the company

5.14 Does the contract have price adjustment formula and cost escalation indices which are tied to the rate of inflation, fuel, labour or consumer price index?

5.15 If there are no price adjustment factors, how are your operations affected?

5.16 Is the service area delineated into zones with well known boundaries?

5.17 Does your company operate in the zone alone?

5.18 How do you judge the size of the service area to the capacity of your company?

5.19 What is your opinion about the Assembly's obligations under the contract?

Use these Scales (1) strongly disagree (2) disagree (3) cannot tell (4) agree (5) strongly agree

	1	2	3	4	5
(a). Assembly provides designated and accessible landfill site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b). Assembly provides designated and accessible communal container sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c). Assembly provides communal containers (23, 12 and 10m ³)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d). Assembly provides standard bins for house-to-house service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e). Assembly promulgates bye-law to assist contractor in the service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f). Assembly conducts public education regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g). Assembly pays contractor within 45 working days after date of claim	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h). Assembly pays interest charges as stipulated in the contract if payment delayed beyond 3 months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.20 Is there any political interference in the day-to-day management and operations of vehicles?
.....

5.21 Who sets the user fee for house-to-house services?
.....
.....

5.22 What role do you play in setting user fee for house-to-house services?
.....
.....

5.23 What role do you play in setting user fee for communal services?
.....
.....

5.24 In case you do not participate in setting user fee, do you see the user fee set as reasonable?
.....
.....

5.25 Are the house-to-house services subsidized by Government or Assembly.....
.....

5.26 Does the Assembly honour its obligation to pay for the service or subsidy on time?
.....
.....

5.27 In the case of delay payment for communal services, how does this affect your operations?
.....
.....

5.28 What is your opinion about honouring of company's obligations under the contract?

Use these Scales (1) strongly disagree (2) disagree (3) cannot tell (4) agree (5) strongly agree

4 5

(a). Company provides trucks sufficient for solid waste collection

1 2 3

☐ ☐ ☐ ☐ ☐

(b). Company achieves daily collection target in the contract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c). Company disposes off waste at designated landfill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d). Company uses professional and technical personnel required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e). Company keeps complaints of residents/users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f). Company collection crew uses protective clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g). Company covers waste containers during transporting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h). Company keeps vehicles in good appearance/sanitary condition and road worthy,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i). Company carries out regular repair and maintenance of containers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j). Company maintain container site free of litters and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6 External Factors Affecting Solid Waste Management

- 6.1 What performance targets are set in the service contracts?.....
.....
.....
- 6.2 How is the performance targets in the service contract monitored by the Assembly?.....
.....
.....
- 6.3 What kind of reports on operations do you submitted to the Assembly?.....
.....
.....
- 6.4 What is the frequency of operations report submitted by your company to the Assembly?
.....
.....
- 6.5 What factors outside your control affect your service?.....
.....
.....
- 6.6 How is the quality of service rendered by your company regulated?.....
.....
.....
- 6.7 Is the Assembly able to monitor the service contracts?.....
.....

6.8 What is the reason why the Assembly is able or not able to monitor the companies' service quality?.....
.....
.....

6.9 What is the Assembly doing to apply the full cost recovery policy?
.....
.....

6.10 What is the Assembly doing to enforce by-laws?.....
.....
.....

6.11 What is the Assembly doing to enforce national laws?.....
.....

6.12 Is the Assembly financial independent, and does not request for funds from central government?
.....
.....

6.13 Why is the Assembly not capable or capable of paying your company regularly?
.....
.....

6.14 What is the effect of the following on the company's performance?
Use these Scales (1) high negative effect (2) negative effect (3) no effect (4) positive effect (5) high positive effect (.....on the performance of company)

1 2 3 4 5

- | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| (a). Frequency of payments of service contract | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (b). Company's compliance to regulation of service quality | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (c). Current level of user charges for house-to-house service | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (d). Current level of charge or price per tonne for service contract | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (e). Financial autonomy (level of budget) of the Assembly | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (f). Autonomy of the Assembly in decision making on the level of user charge | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

6.15 How would you judge the implementation of sanitation policy by the Assembly?
Use these Scales (1) strongly disagree (2) disagree (3) cannot tell (4) agree (5) strongly agree

Mandate of the Assembly

- | | | | | | |
|---|---|---|---|---|---|
| (a). City Authority (Assembly) as legal entity has powers conferred on it by the Local Government Act 1993 (Act 462) to promulgate by-laws to govern and regulate sanitation. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|

- (b). All solid wastes generated in the city are regularly collected and disposed of in controlled disposal sites or landfills 1 2 3 4 5
- (c). Waste Management Department (WMD) collects at most 20% of the waste collected in the city. 1 2 3 4 5

Private sector participation policy

- (d). The involvement of the private sector in the waste collection services has improved solid waste management. 1 2 3 4 5
- (e). City is delineated into zones or service areas and each company operates in a specific zone. 1 2 3 4 5
- (f). Each private company has monopoly in a zone. 1 2 3 4 5
- (g). The private sector operates within the policies, regulations, supervisory and licensing arrangements set up by the Assembly 1 2 3 4 5

Cost recovery

- (h). The policy on full cost recovery where possible (middle and high income areas) is not being pursued seriously. 1 2 3 4 5
- (i). The Assembly lack the autonomy to charge appropriate fee to cover cost of services 1 2 3 4 5

Enforcement of legislation and by-laws

- (j). The by-laws of the Assembly and national laws on environmental sanitation are not enforced 1 2 3 4 5
- (k). The fine for defaulting by-laws are not punitive (penalizing) enough 1 2 3 4 5
- (l). The monitoring of compliance to solid waste service standards and regulations set in the contracts are not done effectively. 1 2 3 4 5
- (m). The environmental health standards and sanitary regulations are not strictly observed and enforced 1 2 3 4 5

6.16 How would you judge the level of autonomy of the Assembly to regulate the solid waste service?

Use these Scales (1) very low (2) low (3) normal (4) high (5) high very

1 2 3 4 5

- (a). Frequency of monitoring companies' compliance to service quality and standards ☐ ☐ ☐ ☐ ☐
- (b). Autonomy to set level of user charges ☐ ☐ ☐ ☐ ☐
- (c). Autonomy to set level of price per tonne for service contract ☐ ☐ ☐ ☐ ☐
- (d). Financial autonomy of the Assembly (level of budget for solid waste) ☐ ☐ ☐ ☐ ☐
- (e). Autonomy of the Assembly to terminate contract of non-performing company ☐ ☐ ☐ ☐ ☐
- (f). Autonomy to enforce by-laws and prosecute free riders ☐ ☐ ☐ ☐ ☐
- (g). Autonomy to implement national sanitation policy ☐ ☐ ☐ ☐ ☐

6.17 How do you consider the conduct of the Assembly's role of facilitating, monitoring and regulating waste management services?

Use these Scales (1) very inadequate (2) inadequate (3) normal (4) adequate (5) very adequate

- Assembly's access to information from your company** 1 2 3 4 5
- (a). Clear and measurable performance targets are set in the contract
- (b). Assembly's access to information from company on tonnage of waste 1 2 3 4 5

disposed of,					
(c). Assembly's access to information from company on cost of waste collection and disposal	1	2	3	4	5
(d). The education of the public on environmental and sanitation issues	1	2	3	4	5
Regulation of user charges					
(e). Arrangements for setting of user charges for house-to-house service	1	2	3	4	5
(f). Arrangements for setting of price per tonne for service contract	1	2	3	4	5
(h). Autonomy to set level of user charges	1	2	3	4	5
(i). Autonomy to set level of price per tonne for service contract	1	2	3	4	5
Regulation of quality of service					
(g). Monitoring of company's service quality and compliance to regulations and standards set the contracts	1	2	3	4	5
(h). Monitoring of quantity of waste collected and outputs of company	1	2	3	4	5
(i). Supervision of the private sector by the Assembly	1	2	3	4	5
(j). Assembly's adherence to the obligations and regulations in the contracts signed with the companies	1	2	3	4	5
Capacity of Assembly					
(k). Accountability of the Assembly to EPA and head Ministry	1	2	3	4	5
(l). Independence of the Assembly in regulating the company's services	1	2	3	4	5
(m). Resources and capacity of Assembly to monitor service quality and non compliance of service delivery,	1	2	3	4	5
(j). Frequency of monitoring companies' compliance to service quality and standards	1	2	3	4	5
(k). Autonomy of the Assembly to terminate contract of non-performing company	1	2	3	4	5
(l). Autonomy to enforce by-laws and prosecute free riders	1	2	3	4	5
(m). Autonomy to implement national sanitation policy	1	2	3	4	5