# SEEING THE HOUSE FROM THE ENVIRONMENT: ENVIRONMENTAL CONCERNS OF INFORMAL/SLUM SETTLEMENT IN ACCRA, GHANA

## A THESIS SUBMITTED IN PARTIAL FULLMENT FOR THE AWARD OF A MASTER'S OF SCIENCE DEGREE IN ENVIRONMENTAL MANAGEMENT



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## ABSTRACT

Current and potential developments concerning solid waste management have raised concerns about well-being in African cities. Concerns are also on the increase among scientists, environmental managers, and the public that the pace and extent of human activities may result in adverse environmental and health impacts. These concerns have been alarming due the fact that all efforts so far made to deal with the current situation of solid waste management in African cities have either failed or achieved only moderate success. The present system of waste collection and disposal in Accra depends entirely on the municipality which is expected to provide the full range of the solid waste services. This is proving to be very difficult task to handle, and except for privileged areas, the services offered are found to be largely inadequate. This approach neglects the many activities and actors that waste management encompass to deal with the range of problems associated with solid waste management.

Due to uncontrolled urbanization, huge amount of waste is generated daily in Accra and this put much pressure on the overburdened waste management system. Besides weak institutional capacity and lack of resources, both human and capital, the city authority faces difficulties in ensuring that all the waste generated in the city is collected for disposal. Collection of waste from homes is limited to the high and middle income segments of the city while the poor are left to deal with the problem on their own. This leads to indiscriminate disposal of waste in surface drains, streets and streams creating unsanitary and unsightly environments in many parts of the city.

The study investigates why municipal solid waste management in Accra continues to be a problem. The problems are identified through interviews with relevant stakeholders and questionnaires, and analyzed within institutional context. The study concludes by outlining the institutional weaknesses underlying the indentified problems which inhibit effective and efficient solid waste management in Accra.

Seeing the house from the environment: environmental concerns for slum/informal settlements in Accra, Ghana

## DEDICATION

This thesis is dedicated to my parents and my cherished friend Priscilla who have supported me all the way since the beginning of my studies.

## ACKNOWLEDGEMENT

First of all I pay my wholehearted gratitude to the Almighty God for showing me His favour in circumstances over which I had no control and without His grace and wish, I will not be where I am now and obviously this work could never have been completed successfully.

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## LIST OF ABBREVIATIONS

EPA	Environmental Protection Agency Ghana			
AMA	Accra Metropolitan Authority			
MSW	Municipal Solid Waste			
NGOs	Non-Governmental Organization			
CBOs	Community Based Organization			
ENGOs	Environmental Non Governmental Organizations			
SWM	Solid Waste Management			
MSWM	Municipal Solid waste Management			
WHO	World Health Organization			
WMD	Waste Management Department			
MLGRD	Ministry of local Government and Rural Development			
JICA	Japan International Cooperation Agency			
SWD	Solid Waste Department			
CCWL	City and Country Waste Limited			



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## **1 INTRODUCTION**

#### **1.1 URBANIZATION AND ENVIRONMENT**

Most governments and citizens are becoming increasingly aware of the quality of the environment and most of the attention is possibly turned on climate change which has become a documentary by Al Gore, "An Inconvenient Truth". In 1992 the global conference on Environment and Development held in Rio De Jeneiro, about 180 countries agreed to strive for long term sustainable development which became a landmark in drawing attention to the environment in general (United Nation, 1992). In 2001 over hundred countries all over the world met in Stockholm to sign a convention that aimed to eliminate some of the most toxic chemical from the earth's biosphere and one of the issues discussed was that municipal waste incineration accounts for about 37.6 percent of the annual worldwide release of dioxin which is found to be very poisonous (WWF, 1999). The problem of waste management is much centered on the cities and it is not a new issue to society but the volume generated and the adopted solution in different countries have changed over time. Urbanization and rapid population growth accompanied by high level of consumption and growing incidence of informal settlement have brought about many changes to the environment.

The growing incidence of environmental problems due to inadequate human settlements of the poor migrants who find themselves in the cities to achieve their perceived urban advantages in both developed and developing countries is alarming, however the poor sanitation, urban slums and environmental deterioration cause a formidable challenge in many developing countries such as Ghana. Informal settlements are considered as inadequate and inappropriate occupation of land. Much argument could be created in trying to find an accurate definition for informal settlements, since its precise definition remains elusive but it seems practical to associate them with two or more of the following features; illegitimate occupation of land, low-income household, shelter developed through own effort, inadequate infrastructure and services (Gilbert and Gugler, 1987). Informal settlement is used interchangeably with slum settlement in this report.

Existing statistics indicate that more than half of the world's 6.6 billion people live in urban centers, and it is projected to reach 11 billion by 2050 (Gordon, 2007), crowded into about 3

percent of the earth's land surface (UN, 2006) which presents the challenges of providing city amenities to cope with the situation. The cities are expected to grow in size and their environment will continue to deteriorate (Stren, 1992)

Developing countries have been through a significant urban transformation in the last decades found in the expressions of high population expansion, moderate economic growth, and enormous rural-urban migration which has created a situation of urban crisis across the countries. Even though urbanization serves as a driving force for economic growth and development (Tannerfeldt and Per Ljung, 2006), there is increasing awareness about the effects of the urbanizing cities, mainly on human health, livelihoods and the environment. The resulting effects of rapid urbanization on water supply, shelter and sanitation, especially the disposal of wastes that the cities generate are staggering coupled with challenges such as slum development and environmental deterioration.

The term urbanization has been used first and foremost in two different ways. At times, it is used to describe the proportion of population residing in urban areas. In certain instances it is used to describe a social process of population concentration and the process, which results in the increased population in urban areas (Tisdale, 1942). In this report, urbanization is considered as a process. Urbanization, simply defined, is the move from a rural to an urban society and leads to urban concentration and growth of large cities.

Migration and natural population increase are important factors in the growth of cities in the developing countries. The natural increase is effected by improvement in health care, sanitation and food supplies, which decreases the death rates and cause populations to increase (Konadu-Agyemang, 2001). In many developing countries, it is rural poverty that drives people from the rural areas into the city in search of job opportunities. Most people in Africa also move into the urban centers because they are pushed out by factors such as poverty, environmental deterioration coupled with agricultural density as a result of population growth (Dutt, 2001) and lack of basic infrastructure and services in the rural areas, and might also be pulled into the urban areas by the real or perceived advantages and opportunities of the city.

One important aspect of the urbanization process in Africa is that, unlike other urbanizing continents like Asia, much of the city expansion is taking place in the absence of significant industrial expansion. This is contrary to the view of the classical economist Berliner (1977) who asserts that there cannot be urbanization without industrialization. Urbanization also raises concerns usually in outward expansion of the built-up area into the fringes and transformation of major agricultural lands into residential and industrial uses (Agnihotri, 1994). The urbanization processes are largely driven by market forces and development policies and budget allocations, which often favour urban areas (Lipton, 1977). Public investment in the cities, often fails to cover the basic needs of the urban poor, and seen in expression of expenditures skewed towards the higher and middle income groups (Hardoy, Mitlin, Satterthwaite, 2001; UN-Habitat 2003a) which does not augur well for equitable social development, and poverty among the disadvantaged groups such as new migrants forces them into slums and squatter settlements.

In Africa, the striking effects of rapid urbanization are very obvious in the cities and urban fringes. As the cities grow outward after saturation of the inner city, the main zone of direct impact is the urban fringes, and those living in the urban fringes face many new challenges and opportunities in meeting their needs (Agnihotri, 1994). Although, cities function as the engine of growth in most developing countries by providing job opportunities, education, knowledge and technology and ready markets for industrial and agricultural products, unprecedented urban growth places enormous stress on natural resources, existing amenities and cause environmental deterioration.

Urbanized cities in Africa impact on environment in many ways. The wide range of effects includes degradation of the environment, destruction of watersheds and wetlands, traffic congestion, pollution of water, and environmental problem associated with informal settlement patterns. In the areas of the environment and health, problems of emission reduction, supply of clean drinking water, sewage, solid waste disposal, food security and poverty reduction are very important that need consideration and effective solution (Goodwin, 2006). Exposure of the slum dwellers to natural disasters and diseases and atmospheric pollution has also been recognized. A large proportion of the urban residents lack access to good sanitation that threatens their health and the environment. River pollution is very acute where rivers pass

through cities and the most common is contamination from human excreta, sewage and solid waste (UNEP, 2002). The unhealthy environment and overcrowded housing in the slums expose the slum dwellers to high rates of infectious diseases such as malaria, pneumonia, tuberculosis and diarrhoea

Rapid urbanization escalates informal settlements which are characterized by environmental problems such as makeshift housing, inadequate sewage disposal facilities, poor roads, inadequate water supply and accumulation of solid waste. Inadequate and lack of solid waste disposal systems are very common across cities in developing countries in the neighbourhood of informal settlements, which contributes to the spread of infectious diseases, ground water and air pollution. The frequency and efficient removal of waste differ from affluent and poor neighbourhoods. The poorest informal neighbourhoods generally have the greatest problems with inadequate or lack of waste removal, which reflect the general patterns of social isolation. The increasing social isolation of housing has resulted in the dramatic growth of slums, abject poverty and growing environmental health problems (Perlman & Sheehan 2007).

For the purpose of detailed investigation the study focuses attention on solid waste problems confronting informal settlements in Accra based on the relevance of the issue of waste management highlighted at the Stockholm conference stated above.

Accra the national capital of Ghana is urbanizing like many other African cities. In 1960 the mean population density was 36 persons per hectare which increased to 50.8 in 1970 and 69.3 persons per hectare in 1984 (Stephen, 1994). Stephen further asserts that in some poor neighborhood in the city population density is about 370 persons per hectare. The population growth in Accra has led to the rapid expansion of the city which has resulted in slums, heaps of waste and uncontrolled outward growth into the fringes (Benneh, 1993).

In the slum neighbourhood more waste is generated from commercial and domestic activities than can be properly managed with the basic system available for collecting, transporting, and disposing of the wide variety of solid wastes in the cities. Most of the wastes are not collected and small portion of the volume collected is properly disposed. The waste collection system is almost always overloaded, and large volumes of refuse are left to litter the streets, or to accumulate in open dumps where flies and rats and other disease carrying insects and rodents breed. For drainage, most parts of the city have open drains and narrow shallow trenches which are often clogged with unwanted household appliances, sand, and refuse transported by flooding. When the drains are not cleaned, they give off unpleasant odours and pollute the atmosphere (Nordberg and Winblad, 1994). The level of environmental awareness is quite low, especially in informal settlements, and the campaign for waste minimization and recycling has not advanced beyond the unsafe practice of picking and sorting through heaps of refuse or moving from house to house to collect tin cans, plastics, empty bottles, paper, and useless materials for possible recycling.

When waste is poorly managed it becomes a threat to health and a major social and environmental problem. Environmental problems of waste handling are issues of both social organizations and deep-rooted culture and set of meanings. It becomes imperative that, rules to regulate waste management put into context broad moral and cultural character that turn on basic rights and obligations that supposed to be part of identity of the society to produce outcome that addresses the waste problems in the slum neighborhoods (Hoffman and Ventresca, 2002). Adequate solid waste management extends beyond technological responses, it always involves social, institutional, legal, and financial aspects and entails organizing and managing a large labor force and teaming up with all the stakeholders involved as well as the general public (Leonard, 2005).

Difficulties encountered in managing waste are directly associated with society, its beliefs, and its attitudes. Waste management from source where it is generated to the site of disposal has multiplicity of human characteristics such as providers and collectors alone the line besides the use of technology, given the perception of a city functioning as the part of the environment that is modified by humans for use in human activities. Although socio-cultural reactions to handle the waste are supposedly sound, their practical application has not been as rewarding as globally expected (Alan Strong and Hemphill, 2006).

Informal settlements and their associated environmental problems, to which waste management is not a least concern, are often considered and expressed as institutional failure in housing policy, housing finance, public services, local governance and secure tenure. Institutional responses in their basic context embrace a set of rules or codes of conduct defining social practices that are based on the social values of the people (Young, 1994) approved by the people through wide ranging mechanisms, and allowed to operate freely in the society. In its application to waste management, it is the process by which there is a defined structure for administering effective waste management. This demands the integration of all stakeholders concerned and creates means for transparency, accountability, and public pressure-driven commitment of government to effective and sustainable waste management operations and practices. Few cities in the developing countries have the institutional structures required to ensure such integration (Haughton and Hunter, 1994) Institutional capacity is important for sustainability of any solution to stop the ongoing environmental deterioration (Bartone, Bernstein, Lietmann and Eigen, 1994)

Inadequate management of waste by the Accra municipality and the hope that private sector could deliver proper management services led to the privatization of the waste management. Proponents of privatization argue that it improves the efficiency and effectiveness of services previously delivered by the public sector. However, privatization has received its own criticism for failure to deliver public services in the developing countries (Birdsall and Nellis, 2005) such as Ghana. Affordability of services to the Poor segment of the society and cost recovery has always been the problem of privatization in the developing countries. There are therefore complications in the switch from public to private sector in developing countries.

"Virtually all third world governments have failed to ensure that rapid urban growth has accompanied by investment in services, especially in the poorest areas" (Cairncross et al, 1990:1) According to the World Bank, the decision making process of most government institutions in the developing countries are basically flawed (World Bank, 1992). There are also different opinions on this view. On the one hand, environmental problems in African cities like Accra of which solid waste disposal is a part have been given explanation on the basis of lack of adequate funding coupled with unprecedented population growth (Keiner, 2004). Billand shares this view and argues that unprecedented Population growth and inadequate financial support are the fundamental grounds used by authorities to give reason for low investment in the provision of waste disposal facilities (Billand, 2006). This leaves an undoubted question about the institutional capacities for waste disposal problems in Accra.

In Accra, the connectedness between the waste management institutions and the slum dwellers are significant issues, which affect how effectively the waste problem can be addressed in the slum neighborhood. On the other hand, the institutions both private and public have not been able to deal largely with the rapid accumulation of waste. These practices have created an unhealthy environment. Efficient institutions would necessitate the improvement of the administrative and managerial capacity of private waste companies and households to enable them play an active role in handling of waste collection and disposal in Accra.

#### **1.2 RESEARCH PROBLEM**

Municipal solid waste management system in Accra, Ghana is at the moment delivered in an inadequate manner. Public and private sector Institutions in Accra have failed dismally to cope with the complexities of rapid urbanization resulting in environmental deterioration. Accra is a national capital of Ghana where most the national developmental activities have favoured most for it primacy but has not escaped the attendant problems of providing or maintaining essential services faced by emerging urban cities such as deplorable heaps of waste which is very unsightly and detrimental to the environmental health. There is a constant shortage of water in most poor neighbourhoods and the municipal authority is incapable of managing the city's waste.

According to Devas Municipalities at certain times may not have total control over service but they may be required to do a little more than providing waste collection and street cleaning services (Devas, 1999). This implies that it is incumbent on the municipalities to deliver the city sanitation services more efficiently. Due to uncontrolled urbanization, huge amount of waste is generated daily in Accra and this put much pressure on the overburdened waste management system. Besides weak institutional capacity and lack of resources, both human and capital, the city authority faces difficulties in ensuring that all the waste generated in the city is collected for disposal. Collection of waste from homes is limited to the high and middle income segments of the city while the poor are left to deal with the problem on their own. This leads to indiscriminate disposal of waste in surface drains, streets and streams creating unsanitary and unsightly environments in many parts of the city. Whilst there are obvious success stories in terms of waste collection in affluent areas, the poor areas left unattended to. This means that there is a need for a comprehensive approach to manage waste by the relevant institutions, which will be efficient for both the rich and the poor areas and takes into account contextual factors operating in rich and poor areas alike. My interest is to find out what the problems are and analysis them within institutional context.

The main research question is:

### "Why municipal solid waste management in Accra continues to be a problem"?

Given emphasis on institution, institutional theory will be used in the study and to analysis the research question institution will be a useful tool.

To answer the question the report sets the following guiding objective to:

- I. Investigate the institutional failures in managing the waste
- II. Investigate the consequences of lack of environmental supply and disposal infrastructure
- III. Investigate the waste management strategy and technology in used
- IV. Investigate application of cost recovery scheme
- V. Investigate whether the waste management system is integrated with other environmental management systems and initiatives
- VI. Investigate the responsibility of the main stakeholders

### **1.3 SCOPE AND DELIMITATION**

The study covers the Accra metropolis as a case study. In Accra the impact of urbanization is obvious with increasing land encroachment taking place, and more overcrowding and homelessness in the older built-up areas of the city. Informal settlements have also developed adjacent to railway lines and places of employment or market canters where the informal sector is particularly active. Informal settlements create a lot of environmental problems such as air and water pollution but for the sake of detailed investigation the study will concentrate on: Solid waste problems.

The study covers municipal solid waste collection (MSW). This is the garbage produced by households and small businesses that are collected by the Accra Metropolitan Authority (AMA) or the private waste contractors, thus other types of waste such as liquid, industrial and radioactive waste will not be investigated in the project. This is a deliberate effort on my part to

make the project manageable given the time and resources available to me to complete the project.

Looking at the broad nature of the research question and for detailed investigation the study focuses on the institutional context of the municipal solid waste management concerning the institutional structures and arrangements for solid waste management as well as organizational procedures and the capacity of responsible institutions.

The study is not to give recommendation

#### **1.4 METHODOLOGY**

The intention of the part of the report is to give an understanding into the methodological considerations that were used to be able to deal with the research question. The section outlines the research design, the data collection methods used, how the analysis of the study was done and limitation. The study is a case study based which allows a researcher to investigate the richness and complexity of a phenomenon within its context using multiple sources of evidence (Yin 1993).

#### **1.4.1 RESEARCH DESIGN**

The design has a function of ensuring that evidence obtained in a study helps a researcher to answer the initial questions as clearly as possible (De Vaus, 2001). This has the implication that the data collected have specific type of evidence that would help the researcher to answer the research question and give accurate description of the phenomena (ibid). The research design is a logical sequence that connects the empirical data to the research question and finally to the conclusion of the report.

#### **1.4.2 DATA COLLECTION**

Both primary and secondary data have been used in this study. The primary data consists of the qualitative interviews with key informants. The secondary data include books, reports, journal, internet publications and academic articles. The method employed for the data collection is both quantitative and qualitative. The quantitative is pretty much concerned with the collection and analysis of numerical data and statistics while qualitative is much more focused on interviews

and case studies and deals generally with much smaller numbers. "Qualitative research methodologies refer to research procedures that produce descriptive data; that is written or spoken words of people and observable behavoiur" (Bogdan and Taylor, 1975). Interview and observation were chosen as the qualitative data method since the study is based on case study. In this regard I used semi-structured interview technique to collect the field information. My sample was drawn from some actors and stakeholders of waste management in the city; AMA, EPA and private waste companies. I used semi-structured interview for varied reasons, first of all I did not want to put a ceiling on the opinions of the respondents and I wanted to control the domain of the research. Due to the nature of municipal waste management the views and practices of the interviewees might not be lucid to the researcher and for this reason questionnaires were used to supplement the semi-structured interview method. The questionnaires serve to sample opinion on SWM and help to fill the information gap where the interviewee will not grant the interview.

The questions for the interviews were open and loose and allowed for changes during the actual data collection on the field. Comparatively this makes questionnaire appear rigid. As such it was feasible to obtain more detailed information where necessary with the interview. This is an advantage that questionnaires will not provide. The interview allowed the interviewees to provide information they would not have given during a questionnaire survey. As a result it allowed the researcher to obtain more data, and to experience what the interviewees think about the subject in question.

#### The procedure for the interview

From experience I was preoccupied with the difficulties I could go through to get information in Ghana, so before I went to the field I contacted Henry Nyame (a friend of mine who is a librarian at the EPA, Accra) to establish contact and make advance appointment with the people I intended to interview and also to give them the interview guide in advance. This certainly proved successful if not it would have been very difficult to make any progress given the limited time I spent in Ghana. When I arrived in Accra I focused on those who were in the centre of the waste disposal scene so that they could give a detailed knowledge of what was going on. I designed my interview guide having in mind the situation on the ground might change the kind

of questions I should ask in the interview. I indeed did change my questions after the first interview since I got to learn about new perspectives of the solid waste problem.

The purpose of the field trip was to reach representatives of all the stakeholders of the solid waste management in Accra namely: EPA (Ministry of Environment), the AMA (Ministry of Local Government), private waste contractors, Households, NGOs/CBOs. I found out that most of the private contractors did not have offices and the very few who had were not present, only their secretaries to talk to. When I wanted them for interview I was told they were at meetings, in town or out supervising their workers. So I decided to find the Zoomlion contractors who have gained the popularity in waste management in all the big cities in Ghana. In Accra they have been contracted to support the rest of the companies so they know what is happening in all the communities as such I decided to focus on them to make use of the limited time. Interview with Environmental NGOs was difficult to arrange since I hardly got ENGOs who could provide concrete evidence of work done in their localities. I planned conducting the interview with at least three people from each of the stakeholders, but, with respect to the AMA and the EPA, I found out that each of them had one senior program officer in charge of solid waste management so I decided to interview the senior officers alone.

### Profile of the Interviewees

#### Samuel K. Kpodo

He works for the Accra Metropolitan Authority (AMA). He is the Senior Environmental Health Technologist. He is in charge of solid waste disposal issues and also link between the AMA and the private contractors and Non-governmental Organizations

### William K. Hayfron-Acquah

He works for the Environmental Protection Agency of Ghana (EPA). He is the Senior Program. He deals with settlement planning, and he is in charge of the human settlement department. Ernest Kusi

He works for Zoomlion Ghana Limited. He is Operations Supervisor, and he is in charge of vehicle scheduling and routine, and supervisory linkage with the other department in his organization.

#### **Observation**

Observation is one the methods used to examine the research problem. My position as a native of Ghana contributed a lot to the observation. The observation used is a typical of what Spradley considers as moderate participation, which represent researcher who seeks to "...maintain a balance between being an insider and an outsider, between participation and observation" (Spradley, 1980) I based on my experience to confirm the facts of some of the statements the interviewees made. I visited number of solid waste container sites and central collection sites and took pictures the state of the solid waste disposal problem in the

#### **1.5 DATA SOURCE AND ANALYSIS**

Reports and other documents on solid waste management have been reviewed to get in-depth understanding of the background of the issue. I gathered most of the data from the field by the use of semi-structured interviews, questionnaires and observation. Working papers and other publications from Waste Management Department of Accra Metropolitan Assembly was useful. The library at the Environmental Protection Agency of Ghana was very resourceful. The Government of Ghana's official publications and articles or reports in journals were also very resourceful.

The study relied fairly on reviewed literature on solid waste management. The secondary data source provided me a general understanding of the subject even though not focused on specifics it presented wide range of ideas that complimented the primary data.

In the process of analyzing the empirical information from the case study the theoretical framework outlined chapter two, particularly Richard Scotts (1995) categories where the three pillars of institutions are described is used to understand why some problems occur the waste management system the way they are. The reviewed literature and the empirical data also serve as one of the most important parts for the analysis. A supplementary framework for the analysis is illustrated in chapter three.

#### **1.6 LIMITATION**

Doing research involves dealing with a number of setbacks because reality often differs from what is planned. In this section, challenges and obstacles encountered during the research

process are identified. A major challenge faced in course of the data collection was meeting schedule with the respondents due of their tight schedule. Getting the information from the AMA, I was requested to break through the bureaucratic rigidity by writing a covering letter to seek for the information. The letter had to go through the administration before it was forwarded to the interviewee who then had to fix a date for me. Reaching the interviewees was also obstructed by the unrelieved vehicular traffic condition which really took a greater part my time and as a result limited the number of people I intended to interview. In addition, the interview processes were often affected by phone calls and visitors, which sometimes disturbed the focus of the topic under discussion. Concerning the private waste companies, it was difficult to locate their offices since most of them have no regular office hours and premises.

#### **1.7 STRUCTURE OF THE REPORT**

The Chapter one of this report is the introduction of the urbanization process and the associated environmental issues which serves as the background of the project, and it specifies the research question for the investigation, sub-questions to help analysis the problem, method and how the project is structured. The second Chapter is the literature review of the theoretical framework of the report where institutional theory is outlined. The third Chapter presents the review of provision of infrastructure services and solid waste management in developing country and African context, and also the analytical framework to analyze the empirical data. The fourth Chapter outlines Solid waste management practices in Accra, Ghana. The fifth Chapter presents the report.



## 2. THEORETICAL FRAMEWORK

### **2.1 INSTITUTIONAL THEORY**

The term 'institutions' has been defined in many different ways across social science disciplines, such as political science, economics, and sociology. There is less agreement about what institutions are and how to study them. Based on the researchers' scientific focus and subject area, different views of institutional theory have emerged such as new institutional economics and old institutional economics.

The new institutionalism has been recognized as an effort to broaden the range of explanation for the institutional factors such as governance structures and property rights, which were traditionally taken as givens, and not as an attempt to replace the standard theory like the old institutionalism does (Rutherford 2001). The work of Douglas North in the field of new institutional economics is taken to be that the existence of economic uncertainty makes it costly for enterprises and organizations to transact. Institutions exist to minimize this uncertainty by setting the "rules of the game" in the form of formal rules, informal norms, and their enforcement characteristics (North 1992; North 2005). In the context of a sociological and political perspective, Olsen (2000) asserts that the new institutionalism focus attention on "political institutions and democratic governance and how and when international political orders are created, maintained, changed, and abandoned".

The Old institutional economics is most closely associated with works of Commons (1961), Veblen (1899), and Ayres (1944) who explain "institutions by means of historical analysis, by tracing institutions from one period to the next, accounting their existence, on the basis of the principle that earlier states account for later ones" (Setterfield, 1993). The work of Thorstein Veblen puts emphasis on the "cumulative and path-dependent nature of institutional change, the role of new technology in bringing about institutional change: by changing the underlying, habitual ways of living and thinking" (Rutherford 2001). The old institutionalist methodology suggest that "the economy cannot be understood as a set of separable parts, that individual phenomena cannot be explained without reference to the whole of which they form a part , that the characteristics and functioning of the part depend on its relations with other parts, and hence its place in the whole" (Setterfield 1993). The behaviour of the individual is seen as "function of

existing institutions, which form an environment to which individuals become socialized over time" (Setterfield, 1993)

In the situations where sociological analysis is concerned, works in the tradition of Max Weber inform that institutions reflects interactions among individuals, while works in the tradition of Emile Durkheim consider institutions to be societal feature that impose themselves upon individuals. Within the economic field it is common to associate institution with history-dependency, and not necessarily functional behaviour (North, 1990: Hodgson, 1998). In Political science the view of institutions debates consider issues on the role of law in governance, in addition to the significance of structures, such as political systems as the main interest (Peters 1999). According Hall (1986) the main point of new institutional argument in political science is that political institutions are not basically the reflections of social forces, but are themselves important players in the policy process, which have capacity for independent action.

#### **Defining institutions**

There is no one particular and commonly agreed definition of an 'institution' in the institutional school of thought however, deciding on particular definition remains rather unrestricted, as different meanings reflect many different approaches to institutional theory (DiMaggio & Powell, 1991). The interest in institution is reflected in the works of many writers such as North, Ostrom, Scott and Schotter.

Scott (1995) asserts that, "Institutions are social structures that have attained a high degree of resilience. They are composed of cultural-cognitive, normative, and regulative elements that, together with associated activities and resources, provide stability and meaning to social life. Institutions are transmitted by various types of carriers, including symbolic systems, relational systems, routines, and artifacts. Institutions operate at different levels of jurisdiction, from the world system to localized interpersonal relationships. Institutions by definition connote stability but are subject to change processes, both incremental and discontinuous"

Ostrom (1990) defines institutions as "the sets of working rules that contain prescriptions that forbids, permit or require some action or outcome and that are actually used, monitored and

enforced". Schotter, (1981) also describes institutions as "regularities of behaviour or social practices that are regularly and continuously repeated"

North's description of institutions covers different institutional forms, such as political, social and economic institutions. According to him; "Institutions are the rules of the game in a society or, formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change" (North, 1990). North's work draws attention on the existence of uncertainty in economic activities and further suggests that to reduce uncertainty confronting entrepreneurs, an environment that enhances information flow amongst the actors remain significant. According to him the environment, is the ways of doing things that define the framework of human interactions. North further maintained that institutions could take the form of formal rules as well as informal norms and their enforcement characteristics (North 1990)

Nevertheless, the different views of institutions indicate that institutions matter to individual and social actions and consider institutions as social factors that generate regularities of behaviour by guiding, enabling, and constraining individuals' actions (Levis 1990). Institutions "play a functional role in providing a basis for decision-making, expectation, and belief" (Hodgson 1988). More generally, institutions shape human interrelations, thus enable us to understand what other people are doing and what they are likely to do; "they enable us to know what we may do and what we may not do" (Neale 1994). Functioning as the "substance rather than merely the boundaries of social life" (Hodgson 1988), institutions "reduce uncertainty by providing a structure to everyday life: a guide to human interaction and the framework within which human interaction takes place" (North, 1990).

#### Institutional theory concerning natural environment

"Institutions focus on the dynamics by which the natural environment is defined and enacted through relevant social and institutional structures of information and attention" (Hoffman and Ocasio, 2001) Institutional theory has been used many times in environmental management. For example, Hoffman (1997) did a study on chemical and petroleum industries and resorted to institutional theory as the conceptual lens for examining how the industries have responded to

mounting pressures for environmental management. Delmas (2002) used institutional theory to put in plain words the difference in the implementation of ISO 14001 across Europe and the United States. Bansal (2005) has examined the consequence of institutional factors on corporate sustainable development. One of the major views of institutional theory is that organizations operate to seek and keep their legitimacy (Scott, 1995). Companies set up strategies to adhere to institutional codes of conduct which reflects an alignment of corporate and societal values (Meyer and Rowan, 1977). When companies positively respond to societal pressures, they gain legitimacy that guarantee security of success and survival of the organization (DiMaggio and Powell, 1983; Oliver, 1991). As a result, the concern for the companies to be legitimized, affects them to adopt certain managerial practices that are expected to be socially valuable (Deephouse, 1999; Scott, 1995). According to Hoffman and Ventresca, 2002 "broad issues of environmental protection generally of environmental quality and social interests, are neither socially or politically separable from constituting policy theories that shapes them nor are they made tractable by technical analysis alone".

#### 2.2 TYPOLOGY OF INSTITUTIONS

The influence of laws, beliefs and values, as cultural elements, on communities' development and on environmental management institutions, may be explored through Scott's (1995) three institutional dimensions. The regulative, normative and cognitive structures and activities are defined as the three pillars of institutions (Scott, 1995). The structures and activities considered to create stability and meaning to social behavior may be different depending on the type of pillar being emphasized.

Element in the Scott's institutional categories;

**Basis of compliance:** This explains the process of conforming to desire demand or proposal or dominating by force (taking action that is useful for a particular purpose, the process may not be always fair or right); **Mechanisms:** The mode or the method of achieving a result or the means to justify the ends (ethics, force, imitation etc ; **Logic:** Sensible reason for taking a course of action; what makes sense,( the trust and the beliefs are affirmed); **Indicator:** Acceptable measures to all, and **Basis of legitimacy:** What makes it lawful.



Theory element	Regulative	Normative	Cognitive
Basis of	Expedience	Social Obligation	Taken for granted
compliance			
Mechanisms	Coercive	Normative	Mimetic
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators	Rules, laws,	Certification,	Prevalence,
	sanctions	accreditation	isomorphism
Basis of	Legally sanctioned	Morally governed	Culturally supported,
legitimacy			conceptually correct

Table 2.1 Diagram of the three Pillars of Institutions

Source: Scott (1995)

### Three Pillars of Institutions

### 2.2.1 THE REGULATIVE PILLAR

According to Scott, 1995, regulative pillar focuses on rule setting, monitoring and sanctioning activities. This pillar stresses the capabilities of organizations to constrain and regularize individuals' behavior by establishing rules, inspecting that individuals conform to them and where appropriate manipulate sanctions like rewards and punishment to influence future behavior. The basic mechanism of control is applied by force, fear and expedience. It becomes important for one to look at the effects of rewards and punishment and take the interest in acting rationally and conform to the rules. This view is reflected on a conception of decision makers as acting in influential ways, basing their actions on expedience. The primary mechanism of control is compulsion and Legitimacy is based on legality. In looking at the waste management setup the role of agencies such as national and local waste collection and disposal institutions that usually come up come with waste policies is played to produce and maintain rules that set up behaviour and influence the set of working processes that can be used in waste management. Based on the Agencies' capacity to regulate the sector they can influence the set of regulations that can be passed and used in a society mainly by connecting different processes. For example, a necessary condition for punishing waste management contractors for ignoring waste management regulations is the existence of waste management institution that establishes and enforces waste handling regulations. Hence, relevant waste management institutions have the capacity to change the rules of the game relevant to the decision makers in developing waste

management strategies in a new form that is comprehensive, and easy to be read and understood by everybody.

#### **2.2.2 THE NORMATIVE PILLAR**

Institutions, in this dimension rest on the normative pillar and put emphasis on values and norms, which introduce prescriptive, evaluative and obligatory dimensions into social life. Values are conceptions that indicate what is preferred and desirable while norms express and specify how things should be done; they define legitimate means to pursue valued ends (Scott 1995). The central issue concerning this pillar is the dimension of individual expectations, of others and of what they are supposed to do. Base on the role that individual actors like a sanitation Engineer and Planner in waste management play, a well defined action is expected to follow. Norms constraint and enable social action at the same time, for example through duties and norms form the logic. Normative pillars concentrate on what is appropriate to do out of a social obligation and motivate individuals to either follow or ignore rules. The basis of legitimacy is morally governed. Normative aspects are most pronounced in kinship groups, social classes, religious belief systems, and voluntary associations where common beliefs and values are more likely to exist.

#### 2.2.3 THE COGNITIVE-CULTURAL PILLAR

The cognitive pillar focuses on the cognitive elements of institutions and stresses the importance of symbols in shaping the meaning we attribute to objects and activities and also put emphasis on the creation of shared knowledge and belief systems rather than rules and norms as the basic guidelines of human action. In this dimension emphasis is placed on constitutive rules and cultural systems which create categories and construction of typifications and classifications that support collective action (Scott 1995). A common system of classification, or shared definitions, is seen as basic for the stability of an organization or a society (Douglas, 1986). The cognitive approach stresses the legitimacy that is based on using a common frame of reference of a situation, which is taken for granted (Scott 1995). Symbols, language, signs and gestures facilitate creation of meaning through interaction between individuals. Individual action is seen as a result of the creation of individual collective categories that are taken for granted. Routines

are followed because they are taken for granted, as the way we do things. The basic mechanism that identifies the cognitive dimension is imitation. Successful waste management practices can be adopted imitatively and used as a model for action.

#### 2.3 FORMAL AND INFORMAL INSTITUTIONS

North (1990) explains the difference between institutions and organizations as that between the 'rules of the game' and the 'players of the game'. The difference throws light on the role of both formal and informal institutions as something other than organizational forms.

#### **2.3.1 INFORMAL INSTITUTIONS**

Institutions have been defined to mean rules which are the preset codes of conduct that are commonly accepted by individuals in a society (Berger and Luckmann 1967; Rutherford 1996). There are informal rules, such as norms, habits and customs, and there are formal rules, such as written laws, regulations and standards. Young (1982) explains the institutional concept by considering environmental institutions as social institutions functioning within the framework of environmental policy and management. Informal environmental institutions relate to the routine ways of conceptualizing environmental policy and management. They are unwritten norms in society, traditions, principles and conventions that are commonly accepted and followed by everybody without them being written down. According to North, informal institutions are: "codes of conduct, norms of behaviour and conventions" (North, 1990).

Informal institutions are frameworks within which one can act and the meaning of the action can be understood by others, who are accustomed to the rules of the game, obey them and are part of the game when it comes to how one behaves oneself in relation to others. They have a basic function and play a highly important and decisive role in social function and control. The development of waste management system does not depend solely on the setting up of formal institutions as solid waste is an issue of both social organizations and deep-rooted culture and set of meanings as stated in the previous chapter. Therefore it needs development of the informal institutions that may be as influential as that of the formal legal framework. Regardless of the lack of legal enforcement mechanisms, such as penalties and sanctions, their enforcement takes place by way of sanctions, such as banishment from the community, excluded by friends and neighbours, or loss of reputation (Pejovich, 1999). One of the issues of informal institutions considered to be influential in shaping the potential, capabilities and activities of society is considered to be society network. Social networks capture local knowledge and circulate it within the communities, enhancing the knowledge useful for household sanitation. In the case of waste management this network is based on an informal collection of people involved in solid waste management in a number of developing countries. Its main areas of interest cover: recycling, composting, re-use, recovery, the informal sector, and the organization of waste management. Coordination and regularity of human interactions through only informal institutions is frequently insufficient in modern, complex societies and these informal institutions should be enhanced with clear and formal laws and rules.

#### **2.3.2 FORMAL INSTITUTIONS**

In order to regularize the way in which legal entities relate and interact with each other, society needs more formal institutions, which are laws and rules. These laws and rules exist in order to make things easier in interactions between human beings and organizations. North, (1990) considers formal institutions as "Formal rules include political rules, economic rules, and contracts. The hierarchy of such rules, from constitutions, to statute and common laws, to specific bylaws, and finally to individual contracts defines constraints, from general rules to particular specifications" (North, 1990).

Formal institutions are generally considered in this report, as the set of social, economic, political and legal means and collective action that set the rules constraining the behaviour of, and offer incentives that benefit enterprises (North 1990; Hodgson 2006). Organizations such as waste management firms are also considered formal institutions in the context of the services they provide to the economy as a matter of legal obligation by means of a contract or license suitably acknowledged by law. Legality of formal institutions is seen from the understanding that legal enforcement is a precondition for an institutional factor to be considered formal (Vatn, 2005). In this view, the action of the local government entity has formal institutional influence, as it forms part of the formal administrative framework through which the functions of the state are delivered.

#### **2.4 REFLECTIONS ON THE THEORY**

Institutional theory implies that one focuses on rules, norms, traditions and cognitive-cultural factors as the important components of organizing, which motivate and sustain operations, and implies continuity. Informal institutions correspond to the cognitive-cultural perspective that incorporates both the normative and cognitive perspectives. Formal or formalized institutions correspond to what Scott terms the regulative perspective.

The distinction between the three dimensions of institutionalist thinking (Scott 1995) is not so clear cut as this description may indicate especially between the normative and the cognitive "pillar" the division is a thin line, in that, the "taken for granted" is not only a cognitive matter, it can also have strong normative implications, being used in language and social practice. Again advocates of the normative theory focus on roles understood as normative expectations guiding behavior, while the cognitive oriented theorist focuses on social identities but this does not in all situations constitute a dividing line. From the various definitions stated above it can be seen that institutions are not only the rules of the game but also the key to historical changes in society. Institutions are also divided into different categories as Scott terms them regulative, normative and cognitive, while North divides them into two categories, namely, formalized and informal. The theory focuses on the more profound and resilient aspects of social structure. It regards the processes by which structures, including shemas, rules, norms, and routines, become accepted as commanding guidelines for social behavior (Scott, 1995).



## **3. SERVICE PROVISION** (Developing countries and Africa in perspective)

#### **3.1 SOLID WASTE MANAGEMENT**

Solid waste is produced in the course of human activities. Getting around with this waste most frequently appears to have no solution in most of the cities of the developing countries (Gilbert et al., 1996). Solid waste management (SWM) is a significant environmental health service, and included as part of basic urban services. SWM has emerged as an essential, specialized sector for keeping cities healthy and fit for human habitation. The challenges of the SWM sector are continuing to grow with the growing urbanization (Onibokun, 1999). In association with the growing urban population, the generation of solid waste is also increasing. African cities presently going through this change and with an incidence of fast growth, continuous inadequate financial backing, and a weak institutional structure tend to expose the cities to uncontrollable refuse and in a state of decline (Silitshena, 1996). Urban centers have struggled with how to collect and dispose of the solid waste produced by their residents. However, heaps of solid waste in open places is the most noticeable feature in several African cities. Thus, it is obvious that waste services in many African cities are not producing an intended effect. Nearly all local governments and agencies in Africa have often recognized solid waste as an important problem that has come to a point where far-reaching measures are required (Srinivas, 2004).

The increasing difficulties and costs of waste management are making it hard for the municipal agencies in many cities of the developing countries, to manage the process to expectation. Often, solid waste receives limited consideration at the early stages of local authorities' program designs however solid waste may cover between 20 and 40 % of the local authority revenues (Cointreau-Levine, 1982; UNCHS, 1996; World Bank, 1993). Associated with this problem is the issue of insufficient funding and poor cost recovery for solid waste management. Practically all local authorities in developing countries have been unsuccessful to work out effective strategies to alleviate the problem of low cost recovery. Besides, some factors such as the administrative bureaucracy, non enforcement of physical planning and planning regulations, corruption, attitudes of residents towards solid waste management, and ineffective supervision and monitoring measures by the local authority as well as residents have an adverse effect on the

contributions to a appropriate delivery of the service (Baud, 2000; Hasan, 1998; Obirih-Opareh and Post, 2001; Wekwete, 1995).

A number of surveys have been carried out on solid waste management in African cities, and according to Onibokun (1999) efficient and effective service delivery depends on managerial and organizational efficiency, accountability, legitimacy, response to the public, transparency in decision making and pluralism of policy making and choice.

In the 1980s, a number of cities in Africa, developed their municipal solid waste management strategies and programs managed by the government agencies with no considerable public involvement. This system encountered several problems in the general management for solid waste policies. The common setbacks that most of the cities confronted were managerial and organizational inefficiencies, and thus lack distribution of responsibility for different activities of waste management (Onibokun, 1999).

According Aina the method applied to handle the problem of uncollected heaps of refuse in the African cities involved a variety of schemes ranging from housing provision to service facilities delivery, of which solid waste is only a part (Aina, 1997). The use of this strategy and programs has not been able to adequately resolve the solid waste problem in many African cities. The management strategy in use has been criticized for being too centralized with regards to state-community relations and depending largely on trained urban managers and a body of professionals (Lee-Smith and Stren, 1991). According to Diaw et al. (2002) formulation of schemes and management of the solid waste in African cities are dominated by the agencies and decision on programs are taken by the top official with much focus on technical issues. Hence Pierre (2000) and Fekade (2000) have concluded that the prevailing management strategies have failed to take notice of the local knowledge which is compounding the management and scheme formulation problems instead of contributing to the solution of the problems in Africa.

SWM is a complex undertaking which depends to a great extent upon institutionalization and cooperation between municipal authorities, households, communities, and private enterprises for waste collection, transfer, recycling and disposal. In recent years, municipal solid waste management (MSWM) has attracted increasing attention from different development agencies,
due to the increasing concern of urban environmental problems recognized, for instance, in Agenda 21, Chapters 7. With its extensive institutional implication and close associations with other sectors, MSWM becomes an important entry point for integrated urban management support.

In dealing with the solid waste problem McDougall and White, (2001) identify two fundamental requirements: Less waste, and then an effective system for managing the solid waste still produced

The most feasible elements of a solid waste management system typically include: waste generation; collection; transfer and transportation; processing or treatment; and final disposal. Waste reduction, reuse and recycling have been integrated into comprehensive waste management strategies. In designing practicable waste management system, each element of the waste management process and ability to use different elements together are considered (McDougall & White, 2001).

Solid waste collection and its recovery from different waste source are carried out by many agents, formal and informal, which represent a variety of organizational structures and relationships (Cointreau-Levine, 1987). In most developing countries, including Ghana, urban SWM is entrusted to the local municipal bodies who are the main formal stakeholders in charge for the collection, removal and disposal of refuse from public places and for the maintenance of dumping grounds. Under privatization the private formal sector, such as private contractors and small and large processing enterprises, as well as the non-government and community based organizations help the municipal authorities in collecting, treating and disposing waste (Klundert and Lardinois 1995). In conjunction with the formal sector, resource recovery and recycling activities are also marked by the involvement of the informal sector in the developing countries. This involves the scavengers and middlemen such as scrap dealers and wholesalers (Hardoy et. al., 1992)

However, uncontrolled dumping of refuse is extensively practiced in developing countries because of rapid urbanization and lack of funding, resources and space for landfills. Since waste is related to culture and regarded by households as dirt and something without substantial value,

the job of waste collector is also commonly regarded as a low in Africa (Mwanthi et al, 1997). As a result separation of solid waste from the generating point is not well practiced. This behaviour towards separation of solid waste from the source decreases efficiency in the recycling system since the materials become contaminated and spread over places. Recycling through source separation has been found to be more effective and efficient in providing more materials that are of better quality compared to waste picked out of mixed waste streams (Baud et al, 2004).

Waste reduction, reuse, recycling and recovery is being promoted as a means of reducing disposal costs, reducing the burden on landfills and reducing environmental impacts. The environmental benefits of such practices include: reduction of greenhouse gases, reduction of pollution of air, land and water, conservation of water, energy and resources, and reduction of the amount of waste requiring disposal.

Solid Waste Management is one of the important requisite functions of the urban local bodies but this important service is not efficiently and properly performed by the local bodies of most developing countries, resulting in many environmental problems (Allen et al, 2002). As the public sanitation is the concern of the whole community, the nature of the services is assumed to be vital and appropriately managed by the state to ensure that the society lives in good sanitation conditions. However the system set up to provide urban sanitation fails in developing countries, and people are forced to live in unsanitary conditions amongst the waste products of their daily lives (Cairncross, 2003).

Solid waste management program is to minimize the contamination of the environment as well as making use of the waste as a resource. These objectives are accomplished in a way by using systems that can meet the expense of the community over the long term and with minimum risk to the persons involved. In view of the government provision of the services, governments most of the times chose to set quality standards that were very high and employed foreign approaches imported from developed countries. This habit has often been maintained when private involvement is introduced, which implies that services can be expensive and unaffordable for lower income consumers (Baker and Tremolet, 2002). Residents in developing countries cities may reside in areas which have never been provided with sanitation and also in areas where

sanitation facilities have been built but have never functioned. Decisions about the level and coverage of sanitation services are made in a situation of limited resources on the basis of available information and they are influenced by structures of power and levels of accountability. Most low income householders in un-serviced housing will have no clue about why they are not provided with services.

It has been observed that overstaffing and mismanagement, including the diversion of revenues by employees who were related to utilities were common, and indeed still remains so under public provision. In developing countries publicly owned utilities failed to provide service to the poor (Clarke and Wallsten, 2002).

#### **3.2 INFRASTRUCTURE PROVISION**

Transportation of solid waste collected from different points to the dumping site and diversion of waste away from dumping site to recycling and other treatment methods, such as composting, will require the development of significant waste management infrastructure. Whilst landfill has traditionally been a passive, low-cost, low-tech approach to waste management, well engineered site tend to be more complex, more expensive and require more active participation, from the public segregating waste materials through to plant operators tightly controlling process conditions in high-tech plants. The provision of infrastructure is a challenging and costly process, which takes considerable time to deliver (Cairncross and Feachem, 1996)

Governments have long become aware of the important role that infrastructure services play in development but there exist inherent challenges in providing infrastructure services in developing countries. Provision of infrastructure involves huge investments, and often in sunk assets (Guasch, 2004) due to legal or regulatory changes by governments.

Even though economic decline and increasing urbanization account for the infrastructure problem, one factor that has been a major focus of concern is the way infrastructure services are provided and managed. A number of development practitioners propose that there is the need for changes in how governments manage the infrastructure in order to adequately provide infrastructure in Africa. Most analysts argue that, privatization is the only answer. According to the World Bank bureaucracy also impedes improved service delivery and advocates that the

infrastructure should be managed like business (World Bank, 1994). The neo-liberals propose 'reinventing government' by decreasing the direct intervention of government and removing it from many programs to ensure quality delivery, cost minimization and efficiency in public service provision (Osborne and Gaebler, 1992). The argument goes on to the extent that programs that will be left in the hands of the governments are expected be contracted out.

The current development of infrastructure provision in Africa shows that many of the convincing arguments and ideologies have shaped the way a number of governments manage basic services. Most of the governments have recognized the very important role that formal and informal private sector play in service delivery and consequently entrusted to them roles and responsibilities in the form of public-private partnerships (PPPs) (Bult-Spiering & Dewulf, 2006). PPPs are believed to have the possibility of bringing the efficiency of business to public service delivery and prevent the politically contentious aspects of full privatization where the system is switched from government monopoly to private monopoly (OECD, 2008).

With PPPs the governments maintain ownership and have the responsibility to deliver the services to the commons and while contracting the private sector to be responsible for a particular function such as delivering basic services like sanitation, water and electricity. Both sides are in position to benefit from the contractual agreement. Government earns revenue by leasing state-owned assets or in another form pays the private sector for improved infrastructure and better service delivery. The private operator gets paid either by government or consumers for doing its work, at a profit. In many cases the private sector can deliver the services more efficiently, which can lower prices but it is not always more efficient and the service provision is often more expensive to the consumer (Estache, 2006).

Laffont's (2005) main interest in the policy grounds for the inadequate provision of infrastructure in developing countries persist to be certified by the nature of the listless improvement in increasing the rate of accessibility to basic services. As grounds for the importance of infrastructure continue to increase, access and improvement of services become a major concern. In an effort to improve the quality of infrastructure and increase investment, many developing countries have encouraged the involvement of the private sector, and opened up opportunity for foreign direct investment. Infrastructure provision has traditionally been the

sole responsibility of the public sector, with the state being responsible for investment and service provision, but found to be costly and inefficient providers of infrastructure services in most developing countries. The private sector has been engaged in the delivery and financing of infrastructure services in many developing countries since the 1990s (Harris, 2003).

A number of studies indicate that the private sector perform efficiently when there is competition. In absence of competition in areas where the Private sector is involved expected gains in most cases have not been achieved (Parker and Kirkpatrick, 2005). Whether the aim of the private sector involvement is to shrink government or only to make it function well, it has been observed that it is the use of competition, instead of awarding contracts to agents, which is the critical factor in minimizing costs and improving efficiency and quality delivery. In an event where small group of providers are found in the market, government can still have an effect on competition through regulative, enabling and monitoring roles. If market weaknesses obstruct competition and the government is unable to correct the imperfection, problems ranging from conflicts of interest to fraud can lead PPPs to fall apart.

The challenge of instituting infrastructure regulation that sets up the quality of trust and beliefs with the private sector and, concurrently, ensures efficient delivery on the part of the regulated is not easily accomplished. State regulation may be distorted irrespective of the quality and commitment of the regulatory entities that conducted it (Guasch and Hahn, 1999). Information inequalities are commonly connected with regulation, for instance with regard to issues such as revenues, costs and demand, the regulator and the regulated can be expected to hold different levels of information.

Laffont (2005) assert that regulation deeply influence performances. According to Crew and Parker (2006) regulation has a large positive effect. Bourguignon and Pleskovic (2007) assert that poor infrastructure performance of the 1990s in the developing countries was that those who were responsible to work to achieve political or social change failed to pay particular attention to the functioning of the regulatory institutions. Laffont (2005) maintains that flaws in institutions make regulation complicated in developing countries. The institutional framework, under which most African economies were functioning before structural adjustment programs,

set the platform for scientists and development practitioners to express their views on the need for changes in the institutional framework (Reed, D. 1992)

## **3.3 FRAMEWORK FOR ANALYZING THE CONCEPT OF SWM**

The major concern of this report is to investigate *why municipal solid waste continues to be problem*. The analytical framework developed below can be used to assess institutional arrangements for the provision of waste management services and to identify whether there are inherent biases against the success. The aim is to develop a system which effectively involves the main stakeholders in SWM. These may include waste processors such as formal and informal recyclers, waste generators such as households, and government institutions such as waste managers and urban planners and environmental agency. The starting point for the analysis is to recognize the idea from institutional theory by considering Scott's 1995 view on the dimensions in which institutions influence social action. Scott's three main categories that make up institutions are discussed above under typology of institutions and are useful analytical perspectives for understanding human behaviour.





The regulative pillar refers to the rules that specify required behaviour and sanction noncompliance. The enforcement of the rules regularizes unwanted behaviour. The normative pillar refers to norms (prescription of how things should be done), value and roles. In waste management the normative pillar is the sense of responsibility to ensure that waste produced is collected. The cultural cognitive refers to how things are usually done. Individuals' behaviour towards waste handling which is taken for granted.

It is quite difficult to include all these concepts at the same time, since the factors affecting solid waste management in the institutional context are constantly changing. For instance, income contributes very much to the amount of waste which has to be managed. In the same way, differences in educational background and environmental awareness results in varying attitudes of waste generators. Finally, technological improvement in the field of waste management is fast, so certain technologies may be out of function more quickly.

## **3.1 INSTITUTIONS**

Institutions consist of rules which generate a system of rights and responsibility amongst a group of people and they also generate outcomes which can be evaluated in terms of economic efficiency, equity through fiscal equivalence, re-distributional equity, accountability, and adaptability (Ostrom et al., 1993). Economic efficiency is accomplished when resources are allocated in a manner in which no person or group can become better off without some other person or group becoming worse off. For instance, if the costs of maintaining and running a solid waste management facility exceed the benefits then efficiency is not being achieved.

Equity can either be expressed in terms of fiscal equivalence where, "those who benefit from a service should bear the burden of financing that service" or in terms of re-distributional equity where policies are designed "to redistribute resources to poorer individuals" (Ostrom et al, 1993). In a system where there is competition, producers must produce to the satisfaction of consumers or the consumers will go elsewhere. The extent of reliance of the producer on the consumer determines the level of accountability between them. In a democratic system accountability is exercised by means of the vote. In a free market the consumer is able to select the producer who provides the best deal. Accountability has to do with what the consumer

perceives as the duties of the producer, and how much information the consumer can acquire about the actions of the producer (Sheldon, 1996)

The success of the institutions depends as much upon flexibility of the arrangements to cope with changing environments. Their adaptability is related to the degree of accountability, and to asymmetry of power. According to Midgely (1988) most institutions are "systems maintaining", that is, they work within and tend to reinforce "existing structures of power".

## **3.2 STAKEHOLDERS IN SOLID WASTE MANAGEMENT**

Community and people involvement in solid waste management extend beyond cooperation with waste management plans developed by municipal authorities to encompass understanding issues of resource use and waste production, and realizing the true cost of waste management. The term "stakeholder" is often used to imply those taking part in a decision making process, those who are likely affected by a decision and those who are well-informed about the subject under discussion (Alexander 1986). The use of the term "stakeholder" in solid waste management therefore implies that these individuals or groups have specific concerns and roles to play in the subject of MSWM. There are a number of groups who have raised concerns about the inadequate performance of the existing solid waste management systems in developing countries and they have become involved in the process of finding solution to the problems, for instance, the government, community and NGOs.

Collaboration between stakeholders in SWM where positions and circumstances of different stakeholders are understood is needed to achieve a viable solution. Mitchell (1997) identified adaptability among other elements as important element of successful partnerships.

## **3.3 CAPACITY BUILDING**

Most research indicates that a good designed and realistic set of reform measures can practically fall apart for lack of capacity. The rule of law and private sector development can all be shifted for lack of adequate capacity and well-functioning institutions. Capacity building has surfaced in the development scene to support broad changes in the beliefs of official development assistance, focusing attention on the issues of ownership, accountability, and effective governing institutions.

A key limitation to the implementation of appropriate regulatory frameworks is the lack of knowledge about regulations and their implications. This is very common and relevant at both levels of urban poor residents and local authorities. Capacity building is as a result very important to collect basic information on the situation on the ground, particularly about poor people; circulate key knowledge and information about planned regulations and their implications for the sustenance of urban poor and develop the skills required for flexible explanation and application of the regulation (Lall, 2001).

The capacity of slum dwellers and their organizations to take initiative in their own progress is affected by regulatory and procedural processes. The self-reliance of poor community therefore needs to be developed to empower them to negotiate with multiple stakeholders in waste management

## **3.4 THE GOVERNMENT AND THE COMMUNITY**

The relationship between the government and the community is formal and unambiguous, with laid down terms and conditions. The government may be a local authority or a national government. The community is the group of people served by the government. It becomes the responsibility of the government to provide infrastructure, together with sanitation to the community, and the community is also expected to honor its fiscal responsibility, that is to pay taxes and other charges that are demanded and collected by government. The government imposes sanctions in the form of penalties on individuals for failure to pay their charges levied on them. The community also denies the government its votes in the event of government failing to honor its commitment to deliver the service. In a condition where the government is faced with inadequate resources, it decides where to provide sanitation and the level of service to be provided. This kind of relationship depicts low level of accountability. The poorest members of the community are likely to find it difficult to gain information on government activities. This low level of accountability coupled with centralized funding may lead to situation where political incentives may take priority over other considerations leading to outcomes which serve the most articulate or powerful groups within the community.

## **3.5 COMMUNITY PARTICIPATION**

Different issues ranging from social practices to the type of service and the nature of the local politics influence participation at the level of urban community and local politics. Community seems to bring into play the presence of common need, interest and goals. According Gintis and Bowles (2000) community is defined as "group of people who interact directly, frequently and in multi-facet ways". In the urban centers the sense of community are not seen as open to collective action or participation as Philips (2002) assert that urban communities are composed of mixed of different people and households who come together as strangers from different backgrounds and that social capital is weaker in urban areas due to the heterogeneity and movement of the population. According to Woolcock and Narayan (2000) the social capital is the "norms and networks that enable people to act collectively". Beall (1997), in a study of community involvement in waste management, highlights on weakness of the issue of social capital in disregarding local power structure.

## **Participation**

The use of participatory approach in the provision of urban infrastructure and governance has most often been adopted and practice over the past two decades. Participation has been defined as "a process, through which stakeholders influence and share control over development initiatives, and the decisions and resources which affect them" (World Bank, 1996). In Stiglitz's (2002) words participation is defined as "a process that entails open dialogue and broadly active civic engagement, and it requires that individuals have voice in the decision that affect them" The civic infrastructure of a society is just as vital as the physical infrastructure. Involvement of the people in the communities plays a crucial role in how the neighborhoods are built.

In the provision of services and infrastructure, it is argued that participation is most likely to lead to interactions that can bring improvement than those provided through traditional topdown municipal approach. Plummer (2000) maintain that "the rationale of government for promoting participation is often to increase the effectiveness and efficiency of investment" It can be inferred that solid waste management is most likely to be effective if the ordinary people are engaged in the whole process. Through participation, local commitment and involvement is certain as the locals do not feel isolated. Participation in infrastructure provision creates an environment that allows participants to learn about their basic rights, to develop negotiation and organizational skills (Plummer 2000). Participation encourages empowerment.

According to Mosse (2001) "local knowledge reflects local power" and it is important in contributing to maintain the legitimacy of decisions. It could be argued that local municipalities would not be able to function properly as community leaders if they do not gain the accepted support. By and large there is a need to restore public confidence in political institutions which is attained by seeking active citizen support of the policies and practices of public bodies. Through empowerment individual roles are defined and people are mobilized to act collectively. Pretty (1995) has identified two types of active participation namely, interactive participation and self-mobilizing participation. He defined interactive participation as a process whereby "People participate in joint analysis, which leads to action plans and the formation of new local institutions or the strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured reaming processes. These groups have control over local decisions, and so people have a stake in maintaining structures or practices" and on the other hand he defined self-mobilizing participation as a process whereby "People participate by taking initiatives independent of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. Selfinitiated mobilization and collective action may or may not challenge existing inequitable distributions of wealth and power".

#### **3.6 SOLID WASTE MANAGEMENT PRACTICES**

Imported technologies to manage solid waste are influential in especially African local waste management context and there are differences between them. The differences are addressed from three perspectives: waste generation, collection and disposal, and recovery and recycling.

## Waste generation

It is estimated that, the municipal solid waste generated in 1990 on a global scale was approximately 1.3 billion metric tons (Beede and Bloom, 1995). The difference in composition between the developed and the developing countries needs consideration. In the developed countries, the amount of solid waste produced consists mostly of materials such as paper,

cardboard and plastic. In cities in the developing countries waste densities and moisture contents are much higher because in most developing countries the economy is highly depended on primary goods. The average municipal waste stream is over 50% organic materials (Hoornweg et al., 1999). Besides, the hazardous content from the hospitals located within the cities which is usually mixed with municipal waste is reasonably high since the regulatory and enforcement system to control such waste disposal are usually non-existent or not operating (Cointreau - Levine, 1997). These striking differences imply that waste management systems in the developing countries require different approaches. For example, as the waste content in developing countries is highly organic and prone to quick decay, the emphasis of the SWM process in these countries need to be on the collection process.

#### Waste collection and disposal

The service coverage for waste collection also varies to larger extent. In most developed countries services have expanded to the extent that over 90 per cent of the population has access to waste collection. In developing countries the services provision are woefully inadequate (UNEP, 1991). Research works have shown that expensive collection trucks and compactors suitable for the developed countries are difficult to operate and maintain, and are unsuitable for narrow lanes, the high traffic density and the nature of waste in developing countries. The lack of adequate collection services creates a serious threat to the environment and human health in many developing countries (WHO, 1992). In many developed countries, well engineered landfills are used for solid waste disposal. Incineration and recycling are also important options used in the management of urban and industrial waste in the developed countries (UNEP, 1994) But in developing countries the common methods of solid waste disposal is through uncontrolled dumping and burning on open places or city streets (UNEP, 1994; Cointreau-Levin, 1997). This often results in more pollution and loss of economic value which can be retrieved (Bartone, et. al., 1990; UNEP, 1994).

## Waste recovery and recycling

In the developed countries recycling activities are on the increase, mainly due to the political pressure of public strong disagreement with disposal sites, and the economic pressure of the high cost of waste disposal associated with land shortage, increasing costs of sanitary landfills, public opposition to landfills located in "their backyards", and tough regulatory standards of

waste disposal (UNEP, 1994). In developing countries, where collection of garbage presents a difficult task, recycling of waste is carried out mostly based on direct industrial demand for materials to be used as raw materials (Furedy, 1992).

The significant aspect of the waste recovery and recycling in developing countries is the involvement of the informal sector. Studies reveal that the informal sector is largely engaged in the recovery and re-sale of most of the materials that can be recycled and is extremely labour intensive (Cointreau, 1987). Even though they contribute significantly to waste recovery and recycling process, their role in urban waste management is not recognized and their income continue to be small (Baud et al. 2004).

#### **3.7 SOCIO-CULTURAL (ATTITUDES)**

Solid waste management system designed to improve human development needs involvement of the community and fine tuning the moral instinct to the benefit of waste management but it does not come without difficulties. Changing the people's way of throwing away their trash in developing countries can be demanding, in the absence of their involvement in the management system and enforcement mechanisms. Cultural change has a long way to go to solve waste management problems in developing countries (Onibokun, 1999). Cultural change can be reflected in how people begin to involve themselves in managing the waste which can be assessed in opinions concerning roles and responsibilities for waste management and the environment in general. Environmental education and public awareness are needed to develop a different mindset about the importance of the environment and empower the public to examine issues, make decisions and take action .This confirms the findings of Pacey (1990) that formal education for women in particular is a precondition for change in sanitation behaviour. This supports the idea of Agbola (1993) that perception and attitudes are responses of the things that we learn and become part us and as a result can be fine-tuned or changed through education. Well established patterns of behaviour are culturally rooted, developed from the processes of social interactions in families and communities (Agbola, 1993). Songore and McGrannahan (1998) have outlined cultural reason for the female exclusive household handling of waste within the institution of marriage and concluded there is the challenge to ease the traditional women's role at home in order to improve household environmental conditions and reduce environmental risks.

#### 3.8 RULES

The instrumental foundation for the solid waste management consists of a legal and regulatory framework which is detailed in the form of regulations, bylaws and ordinances, and it takes account of related monitoring and enforcement responsibilities and procedures at local, state, and national levels. Regulations should be few in number, clear, well understood and fair. Regulations are used as tools for the greater good of society (Sohail et al., 2001). In particular, urban regulations are intended to set up an enabling and inclusive environment for the efficient growth of cities and deliver the development needs of various parts of the economy and different sections of society. These objectives need to be revealed in the built environment, the quality of urban services and the adaptability of the regulatory framework to changing conditions resulting from socio-economic development (Lall, 2001).

# 4. CASE STUDY: ACCRA

## 4.1 LOCATION AND PHYSICAL CHARACTERISTICS

Accra is the capital of Ghana, and the core of business and industrial activity of the country. It is located on longitude 0 10'West and latitude 5 36'North on the coastal lines of the Gulf of Guinea. The climate is tropical with alternating dry and wet seasons. The extremes of the dry season are marked during November and March, and during the wet season the highest range of rainfall are in June and September. The annual rainfall is less than 1000mm, and humidity is about 80 percent during the wet season, dropping to 70 percent in the dry season (Quartey, 2001).





Map of Ghana, showing Accra, and neighbouring countries

The city of Accra has become more heterogeneous in nature due to its assumption of a cosmopolitan character. Being the industrial area and core of business activities the city has experienced all forms of migration with the perceived intention of seeking for job and good standards of living. At the moment the population of Accra stands at 3 million with a floating population of 300,000 (Ghana Statistical Services 2002). The Ministry of Local Government's

estimate shows that by 2010, the Greater Accra population is likely to reach 4 million persons, generating 4,500 tons of solid waste per day. The statistical service remarked that whiles the national population growth rate as at the year 2000 stood at 2.7 % that of Accra stood at 3.5 %.

## 4. 2 SOLID WASTE MANAGEMENT PRACTICES IN ACCRA

The increasing need for cleaner and improved city environment has resulted in constant search for solutions. The global anxiety about high rate of waste generation has put waste prevention as a high priority on the waste hierarchy. Reducing amount of waste generated, can have practical advantage such as few collection trucks, personnel and waste handling facilities as well as longer life for the landfill sites (Medina, 2002) and also lead to a decrease in the related environmental problems but waste reduction seems to be very difficult to achieve since it is much associated with changing people's attitude. Uncontrollable solid waste is one of the major problems confronting the city of Accra. Information provided by the Ghana Environmental Protection Agency (EPA) shows that at present, the Accra Metropolitan Assembly, which is in charge of waste disposal in Accra, is only able to collect about 60% of solid waste generated within the city (EPA, 2002: 1).

From my interview with all the interviewees, it became clear that the latest increase in waste disposal problems in Accra arise partly from the fact that, since waste is culturally defined, and people consider it as dirt and also of little value, as soon as people can find open places outside their houses to dump their thrash then their waste problem is solved. From their viewpoints it worth noting that People's apathetic and careless attitudes towards issues concerning personal sanitation and environmental cleanliness, of which solid waste management in general is its focal point, deserves much attention in the schemes of official development plans. A study done by Benneh et al (1993) buttressed the point that the problem of solid waste in Accra is traceable to the perception of cleanliness which is restricted to one's immediate environs.

Who should be responsible	Number of responses	% of responses
to make the city clean?		
Residents	6	10
AMA	42	70
Both AMA and Residents	12	20
Total	60	100

#### Table 4.1: Opinions on Responsibility for Ensuring Clean Environment

The respondents were randomly chosen from three different income groups, 20 to each group (Low, medium and high income groups in Accra from 5 different communities) Identification of the groups was guided by the table below and also from AMA's compiled list of income groups. Field Work (2008)

Class	Population Density (People/Km <sup>2</sup> )	Locality
High	<50	North Legon, Abelenkpe, Cantonments, North Ridge, Airport Residential Area, Roman Ridge, McCarthy Hill
Medium	50-150	Dzorwulu, Dansoman, Laterbiokorshie, North Kaneshie, Ringway Osu, Christianborg, North Teshie
Low	150-350	South Odorkor, Darkuman, Bubuashie, Mataheko, Abossey Okai, Sukura, Old Dansoman, Chorkor, Mamprobi, Korle Gonno, Adabraka, Kotobabi, Maamobi, Kokomlemle, South Teshie, South Labadi, Nungua
Poor	>350	Sabon Zongo, James Town, Ussher Town, New Town, Nima, Mallam

Table 4.2 : Population density of Accra by locality and income classification

Source: Ghana statistical service (2000)

As table 4.1 indicates that, a big proportion of the population have the opinion that AMA is exclusively responsible for ensuring clean environment, there is likelihood that the residents may not support clean up campaigns designed for making the environment clean. This may partly explain why most places are littered with garbage and yet the respondents seem apathetic. According to Songsore (1992) the public tend to have the thought that since the WMD is established it should solely be responsible for managing waste.

There has been much attention on the design of waste management technologies and how to use them than looking at the problem from strengthening the relevant institutions. From the responses in table 4.1 it becomes clear that the generators of the waste need re-orientation so that they can see the problem as a shared responsibility of both the individual in the respective communities and the AMA. Porter et al (1997) highlighted in their study that most of the knowhow use to tidy up the city of Accra is either sophisticated or is very costly for a less developed country like Ghana. When the technology is complex and does not suit the local circumstance the residents will find it difficult to cope with it and may not encourage their participation in dealing with the problem.

In an effort to find solutions to the solid waste problems in Accra, solid waste management was exclusively entrusted to Solid Waste Department (SWD) in Accra metropolis in 1985 up till 1990s. The long economic recession during the 1970s which reached its peak in the 1980s (World Bank 1995) adversely affected the waste management in Accra due in part to lack of financial resource to acquire adequate facilities to revamp the sector. The waste management was at its worse from 1976 to 1985(Benneh at el, 1993). According to statistics provided by EPA solid waste generated in Accra was estimated at 765,000m3 in 1998, and the total quantity of solid waste collected in that same year was 669,000m3 (EPA, 2002: 1) which indicates that around 96,000m3 of the waste was not accounted for.

The SWD has not been successful in delivering its waste management services to expectation since it is capable of collecting only 60% of the estimated total of 1200 tones generated daily in the city (UNDP et al, 1998; Benneh, 1994) in 2000. The poor delivery of waste handling services by the SWD led to the involvement of the private sector in the waste management in 1995. The SWD has since privatized 80% of the solid waste in Accra (Kpodo AMA, 2008; World bank, 1996). On the other hand private sector involvement has not appreciably created progress in the Solid waste management due to constraints such as inadequate finance and human resources. Many of the local private waste firms do not have access to financial loans due to lack of high collateral security demanded by the financial institutions, and this has affected their ability to obtain equipment and employ qualified personnel and until now private participation was largely taken over by a foreign firm from Canada called City and Country Waste Limited (CCWL).

Coordination of the informal activities of the non-registered waste collectors, recyclers and carriers, with waste management practices in the city have not as yet been put into the mainstream as relevant or integrated into the waste management system. Inadequate health and

safety clothing, low wages and higher age of workers (Contreau-Levine, 2000) in the solid waste management activities, put the workers to health hazards situations and limit their activities. A review of health data from 1994 for SWD indicated that solid waste workers experience higher incidence of sick days, work related accidents and mortality (Menel, 1994)

## **4.3 REGULATORY FRAMEWORK**

In Ghana the general waste management is entrusted to the Ministry of Local Government and Rural Development (MLGRD), which takes charge of the Metropolitan, Municipal and District Assemblies, however regulatory authority is vested in the Environmental Protection Agency (EPA) under the support of the Ministry of Environment and Science. The Assemblies are responsible for the collection and final disposal of solid waste through their Waste Management Departments and their Environmental Health and Sanitation Departments.

The policy framework for the management of hazardous, solid and radioactive wastes include the Environmental Protection Agency Act (1994), Act 490, the Environmental Assessment Regulations 1999 (LI1652), the Environmental Sanitation Policy of Ghana (1999), the Local Government Act (1993), the Pesticides Control and Management Act (1996), Act 528, the Guidelines for the Development and Management of Landfills in Ghana, and the Guidelines for Bio-medical Waste (2000). All these Acts and Regulations are derived from the National Environmental policy and the Action plan enacted in 1991 which is the most comprehensive environmental policy in Ghana. The Policy aims to achieve improvement in living conditions of the populace and to ensure economic development is inextricably linked with natural resources conservation. The Action Plan was the first comprehensive plan for environmental protection for Ghana which outlines the activities covering investment in connection with the environmental institutional building, commitment of the government to policy making, legislation and management of land resources, forest and wildlife, water, marine and coastal ecosystem, human settlements and pollution control (JICA, 1999).

Ghana created the Environmental Protection Council (EPC) in 1973 through adoption of foreign environmental strategies with no formal environmental assessment procedure until 1995. There was only systematic environmental review procedure in which the EPC became the main governmental body that determined whether an environmental impact certificate or permit should be issued to potential contractors (J ICA, 1999). The merits and faults of the EPC were analyzed for its adoption of foreign environmental strategies that were not adjustable to the Ghanaian situation and it was disapproved. The EPA was established in 1994, under parliament Act 490 which replaced the EPC (JICA, 1999). The EPA is given the legal right to advise the minister of the environment, and in addition enforce, monitor, and control environmental standards and regulations. The EPA coordinates the activities of different bodies equipped with technical specialties of the environment and serves as a point of contact between such bodies and the ministry of the environment (JICA, 1999). In pursuant to the Ghana's initiative to decentralize in 1988, the Peoples National Defense Council (PNDC) law 207 of 1988 was enacted which makes the district assemblies responsible for human settlements and the environment at the district level (JICA, 1999).

## 4.3.1 THE CURRENT SOLID WASTE INSTITUTIONAL ARRANGEMENT FOR PLANNING AND MANAGEMENT IN GHANA

Solid waste collection in Accra is organized through various institutional arrangements. There are three main stakeholder categories in solid waste collection in Accra: the private waste companies, residents and local authorities (government officials). The government officials consist of; district assembly members, administrators, and environmental protection officials who formulate, implement and enforce policies on waste handling. These groups of stakeholders participate in the planning and management process in several different ways. The waste planning process is shown in the following figure 4.2.

As illustrated in figure 4.2; the structure of the institutions contribute to the waste planning by forming inter sectoral technical teams directly under the environmental management subcommittee of the Metropolitan Assemblies. In this arrangement the sub- committees of the Assembly are fed with technical input. After drafting the plan it is sent to the Executive committee for review before it is adopted into working documennts by the General Assembly (MLGRD, 2002). The problem with the structure on the other hand, is that the waste decission making situation in practice shows different institutional arrangements. From the interview with Kusi, found at the appendix B, it is noted that the arrangement is not all that clear for the private waste companies to be involved in the planning process. The community and stakeholder consultations set up in the structure, is also not pursued in the planning process as it is seen to delay the process as such the institutional structure fails to facilitate an effective planning process, monitoring, and revieweing effectively.





Source: Government Of Ghana (2002)

## 4.3.2 REGULATION AND POLICIES ON SOLID WASTE

In Ghana Solid waste regulations and guidelines are developed under the auspices of the MLGRD, the Ministry of the Environment, and the EPA. In an effort to find solution to the deplorable heaps of waste in the nation, the National Environmental Sanitation Plan was developed in 1999 to guarantee safe and clean physical environment for human settlements. In line with the policy, local governments have been charged with the responsibility to come up with strategic environmental plans to put the policy contents into action (JICA, 1999). In Accra the AMA is enjoined to ensure that the policy is enforced. Guidelines and standards for solid waste management have been prepared by EPA for the municipalities, to guide the district assemblies and all other stakeholders involved in the planning and management of solid waste.

The guidelines are designed to be comprehensive to cover all aspects of solid waste management in the district (JICA, 1999)

## 4.4 THE WASTE STREAM

In Accra close to a total of 2000 tons of solid waste is generated per day (Kpodo AMA, 2008) with annual increase of 6% (Songsore, 1992). Municipal solid waste (MSW) in Accra on damp basis gives an indication of a daily per capita generation rate and density of 0.47 tons per cubic meter (Kramer et al, 1994). Solid waste in Accra has high decayable organic content which is very common across countries that thrive largely on agricultural products for economic development. Waste from domestic sources include, food waste, garden waste, ash, packaging materials, textiles and electronic waste. Organic matter makes up 65% and inert materials 17.1% of the weight. Paper represents 6%, plastic is 3.5%, glass 3%, metals 2.5%, textiles 1.7% and others 1.2% (AMA, 1999).

Table 4.3: The waste type and composition in the Accra metropolitan area

Waste type	Organic i.e. Food and plant	Paper	Textile	Plastic	Glass	Metal	Inert	Others
Proportion	65%	6%	1.7%	3.5	3%	2.5%	17.1%	1.2%

Source: Waste Management Department of AMA (1999)

The organic fraction is composed of kitchen waste including food leftovers, vegetables, leaves, animal excreta, rotten fruits and bones (Asomani-Boateng and Haight, 1999). Plastic, glass, metal and paper account for less than 20% of the total waste. The high percentage of food and plant waste can be explained based on the fact that Ghana's economy thrives largely on agricultural products for domestic consumption and export. Apart from the food leftovers and waste from food processing, lack of storage facilities and ready market for the farm products lead to high percentage of food and plant waste (Ministry of Food and Agriculture, 2000). Inert waste including rubbles from demolition and construction works are rarely disposed of as waste in Ghana since they are used on site roads in areas of housing and road construction but sand and dust contribute very much to the density of the waste.

High organic and moisture content coupled with the high temperature necessitate frequent removal which increases the over strained collection system. When the waste is not collected in time it emanates foul smell especially in the poor neighbourhood where the waste is mixed with human waste due to inadequate sanitation facilities. As in most developing cities, not only is the amount of solid waste generated increasing in accordance with the change in the population and the growing economy, but also the consumption is slowly shifting towards plastics and paper packaging (World Bank, 1999)

#### **4.5 SOLID WASTE COLLECTION**

Waste collection in Accra has led to privatization of the solid waste sector to seventeen companies by AMA of which two are frequenting everywhere as a backup. The companies are contracted to be responsible for one or two districts. According to AMA's solid waste management department sources, solid waste collection in Accra is on house-to-house and contract basis. The house-to-house collection is carried out in high income areas where the contractors collect the waste weekly. One of the strategic ways of household waste collection is the curbside collection which is offered in the high-income residential areas. Standard sized containers that are sold to households by the SWMD of AMA are recommended. According to the SWMD source, about 70% of the beneficiaries of the curbside collection pay for the waste collection services delivered to them (AMA, 1999).

On the contract basis, the AMA pays the waste contractors to collect solid waste from both block and communal containers. In this way the residents are supposed to send their solid waste to communal containers for collection. Households that are unable to afford the house to house collection service are provided with the communal containers services where they are expected to dump their trash. These take place in the low-income areas where there is high population density and poor access roads. Market places are also put under this category. From the interview with Kpodo, see appendix B, most contractors do not attend to the containers for days because they are not paid on time. The compactor trucks are expected to attend to all the waste containers in time, irregularity is an annoyance (Post et al, 2003).

There is also door-to-door collection in middle-income areas through labour intensive methods by private haulers under contract to the SWMD of AMA since 1992 (Benneh et al, 1993). This

was an effort to reduce the number and area of communal container collection. In this approach of private collection, the AMA and the private operator coordinate to survey a section of a particular residential area and on agreement AMA contracts it to the private collector. The private collector is given the responsibility for the collection of the service fees and pays dumping fees at the landfill site to the AMA.

In the face of the strategies put in place for the collection of waste in Accra, solid waste collection in Accra is not adequate. No more than 11% of the projected 1.4million residents in 1992 had the curbside collection services (Songsore, 1992). At the present, the solid waste collected yearly in Accra corresponds to 60% of the total waste generated (Global network, 2000; UNEP et al, 1998). Solid waste collection services are not adequate to cover a large part of the city, predominantly in the poor neighbourhoods. Waste collection in the high income areas face no problem of accessibility since the areas are well planned and that makes it easier for the MSWD and private formal enterprises to collect the waste directly from the household with compactor trucks for dumping. In low and some middle income areas the residents carry their solid waste to the public waste container spots for collection as specified above. In these areas where large proportion of the population reside the containers are largely inadequate mainly because of their small size and quantity serving the large size of highly concentrated number of residents.

According to Benneh et al (1993) about 42% of the households in the metropolis store waste in uncovered containers and any other cans which do not meet any sanitary standards. Due to the high content of the organic matter and the moisture level with the high temperature, the rate of decay is very fast and this attracts flies and other organisms which pose health and environmental threats. In many slum areas such as Nima, the communal waste containers are not removed and replaced in time, this act results in containers being overfilled and the excess waste dumped on the ground which is unsightly and detrimental to the environment. (Benneh et al, 1993) indicated in their study that 65% of the affluent households store their waste in closed containers, about 50% of the middle income households store their waste in closed containers and 32% of the poor households storing waste outside the home.

Irregularities in timely collection of the waste under the control of the municipality have become one of the causes for people to dump waste in unauthorized dumps. Large amount of waste are habitually dumped into water bodies, and surface drains. A survey of some selected low income areas done by Ministry of works and housing (2001) indicated that 3.3% of households got rid of their waste at the sea, 2.2 % at vacant and abandoned sites, and 9.5% in the open.

In several part of the city some residents privately hire migrant women who work as informal waste carriers to collect the household waste in baskets for a fee and take the waste to the communal waste containers spots or dump the waste at unauthorized sites. At the unauthorized dump sites there is possibility for contaminants to flow into water bodies and drainage channels through runoff water and thereby pose environmental and human health threats. From the interviews, and my observation it was found out that the authorized dumping site is not engineered but they have dug wells at some spots along the borders of the site to collect the leachate. With this approach it may not be likely to direct all the leachate to the wells and there is the danger of polluting water bodies and the environment.

## **4.5.1 INTRODUCTION OF SERVICE COST SCHEME**

The AMA introduced service cost schemes since 1983 in order to recover its management cost. A fee of about \$2 was surcharged on the property tax and in the middle of 1993 the fee was increased to \$3 and was waived at the end of 1993 due to low cost recovery. With this cost scheme 30% of those who benefited from the service paid the fees (GOG, 1992). The central containers become public asset and available for public use which has contributed to the problem of enforcing the users to pay the fees.

When the above given scheme in 1993 became unsuccessful, AMA came up with "pay-as-you dump" (PAYD) scheme which involved three major stakeholders, namely SWMD of AMA, Sub-Metropolitan District Authority (SMDA) and the operator of the communal container. The SMDA were given the responsibility to collect the fees from the users of the containers, pay the operator of the communal container, and finally pay a fee to the SWMD to remove the trash in the containers for disposal. Problems began to emerge when the SMDA became remiss in what duty requires of them to pay the SWMD to discharge its duty promptly and efficiently. Unauthorized dumping increased considerably and the system could not cover all of SWMD's

operating costs. In consequence of the cost recovery problem, the PAYD was taken away in 1994. In order to redress the problem each SMDA was made to give satisfactory records of every fee to the SWMD for each container emptied. However this did not stop the waste problem, it is still very common to see containers overflowing with garbage especially in low income areas.

Based on the above explained collection strategies the private contractors became increasingly involved in the collection in the 1994 when the PAYD also failed. The private contractors charged comparatively lower rate for curbside collection than the SWMD but were able to cover their operation costs. According to Porter and co-writers, "The private contractors are able to thrive at such low charges because they operate cheap, labour- intensive equipment-pushcarts, donkey carts, open trucks, tractor-trailers and old tipper trucks" (Porter et al, 1997).

Before engaging the private firms AMA was not properly equipped to deliver adequate services. The private contractors have brought about infusion of more equipment and collection has increased considerably (Kusi, 2008). From my observation, I found out that, the private waste contractors operate on low level techniques which suit the local circumstances and have proven to be much more successful than the sophisticated methods used previously by the AMA, and CCWL from Canada. The private waste collectors use tricycle, round and square bodied trucks as well as open trucks and tractor combined with trailers carrying waste containers for collecting waste in both low and high-income areas. In slum neighbourhoods, where it is difficult for trucks and tractors to maneuver, hand charts and tricycles are used to pick the trash from door to door and send it to the waste containers. The big trucks then carry the waste containers about twice a week.





Figure 4.3 Zoomlion tricycle and container systems for solid waste collection

# 4.5.2 PROBLEMS HINDERING EFFICIENT WASTE COLLECTION

These factors are inspired from Onibokun (1999) and they are problems on the ground. They are considered as the common features of solid waste management in African cities

 Table 4.4 Problems with the current solid waste management services in Accra.

Which one do you consider as	Residents	Private	Government
a major Problem?		contractors	officials
Poor financial backing	2 (6.7%)	4 (23.5%)	3 (15%)
Lack of waste containers	7 (23.3%)	-	2 (10%)
Lack of enforcement	3 (10%)	2 (11.8%)	1 (5%)
Lack of regular collection	11 (36.7%)	-	4 (20%)
Increasing population	4 (13.3%)	2 (11.8%)	2 (10%)
Lack of knowledge and training	2 (6.7%)	3 (17.6%)	3 (15%)
Lack of sufficient capital	1 (3.3%)	6 (35.3%)	5 (25%)
Total	30	17	20

(The respondents were randomly chosen from the three main stakeholders after responses from the questionnaire, the residents reflect the three income groups).

Out of the seven identified problems, most of the residents in Accra identified the lack of containers, 23.3%, and lack of regular collection, 36.7% as the major problems. None of the private waste contractors, and only a few of the government responses, 10%, acknowledged the

lack of containers as a problem; whilst, they showed significant concern 20%, of their responses for the lack of regular collection. The responses of the residents reflect the problems with solid waste in the city at the level of the individual, whereas the government and private companies tend to have focused on the citywide scale of issues, that is poor financial backing 15% and 23.5% respectively, and lack of sufficient capital, 25% and 35.2% respectively as what is rendering service delivery unsuccessful. These two issues were highly noted by the private waste companies and government officials. This suggests that enough capital and adequate funding are the biggest constraints to the delivery of efficient solid waste collection services in Accra. The lack of knowledge of the public in proper disposal practices were also acknowledged marginally more by private waste companies, 17% than government officials' responses, 15%, indicating that this is another hindrance to the implementation of effective service delivery strategies. There was 11.8% response acknowledging lack of enforcement by the private waste companies and government officials 5%. This may be because of the lack of clarity with respect to the regulatory and legislative environment discussed in previous sections. Increasing population was identified by 10% of the government responses, 11.8% and 13.3%, respectively, for the private waste companies and residents. It is clear that overpopulation is recognized as a problem through its emergence as more people leads to more waste being generated, placing increased strain on services.

## Inadequate funding

The slum neighbourhoods like Fadama and Nima characterized by abject poverty represent 80 percent of total waste services by the municipality which is delivered free of charge and account for the bulk of the main operational cost to the AMA in waste collection, (Kpodo AMA, 2008). The private solid waste companies on formal contract collect about 60,000 Cedis (app. \$5.90) per ton of waste dumped at the landfill site from the AMA. Funds needed for the waste management are provided through government subsidy since the SWMD's activities do not generate any substantial income.



Figure 4.4 Annual cost of waste collection service and revenue generated by AMA

Source: MLGRD and Accountant Generals, Dept. Annual Reports

As shown in the figure 4.4, the AMA is faced with financial constraints, in view of the fact that its annual costs have exceeded its internally generated revenue consecutively from 2000 to 2004. This indicates that AMA finds itself in a position of spending more than it generates internally on solid waste collection and disposal.

The dumping activities done by the SWMD bring no income to the municipality and the tipping fees collected from the few solid waste contractors operating on house to house basis is very low to cover the operational cost incur by the AMA. The financial difficulties make the Municipal Assembly unable to replace and maintain the inadequate equipment at its disposal and as a result waste management facilities allocated to the SWMD do not base on the volume of services required to be provided other than available funds which are most often inadequate.

## Difficulty applying service charges

Creation of a reliable data base necessary to implement effective tax system in the country as a whole is weak and even in a number of situations found nonexistent (Ghana Statistical Service, 2002). These weaknesses together with the public opinion about inefficient waste collection and disposal services provided by the AMA provide the freedom for the people to make up their minds not to pay waste taxes. In Ghana revenues generated from taxes are limited to the small number of people that the tax system is able to cover, high poverty and small degree of tax

collection capacity, which are principal reasons for the Ghana's budget deficits (Hens and Boon, 1998). Hens and Bon further found out that the government finds it difficult to incorporate environmental management cost into the national budget. The weak public awareness and lack of education on environmental taxes is a major determinant of the narrow tax base prevailing in the city of Accra. As it were, there are practically no costs such as pay as you dump to the waste generators.

## Inadequate capacity

There is inadequate solid waste infrastructure supply and services for collection and storage of the solid waste before transportation to landfills that are very far from the waste source. It became evident during the field visits and interviews found at the appendix B that the vehicles and the waste containers they use are not enough and some of the vehicles are also old. A survey conducted in low income areas in Accra in about 365,550 high density populated households, showed that about 59 per cent of the households do not have solid waste disposal facilities available to the houses (Ghana Statistical Service, 2002). The small quantities available get filled to the brim and fall over in the early hours of the morning.

## **4.6 SOLID WASTE DISPOSAL**

The waste collected in the city is dumped at sites that are not suitable and appropriate for landfill since the dumping sites are not engineered to serve as controlled disposal sites (Hayfron-Acquah EPA, 2008). They as a result pose high risk of infections through run offs during rains and pollution of underground water. The AMA started to dump the municipal solid wastes at Mallam, a suburb of Accra in 1991. The site exceeded its dumping capacity in the late 2001 and it also faced objections from the nearby residents and as a result the dumping was brought to a halt. Waste disposal was thereafter shifted to a new site called Djanman which did not last more than three months and it was filled to capacity (WMD AMA source). These neglected old sites are now of great concern due to their threat to human health and pollution of underground water through leaching. The dumping site now in operation is an old stone quarry at Oblogo near the McCarthy Hills of Accra where the solid waste is disposed in an open dump. The site has not been engineered to control leachate but what the AMA does is to compact the waste to accommodate more hence "this site is considered a controlled dump rather than a properly engineered landfill" (Kpodo AMA, 2008; GoG, 2003).

In view of the fact that the formal system of solid waste handling is unable to cope with the increasing volume of solid waste generated in the city, waste is thus disposed of indiscriminately. Some respondents to the attached questionnaire admitted disposing of their solid waste into drainages or burning.

Another compounding factor is that in the 1990s the city authority decided to use the shores of the Korle lagoon into an open dumping site. This act has led the slum neighbourhoods near the lagoon to continue dumping their waste into the lagoon which in turn has brought about a major flooding problem to the residents at the slightest down pour of rain. For the period of the rains the likelihood of surface water pollution increase due to flooding in low lying areas close to the dumps (UNEP, International Environmental Technology culture and HIID, 1996). The rapid expansion of Accra has also escalated the cost of land, which makes it difficult for the city authority to acquire land for new landfill sites (Kusi, 2008). Also in suburbs earmarked for landfill sites the residents put blockades to prevent waste vehicles from reaching the disposal site (Accra Mail, 2001b). Most residents have become aware of their immediate environment and are worried about the outbreak of diseases due to the unhygienic and poor standard of the landfill operation in the city.

## 4.7 RECYCLING AND COMPOSITING

Currently there are new firms which are engaged in plastic recycling located at Abose Okai and Pokuase in Accra. They collect and recycle plastic waste into pellets. These companies are relatively new and have low capacities. They operate on low techniques where the workers manually cut the plastic materials with knives into pieces for the machine to process into pellets. These pellets are then sold to companies manufacturing plastic products.

In the low income areas waste recycling at the household level starts with the use of plastics, bottles, papers and cans for domestic purposes. These materials are disposed of when they are no more needed. Recovery of valuable materials in high income household is for the most part carried out by the house-servants who sell the materials to middle agents for money. Aluminium contents that are recovered and sold to small scale recyclers are used to manufacture valuable items such as washing pans and cooking pot. The search for recyclable materials through the

solid waste is undertaken at public containers and dumping sites. Those who pick the waste sort the waste in public container sites and from incoming trucks at the dumping sites which make their activities prone to health hazards (Johannesen and Boyer, 1999).

In low income neighbourhoods, where their source of livelihood is depended on fishing, solid waste such as coconut shell and dry corncobs are used to smoke fish in open ovens. The collection of these waste for the fish smokers provide informal job for people who collect them for sale. Some portion of the organic waste is used to feed livestock in urban fringe farms. The livestock farmers collect the organic waste from houses and sometimes pay small fee. This practice contributes to reduction of the amount of household waste to be sent to the communal containers and also reduces indiscriminate dumping in the city. However when such organic waste is contaminated human could easily be contaminated through transmission from the animals. When solid waste infected with human excreta is ingested by the animals, they can become a source for later infection of humans (Contreau-Levine, 2000)

In principle composting is important in recycling nutrients back to the soil (Jain and Pant, 1994) and considered another solid waste management practices given the high proportion of organic content in the waste stream. The SWMD has a compost plant using sludge and organic waste. A major problem facing composting is the mixed nature of the waste with metal, plastic and excreta, particularly in the slum neighbourhoods where waste management facilities are inadequate. The compost plant in Accra is located at Teshie which is controlled by the SWMD. The plant was commissioned in 1980 to produce compost fertilizer from the organic content of the household waste, from the eastern part of Accra. The fertilizer is mainly used to develop grass and parks but currently the plant is not functioning. This is a result of lack of maintenance and production of poor quality compost fertilizer to the market for profit making.

Part of the problems confronting solid waste management has been associated with weak regulatory framework and enforcement system. The municipal solid waste is not sorted out from source and it is mixed with hazardous waste (Contreau-Levine, 2000). The compost plants separate the non-biodegradable materials from the organic content which has a tendency to increase cost of operation and product and as a result small proportion of the waste collected is processed. Private sector involving in composting is also limited by lack of finance and

technical know-how. As a result greater proportion of the solid waste is dumped at landfill sites, putting much stress on the inadequate disposal facilities (AMA Source).

## 4.8 EFFECTS OF SOLID WASTE ON THE ENVIRONMENT

Inappropriate disposal of solid waste can have a major adverse impact on the natural environment, including surface and groundwater, soil and air. The greater part of waste in the city of Accra is disposed of through landfills. The effects of landfills include odour, pests and ground and surface water contamination from leachate. In the long run, landfills reach capacity and constructing a new landfill is costly and time consuming process.

#### Impact on aesthetic of the environment

Uncollected waste, adversely impacts on the aesthetic of the environment as deplorable heaps of wastes are unsightly. The paper and the plastic contents that litter the city make the city very untidy and unhygienic. Also the dumping sites give poor visual impression. The dumping sites pose the problem of decreasing value of land. The Government of Ghana report (2003) claims that land and houses in the immediate vicinity of the dumping sites have lost their value due to the incidence of the leachate from the waste, unpleasant smell, rodents and flies which discourage people to harmonize with such environments (GoG, 2003).

## Water pollution and flooding

Uncollected waste exposed to the prevailing high temperature and rains present a high potential for the spread of infections through run offs during rains and contamination of underground water. According to Government of Ghana report (2003) problems of leachate occurred at the abandoned waste dumping site at Mallam a suburb in Accra. The leachate was seen gushing out from out the plinth of the waste dump after torrential rains and entered into residents' compounds. The leachate is found to contain pathogens which pose risk to human health and a source of pollution to groundwater and surface waters. The presence of chemicals as well as some micro organisms has increased the Biological Oxygen Demand (BOD) of the water bodies within the city. A study done by EPA revealed that parasites called "Ascaris eggs, which need more oxygen for their growth are in various water bodies in Accra (EPA, 2001). The Korle Lagoon is almost dead due to rampant disposal of waste into the lagoon and high levels of heavy metals such as cadmium, lead and copper which exceed recommended levels are found in the

Lagoon (Nyarko, and Evans, 1998). Waste disposal into the Lagoon results in heavy flooding during raining seasons and loss of lives and property. Sam (2002) reported that in the 1995 floods in Accra claimed seventeen lives and affected services like water supply, telephone, electricity, roads, commercial and industrial activities. Proximity of the current landfill site to the Densu River at Weija, which is a major source of drinking water in Accra metropolis, is of great concern. The stagnant waters in the choked drains and gutters become breeding grounds for mosquitoes, which transmit diseases such as malaria (EPA, 2002)



Figure 4.5 Informal settlement in Accra called "Sodom and Gomorrah" Source (<u>www.cenfeed-ecoedu.de</u> Accessed 30.07.2008)

# 5. ANALYSIS

# **5.1 INTRODUCTION**

Effective and efficient solid waste handling requires an integrated approach whereby all the concerned stakeholders are required to take part in the management process and play their roles effectively and efficiently to reach the expected result. This part presents the results of the issues identified to be vital upon which the good service delivery depends. The analysis combines the theoretical framework of Richard Scott's institutional categories which combined in the developed analytical framework, empirical data and literature to unearth the issues underlying most of the problems within the institutions and the organizations which make the problems prevail in the municipal solid waste management system in Accra.

## 5.2 ORGANIZATION OF WASTE MANAGEMENT SYSTEM IN ACCRA

Organization has been one of the major weak points in the waste management systems in many cities in developing countries of which Accra is no exception. Any plans to improve SWM would do well to first concentrate on the administrative and organizational systems on which the service depends. Usually, administration of waste management in Accra is the responsibility of the Ministry of Local Government and Rural Development, which superintends 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.

Local Government Act 432 gives over the management of the environment to the care of the different local assemblies. The Act has firmly declared that the daily activities and management of sanitation or the environment is the responsibility of the district assemblies. The EPA is as a result not responsible for the daily management of the environment and what the EPA does is to come up with a set of practical guidelines and standards to back the local authorities to manage their waste as it should be. The local assemblies are not fully fledged to live up to the task so the EPA has taken the responsibility to prepare them to some extent in a way that they can develop solid waste management policies themselves, that are broad in scope (Hayfron-Acquah, EPA, 2008). The local assemblies lack quality staff with the necessary expertise and competence, and there are legal and fiscal constraints that hold back their access to specialist expertise. These factors hamper their abilities to fully attend to the needs of the general public and thereby win

legitimacy from the larger populace. In line with the assertion of DiMaggio and Powell, (1983) and Oliver, (1991) it can be infer that when local assemblies positively respond to societal pressures, they gain legitimacy that guarantee security of success and survival of the agency. In essence, the EPA does monitoring and evaluation of waste management. They issue environmental permit and Approval to any landfill development agent.

Environmental issues concerning housing and other projects are entrusted to The EPA's human settlement division which is expected to ensure housing development get the approval for environmental permit before execution but what happens is that people get their way through and put up illegal structures which lack access road network and sanitation services. The EPA must commit itself to enforce its environmental impact assessment regulation LI 1642 which orders the issuance of environmental permit before any development takes place. Haphazard nature of the layout reduces the service coverage for waste collection. According to Scott 1995, laws and regulations are made by people for people to ensure sanity in society, therefore it is necessary for EPA to enforce, monitor and apply sanctions when necessary to control unplanned development.

Before the privatization AMA was managing the solid waste system alone but after the shift to privatization its management responsibility has been reduced to 20% which basically involves landfill control. Presently 90% of the collected refuse is sent to the landfill at Oblogo. This landfill is an old quarry site which is no longer in use, but has not been suitably modified to contain solid waste. The haulage distance of the landfill is about 17 km from Accra, the next targeted landfill which AMA has projected to serve the city for a 30 year period after the Oblogo landfill reaches its final capacity is at distance of 30km from Accra. This implies that in the near future cost associated with haulage per distance will increase by approximately a factor of two and in point of fact, landfill as a solution for waste accumulation problems in Accra may increase the cost burden for the society to bear. In order to cushion the burden there may be the need to invest considerably in composting and recycling in Accra after assessing the trade-offs. From the literature reviewed McDougall & White, (2001) talk about the need for comprehensive system that takes into account recycling and the other management options in the analytical framework which contribute to solid waste minimization. At present, 10% to 15% of solid waste collected in Accra is composted. There are some existing concerns about the efficiency of the
composting plant. The composting plant was old-fashioned and had a breakdown when the interview was conducted.

Managing the Solid waste system in Accra has never been without challenges even after outsourcing the greater part of the management to the private sector. An important challenge that needs attention is one of inadequate capacity and internal resources. It is very common to find in the city a number of communal waste containers filled with solid waste and not collected for number of days. Inadequate waste collection capacity has contributed to the indiscriminate dumping by the 40% of individuals who are denied the access to services of the current solid waste management system Water bodies are then contaminated and the uncovered drains are subjected to blockages by waste materials, thereby increasing the likelihood of flooding in times of heavy downfall of the rains.

Beyond what has been said, there is an immediate need for extra support of waste management capacity building and regulation in order to catch up on the 40% of the solid waste left uncollected and improve and expand the services to take control of the projected increase. At the moment the population of Accra stands at 3 million with a floating population of 300,000 (Ghana Statistical Services 2002). As identified from the case study the Ministry of Local Government's estimate shows that by 2010, the Greater Accra population is likely to reach 4 million persons, generating 4,500 tons of solid waste per day. The statistical service also remarked that the population growth rate in Accra is far exceeding the national population growth rate, if the city is not capable of managing about 2000tons of waste per day, according to interview held with Kpodo, then it will be extremely difficult to talk about managing 4500 tons per day with the existing system. If capacity for waste management is not drastically increased, then a number of the population will not be served by the existing waste management services. This population growth has not been accompanied by increase in basic sanitation facilities. The implications of these are increases in population density with low income settlements, more waste generation and increased pressure on waste management facilities.

As it were revamping the management system will call for increase in the central container collection coverage which is found at vantage points because of poor planning scheme which has led to poor layout and poor road networks for the waste trucks to reach the households. Most

households will have to make a distance before reaching the communal containers and as a result most of the waste is diverted into the drains and other places that the AMA cannot cover (Kpodo, AMA, 2008). The AMA has the mandate to enforce planning schemes but has failed to do so. The regulative category of institution from Scott which according him helps to shape human behavior through sanctions has failed to achieve the expected results. The laws and standards are there for housing but they are not enforced. It is common to find unauthorized houses in water course, along railway line and environmentally sensitive area. The haphazard nature of the housing layout and lack of access roads make it difficult to apply efficient foreign technology for a success.

The private contractors have to rely on local equipment such as tricycles and hand pushcarts to ply the narrow lane for the solid waste and they are capable of collecting the solid waste in small quantity. The private contractors are responsible for waste collection and transportation and the AMA takes care of the landfill. The private contractors have brought some improvement in the solid waste management system even though there are structural problems inherited from the AMA. Zoomlion Waste Contractors for instance is doing well as I found from Kusi. However, as it is pointed out already, about 40% of solid waste generated in the city daily is left uncollected. Due to long standing arrears most of the contractors are sometimes not attending to their zones.

According to Kpodo every so often, the contractors are disbursed but they decide to take additional money from the residents that they serve. This implies that there is lack of cooperation with the households and AMA resulting into problem of double charging and accountability. From the framework Ostrom et al., (1993) maintain that institutions consist of rules cable of generating outcomes which can be evaluated in terms accountability and other factors. This shows a lack of apparent and effective relationship between the formal agencies and slum dwellers distortion of the rule that is to ensure that there is the problem of double charging that not occur. Onibukun (1999) has identified accountability as one of the factors that contribute effective and efficient service delivery. Lack of collaboration and transparency between the stakeholders where positions and circumstances of different stakeholders are not understood is hinders achievement viable solution.

The contracting out of basic services like refuse collection and sweeping of roads, to private contractors is more and more becoming part of the administrative culture in the city. Contracting process undoubtedly sets up potential for some kind of behaviors which shift benefits away from the community and set up perverse incentives for officials and contractors. The communities have little access to this contractual relationship. Lines of accountability exist between contractors and executive agencies but the community would have great difficulty discovering what was happening. The costs to the community, both in time and money, of finding the details of the contracting process may be unaffordable.

From the interview with Kpodo, most of the waste contractors who are in operation are not experienced, their contracts have expired but the contracts are not yet reviewed and as I found out rezoning is in the pipeline. For the anticipation of the inexperienced contractors losing their contract, strategic behaviour can be created between those contractors and the government officials to save such contractors from losing the contract which will be to the disadvantage of the community for poor performance. For efficient and effective service delivery the private sector needs to be more competitive and contractual requirement should be strictly adhered to. From the literature Parker and Kirkpatrick, (2005) have it that where the Private sector is involved and there is no competition expected gains in most cases have not been achieved. This is a true reflection of what is happening in the waste management system in Accra. The competition is doubtful which has given way to the inexperienced contractors to operate in the system leading to poor performance.

#### 5.3 COMMUNITY ATTITUDE TOWARD SOLID WASTE MANAGEMENT

The solid waste generation is first and foremost a function of the residents' consumption pattern and as a result, of their socio-economic characteristics. Its handling is also subject to the cultural-cognitive state of the people involving their beliefs and feelings and values and dispositions to act towards solid waste, their choice of materials to be consumed, their interest in reduction, separation and the level to which they put an end to indiscriminate littering and dumping of solid waste in the city. Peoples' attitudes have an effect upon the demand for efficient solid waste collection services; that is taken to mean their willingness to pay for collection services. Attitudes toward effective solid waste handling may be fine-tuned through education and awareness campaigns on the consequences of poorly managed solid waste with regard to public health and environmental conditions required to enlighten the people about their responsibilities as waste generators and of their rights to manage the waste generated. Though, awareness creation and educational measures may positively bring about attitudinal changes, improved solid waste management can hardly be sustained in the absence of comprehensive and viable solid waste management options. Therefore, coordinating with improvements in waste collection services becomes essential. In the same way, the regular ways in which most people generate and dispose of their solid waste are influenced by those of their neighbours.

A collective sense of reasoning is drawn in, because improved waste handling practices will only produce considerable environmental impacts if large number of households in a particular neighbourhood engages in the improvement. This is in consistent with Leonard, 2005 who puts emphasis on organizing and managing a large labor force and teaming up with all the stakeholders involved as well as the general public in order to ensure adequate solid waste management. Therefore, in addition to general awareness, progress in the management system is based on the ease with which to use the existing practical options for waste collection and consensus among the residents in the neighbourhood that improvements are both significant and achievable.

To the ordinary resident of Accra, waste management is simply a process of waste collection and disposal as identified from the questionnaire responses. It is incumbent on the elderly women to do the collection whilst disposal is left to the young girls in the household who dispose of waste in turns and the boy are excluded from household waste handling. According to Songore and McGrannahan (1998), in the institution of marriage, Ghana it is required of the women to cook, fetch water, take care of the young and sick children and clean the house so it becomes expedient on moral grounds for her to learn from her parents how to clean, dispose of waste and keep the house in order. In as much as it is the woman who is assigned the role of sweeping the house she is expected to find the means to get rid of the waste. The man is the bread winner so he is out of the house most of the time looking for income to fend for the family so he does not bother about waste. The cultural cognitive pillar from Scott puts emphasis on the creation of shared knowledge and belief systems rather than rules and norms as the basic guidelines of human action. Waste management is a shared responsibility and according Leonard, its adequacy needs concerted effort from both man and woman.

Another important consideration concerning perception and attitude towards waste is the way those characterized by qualities of culture and learning, think about the issues of waste. It is not common to see young persons who have received a degree or diploma on completing a course of study, who have the strong desire to work with anything connected to waste. For about two decades now, it was considered to be a mark of discredit to work with the ministry of local government and the AMA since they occupy themselves directly with local politics and environmental and sanitation issues. Even though citizen's awareness and a changed set of attitudes and beliefs have largely inhibited the expression of this mentality, official records indicate that the AMA up to this time, lacks the necessary quality of personnel required to conduct their work in waste handling signifying the fact that the problem may still exist on a much lower scale (Post and Obireh, 2003; Porter et al 1997).

The society has developed a kind of attitude that makes them rely on the government for the provision of services, which is rooted in the interventions of the post-colonial policy of the state in the provision and management of services. This has created unfavorable environment for private sector participation as a policy tool for productive investment and economic growth. This attitude, as result has affected the introduction of cost recovery and sharing schemes designed by the AMA for the solid waste management

## 5.4 CAPACITY BUILDING AND COMMUNITY PARTICIPATION

The focus is to make out the obvious institutional weaknesses hindering the waste management performance. The community participation is focused on the apparent hindrances to the interaction of the multi-dimensional stakeholders in their effort to manage solid waste in Accra.

Capacity building aims at prevailing over problems hindering effective solid waste management. Hayfron in his interview identified lack of political will to press on with waste policies in Accra. Before the private sector was given the chance to participate in service delivery there was a policy that exempted the low income people from paying for waste collection services and when the change came government was expected to devise a system to educate the people about the change but it never happened and that has created a problem for the present waste management system because people have become comfortable with the free services provided before the privatization of solid waste in the city and the idea of privatization has not gone down well with the them.

As stated earlier, creation of a reliable data base necessary to implement effective tax system in the country as a whole is weak and even in a number of situations found nonexistent. These weaknesses together with the public opinion about inefficient waste collection and disposal services provided by the AMA create the leeway for the people to evade the waste tax system. It becomes obvious that there is management problem in the sector. From the framework, the tax failure happens because the people are not enabled. That is they are provided with tax education that will build their capacity to contribute morally and culturally in solving the solid waste problems. When the people are enabled and the place high value on cleanliness there will be no need to apply regulation. When AMA was entrusted to the management of solid waste, it failed to ensure the collection efficiency and the cost recovery systems that it introduced failed to achieve the expected objective. As a result the government decided to provide services free for the neighborhoods that were under the cost recovery scheme. In order to understand an action there is the needs to take into consider not only the objective conditions but actor's subjective interpretation of them.

The people are poor and thinking about their daily survival and affordability while officials are thinking of complex technology and cost recovery. The SWMD tried to engage the submetropolitan assemblies to ensure efficiency in the collection system but the management failed to recover cost. The AMA further involved the private sector, but the cost recovery problem continued. From the interview with Hayfron the AMA's role and its concentrated attention is to provide environmental services to improve the environment and the well-being of the society, in this sense management becomes essential but they are not well equipped with the requisite personnel which is a major challenge for effective and efficient solid waste handling. The right personnel who understand how things are and how things must be, from Scott's normative view can help improve the situation by putting emphasis on evaluative, prescription and obligatory dimension into social life. AMA has been confronted with the problem of legitimacy as said above which results mostly from lack of requisite personnel and funds to manage the solid waste efficiently in Accra. The legitimacy accords the AMA the right to function properly and lawfully within the society when the society has belief in them to deliver to their expectation. Solid waste requires financing operations through user charges, that is, from taxes of people's income. The smell of the city is blamed on AMA's inefficacies. Even though AMA cannot escape the blame, everybody is part of the waste problem so everybody should be part of the solution. In Accra, the waste tax on people's income and profits is not well-liked and it faces opposition from the public but it is very common to hear people blame the AMA for not keeping the city clean.

There is the issue of how the people will be able to pay and whether they have the ego to pay for the services are among the major institutional hindrances affecting the waste management system. In Accra, the greater part of the population is living below the poverty line. This presents two contending issues in the sense that, one has to acknowledge the fact that the people are poor and cannot afford to pay for waste disposal services. On the other hand, it is not economically viable for the AMA to continue to offer free services to such poor areas. The AMA therefore faces a dilemma where there is public demand to increase spending to make the city clean and at the same time reducing user fees. Since the implementation of the cost recovery mechanisms failed the AMA has been seen as inadaptable, inefficient and expensive to the state expenditure.

For solid waste management to work adequately the community must become true partners with government in the management process where genuine channels of communication are required which will lead to much greater accountability of government to the community. The lack of community participation encourages the trait of absent initiative to develop among a large proportion of the population. If opinions of the communities are heard on the strategy and costs of managing the solid waste in Accra, they may be motivated to take initiatives of solid waste collection and disposal on their own. When the community participation becomes part of the peoples' culture encourages them to play their role in the management process and look forward to others to perform their role. In a situation where one refuses to play his or her role properly will call for, criticism. In general individuals are susceptible to change and can reorganize in a

different form by the institutions of the waste management to deliver their share and correct those who litter on the street and throw their trash into drains.

Creating the enabling environment for community to fully participate in all aspects of solid waste management may create some fear in the government agencies as there is potential for the community to gain strength which may bring about radical change through the management process. On the other hand trying to change people from non-participation to participation cannot be a success only by the use of education there is the need for rules that make participation a legal requirement to promote the participation. The institution as the rule of the game (North) can create the enabling environment for effective community participation which will be an important ingredient for a successful solid waste management in Accra.

Community participation can promote empowerment of the people for active involvement in the solid waste management. One major problem of the private sector participation in the solid waste management in Accra is that the AMA has not been able to empower the stakeholders to keenly participate in the solid waste management. Households for instance are not aware of what is going on between the AMA and the private companies. This has influenced the private waste contractors who are taking advantage of the households' ignorance of the contractual terms and are inflating fees and at times double charging even when they are disbursed as already said above.

The AMA has also put the private contractors in a very tight situation where they are highly expected to provide efficient services but they are not being paid on time. Prompt payment can empower the private contractors to have access to capital in terms of finance to mobilize resources to deliver to expectation. AMA acknowledges the fact that they lack the capacity to monitor the activities of the private contractors and at the moment most of the contracts they have signed with the private contractors have expired but because no new adjustments have been made to the old contracts there are no proper mechanisms to check whether the contractors are doing a good job or not.

## 6. CONCLUSIONS

The solid waste management system set up to deliver the urban sanitation services fails, when people are forced to reside in unhealthy conditions in the midst of the waste products of their daily lives (Cairncross, 2003). They may live in areas which have never been provided with waste management, in areas where waste management facilities have been provided but have never functioned. Obviously about 40% of the solid waste generated in Accra is left uncollected and the people are forced to live in this unsanitary condition. Several policy interventions have been applied to get around with this problem but the problem prevails.

## "Why municipal solid waste management in Accra continues to be a problem"?

Although, resources deficiency may have effect on the degree and level of service delivered it does not shed light on the usual biases that keep going against the poorest urban groups, nor the prevalence of unsuitable schemes and inadequate monitoring and maintenance. The poor waste management in informal settlements can be associated with the lack of apparent and effective relationship between formal agencies and the slum dwellers. The institutional arrangements and the strategies implemented do not go well with the necessities of the slum dwellers. Consequently, services provided are not to the satisfaction of the slum dwellers or they are deprived of the services.

Institutional and legislative arrangements have an effect on the nature of the relationship between waste agencies and slum dwellers, which in turn affects the provision of waste services. In Ghana, all informal settlements are against the law and there is no waste policy for informal settlements. This influences commitment of time and effort by households in waste management. There are divergent views among the authorities and the slum dwellers on what is suitable to address the problem of solid waste. The waste agencies are more concerned with the efficiency of a waste technology to address the problems while the slum dwellers are concerned about affordability. Also in terms of finance, the agencies are concerned about cost recovery and economic efficiency while the slum dwellers are more concerned about affordability and poverty. With these opposing forces it becomes difficult for the AMA to draw from empty basket to provide efficient services that is in high demand by the people. As a result of increasing concerns from the society for clean and healthy atmosphere at the point where AMA is faced with inadequate resources with respect to funding and logistics and requisite personnel to get the work done poses management crisis for the AMA to deal with. The AMA gleans its revenue mostly from the income taxes, taxes on the use of state amenities such as lorry parks but it is usually opposed by a greater portion of the residents of Accra and most people evade the taxes. As a result of this unwillingness of the public to pay the user fees AMA lack the funds to perform effectively and so faces legitimacy problems.

The most difficult issue concerning the peoples' unwillingness to pay for the user fees is that they can choose to stay unconcerned about the municipal solid waste management but will still be part of the beneficiaries of the waste service provided. For instance, if the environment is contaminated due to decayed refuse, it affects all and sundry, whether the person has paid the fees or not. Therefore it is essential to render solid waste management services to neighbourhoods where people cannot afford to pay the user fees. When AMA was found to be persistently inadaptable and inefficient there came the public voice for a change and as result privatization was introduced where AMA is responsible for the management but has engaged the private sector for the solid waste management practices. Under the privatization, the Canadian company CCWL, the first private company engaged, used capital intensive with high technology which was not compatible with the local circumstances so the cost recovery became a problem and as result they left. The local private contractors who operate on low technology of using pushcart and other locally made equipment have made some strides in the waste collection system. Lack of low technologies in the midst of abundant supply of cheap labor makes cost recovery a difficult issue.

The AMA requires the capability to supervise the services of the private contractors, what is happening is that AMA is not capable of making prompt payment to private contractors so it cannot use its jurisdiction to make the private solid waste contractors deliver effective and efficient services. The contracts have expired but they have not been reviewed periodically to improve on competition and the terms of reference. This does not augur well for efficient service delivery in the city.

Environmental education is significant to make people responsive to environmental problems; they can be well-informed about problems, equipped with skills and motivation to find solution to those problems and to prevent new problems from happening. Embarking on community education program on solid waste management, will have the potential to develop the knowledge, skills and attitudes of the members of the community towards proper handling of wastes but the educational campaign is on low scale. Changing people's attitude to waste disposal will depend also on easy accessible of more low technology waste containers and bins in the city and most importantly realizing that land filling is not the absolute solution in as much as nobody wants to see landfills in his community and enabled to see waste as a resource rather than something to be destroyed.

It was noted that the community and stakeholder involvement in decision making processes set up in the structure, is not often followed in the planning process as it is perceived to setback the process by being time consuming, as such the institutional structure does not succeed to make it possible for an effective planning process within which present planning data for waste that include the perspective of all stakeholders is included in identifying and evaluating appropriate management options that can be implemented, monitored and reviewed effectively. As I was made to understand, the officials somehow involve the private contractors when their muses fail them to put the solution on the table. The private contractors who are contracted to handle 80% of the waste generated are required to actively participate in the decision making process.

The community participation is not well recognized. The objective of efficient provision of solid waste management system should be to provide the services that sustain a flow of net positive benefits to the users, premised on the understanding that individuals will put in time and resources in operation and maintenance only if they perceive that the benefits to themselves are more important than the costs. Perverse outcomes endure because there is little incentive for individuals concerned with the SWM to address them. In this existing Top down arrangements accountability to poorer groups is low and culture and organization of the agencies militates against the development of innovative designs in solids waste management.

Sharing of responsibility and the institutional structure as a whole set up a system of incentives that are skewed away from the community and, especially, from the slum dwellers. There are

few incentives to develop responsive and innovative designs and little recourse for informal settlements that remain un-served by the solid waste management system. The local agencies have little incentive to address the waste problems beyond their limits except where they can directly and clearly benefit. An emphasis on activities rather than results combined with an enduring reliance on a body of professionals and trained urban managers does little to encourage investment in solid waste management services. The system is fraught with poor accountability and adaptability which results in a net flow of benefits skewed away from the community, in particular, the poor neighbourhoods. Officials spend time and money to educate inexperienced contractors but not putting much effort to enable the community to be part of the solution.

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# **APPENDIX A**

## QUESTIONNAIRE

## A: GENERAL

Gender: a. Male [ ] b. Female [ ]

Age: a. Less than 18 years [] b. more than 18 years [].

Educational background: a. No formal education [] b. Elementary/primary education []

c. Junior Secondary School [] d. Senior Secondary School []

e. Others: .....

Can you please explain what solid waste management is all about?

.....

What is the major problem with solid waste management in the city of Accra?

a. Poor financial backing [ ] b. Lack of waste containers [ ] c. Lack of enforcement [ ]

d. Lack of regular collection [] e. Increasing population [] f. Lack of knowledge and training []

g. Lack of sufficient capital []

What is suitable to address the problems? a. Affordability [] b Efficient technology [] c. Both [] d. Other

.....

Do you think the communities should be involved in the decision making process a. Yes [] b. No [] could you explain?

.....

What is the condition of the natural environment in relation to solid waste management practices in the city?

.....

. . . . . . .

What are the most common environment and health problems that you face in the city in relation to solid waste practices?

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..... ..... What agencies responsible for solid waste management in the city? ..... ..... What is the level of their responsibility? ..... What agencies are responsible for addressing environmental problems in the city? ..... What is the extent of their responsibility? ..... What are the weaknesses of the waste management institutions? ..... Do you see the waste management as a problem? ..... If yes what do you think are the underlying reason for the problems? ..... ..... Which of the following environmental problems have been experienced by the city/community/area in relation to solid waste? Water pollution [] b. flooding [] c. air pollution [] d. smoke e [] f. littering [] a. other:.... **B: ATTITUDES AND PERCEPTIONS OF PEOPLE** 4. Whose responsibility is it to clean the surroundings? a. The individuals [] b. The AMA [] c. Both [] 5. Will you be willing to pay a fee for regular and efficient collection of your waste? Could you explain? ..... 6. Do you think it is appropriate for individuals to clean their own surroundings? a. Yes [] b. No [] could you explain your answer? 

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7. Do you often take the chance to educate your household on the need to keep the surroundings clean? a. Yes [] b. No []

8. If yes, what are some of the lessons you teach them?

9. How do you dispose of your refuse? a. The use of AMA facilities and services [] b. The use of private contractors [] c. Dumping in nearby bushes [] d. Others: .....

10 How is the nature of the access roads in your area? .....

11. Do you involve children less than ten years in the household solid waste disposal?

a. Yes [] b. No [], If Yes, why? .....

## **C: INCENTIVES**

15. Do you see the work of the waste management personnel to be very important?

## a. Yes [ ] b. No [ ]

16. Would you offer any possible assistance for solid waste management? a. Yes [] b. No []



# **APPENDIX B**

## **INTERVIEWS**

## Name: Mr Samuel K. Kpodo Name of Organization: Accra Metropolitan Authority What is your position in AMA? Senior Environmental Health Technologist How long have you been working on your current job? 29 years

## Question: How is solid waste activities handled in Accra?

**Answer:** Well, what happens is we do the collection, then we want to transport with vehicles to the final disposal site. We have individual responsibility of storing the waste making it available for us to handle. In order to manage the system we try to know the population, the design of the place and the logistic that are required for the task. What we have done is to divide the city into 15 zones for the private service provider to carry on with the activities. We use two approaches for the collection that is House to House and Central Container Collection. The frequency is once a week for house to house and the central collection is daily.

**Question:** How do you differentiate the collection between house to house and the central container collection?

**Answer:** The collection, well with the two main systems of collection, we have house to house collection which is applied in first and second class residential areas those areas have proper layout streets, roads and good infrastructure that is where we do the house to house and then we have the central container system a system that is applied in third class residential areas that is low income areas, they do not have good roads and streets so we put the containers at vantage point where the contractors can pick them and the residents can also access it. For the house to house collection we cover 20% of the population and for the central system we cover 80%.

#### Question: What was wrong before the privatization?

Answer: Yes Before we went into privatization in 1999 we were collecting less than 500 tons per day but as soon as we went into total collection privatization it rose to about 800 tons so that was the impact of privatization and up to now we are generating close to 2000 tons and collecting about 1500 tons a day, that is what we are collecting so the impact is good. With the present system, there are more vehicles, logistics, containers, and collection has increased. In 1999 when the new system began, it improved from 400 to 800 tons and it shot up to 1200tons in 2000. The system is not changed yet but it was just handled well but this time with more logistics. City and Country Waste Limited (CCWL) brought in a lot of vehicles in 1999 but their contract was terminated in 2001 because \$ 30 dollars was per ton of waste collected but AMA could not afford to pay so they left and the local firms took over the 15 zones and they have been in operation till now. The waste collected by the local firms is about 1000-1200 tons and increase to 1300 based on the prevailing season. The containers are not covered so during rainy season they become heavy

#### Question: Is there any problem associated with the privatization?

**Answer:** Yes the biggest problem is money to pay, the people in Accra do not want to pay, that is government policy, the people in the deprived areas do not pay so because of that AMA is not able to get adequate revenue to pay for the services of the private contractors and that has been the biggest problem which leads containers of the waste overflowing.

## **Question:** How do you solve this problem?

**Answer:** Ya, we are looking at the government to implement the polluter pay principle so committee has been set to look into this so that people will be able to pay for the waste, if the people pay about one third

of the cost then I think AMA will be able to subsidize for the rest than waiting for AMA for four to six months without pay

Question: Now, what role is AMA playing in the waste management?

**Answer:** AMA, we do the monitoring of the services because we have privatized and then we have to pay them, pay the contractors then we want to enforce the bylaws, waste bylaws to ensure that everybody will obey, then we want to create awareness, to educate people to be able to be clean, to make their waste available to us they are not suppose to divert the waste to other places like drain, open place to bury it or burn it at home. We have done 80% so the 20% is mainly for the management of the landfill site and the monitoring of the contractors.

**Question:** How do you get the message across? **Answer:** Yes it is ongoing all that I said is ongoing but the only thing is it not adequate

## Question: What are the means of solid waste disposal in the city?

**Answer:** Ya, we have two main methods land filling and composting. We are doing land filling at Oblogo an old quarry site we have machinery there doing semi-control. The Oblogo in reference to the city center is about 17km. We are projecting another one for the future which is about 30km from the city that we can use when the Oblogo gets full. The composting site is located at Teshie-Nungua where we want all the waste from eastern Accra to go but the rest of the waste is rather sent to the plant because the contractors find Oblogo relatively far. At the plant the waste is turned into organic compost and this is used as soil fertilizer or something. At the moment the composting plant is outmoded and very old. The mill is not working,

## Question: What about incineration and recycling? How is composting been encouraged?

**Answer:** The composting plant is down so at the moment we are not doing any composting. For recycle it is on plastics for the plastic industries. The industries ask them to prepare it for them as their raw material. Now, we are recycling 2% though the performance is not good. We have the recycling industries at Kasoa and Prestige but both of them are collapsing because we have not considered source separation. The waste is unclean, collected from the street, and they have to be dirt free at a cost to the industry so it is not growing but it is a good step as a means of waste minimization. We have not attempted incineration at the moment.

## Question: are there any problems with the management system and if yes, what are the causes?

**Answer:** Yes, even though the improvement is quite ok, presently we are generating close to 2000tons and we are collecting 1500tons. The main problem is the inadequate logistics that we have. We do have the logistics but it is extremely difficult to maintain them. In fact it is difficult to get the contractors the funds for the maintenance that they need. There also inadequate funding; which is a big problem, people are refusing to pay. Then the people's attitude, which make them divert the waste from the containers into the drains, gutters, and beaches. Increasing population is also a problem, congestion in the city centre this has also led to littering. I think the political will and the support is also a factor it is passive. These are some of the problems and the people unwilling to pay. Sometimes the AMA pays the service providers but they tend to take money from the people. Public awareness also has to be sustainable.

## Question: What have been the problems with the privatization?

Answer: Payment for services rendered. Some of the local contractors leave the central collection centre for three days because they are not being paid for services rendered. Also some of the contractors are new in the system they don't have the experience they just joined in. Others who are already in the system find it difficult to cope, they don't actually understand some of the problems, in fact, and we keep on educating them. And also we have not been able review their contract regularly to see if they are efficient. Thus there are plans to review them annually. For instance contractors will have to be interviewed to find out if they are actually doing the work. Monitory is also difficult especially in a case whereby they are not being paid regularly.

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**Question:** Who are the stakeholders and what role do they play in the waste management? **Answer:** Well I think we have the ministry of local government, EPA still under ministry of local government the contribution they make is policy and making money available for payment to the contractor, usually when AMA is not able to pay these contractors the local government look for money to pay the contractors. AMA is responsible for the sector. Some NGOs are also involved in waste collection and at times they work together with us. The Ministry of Finance at times they support us in paying the contractors. I believe that is.

## Question: Who comes up with these Policies? Is there any comprehensive policy?

**Answer:** yes we have a policy which is just reviewed but it is not yet out. There are consultants at the Ministry Local Government who meet with EPA representatives, they sit down and design these policies and there are the regional coordinating councils all of them are involved.

**Question:** Do you involve the local people in the policy making?

**Answer:** we have opinion leaders, who get involved when necessary. With sanitation it is the ministry of local government that is responsible for the policy after the draft is reviewed then it is the local government that implement the policy.

Question: Do you see any institutional flaws for the waste collection?

**Answer:** Yes, the monitoring is not adequate, communication gadgets to communicate with the stakeholders. The other one is financial we need money to work and that is there and the enforcement of bylaws is also weak, Cost reduction, to recycle the waste, how to make people pay the cost. The all issue that demand serious attention.

## Name: Mr William K. Hayfron-Acquah Name of Organization: Environmental Protection Agency What is your position at EPA? Senior Program Officer How long have you been working in your current job? 16 years

**Question:** Do you consider solid waste management to be a problem in the city and if yes, why and what are the causes?

**Answer:** Yes, I think there is the need to look at the unprecedented population growth rate in Accra, due to urbanization the population has increased over the years and more waste is generated but AMA is not capable of managing all the waste generated. Another problem is also about inadequate waste management infrastructure or facilities in the Metropolis.

Now, to handle the waste effectively AMA has to supply sufficient waste amenities. Enough waste containers suppose to be positioned at points that can be easily accessed by the households and the waste trucks in the different neighbourhoods and in that way the waste trucks will be able to load them without difficulties and send them to landfill transit position for them to be sorted out, for the purpose of composting and recycling before the rest is taken to the final landfill or dumping sites. But what we can now is that the facilities are undoubtedly inadequate. Some communities do not have access to those containers so what some residents do is to just throw away their waste anywhere and anyhow.

#### Question: What approach can be used to address the problems in Accra?

**Answer:** Well, Management is a big problem. Putting the little that you have in an efficient way is a big issue. The waste management is supported anyway but just that it is not enough. In general the attitude of the rank and file of Ghanaians is that waste is something dirty and unpleasant so nobody wants to be connected with it but we forget that we are the generators and we should be part of the solution so now it is affected by the priorities of AMA. As I see it, AMA's function is to deliver the services so administration is an important issue at stake but the AMA is not well equipped with the requisite workers as a result it becomes hard for them since proper waste treatment requires employees who know how to get around with the waste from its generation to its final treatment.

I think planning is also a problem from the way the city is growing, now the fringes are all being developed and we have not controlled development such that now people are just putting up their houses and, there is no any housing policy that says that we should develop the housing vertically or some sort, so if you look at the rate of the expansion and the rate at which the AMA can provide basic facilities, sanitary facilities do not match, so there was a gap, So in this sense there is a planning problem.

### Question: Is there stakeholder participation in waste?

Answer: Yes it is important that all stakeholders take part in every activity. Waste management needs more hands and it is not the right to any single body to do that. One of the problems is that people still do not see why they should all be environmental stewardships in this respect they consider the environment as no man's land so in as much as they are able to get their waste out of their houses whatever happens outside their houses is not their responsibility and that has created the attitude of littering. This attitude needs to be changed. The public must be more aware about the fact that everybody has a role to play in waste management, as we want our city to be clean. The people should be made to understand the effects of bad environment associated with waste practices, for it does not only affect the tourism industry but also health, the economy etc.

## Question: What changes has privatization brought into the system?

**Answer:** This privatization happened in 1999 when it was realized that the imbalance between the rate of the urban growth and inadequate delivery of the waste services was getting larger and larger and as such the inability to manage the waste generated, the government took the initiative to engage the private sector. In consequence the Accra metropolis was mapped into 15 zones for the companies to have their demarcations. One observable difference is that the collection of waste is faster; the rate of collection hitherto was poor. Before the privatization you could come across rotten waste in all the suburbs of Accra. Also the private contractors are more equipped than the AMA and this has improved the collection rate. However there have not been any changes in infrastructure because the arrangement with private sector is for only collection and disposal of solid waste and not for the infrastructure provision.

#### Question: What has been the problem with the privatization process?

**Answer:** Well, money to pay the contractors is big issue here there have been several instances where the private companies have resorted to withdraw their services because the AMA is not able to pay them. They need to be paid so that they can function well, that is the main problem. But I think the AMA can adopt different strategies so that they can generate the funds. The attitude of most of the people in the communities is that, they do not have to pay for waste services and as result the AMA finds it difficult to generate adequate funds to perform to expectation so we can have quality environment. I think that the direct tax is not helping so it is a good idea that the government subsidizes the AMA in their services. I think the government's role is at stake. Political will is required to advance on certain issues.

## Question: What role does EPA play in solid waste management in Accra?

**Answer:** The day to day management of the waste is not the function of EPA but all that the EPA has to do is to develop a set of technical guidelines and standards to support the local authorities to their handle waste well. Now with the problem of waste facing the country and especially in Accra the capital, EPA for about ten years decided to prepare a set of guidelines to help the Assemblies because we found out that, even if the Assemblies are capable of doing the collection successfully, then how do they manage it after collection, because there is no scientifically engineered landfill site in the country at the moment, so the disposal is a problem. In addition, we recognized that AMA's management practices are most of the time based on crisis management type of activities so we considered that something else has to be in place to turn around the negative trend so we have prepared three technical guidelines for them.

The first one was for landfill development in Ghana. We have done studies to find out that with the exception of Korle bu hospital the rest of hospital and clinics their buried waste. The AMA collected this type of waste and dumped them at the landfill site which caused health problems for the attendant. Now

we have decided to prepare a guideline for proper management of hospital waste in Ghana. Lastly a manual for the preparation of local waste plant for the district Assemblies has been produced.

Since 1994 the EPA has being doing obligatory checks so that before a landfill site is set up by any agent it must be approved first by the EPA. Secondary they must receive an environmental permit so that in the future any landfill site will be subjected to environmental impact assessment to be able to plan for mitigating the environmental adverse impacts so this is what the EPA is doing. We also do monitoring at the dumping sites since they are not well engineered. The local government ACT 432 assigned the management of the environment into the hands of the various local assemblies and so it is stated in plain words that the day to day activities and management of sanitation or the environment is the duty of the district assemblies and so we just have to monitor them to ensure that they play the role they have been given.

The assemblies come under the ministry of local government so when it comes to policies and by- laws it is the local government that takes the responsibility of these things for the district Assemblies so they have a role to play in the waste management. The media also has a role to play if we are to succeed in our campaign for proper waste disposal and management. Littering is one of the common aspects that the media can educate the populace about to change positively influence peoples' attitudes towards the environment. Waste affects our health if poorly managed so people should have interest in participating in environmental activities.

## Question: What role do you play in solid waste management?

**Answer:** I am responsible for settlement planning. You know the environment covers larger area, I am in charge of the human settlement department and the waste problem is part of settlement planning since we do not put environmental issues in our planning.

For example most urban areas that are expanding do not have access roads, the layout are not well planned and so waste management, sanitary sites are not factored and so when the settlement becomes consolidated, waste is generated through human activities and if you do not provide for where people will put their waste, they will dump discriminately. So now we are telling the planning unit to send their layout to us to scrutinize the main planning scheme so that we can say that this facility is missing this or that. We create awareness for the populace and key stakeholders, we have environmental impact assessment regulation LI 1642: which stipulate you cannot start any development without having obtained an environmental permit. As we go through the process we are able to identify the impacts and therefore put in place mitigating measures.

## Name: Mr Ernest Kusi Name of Organization: Zoomlion Gh. Ltd What is your position at Zoomlion Gh. Ltd: Operations Supervisor How long have you been working in your current job? 1½ years

Question: What is the role of your company in waste management in Accra?

**Answer:** Alright, basically Zoomlion is into mix collection, we collect waste from communal site or what we term as transfer stations to the final disposal site. When I talk of mix collection it includes house to house and door to door collection. For communal container that where we use the skip but for the households individual houses have been given dust bins, 240litre bins so we go there with our compaction trucks and we empty them and take it to the final disposal sites

#### Question: Who is in charge of local waste plans enforcement?

**Answer:** The city authority have the power in making sure that waste is taken from the community in which they are governing so AMA here has to enforce the waste management plan but I cannot stick my neck out and tell you whether now we have waste management plan. They are suppose to make sure that

the people that they are governing live in an environment that is clean and tidy so it is the AMA that has to ensure that we have the plan, the plan has to be enforced but the question is do we have the plan?

Question: Do they involve stakeholders such as NGO and private sector companies etc?

Answer: Yes, they have been calling us for meetings the recent one has to do with the polluter pay system where they were saying that they do not understand why the people who generate the waste want somebody to pay for them so if someone is generating the waste to pollute the environment it is the same person who has to pay but the matter is yet to be implemented so we brought our views on that how best they can go about it and whether it will help us as a private company because AMA is not able to pay us on time and the reason being that they do not have money because they have to pay for about ten thousand households in Accra so if these people are to pay at the communal site maybe you come and dump based on the quantity of your refuse you pay, they will be able to generate some income and have to pay private contractors on time.

**Question:** There are a lot of poor who benefit from the communal system how best can the polluter pay system work?

Answer: Yes, some people also raised this issue this thing started some time ago and it could not materialized, what was happening was instead of the people to take the refuse to the communal site they preferred to put it in the drains because when he comes to communal site he has to pay so now we are still talking about it whether we they will put some limit to exclude some people those who are very poor but there are some people who are in the position to pay but they are not paying so still plans are underway now they are saying that polluter has to pay so let us wait for the criteria, they have not finished on that yet so all these problem will come when we deliberating on the issue at the meeting

**Question:** Are you satisfied with the level of stakeholder involvement in the waste management system? **Answer:** Oh somehow, even when it comes to zoning, now they are coming out with zoning of Accra so that they can give it to individual private waste companies, they will be looking at your capacity and delivery performance at least for now the level is a bit ok

Question: Has privatization caused changes in the disposal of waste in Accra?

**Answer:** We were given the contract by the national youth employment program (NYEP) the government wanted a module for the youth and one aspect of the module in the sanitation aspect and our company was given the contract so that we can manage the youth, the unemployed people so we are cleaning the markets which hitherto was having a lot of problems of waste, now we move around all the ceremonial streets, people are sweeping from 5am to 10 they are doing cleaning of the drains so all this has brought cleaner environment

Question: What was the problem before we came into privatization?

Answer: People have the mindset that anything that belongs to the government people take it for granted. People will not go to work and the end of the month they expect to be paid although the workers were there deployment of workers, we are using scientific method in deploying the workers due to the distance and we expect you to deliver if you are not able to deliver you are sacked and we find someone else to come and work because we are private company. Attitude of workers as a whole, those working for government was affecting the working and also in term of logistics AMA workers were not having logistics, you see, our workers, you see them dressed nicely bringing professionalism into the work which attract the youth to come and work, we have all the safety gadgets for them to use so that they are being protected from the occupational hazards of waste management so all these things are bringing professionalism into the field

#### Question: Do you do waste separation?

**Answer:** That is our long term dream and that is what we are looking at, recycling, and before you can do recycling properly you have to separate at source what is called waste separation at source currently there is feasibility study in Kumasi, specifically Asokwa where different bins have been provided to

households with different colors for the different components, they want to see if the project will be profitable.

**Question:** Do you think domestic solid waste disposal is a problem in the city and if so what are the causes?

**Answer:** Funding, landfill site is almost full and as private company it is not our duty to find landfill site .It not easy to get land for landfill site now Accra is fast developing because of urbanization and nobody wants a landfill site close to him, there has been a battle over this at the kwabeinya landfill site for over 10years now the people are in strong opposition to it. Concerning the waste that we generate people are mixing the was with human excreta, even liquid waste and it becoming difficult for people who handle such waste

#### Question: How can we have this in the right direction?

**Answer:** I think public education has to be intensified people should be aware that whatever you put in the environment, It comes back to you people should have the correct mindset. If they know the disease associated with sanitation I think they will not litter anyhow. The media has to help, even the private companies now every morning we have paid morning program that we run sanitation education

#### Question: What are the institutional flaws in managing the solid waste?

Answer: One has to do with proper zoning of Accra one at first we were not have proper zoning where they will tell a contractor that go and work this way. All the contractors were not having legal contract with AMA so they will be here today then Zoomlion will come there and then take over your job there were cases of trespassing between the contractors. We do not have the waste management plans. Oblogo the Landfill site will be full if we have the waste management plan then we can know that maybe 10year time the landfill site will be full, base on the plan you get another site and also looking the sanitation in general the government institutions are suppose to have logistics but they do not have

### **Question:** Do you think the personnel have the requite skills to execute their functions?

**Answer:** The personnel they are skilled enough ,you know sometimes you might have the personnel but when it comes to performance, supervision and monitoring in our case we have supervisors and those who do the monitoring they go round to check them. The supervisors have been given motor bikes to go around and we also have a monitor. The management system lack all these things



# APPENDIX C

private waste contractor	15 zones for the waste disposal purpose
BENSYD	Akweteman
YAFURU	Achimota
УАМА	Achimota forest reserve and North Dzorwulu
CATROL	Kwashieman
MOHAS	Alajo, Abelemkpe and Dzorwulu
АКО	North and East Ridge, Osu
GEO WASTE	East Legon residential area and North airport
MIL/CA	Airport residential area and Burma Camp
DABEN	Labone, La and Teshie-Nungua
ABC	Accra New Town, Roman Ridge and Kotobabi
LIBERTY	Korle-Gonno, and Mamprobi
ALMANUEL	Lartebiokoshie
MESK WORLD	Ussher Town
VICMA	Asylum Down, Adabraka, Kaneshie and West Ridge
ZOOM LION	All round
GOLDEN FALCON	Mataheko and Abosey-Okai

## Table 4.2 solid waste collection: private firm involvement

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Field work 2008