

Original Research Article

Actors' Involvement in Municipal Solid Waste Management by the Local Government: Lessons and Experiences from the Kumasi Metropolis, Ghana

Dominic Addo-Fordwuor^{1*}, Shuo Seah¹

¹School of Public Administration, Huazhong University of Science and Technology, Wuhan 430074, P.R. China

Article History

Received: 14.02.2022

Accepted: 19.03.2022

Published: 28.05.2022

Journal homepage:

<https://www.easpublisher.com>

Quick Response Code



Abstract: Municipal solid waste (MSW) management is a global issue. Improper MSW management has adverse effects on human health and the environment. In view of this, promoting sound MSW management has been the focus of many policy makers, researchers and academics. In most countries including Ghana, this complex task has been entrusted to the local government. However, the success of the local government in this endeavor largely depends on the involvement of other actors of solid waste management. This study therefore seeks to evaluate the involvement of actors by the local government in MSW management using the Kumasi metropolis of Ghana as a case study. Qualitative case study approach involving observations, one-on-one interviews and focus group discussions with a wide range of actors is employed. The results of the study underscore major drawbacks in the MSW management system in the Kumasi metropolis where policies are formulated by the top-down approach. This study contributes to literature by encouraging the habit of source separation of waste among solid waste service users since it has the tendency of reducing the quantity of waste to be dumped at the disposal sites and consequently, protracting the lifespan of landfills and dumpsites in the metropolis. The study further entreats the local government to formulate MSW management regulations and policies with a bottom-up approach through broader consultations with actors to ensure that the provisions take into consideration the cultural and distinct local needs in the area.

Keywords: Actors, Municipal solid waste, Kumasi, Public participation, Purposive sampling.

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

1. INTRODUCTION

The principal goal of a solid waste management system includes mitigating the adverse impacts created by solid wastes on public health and the environment (Massoud *et al.*, 2019). One of the main challenges of the 21st century is the provision of good and affordable solid waste management services, which is regarded as one of the major responsibilities of a local government. Although, the local government is responsible for solid waste management in a city, it cannot execute that task by advocating or proposing measures solely, or entirely on their own. To this end, the best-functioning solid waste systems comprise all the stakeholders in planning, implementing and monitoring the variations (UN-HABITAT, 2010).

The three main groups of actors of a solid waste system as identified by the UN-HABITAT (2010) are the providers, including the local authority, who are actually involved in the service delivery; the users, who are the clients; and the external agents, comprising both

national and local governments, who organize the boundary conditions and cause change to occur (UN-HABITAT, 2010). This argument is reinforced by Massoud *et al.* (2019) when they opine that solid waste management is a multifaceted responsibility that involves a variety of actors and complex activities. Traditionally, these complex activities are entrusted to local authorities for execution and involve diverse stakeholders from both public and private sectors (Massoud *et al.*, 2019). Andrianisa *et al.* (2016) have noted the active involvement of both public and private sectors in MSW management in developing countries. Public sector agencies in solid waste management generally refer to municipalities or city corporations and function under certain inherent restrictions. Existing outside the pale of the formal public sector is a vibrant 'informal' private sector in almost all cities in developing countries performing a crucial function in solid waste management. Thus, all people not engaged by the public sector whose livelihood more or less

*Corresponding Author: Dominic Addo-Fordwuor

School of Public Administration, Huazhong University of Science and Technology, Wuhan 430074, P.R. China

depends on solid waste may be categorized as the private sector (Andrianisa *et al.*, 2016).

Sights of garbage heaps along the streets, in open drains and on vacant lots in urban areas are all indications of the failure on the part of the traditional public sector to respond to the increased demand for service. To overcome the resource and institutional constraints of the public sector, private sector participation has often been recommended. By forming partnership with the public sector, the private sector is expected to fill in the service delivery gaps with its dynamism and flexibility (Ahmed & Ali, 2006). In the framework of service delivery, a third tier-the people- is often disregarded, but this group can play key roles in service delivery. Among other things, citizens can support the private sector by paying for service charges and helping to improve accountability and quality of service of both public and private sector. Suffice it to say that this drastic change in people’s role, from passive service receivers to active service partners is not an endogenous spectacle. External assistance from facilitating agencies may allow the public and private sector to form partnership with people to ensure better service delivery (Ahmed & Ali 2006).

In many urban areas, solid waste management has over the years shifted from the absolute control of local government authorities to the increased participation of other actors either spontaneously in a free market milieu or influenced by local authorities, non-governmental organization (NGOs) or community-based organizations (CBOs) in a hybrid couple system (Fobil *et al.*, 2008). Joseph (2006) opines that one primary factor for achieving sustainable waste management is the involvement and participation of all the stakeholders such as the waste generators, waste processors, formal and informal agencies, non-governmental organizations and financing institutions. To this end, this study is aimed at evaluating actors’ involvement in municipal solid waste (MSW)

management by the local government, using the Kumasi metropolis as a case study.

2. RESEARCH METHODOLOGY

2.1 Description of the study area

Kumasi is the administrative capital of the Ashanti region and located in the forest zone of Ghana, about 270km north of the national capital, Accra. The Kumasi metropolis is bordered to the north by Afigya-Kwabre District and Kwabre East District, to the east by Ejisu-Juabeng Municipality and Bosomtwe District, to the west by Atwima Nwabiagya District and to the south by Atwima Kwanwoma District (Figure 1) (Ghana Statistical Service, 2014). The metropolis has witnessed a remarkable growth in relation to population and infrastructural expansion. For instance, between the 1984 and 2000 inter-censal years, it recorded a growth rate of 5.2% annually but recorded an unprecedented growth rate of 5.4% between the 2000 and 2010 inter-censal years, which far exceeds the regional and national rates of 2.7 and 2.5 respectively for the 2000 and 2010 inter-censal years.

The population of Kumasi according to the 2010 Population and Housing Census of Ghana was 1,730,249 which corresponded to 36.2% of the total population of the Ashanti region. The high growth rate of the city coupled with its high population makes it the fastest growing urban center and the second most populous city in the country after the national capital, Accra (Ghana Statistical Service, 2014). The city is undergoing rapid rate of urbanization and this rapid growth is likely to continue (Cobbinah & Amoako, 2014). This situation has taken a toll on the delivery of major urban services in the city such as the management of the large amounts of MSW generated (Miezah *et al.*, 2015). The Kumasi metropolis was selected as the case study area because it is completely urbanized (Ghana Statistical Service, 2014) and as asserted by Kwailane *et al.* (2016), MSW in most parts of the world including Ghana remains an urban problem.

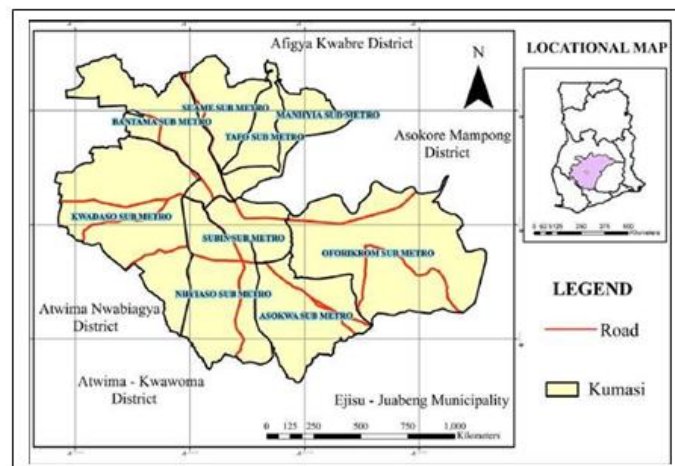


Fig-1: Map of the study area

2.2 Research design

The study adopted the qualitative case study approach. Based on the conceptual framework for municipal solid waste management in developing countries as propounded by Schübeler *et al.* (1996), this study evaluated the involvement of actors in municipal solid waste (MSW) management by the local government in the Kumasi metropolis. The framework considers the importance of evaluating the critical issues in MSW management, identifying needs and outlining possible assistance activities (Schübeler *et al.*, 1996). It recognizes three major principle dimensions: the scope of waste management activities, the actors and development partners in the field and addressing strategic objectives and issues (Figure 2) (Schübeler *et al.*, 1996).

To have an understanding of the MSW management system in the metropolis, the involvement of actors in MSW management by the local government was observed, and primary and secondary data evaluated. Site visits and observations, together with secondary data analysis were employed in determining the issues which limit the involvement of actors in MSW management. Also, one-on-one interviews and focus group discussions were conducted to further investigate and understand the perception of actors concerning their involvement in MSW management by the local government. Drawing on the work of Schübeler *et al.* (1996) and Joseph (2006), key actors were identified, including local government, public, politicians, NGOs and private sector.

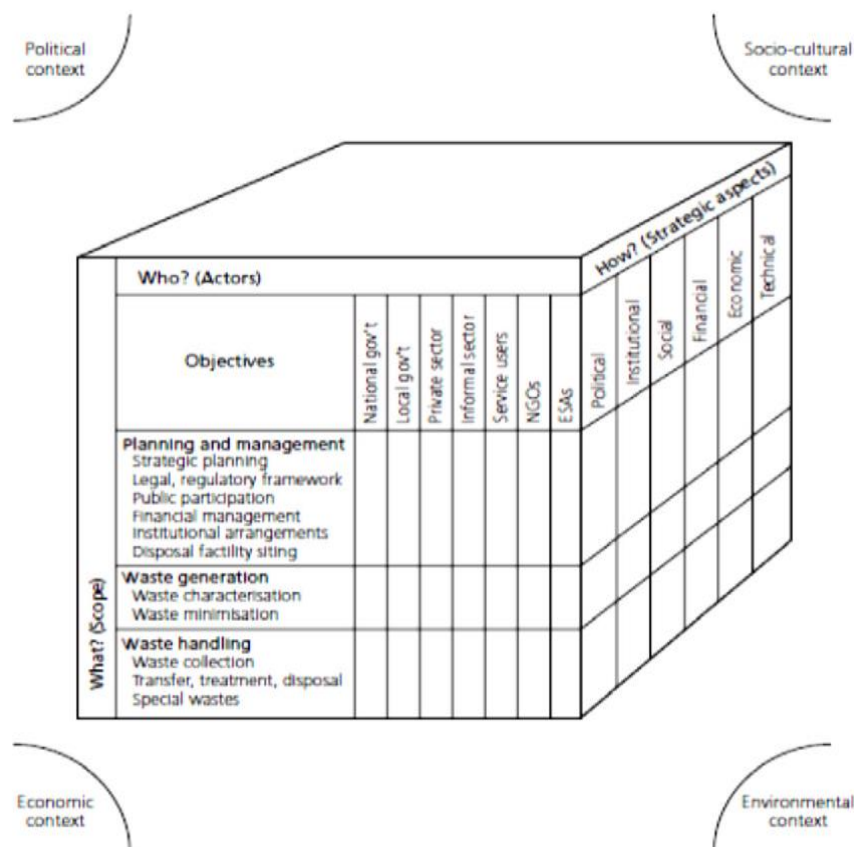


Fig-2: Conceptual framework of the study

Source: Schübeler *et al.* (1996)

2.3 DATA COLLECTION

Purposive sampling and snowball sampling were used to select 38 in-depth one-on-one interviewees and 22 participants for three focus groups. All participants voluntarily took part in the interviews. Data collection was carried out between 5th May and 20th June, 2021 in three selected communities within the Kumasi metropolis. The Kumasi metropolis has been classified into three residential communities as Low Class Residential Communities (LCRC), Middle Class Residential Communities (MCRC) and High Class Residential Communities (HCRC) (KMA, 2010 cited

by Owusu-Sekyere *et al.*, 2016). Based on this classification of residential communities in the metropolis, two communities were purposively selected from each class of residential community resulting in a total of six communities. The selected communities were as follows: Anwomaso and Old Tafo from the LCRC, Bantama and Asafo from the MCRC and Asokwa and Ahodwo from the HCRC.

Participants were selected to reflect a general cross-section of the Kumasi metropolis across a scope of various socio-economic groups, such as low, medium and high status (Table 1).

Employment and education were used as the defining characteristics of participants as they related to income (Australian Bureau of Statistics, 2011). Participants with high level of education and were salaried workers or owned businesses were grouped under high socioeconomic status (SES). Those with low education and doing menial jobs or not employed at all were grouped under low SES. Those with high education or influential positions but receive low income were grouped under middle income socioeconomic status.

The study mainly used the purposive sampling technique to identify participants for the structured and non-structured interviews (Babbie, 2013). Various strategies were used to select participants for the interview. First, the researchers organized community meetings to introduce the aim of the research and unit committee members were invited to participate in the meetings. Second, the researchers produced a register of establishments from the central business district (CBD) and selected a sample from small, medium and large enterprises. The researchers went to the selected business owners in person to deliver the research instruments. Third, the researchers sent emails to some known academics inviting them to take part in the research. The email invitation entreated the recipients to forward the invitation to other academics who were well-informed about MSW management (snowball sampling). Finally, the researchers contacted the waste management administrators and made appointments for interviews.

Purposive sampling was used to select participants for the focus group discussions. Operational staff of private waste companies, informal waste collectors and university students residing in off campus students' accommodation in the Kumasi metropolis volunteered to take part in the focus group discussions. Three focus groups were formed with a minimum of six and a maximum of eight participants each (Table 1). Major questions asked during the interviews and focus group discussions are shown in Tables 2 and 3 respectively. Each interview lasted for 20 to 30 minutes while each focus group discussion lasted for 40 to 60 minutes.

2.4 DATA ANALYSIS

The researchers read through the transcribed text many times and recorded comments that represented participants' views and observations. Next the researchers identified and recorded common ideas from the transcripts. The researchers ascribed themes to common elements that appeared. The researchers designed a structure for analyzing the data by identifying themes that formed a natural cluster related to one another. Quotes presented here are well expressed answers to questions and reflect the themes raised by several respondents.

3. RESULTS AND DISCUSSION

The results depicted here generally reflect respondents' views on their involvement in MSW management and their views on solutions to waste management issues in Kumasi. These are preceded by a summary of the site visits and field observations made by the researchers, which revealed the magnitude and impact of improperly managed MSW. Site visits to the Central Business District (CBD) and along some principal streets in the Kumasi metropolis established that indiscriminate dumping on the streets, in drains and in open spaces was very prevalent. The photographs depict wastes overflowing their containers (Figures 3 and 4). These uncovered wastes attract flies and rodents and also generate offensive odors.



Fig-3: Typical scene of road-side in Kumasi



Fig-4: Typical scene of a Pay-As-You-Dump site in Kumasi

The participants expressed varying levels of their involvement in MSW management. Also, majority of the respondents acknowledged that MSW poses a serious problem in the Kumasi metropolis. The results indicate that socioeconomic status (SES) has very little influence on respondents' involvement in MSW management and on their attitudes towards MSW management. All respondents irrespective of their SES were willing to be largely involved in MSW management and provided detailed response to how MSW management in the Kumasi metropolis could be improved.

When asked, “how actors’ involvement in MSW management by the local government in the Kumasi metropolis could be enhanced?” different actor groups expressed different views based on their various interests. However, when asked, “what could be done to improve MSW management in the Kumasi metropolis?”, the commonest response across all actor groups related to lower collection rates and inefficiencies in the collection system resulting in high waste accumulation. Responses from the semi-

structured interviews and focus group discussions are arranged based on the conceptual framework for municipal solid waste management in low-income countries in Figure 2. The rest of this section presents the recommendations by respondents as to how the involvement of actors and also the general MSW management system in the metropolis could be improved. These have been organized according to the conceptual framework for municipal solid waste management in low-income countries.

Table-1: In-depth interviews and focus group participants

List of participants	Number of participants		Socioeconomic status
	In-depth interview	Focus group	
Solid waste service providers			
Administrators of KMA-WMD	2		High
Officials of private waste companies	2		High
Operational staff of private waste companies		8	Low
Informal waste collectors		6	Low
Solid waste service users			
Unit committee	3		Medium
Households	8		Medium
Market women	6		Medium
Supermarket owners	4		High
University students residing in off campus student accommodation		8	Medium
Academics			
University lecturers of KNUST	3		High
University lecturers of KsTU	3		High
Senior high school teachers	2		High
Basic school teacher	1		High
Other bodies related to MSW management			
Official of EPA, Kumasi	1		High
Official of KMA Environmental Health Unit	1		High
Scavenger at Oti Landfill Site	1		Low
Official of Non-Governmental Organization	1		High
Total	38	22	

Table-2: Main questions for interviews

Number	Main questions for interviews
1	Does the local government involve you in the planning and management of the MSW service delivery in the metropolis? (a scale of 1–5 where 1 is strongly disagree and 5 is strongly agree)
2	In which aspect of the MSW management system are you involved?
3	How effective has the implementation of the national sanitation day policy been?
4	How transparent is the local government with the management of funds allocated for MSW in the metropolis?
5	Do you think the local government has been supportive in your efforts to raise awareness about effective MSW management in the metropolis?
6	Does the local government seek your views during the formulation of waste management regulations and policies?
7	Does the local government educate you on the relevance of source separation of MSW?
8	How effective has the local government or the private waste companies been with regard to waste collection?
9	What are the main challenges of MSW management in the metropolis?
10	How can the challenges identified be addressed?
11	What role can you play in the promotion of effective MSW management practices in the metropolis?

Table-3: Main questions for focus groups

Number	Main question for focus groups
1	Does the local government involve you in the planning and management of the MSW service delivery in the metropolis? (a scale of 1–5 where 1 is strongly disagree and 5 is strongly agree)
2	What factors hinder the involvement of actors in MSW management by the local government?
3	In your opinion, how can the involvement of actors in MSW management in the metropolis be fostered?
4	How effective has the implementation of the national sanitation day policy been in Kumasi?
5	What aspect of the MSW management system in the metropolis has been most effectively handled by the local government?
6	What are the main challenges of MSW management in the metropolis?
7	How can the challenges be addressed?

3.1. Planning and management

The planning and management aspect forms the bedrock of the MSW management system because without it, efficiency and effectiveness cannot be achieved in the MSW management process. It comprises strategic planning, legal and regulatory framework, public participation, financial management, institutional arrangements and disposal and facility siting. The involvement of actors in the planning and management of MSW management was the primary focus of participants.

3.1.1. Strategic planning

Without strategic planning, no effective decision concerning a proper waste service delivery could be arrived at. One member of a household cited the need for actors to be involved in the strategic planning by the local government in MSW management in the metropolis.

“The officials of the assembly do not seek our views on issues relating to the planning and management of MSW in the metropolis. They sit in their offices and impose their decisions on us. This does not augur well for proper MSW management in the metropolis”. Household 1 [In-depth interview].

3.1.2. Legal and regulatory framework

Participants further stated the need for the local government to factor the interest of all actors in the formulation of the legal and regulatory framework of MSW management in the metropolis to foster compliance. Local governments should desist from their usual top-down approach during policy formulation on issues relating to MSW management. They should always adopt the bottom-up approach by doing broader consultations with the actors of MSW management. This will go a long way to promote the effective management of MSW in the metropolis.

“The government promulgated a policy to the effect that the first Saturday of every month was to be a national sanitation day, a day set aside for communal cleaning throughout the country. At the earlier stages of the exercise, significant successes were achieved. However, as time went on the exercise was characterized by so much apathy due to failure of the government to broadly consult us (actors of MSW management) during the formulation and

implementation of that policy”. Market woman 1 [In-depth interview].

3.1.3. Public participation

An extensive public participation in MSW management can be engendered when there is an intensive awareness raising among various actors of MSW management by way of education. Through education, various actors become aware of their roles and responsibilities in the MSW management system. The need to promote an effective MSW management system and the ramifications of an improper solid waste management on the environment and health of people are well construed through education. The local government has not done much to court the public to participate in MSW management in the metropolis. Their effort is augmented by some Non-Governmental Organizations (NGOs) who seek to promote the effective management of MSW in the country. The work of the NGOs is sometimes encumbered by several bureaucracies and financial constraints.

“We (NGOs) go through a lot of challenges to get our organizations registered at the registrar general’s department. Expected support and cooperation from the local government is not forthcoming. Notwithstanding, we do the best we can to overcome these challenges to sensitize the public on the need to foster effective MSW management in the metropolis”. NGO 1 [In-depth interview].

3.1.4. Financial management

Transparency in revenue generated from MSW management by the local government, an effective public private partnership in waste collection and an extensive consultation with actors prior to disposal facility siting were also cited by participants. An informal waste collector suggested that the assembly should step up its efforts in educating them (informal waste collectors) about best and accepted practices of waste collection and transportation.

“The assembly seldom engages us (informal waste collectors) to educate us on the standard practices of waste collection and transportation. Because of this, some operators fail to cover their waste during transportation and litter the road as they move...What the assembly always does is to charge us a fee of GH¢15 per dump by a tricycle at the landfill site. We barely see the things they do (in relation to improving

solid waste management) with the fees and spot fines we pay to them". IWC 1 [Focus group discussion].

3.1.5. Institutional arrangements

To ensure an effective service delivery in solid waste management in the Kumasi metropolis, the assembly has entered a public private partnership (PPP) with some private waste management companies. These companies are contracted by the assembly to among other things collect solid wastes from their points of generation to the disposal sites. Currently, there are five private waste companies in Kumasi: Kumasi Waste Management Limited, Asadu Royal Waste, V-Max, Sakkem and Zoomlion Ghana Limited. The assembly has outsourced 80% of the waste management to these companies and has retained 20%. The work of the companies are not devoid of challenges such as delay in payments by the users and the assembly, poor road network and frequent breakdown of vehicles.

"The assembly has not been paying for our services on time. Our vehicles frequently break down due to the poor nature of roads within the communities but we are trying hard to provide our clients with effective waste collection services". PWC 1 [In-depth interview]

Some clients of the private waste companies expressed their dissatisfaction with their services. They decried the irregular collection of waste by the companies and the high fees they pay.

"...They (private waste companies) do not come for the waste periodically as has been agreed in the collection schedule even though we do not default the payment of our fees. This results in the waste overflowing the bins and this attracts so many flies and rodents. The monthly fee they charge (GH¢30) is very expensive. We were not consulted before the fee was decided on". Household 2 [In-depth interview].

3.1.6. Disposal facility siting

Solid waste generated in the metropolis is disposed of at two major landfill sites: the Oti landfill site at Dompase and the Kumasi Compost and Recycling Plant (KCARP) at Adagya. There are a number of transfer stations and Pay-As-You-Dump (PAYD) points dotted around the metropolis. The wastes collected from homes and institutions by the private waste companies are dumped at the landfill sites by means of the compactors for free. Informal waste collectors also collect wastes from homes and institutions by means of tricycles or bicycles and dump them either at nearby transfer stations for onward disposal at the landfill site or directly dump them at the landfill site at a fee of GH¢15 per dump. The PAYD points have skip containers in which users dump their wastes at a fee depending on the quantity of waste. The transfer stations also have skip containers in which wastes are dumped. When full the skip containers are carried by the private waste companies by means of their trucks and emptied at the landfill site at a fee of GH¢40 per dump.

Given the large quantities of wastes generated daily in the metropolis, the disposal facilities are woefully inadequate and this leads to the overstretching of the facilities. Currently, the Oti landfill site has been shut down for repairs resulting in so much pressure on the KCARP. Users of the PAYD facilities and transfer stations have condemned the frequent overflow of skip containers and the offensive odor at these sites.

"The garbage always overflows the containers at the sites due to the delay in conveying the containers to the landfill sites. The odor that emanates from the decomposition of the organic fraction of the waste is just unbearable. The authorities should do well to remedy the situation". Household 1 [In-depth interview].

3.2. Waste generation

Waste generation is a product of our daily life activities. Under this scope, the involvement of actors in waste characterization and waste minimization will be considered. An idea of waste characterization helps to separate the waste according to recyclables and compostables. This promotes the practice of source separation of waste. The assembly has not prioritized the practice of source separation of waste. The majority of participants do not separate their waste as they have very little knowledge about the exercise. However, a good number of them have a fair idea about waste minimization and the benefits that come with it.

"... I do not separate my waste before dumping it in the container. I do not think it is necessary to waste my time in doing that. If it was of any importance, the private waste company would have entreated us to do so. Besides, they would not have provided us with only one bin if they really wanted us to separate the waste. They only encourage us to minimize the quantity of waste we generate to prolong the lifespan of the landfill". University student 1 [Focus group discussion].

3.3. Waste handling

One significant component of the waste management scope is waste handling. According to Figure 2, the subcomponents of waste handling comprise waste collection, transfer, treatment and disposal and special wastes.

3.3.1. Waste collection

Waste collection is one of the primary steps of a solid waste management system and for that matter its effective planning and implementation can serve as the basis for a sound solid waste management system (Pichtel, 2005). In many developing countries, waste collection accounts for a greater part of the municipal solid waste management budget, therefore an efficient waste collection system significantly reduces the solid waste management budget. 17.2% of the total waste generated in Kumasi is collected (Ghana Statistical Service, 2014). To this end, a concerted effort by all actors is required to ensure an effective waste collection system in the metropolis. Inadequate and worn out

logistics have been major challenges facing the KMA-WMD and the private waste companies. Insufficient operational staff also limits the ability of the waste companies to provide an effective waste service delivery in the metropolis.

"The magnitude of the task (solid waste collection) requires the availability of adequate logistics and personnel... However, we do not have the financial wherewithal to procure sufficient logistics and recruit adequate personnel. The few logistics we have are obsolete and usually break down. These challenges hinder our work". PWC 1 [In-depth interview]

Indiscriminate disposal of solid waste along the streets, in open drains and on open spaces partly accounts for the low collection rate of solid waste in the metropolis. Some households cited the remoteness of the PAYD points from their houses as a major factor for resorting to indiscriminate dumping.

"...They (the local government) have sited the disposal site far away from our house. The distance from our house to the disposal facility is about 1 kilometer. The children who carry the waste from the house to the disposal facility in the morning spend about 15 minutes and as a consequent they are usually late for school. Because of this most of them resort to indiscriminate dumping. They (the local government) should consider the distance from our houses to the disposal facilities when siting them". Household 2 [In-depth interview].

3.3.2. Transfer, treatment and disposal

In some instances, waste is conveyed from the point of collection to the treatment or disposal site directly. In other instances, the waste is first transferred to a transfer station pending final disposal at a treatment plant or a disposal site (UN-HABITAT, 2010). At most of the disposal sites in the Kumasi metropolis, disposal of waste is effected without prior treatment. Even at the Oti Landfill Site where the wastes are to be treated before disposal as per the design of the facility, this is usually not done. This leads to emission of methane (CH₄) gas, a typical greenhouse gas into the atmosphere. The gas production is as a consequence of the decomposition of the putrescible organic fraction of the waste. Leachates produced from the decomposition has the tendency to contaminate underground water. Residents living in houses situated close to the Oti Landfill site usually complain about fly and rodent infestations and unpleasant odor from the decomposition of waste especially during the rainy seasons.

"Residents living close to the facility frequently lodge complaints at our unit about flies and rodents infestations especially during the rainy season. The facility is operating beyond its capacity and the managers are overwhelmed by the volumes of waste disposed of at the facility. The construction of new facilities in the metropolis is also very unlikely due to Not-In-My-Backyard (NIMBY) syndrome". EHU 1 [In-depth interview].

Currently, pretreatment of waste is done only at the KCARP, where the received waste is separated into recyclables and compostables. This is followed by the conversion of compostables into compost for farming and recyclables into useful products.

3.4. Strategic aspects of waste management in Kumasi

As shown in Figure 2, the political component is the first of the contexts of the conceptual framework. Many of the participants were of the view that the politics of the metropolis and the nation as a whole had significant impacts on the MSW service delivery in Kumasi. They opined that the local government (KMA) played politics with the management of MSW in the metropolis and this has occasioned the improper management of MSW. The participants stated that their active involvement in MSW management in the metropolis may restrain government from engaging in nepotism in the award of MSW management contract. They also entreated governments to decouple politics from MSW management. One official of a private waste company stated that:

"We (private waste companies) always bear the brunt of a change of government as it always brings in its wake abrogation of contracts and delay in the release of funds...A change of a mayor even comes with disruptions in our activities. This phenomenon must stop if we really want to make a significant headway in our quest to promote effective MSW management in the metropolis". PWC 2 [In-depth interview].

The politicization of the MSW service delivery has resulted in apathy among various actors of MSW management who feel disgruntled due to the assembly's failure to keep to the assurance of actively engaging them in MSW management.

Economic aspects consider sufficient resources to allow a sustainable MSW management system which stand the test of time due to the availability of sufficient funds. It applies the "Polluter Pays Principle (PPP)" for the waste generators; and offers technical and financial assistance for the participation of individuals and the community (Visvanathan & Trankler, 2004). The main source of funding for the KMA-WMD is the District Assemblies Common Fund (DACF). The release of funds from the central government has not been prompt. *"The payment of the DACF to the assemblies has been characterized by frequent delays. As at now, there are outstanding payments of more than three months to be effected. We need the funds to ensure an effective MSW management in the metropolis. The internally generated funds (IGFs) are woefully inadequate to perform such an enormous task".* WMD 1 [In-depth interview]

Environmental context takes into account the technical aspects with ample storage, transport, and disposal facilities to ensure the avoidance of adverse impacts on the environment through the creation of

nuisance and aesthetic problems in the short term and emission of landfill gases and release of leachate resulting in air, water and soil pollution in the long term (Visvanathan & Trankler, 2004).

Socio-cultural context encompasses raising people's awareness on waste reduction, reuse and recycle benefits likewise environmental health benefits of cleanliness and impacts resulting from lack of MSW management system. This calls for the active involvement of the government, private organizations, NGOs and other actors (Visvanathan & Trankler, 2004).

4.0. CONCLUSION AND RECOMMENDATIONS

This study has identified the key actors involved in MSW management, the challenges which hinder their involvement and the problems associated with solid waste service delivery in the metropolis. This was achieved by engaging the key actors in MSW management including the local government, waste service providers, waste service users, NGOs and academics. Pressure to improve the MSW management system in the metropolis by way of enhancing actors' involvement is increasing due to the ineffectiveness associated with the current system where policies are formulated by the top-down approach.

To achieve an effective MSW management system in the Kumasi metropolis, a conscious effort by the local government to involve all actors in the waste management system is required. To this end, the local government must design a MSW management system that is readily understood by all MSW service users and all other actors. Raising awareness of actors on the essence of promoting an effective MSW management by way of periodic education is crucial in this endeavor. The local government therefore has to provide information relating to proper solid waste management practices to all actors in a clear and succinct manner. It must also design a MSW management plan which takes into account the lifestyle of MSW users in the metropolis to ensure a system that engenders reuse and source separation of waste by the service users.

Since a high fraction of the waste generated in the metropolis is organic, source separation of waste will enable the availability of raw materials for composting. The practice also has the tendency of minimizing the quantity of waste to be disposed of at the landfill. This will protract the lifespan of landfills and dumpsites within the metropolis to obviate the need for siting more dumpsites and landfills in an era when urban lands are becoming increasingly scarce and NIMBYism is also on the rise. MSW management regulations and policies should be formulated with a bottom-up approach through broader consultations with key actors to ensure that the provisions take into consideration the cultural and distinct local needs in the area.

In summary, the involvement of actors in the design of a MSW management system by the local government is very significant in ensuring the success of the system. There should be a paradigm shift in the conventional MSW management system where the management of waste is considered to be the exclusive preserve of the local government. A concerted effort is indispensable in the development and implementation of an effective MSW management system in the Kumasi metropolis.

Acknowledgement: This paper was supported by the China Social Science Foundation, Project Number 13cgl117.

Conflict of interest: We declare that we have no conflict of interest.

REFERENCES

- Ahmed, S. A., & Ali, S. M. (2006). People as partners: Facilitating people's participation in public – private partnerships for solid waste management. *Habitat International*, 30, 781–796. <https://doi.org/10.1016/j.habitatint.2005.09.004>
- Andrianisa, H. A., Brou, Y. O. K., & Alphonse, S. (2016). Role and importance of informal collectors in the municipal waste pre-collection system in Abidjan, Cote d'Ivoire. *Habitat International*, 53, 265–273. <https://doi.org/10.1016/j.habitatint.2015.11.036>
- Australian Bureau of Statistics. (2011). *Measures of Socioeconomic Status*. Australian Bureau of Statistics. Sydney, Australia
- Babbie, E. (2013). *The Practice of Social Research* (13th ed.). Wadsworth Cengage Learning. Boston, MA, USA
- Cobbinah, P. B., & Amoako, C. (2014). Urban Sprawl and the Loss of Peri-Urban Land in Kumasi, Ghana. *International Journal of Humanities and Social Sciences*, 8(1), 313–322. http://www.researchgate.net/publication/232957200_Urban_Sprawl_and_the_Loss_of_Peri_Urban_Land_in_Kumasi_Ghana/file/d912f509af6f7c7ef5.pdf
- Fobil, J. N., Armah, N. A., Hogarh, J. N., & Carboo, D. (2008). The influence of institutions and organizations on urban waste collection systems: An analysis of waste collection system in Accra, Ghana (1985 – 2000). *Journal of Environmental Management*, 86, 262–271. <https://doi.org/10.1016/j.jenvman.2006.12.038>
- Ghana Statistical Service. (2014). *2010 Population & Housing Census, District Analytical Report, Kumasi Metropolitan*. GSS, Accra
- Joseph, K. (2006). Stakeholder participation for sustainable waste management. *Habitat International*, 30, 863–871. <https://doi.org/10.1016/j.habitatint.2005.09.009>
- Kwailane, T. T., Gwebu, T. D., & Hambira, W. L.

- (2016). Challenges of domestic solid waste management: A case study of Lobatse Botswana. *African Geographical Review*, 1–16. <https://doi.org/10.1080/19376812.2015.1099451>
- Massoud, M. A., Mokbel, M., Alawieh, S., & Yassin, N. (2019). Towards improved governance for sustainable solid waste management in Lebanon: Centralised vs decentralised approaches. *Waste Management & Research*, 37(7), 686–697. <https://doi.org/10.1177/0734242X19836705>
 - Miezah, K., Obiri-Danso, K., Kádár, Z., Fei-Baffoe, B., & Mensah, M. Y. (2015). Municipal solid waste characterization and quantification as a measure towards effective waste management in Ghana. *Waste Management*, 46, 15–27. <https://doi.org/10.1016/j.wasman.2015.09.009>
 - Owusu-Sekyere, E., Attakora-Amaniampong, E., & Aboagye, D. (2016). Wealth, Health, and Inequality : Households Exposure to Environmental Hazards. *Geography Journal*, 2016, 1–9.
 - Pichtel, J. (2005). *Waste Management Practices Municipal, Hazardous, and Industrial*. Taylor & Francis Group, Sound Parkway NW, USA.
 - Schübeler, P., Wehrle, K. & Christen, J. (1996). *Conceptual Framework for Municipal Solid Waste Management in Low-Income Countries*, SKAT, St. Gallen, Switzerland.
 - UN-HABITAT. (2010). *Solid Waste Management in the World's Cities. Water and Sanitation in the World's Cities 2010*. United Nations Human Settlements Programme. London, UK.
 - Visvanathan, C., & Trankler, J. (2004). *Municipal Solid Waste Management in Asia: A Comparative Analysis*. Asian Institute of Technology. Klong Luang, Pathumthani, Thailand.

List of abbreviations

Abbreviation	Meaning
CBD	Central Business District
CBOs	Community Based Organizations
CH ₄	Methane
DACF	District Assemblies Common Fund
EPA	Environmental Protection Agency
HCRC	High Class Residential Communities
IWC	Informal Waste Collectors
KCARP	Kumasi Compost and Recycling Plant
KMA	Kumasi Metropolitan Assembly
KMA-WMD	Kumasi Metropolitan Assembly Waste Management Department
KNUST	Kwame Nkrumah University of Science and Technology
KsTU	Kumasi Technical University
LCRC	Low Class Residential Communities
MCRC	Middle Class Residential Communities
MSW	Municipal Solid Waste
NGOs	Non-Governmental Organizations
PAYD	Pay-As-You-Dump
PPP	Polluter Pays Principle
PPP	Public Private Partnership
PWC	Private Waste Company
SES	Socioeconomic Status
WMD	Waste Management Department

Cite This Article: Dominic Addo-Fordwuor & Shuo Seah (2022). Actors' Involvement in Municipal Solid Waste Management by the Local Government: Lessons and Experiences from the Kumasi Metropolis, Ghana. *East African Scholars Multidiscip Bull*, 5(5), 103-112.