

The neglected governance challenges of solid waste management in Uganda: Insights from a newly created City of Mbarara

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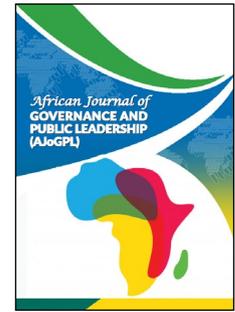
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Abstract

The challenges of rapid urbanization threaten governance of many urban centers especially in developing countries. However, to achieve these challenges, the gaps in governance of waste management need to be addressed. There is no comprehensive analysis examining the governance related challenges in solid waste management (SWM) even when a large body of research indicates that governance issues are highly significant in the effective delivery services. This paper addresses this question: What solid waste management governance challenges must be addressed to avoid the problems of the past? This study was carried out in the City of Mbarara. A semi-structured in-depth interview was chosen as the method for qualitative data collection. In-depth interviews were administered to city solid waste managers, managers of private sector companies in SWM, political leaders especially local councilors and opinion leaders. These respondents were purposely sampled. Findings reveal that the organization of solid waste management is poor exemplified by weak capacity, poor implementation of laws and regulations, poor record management, misappropriation of funds among others. There is therefore need to strengthen capacity (financial, institutional, technological and infrastructural) to drive environmentally solid waste management practices for sustainable solid waste management.

Key words: Refuse and refuse disposal, Municipal solid waste, Solid waste management

Introduction

The challenges generated by rapid urbanization in developing countries threaten the governance of urban centres (Satterthwaite 2017; Saghir, Jamar and Santoro, Jena 2018). One of the challenges faced by urban authorities is Solid Waste Management (SWM). In developing countries, solid waste management (SWM) problems are accelerating rapidly, and are posing significant challenges for local authorities. With growing problems associated with poor waste management practices, local governments are coming to recognize that solid waste management is more complex than originally thought. More effective environmental governance is required to reverse the effects of poor waste management planning (Yousif 2007)

An increasing volume of published and unpublished literature is available on governance. The European Commission (1995) defined governance as the sum of the many ways individuals and institutions, public and private, manage their common affairs.

Governance is about the management or mismanagement of socio-economic activities in the public, private and community sectors and the involvement or lack of involvement of civil society in the management of society as a whole (Onibokun & Kumuyi, 1999).

In the context of urban governance, good governance will lead to the institutionalization of appropriate policies, programs and strategies for urban management that may help or ameliorate the problems posed by rapid urbanization (Meyer & Auriacombe 2019; Onibokun & Kumuyi, 1999). Among the many challenges that stem from rapid urbanization is solid waste management. Solid waste management is a public service with impact on the environment, public health, and the appearance of a municipal area. Many developing cities in the third world are still struggling with solid waste collection and management and Ugandan cities are no exceptions.

Traditionally, SWM was handled by the public sector because it has the characteristics of a 'public good' (Seren, 2019). However, given the level of investment, the running cost of solid waste management, and the competing priorities (water, health, education, roads, etc.), the public sector alone could not deliver the solid waste services. The private sector is partnering with the public sector to provide the needed resources for the solid waste service delivery. But for this arrangement to have impact on total service coverage and environmental cleanliness, it depends on governance arrangements - the rules and enabling environment (policies, legal and regulation) created and maintained by the local and central governments to provide the needed incentives for more investment and improved service quality.

Good governance calls for improvements in administrative systems that deliver goods and services to citizens, to human resources that staff government bureaucracies, to the interface of officials and citizens in political and bureaucratic arenas. Through the process of governance, the essential link between the civil society and state is established, giving a shape to the way decisions are made for serving public interest (Basheka, 2019).

Although the body of literature and practical knowledge about waste management in Africa is large and growing, governance aspects are largely unexplored. Recent studies have made important contributions to identify the current drivers of solid waste management challenges in developing countries (Bundhoo 2018; Nzalalembe et al 2020). Some studies draw attention to challenges such as lack of resources, but often these factors are mentioned in passing and existing studies (for example Godfrey *et al* 2020) have not analyzed these challenges and their underlying dynamics comprehensively. To our knowledge, there is no comprehensive analysis systemically examining the governance related challenges in SWM even when a large body of research indicates that governance issues are highly significant in the effective delivery services (Gakyoki *et al.*, 2022; Helliwel *et al* 2018).

The central aim of this article is to contribute to the debate about the governance challenges for solid waste management. This paper aims to contribute to closing this knowledge gap by presenting a case study on the governance challenges of solid waste management in Uganda's emerging cities. This country has just created 15 new cities in all regions of the country. Against this background, this paper addresses the following research question: What solid waste management governance challenges must be addressed to avoid the problems of the past? To answer this question, this paper makes a conceptual and an empirical contribution in terms of how to fix the governance challenges for solid waste management in developing countries with similar conditions.

Methodology

This study was carried out in the City of Mbarara. The City of Mbarara is approximately 266 kilometres from Kampala City along the Kampala-Kabale highway and is located in the southwestern region of Uganda. The Municipality is the main commercial centre and houses the political and administrative headquarters of Mbarara District then and now the City of Mbarara. One of the factors responsible for Mbarara's steady growth has no doubt been the fact that it is situated at the Kampala-Kabale-Fort Portal cross roads, and that it is the nerve centre of most of the numerous feeder roads linking up Ankole's huge territory. The opening up of Rwanda and the Congo has tripled Mbarara's logistical importance, for now the town is the gateway to Kigali, Bujumbura, Tanzania and several towns in the eastern D.R. Congo. The Municipality's boundary encloses a total area of about 51.47 sq. kilometers, that is, 5,147 hectares.

A semi-structured in-depth interview was chosen as the method for qualitative data collection. In depth interviews were administered to city solid waste managers (10), managers of private sector companies in SWM (12), political leaders especially local councilors (3) and opinion leaders who are at the same time consumers of the solid waste service (13). These respondents were purposely sampled. We were guided by a set of predetermined questions that are, typically, open ended and clearly defined. The objective of the interview would be directed towards attaining greater insight regarding governance arrangements and challenges of SWM, through an in-depth exploration of the participant's opinions, perceptions, and expertise. Despite the interviewees being subject to a fixed set of questions, semi-structured interviewees are characterized as being dynamic, allowing the interviewer to adapt to the flow of the conversation. Flexibility in the wording and order of the questions allowed for the rearrangement, addition, or elimination of follow-up questions when probing the interviewee, all while ensuring that key points or questions are not omitted in the process. Interviews were conducted in either Runyankole or English, depending on the preference of the interviewee. Data had been collected via hand written notes. The information that the stakeholders provided was treated confidentially and names were not displayed in the report. Before carrying out the interview, consent was taken from the interviewee. Individual responses have not been linked to individual respondents.

In addition to in-depth interviews and observations, desk research was also carried out. For desk research, we used reports, policy documents, academic articles and newspaper articles to provide an overview of municipal solid waste management Uganda and specifically Mbarara Municipality.

Thematic analysis was employed to thoroughly examine and evaluate the transcripts comprehensively, following the main purpose of the study. The interviews were categorized and coded into topics/themes where transcripts had been sorted out according to the study questions. Data analysis was conducted by hand, using grids and matrices to summarize themes and organize findings. Furthermore, direct quotes from participants were used to support common themes.

Findings & Discussion

Setting

The organization of waste management in Mbarara City

Mbarara City is legally responsible for solid waste management.

Solid waste collection and disposal in Mbarara City follows formal and informal approaches. The formal approach is the sole responsibility of the city government also delegated to private sector companies in what we may call an 'informal public private partnership'. The gap left by the public sector's failure to manage solid waste in the municipality meant that the private sector filled the gap even without being permitted until it was recognized and allowed to operate.

With the introduction of the formal private sector most community containers have been removed except for a few poor and densely populated areas. The lack of capacity of the municipal government to deploy adequate numbers of vehicles and waste containers was responsible for encouraging the private sector to operate formally. Besides, containers are not protected from rain and sun, which makes the rubbish rot and smell, creating unsightly urban spots, and leading to the deterioration of neighbourhoods and a disturbance of human activities. The sites are also exposed to stray animals that scatter the waste while scavenging.

Current Status and capacity to handle solid waste

Mbarara generates an estimated 31.423 tons of garbage daily and the average per capita solid waste generation rate is 1.284-kg/per person/ per day with a high organic content and bulky density (Gumisiriza and Kugonza, 2020). Solid waste management is a responsibility of the council according to the SWM ordinance of 2005. This requirement needs Mbarara City to at least have on average 22- ten (10) tonnage Lorries disregarding the private sector contribution to be able to collect and transport garbage from the whole city to achieve 100% performance, on the assumption that each vehicle makes 3 trips per day. However, we noted that some of the divisions operated on an average of 5-five tonnage Lorries which was 30% of the fleet required to enable prompt waste collections and disposal in the city. This was due to poor maintenance and operation of the trucks that have led to many of the allocated trucks to be grounded. Besides, the vehicle fleet used in management of solid waste. The study also acknowledged that the department of solid waste was understaffed. On average according to the Acting Solid Waste Engineer, the division needed over 250 workers to efficiently collect, enforce, supervise and dispose off solid waste but only 64 staff was available by the time of the study. This limited capacity to manage solid waste in Mbarara City has resulted into many people using unconventional methods of disposal which include pits within the backyards where it is regularly burnt, collect them in polythene bags and dumping them in streams, road sides and water drainage channels which leads to blocking of water drainage channels and streams and subsequently causing flooding in the low lying areas during the rainy season unpleasant odours.

Governance arrangements for Collection and disposal of solid waste

Section IV (2) of the Mbarara Municipality Council (Solid Waste Management) Ordinance 2005 places the responsibility of collection of solid waste in the hands of Council in this case the division, either by its agents, servants or licensed collectors to ensure that solid waste is collected and conveyed to treatment installations (sites/centers) or approved disposal sites to the extent required to satisfy both public health and environmental conservation requirements. However, there are four (4) arrangements under which solid waste was collected in Mbarara some of which were illegal. First, the council in some areas which were accessible, the local community placed their solid waste in non gazetted places like the roadsides, convenient road reserves where the council trucks collected solid waste for final disposal at the land fill. Second, in areas where the council trucks could not access, there were private arrangements some known

to the municipality (Private collectors who are registered like Homeklin) collected solid waste at a fee and deposited at the landfill some times and other times to council collection points for final disposal. Third, another group of collectors were the illegal and non-licensed collectors most times young boys with wheelbarrows, bicycles and others using their heads who collect solid waste from households at a fee and deposit either illegally in the drainage channels, council collection points and sometimes non gazetted places. These groups also included mentally disturbed people who may not easily be brought to account. Forth and last is the self-loading strategy - employed by the division authorities in collection of garbage. By self-loading the local community occasionally are encouraged to load their garbage on the municipal trucks on designated days and the truck finally dump the solid waste to the final place of disposal.

Frequency of collection

The same ordinance under section IV (7) stipulates that the frequency of collection of solid waste shall be in accordance with the regulations of the collection agency but shall be regular enough (at least once a week) not to cause a public health nuisance. The study however found that prescribed frequency of collection of solid waste was only maintained in very few places (road sides) due to both logistical like trucks and fuel which were overwhelmed by the amount solid waste generated. The lack of consistence in some places has created permanent illegal dumpsites and accumulation of garbage which has become a public health concern. Respondents interviewed indicate that in that some places go up to 2 weeks without seeing a council truck or the private sector agents while in other places the council trucks have never been there at all due to poor road connection.

Collection of solid waste

Through interviews and review and analysis of documents and waste management records, it was established that the level of collection of solid waste generated within the city was still unsatisfactory. In most of these divisions solid waste collection is mainly in areas of high visibility (roads and Streets), business centres (such as markets, and abattoirs) and residential areas where people are willing to pay. The low collection levels were attributed to insufficient and old collection skips and garbage bins as well as shortage of functional garbage collection trucks. The collection and transportation trucks were also insufficient, old and unreliable, and would frequently break down causing interruptions in the collection. This was exacerbated by the irregular maintenance which sometimes results in grounding and in service interruptions.

Collection fees

The Council is also empowered to prescribe fees for the collection and final disposal of solid waste by the council under SWM ordinance of 2005. However, findings from the study show that the Council did not provide guidelines on the amount of fees to be collected for which quantity of solid waste generated. Respondents reported that the amount of fees charged was at the discretion of the private waste collectors depending on the amount and receipted in some cases. Generally according to interviews with clients of some private waste collectors, the licensed private collectors charged in the range of 1,000 shillings to 3,000 shillings per day which is quite exorbitant for the urban poor while the illegal collectors charged very low fees (between 200 shillings to 1.000 shillings) for collection.

Solid waste disposal

According to the SWM Ordinance of 2005, the responsible person at any dwelling unit (home), industrial or institutional establishment (premises) or ground within the corporate limits (center) of the city where solid waste accumulates shall ensure that solid waste is placed in a container prescribed and approved by the Council, depending upon the type of collection service provided. The holder of a permit shall dispose off all solid waste in accordance with the method approved by the council and at an approved site and approval must be obtained in advance (before) the commencement of the operations and before any change of method of disposal or site. All solid waste collected by the municipality is dumped at the gazetted landfill plus some of that is collected by the private collectors. However much of the solid waste collected by the illegal and unlicensed collectors and some poor informal households dump their garbage in ungazetted places like the roadsides, illegally constituted dumpsites and the drainage channels when it rains due to the costs involved in waste management. It was also reported that the place where they dump garbage is located about 7 kilometers from Mbarara town and for each truck that dumps solid waste is charged a fee of 10,000/= Ugandan shillings per trip. This cost in addition to the surging fuel costs, the private collectors are sometimes forced to dump in areas where the council can then collect the waste for final destination which contravenes the management arrangement. At household level, solid waste is collected and contained in ungazetted containers such as sacks, polythene bags and cut jerricans and dumped illegally most especially in informal settlements of Mbarara City. Parents are also reported to give their children sacks of garbage which they deposit at dumpsites and some times in the middle of the road. This is done mainly at night when the authorities are not watching.

Transportation of solid waste

It is an offence under the SWM ordinance of 2005 for any person to haul (transport) or cause to be hauled (transported) on or along any public street, right of way or alley (passage) in the city, any solid waste, unless that waste is in a vehicle or receptacle (container) so constructed or covered as to prevent the contents from falling, leaking or spilling and to prevent any obnoxious (unpleasant) odor escaping from waste. It is also an offence under the SWM Ordinance, 2005 to collect, transport, remove or dispose refuse for a fee or other consideration without a valid permit from the Council. It was observed that Kakoba division had a fleet of trucks designed to collect and transport solid waste in the study area. In total the division had six (6) box body trucks and five (5) tipper trucks to transport solid waste in the whole division. However, by the time of the study no trucks which are specifically designed for solid waste transportation were operational and none of the tippers though not appropriate in transportation of garbage was operational due to mechanical problems. By implication, out of the 17 trucks need to effectively manage solid waste in the division only one are available. None of the private collectors (registered or illegal) had prescribed transport mechanisms of transportation of solid waste where majority of them were using open trucks, bicycles and others carried solid waste on wheelbarrows. These transportation mechanisms contravene the ordinance on which solid waste management is governed in the area.

Community awareness about solid waste

According to the Solid Waste Management Strategy (SWMS) of 2006 Para.7, members of the public are supposed to be educated in matters of waste management such as; sorting/separation of waste according to their categories of organic and inorganic, efficient use of skips, waste recycling, home composting, waste minimization and adherence to waste management laws.

It was observed in some community places that a small effort towards sensitization and awareness of the local community about solid waste management was under taken in Mbarara. Among the common awareness creation methods were posters pinned in both local languages (Runyankore and English) instructing people to keep their environment clean. These posters were mainly produced in partnership with NGOs and other development partners. The respondents also reported that, several attempts had been made by the CSOs working in the area towards proper solid waste management approaches through community sensitization meetings, building of community structures, establishment of garbage recycling plants and garbage reuse mechanisms in the area. Section 39 of the ordinance also imposes a fine not exceeding two currency points or imprisonment not exceeding six months for a person who commits an offence under the ordinance. In an attempt to enforce the solid waste management byelaws, the division through the law enforcement arm is responsible for brings all individuals who contravenes the ordinance to book however due to man power limitations, majority of the offenders go unpunished. Cases in point are the landlord who set up dwelling places without solid waste management mechanisms and options. This has further aggravated the problem of solid waste in the area. Other attempts by the division to curb indiscriminate dumping of solid waste are erecting of warning notices (“No Dumping sign posts”) with a fine if the ordinance is contravened but these are subsequently abused since there is no body to enforce the notice.

Roles of the different actors in solid waste management in Mbarara

To understand issues surrounding solid waste management, it is important to know how it is organized in terms of who is supposed to do what.

NEMA is responsible for drafting and enforcing national laws, regulations and guidelines to guide the management of municipal solid waste. Examples include: The National Environment Act, The National Environment (solid waste Management) regulations, NEMA is also responsible for regular monitoring to ensure that municipalities implement municipal solid waste management activities in compliance with existing environment laws and regulations, and that their activities do not harm the environment. NEMA coordinates the planning and implementation of national solid waste management programmes, for example, the Uganda Municipal Composting Programme.

The ministry of Lands is responsible for ensuring that there is a national municipal solid waste management policy and strategy. The ministry is also responsible for ensuring that this policy and strategy are implemented, and that the municipal solid waste strategic plans are aligned to the national strategy and policy. In addition, the ministry coordinates implementation of some aspects of municipal solid waste management through programs such as the Uganda support to Municipal infrastructure improvement programme (USMID). The Attorney General reviews and certifies that byelaws, ordinances and any other regulations drafted by the municipalities are consistent with existing laws and regulations. Once this certification is obtained, the municipalities can proceed to enforce them.

Municipalities and cities derive their mandate to manage solid waste from the Local Government Act, Cap. 243 of the Laws of Uganda, which requires them to provide a number of services including sanitary services, removal and disposal of night soil, rubbish, carcasses of dead animals and all kinds of refuse and effluent. Municipalities undertake the following activities in relation to municipal solid waste management: Strategic and operational planning for municipal solid waste management activities; Managing the

processes of collection, transportation, treatment and disposal of solid waste and Developing byelaws, and ordinances to support the management of municipal solid waste. Once the drafts are developed they are reviewed and submitted to council for approval. After approval by council, these drafts are submitted to the Attorney General for review and confirmation that they do not conflict with any existing laws, regulations and guidelines. Once approved by the Attorney General, these laws and ordinances are widely disseminated to create awareness and to foster compliance.

There is also enforcing national laws as well as the local byelaws and ordinances on municipal solid waste management and generating and keeping up-to-date data and records about all process and transactions relating to Municipal solid waste management. Enforcement of these laws is done by the municipal enforcement officers. Enforcement entails coming up with enforcement work plans and ensuring that the planned enforcement activities are undertaken. Enforcement officers conduct periodic inspections within the municipality to ascertain if the provisions of the byelaws are being complied with. This is usually done for commercial buildings and places such as markets, hotels, where cases of non-compliance are noted, and the offenders are apprehended and penalized as obligated by the byelaws. Penalties for offenders include fines, arrests and sometimes prosecutions depending on the magnitude of the offense and what the legal framework provides.

The development of municipal solid waste plans and strategy is another function of municipal governments. Planning and budgeting are critical aspect in the management of municipal solid waste. Plans are both strategic (usually spanning 3-5 years) and operational covering a period of one year or less. Strategic planning begins with identification of municipal solid waste targets a municipality desires to achieve in a given time. Once this has been done, the municipality costs these activities. The activities identified and the estimated costs form the drafts which are then forwarded to the technical planning committee for review and finally to council for approval. These plans should be aligned to the national municipal solid waste strategy and policy. Annual planning on the other hand starts with obtaining annual Indicative Planning Figures (IPFs) from the municipal treasurer or finance department. With these, the heads of department who are responsible for municipal solid waste management, particularly the department of health, identifies activities on which these resources are allocated to come up with annual work plans and budgets. These are also presented to the technical planning committee and council for approval.

Municipal solid waste activities at the municipalities are managed by mainly three departments the Department of public health, the Department of engineering, and the Department of natural resources/environment. These departments closely work with the divisions of the municipalities.

The private sector includes solid waste collectors and service providers contracted to undertake some of the processes on behalf of the municipality. The municipal governments coordinate and manage all the other actors include the private actors. The private collectors collect and transport solid waste from mainly residential areas and commercial premises at a fee to the treatment points. There is another category of the private sector – the informal sector. Informal waste collectors operationally use simple tools like plastic containers, wooden boxes, and wheelbarrows among others for solid waste collection. Their involvement in the solid waste management sector has signaled the institution of a new form of waste management services alongside the old: substantively rational delivery. They are innovative and risk-taking because they have the ability to plan and manage waste collection for economic gains.

They are taking advantage of the failure of government and formal private sector based systems. As formal SWM companies fail to keep pace with growing demand for waste management services that are effective and efficient, a “niche market” has been created for the informal collectors. Contrary to the findings by the researchers, that the informal collectors operated in low income areas, this study has found out that the informal collectors serve all income categories. The informal collectors are however becoming more professional in their pursuit and therefore more acceptable in all neighborhoods which is similar to the findings of other studies for example (Oteng-Ababio, 2012).

Municipal governments also coordinate the public. The public is an actor in that it generates solid waste, and are the key beneficiaries of municipal solid waste services. The public is also expected to comply with municipal solid waste laws and regulations in addition to embracing better modern municipal solid waste management practices.

Governance Challenges in solid waste management in Mbarara Municipality

Poor record management

Good governance and service delivery can never be realized unless proper records management systems are put in place (Kenosi 2011). A poor record keeping culture is one of the many factors that accounts for poor governance, poor service delivery, under development and the general lack of accountability in solid waste management and governance. In Mbarara city, there is lack of an effective system of municipal solid waste management that can be able to capture records. While the city tries to collect and keep up-to-date data relating to solid waste volumes (for example volume generated, collected, treated composition of the solid waste etc., there are other issues. There are no human resources records (for example number of staff involved in municipal solid waste management). It is also very difficult to access financial data (for example costs, budgets, revenues) and also the quality assurance data (for example process monitoring data). The operations and maintenance data (for example equipment maintenance schedules), health and safety data (for example pollution levels, gases emitted, level of water and surface contamination etc.) among other forms of data is also very hard to come by. It was also observed that these records are not regularly updated by the records officers and they are not organized into a system where they can easily be managed and accessed.

No National Solid waste management Policy & Approved Byelaws

Mbarara Municipality had a solid waste management strategy. The only problem is that there is no solid waste management policy and therefore the strategy is not aligned with the national solid waste objectives and strategies which is a point of weakness. According to the report from the Auditor General, the process of formulating a national solid waste management policy commenced in 2012 but the policy is still in draft form pending the completion and approval of the regularity impact assessment. Without an approved policy a national solid waste management strategy cannot be developed.

In the same vein, Mbarara Municipality has a solid waste management byelaw that was enacted in 2005. It is a requirement under the Local Governments Act 1997 for urban councils to make byelaws in relation to their powers and functions that are not inconsistent with the constitution, any law made by parliament or ordinance of the district council or any byelaw passed by a higher council. The byelaws should be certified by the Attorney General that they are not inconsistent with the constitution or any other law

enacted by parliament before they are enforced. The Mbarara Municipality bye law and strategy however was not approved by the Attorney General and therefore may not support solid waste management activities since they are not enforceable. The implication is that the city uses the existing national law, which is too general to support the solid waste management function in the city.

There are also legal gaps to contend with: The Mbarara solid waste management ordinance lacks the powers to “bite” despite the existence of the law enforcement officials. For example, section 39 of the ordinance imposes a fine not exceeding two currency points or imprisonment not exceeding six months for a person who commits an offence under the ordinance but the process of enforcing the penalty is long which make many people dumping garbage to go unpunished. The ordinance also proposes a fee for solid waste to be borne by the generator of solid waste. However, it doesn't provide a mechanism of collecting these fees which have made fees collection unrealistic hence increasing volume of solid waste generated in the city as a result of the growing urban population, concentration of industries in the city, poor behavior and consumption habits of residents and inappropriate waste management practices due to limited awareness provided by the Ordinance.

Misappropriation of funds allocated for Solid Waste Management

With the involvement of the private sector in solid waste collection and transportation, the public sector rarely gets involved except in rare circumstances when there is a public outcry. This became more serious when Homeklin was informally contracted as a private company to collect and transport waste in the rich and poor neighborhoods ignoring the protests of sister private companies. It has not been clear where the funds allocated to the municipality is used for. Interviews especially from the private firms in SWM suspect the funds meant for SWM is swindled among the top officials at the expense of improving the general sanitation. Most of the stakeholders, municipalities, the official waste collection companies, and households acknowledge the need for better monitoring and regulation of SWM but cite challenges of misappropriation of public funds by top officials in government. This finding is in agreement with the findings of (Gumisiriza & Kugonza 2020).

Weak Enforcement of Laws and Regulations

In Uganda environmental policymaking remains largely a function of the central government, but implementation of policies and legislation is devolved to the Local Governments. The existing laws on waste management are not being effectively enforced, which may be attributed to inherent weaknesses of the laws themselves. The informal sector and the community therefore operate with little or no regulation at all. This is made worse by the fact that, there is no comprehensive national urban policy and the institutional framework to regulate and support urban development.

Limited funding and the scale of the challenges facing public health officers dealing with SWM hamper their ability to enforce cleanliness and punish dumping. Weak oversight of environmental protection laws enables solid waste dumping to go unpunished. In other words, the current system of enforcement is not effective in supporting solid waste management. The enforcement function is characterized by absence of work plans for enforcement activities, poor record keeping (evidenced by missing registers of offenders, missing registers of prosecutions, missing records of fines and penalties). In addition, the number of enforcement officers is insufficient in Mbarara. There is no enforcement officer specifically deployed for solid waste management.

The weakness in enforcement is attributed to non-prioritization of the activity through adequate planning and resource allocation. A weak system of enforcement negatively affects the effective administration of byelaws and other NEMA regulations and guidelines which are critical in supporting the solid waste management function.

The National Environment (Waste Management) Regulations, S.I. No 52/1999 Section 4(4) of the National Environment (waste management) regulation states that: A person who generates domestic waste shall sort the waste by separating hazardous waste from nonhazardous waste in accordance with the methods prescribed under sub-regulation. Section 5 of the same regulation empowers a generator of domestic waste with or without a license issued under these Regulations, dispose of non-hazardous waste in an environmentally sound manner in accordance with by-laws made by a competent local authority. Section 6 (6) provides for a person who, before the commencement of these Regulations was carrying on the business of transporting or storage of waste, shall apply to the Authority for a licence for the transportation of waste or a licence for the storage of waste as the case may be, within ninety days after the commencement of these Regulations. Section 7 (2) also states that a person granted a licence to transport waste shall ensure that: a) The collection and transportation of waste is conducted in manners that will not cause scattering of the waste; b) The vehicles, pipelines and equipment for the transportation of waste are in such a state as not to cause the scattering of, or the flowing out of the waste or the emitting of noxious smells from the waste; c) The vehicles for transportation and other means conveyance of waste follow the approved scheduled routes from the point of collection to the disposal site or plant Policy gaps: Enforcement of these regulations have been challenged with weak punitive measures for example anybody contravening the sections of this regulation is only liable, on conviction, to imprisonment for a term of not more than six months or to a fine of not less than three hundred and sixty thousand shillings or both which penalties don't improve or repair the state of the environment degraded.

Lack of Implementation of planned activities

Strategic planning forms the basis for implementation of strategies and activities planned for the achievement of the long term goals and objectives. While the strategy is there, a review of the implementation of activities planned reveal that key planned activities remained either partially or not implemented at all. Part of the problem is that the strategic plan is largely unrealistic as the cost of financing far exceeds the resources available and the municipality did not identify the sources of financing for these activities. The cost of financing the activities does not compare well with the resources accessible by municipality. Failure to implement planned activities negates the purpose of planning, and makes it difficult to transform and improve the municipal solid waste management function. For example, there is little community involvement and participation of key stakeholders in solid waste management mainly because the planned sensitizations in the municipality were not implemented.

Disjointed and overlapping mandates

Tasks can be spread across several government departments. For example, different bodies are responsible for the maintenance of vehicles for waste collection, the monitoring and enforcement of solid waste management laws and regulations and employment of waste collection staff. For example, in Mbarara, the Engineering department is responsible for the maintenance and repair of vehicles for waste collection but other aspects of SWM are under the public health department. This is therefore the challenge of disjointed and overlapping mandates that should be dealt with.

Informalism

The formal and informal sector co-exists in solid waste management and solid waste collection by ICs follow similar geographic pattern as the formal sector. While the informal sector serve clients from all residential categories, their services were more visible and relevant in the low-income communities to the extent that a good number of neighborhoods patronize their services. Through the in-depth interviews, issues such as affordability, reliability of service, and personal affiliations were among the reasons offered for their popularity. Again, the nature of access routes in the unplanned and semi-planned communities benefited informal collectors because they were able to navigate through the narrow and erosion-ridden roads to the door-step of their clients. Additionally, the popularity of informal collectors stemmed from their reliability and promptness. Again, it was observed that informal collectors operated in their immediate geographical and social space and that enhanced the frequency with which they serviced their client. These gave them competitive advantage and so were able to retain their customers than the formal service providers. This means that service beneficiaries had higher level of trust in the informal collectors.

Limited Government and waste management budgets

The city government is dependent on national government for finances for most services including for waste management services. National government often does not prioritize waste management services. So while waste management services have been decentralized, fiscal decentralization has generally not followed. Most Mbarara city dwellers live in informal housing, and poverty and inequality is high. This means the ability of local government to raise sufficient revenue for waste management services is limited. It is also clear from interviews with city officials with key informants that waste management is not regarded as a priority in the light of so many pressing needs such as access to electricity, water and housing, and therefore don't prioritize budget allocation for it. This finding is similar to the findings of (Godfrey et al 2020).

The local government Act empowers the councils to collect revenue for service provision but did not provide the different avenues on how to collect such taxes and revenues. Revenue sources presently constitute less than 10% of total local government funding. Worse still, local governments used to depend mainly on graduated personal tax but this tax was abolished in 2006 and was replaced by local service and hotel taxes, which local governments are yet to fully understand and appreciate due to challenges in its collection.

Too few workers amidst poor working conditions

There are too few workers employed to carry out the work that needs to be done. There are too few municipal workers, as well as too little equipment (both trucks and the fuel to run them). Waste collection is often less frequent than the prescribed minimum of at least once a week. The working conditions are also a deep concern. This is particularly acute for both informal and formal waste workers who must deal with dirty, contaminated and toxic material every day. This daily exposure to harmful substances that waste workers face – whether they are informally or formally employed; whether they collect household waste, or hazardous medical waste, or work on landfill sites – impacts on their rights to health, safe food and water, safe and healthy working conditions, and a healthy environment. It is thus vitally important that proper attention is given to improving the health and safety standards for all waste workers.

Infrastructural challenges

Collection and transportation operations from informal settlements constitute the largest infrastructural challenge in solid waste management. Many poor informal settlements are not easily reached by both the division and the private collectors due to the poor road network. Also the landlords have not been sensitized on the need to manage solid waste and have from time and again put up structures without solid waste management places due to limited land. This has therefore led to several unofficial dumping sites in and around the area mostly located in wetlands, abandoned building and the road sides.

Conclusions and Policy Implications

This study has revealed that one of the major issues preventing urban authorities to manage solid waste effectively and efficiently is the deficiencies in governance aspects. Since solid waste management is a sustainable development issue that cuts across socio-economic activities, it is imperative that it is considered a political priority. Good governance is crucial for creating an enabling environment for sustainable waste management. As such as there is need to strengthen capacity (financial, institutional, technological and infrastructural) to drive environmentally solid waste management.

A clear definition of jurisdiction and roles is essential. Appropriate distribution of responsibilities, authority and revenues between national and local governments must be determined so that waste management programs may succeed and be effective. There needs to be a shift in the role of government institutions from service provision to regulation. Also, contribution of informal waste collection workers may be significantly improved through appropriate organizational measures. It is a fact that formal systems in Uganda have not yielded the desired results in-keeping the city clean. This realization call for a more integrated approach, which is in sync with the philosophical grounding of the SDGs that recognizes the contribution of informality in all aspects of development. Such integration will not only empower the Informal Collectors, but will also take into account specific local conditions.

Utilizing a governance approach to solid waste planning in developing countries would entail the development and implementation of an action master plan and policies/by-laws with the participation of the community and key actors from different sectors and political parties.

Adequate public participation involves the stakeholders from the beginning and provides a creative forum for the public to discuss issues, identify key actors, generate possible solutions and alternatives, implement part of the selected solutions and participate in the monitoring and evaluation of solutions. Communities should be involved in making decisions concerning waste management strategies. There should be a method of communicating waste management system performance and proposed strategies with the community in order to get feedback and support from the community.

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