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Private Sector Capacity in the Management of Urban Solid Waste in Ghana – A Study of Zoomlion in the Wa Municipality

Patrick Aaniamenga Bowan

School of Engineering, Department of Civil Engineering, Wa Polytechnic, P. O. Box 553, Wa, Upper West Region, Ghana

Abstract. Urban waste management is drawing increasing attention, as citizens observe that too much garbage is lying uncollected in the streets, causing inconvenience and environmental pollution, and being a risk to public health. Although government authorities apply all the means at their disposal, the piles of wastes only seem to grow from day to day. Some people suggest that private sector participation is the only way to provide solid waste management services. The objective of this paper is to assess the capacity of Zoomlion to manage urban solid waste in the Wa Municipality. The techniques used in this study were survey questionnaires, key informants interviews and focus groups discussions. The study revealed that Zoomlion lacks both the expertise and the equipment that are necessary for effective urban solid waste management. The study thus recommend that Zoomlion should employ waste management experts such as planners and engineers; and procure waste management equipment such as tipper trucks, tractors, front end loaders and landfill compactors to ensure effective urban solid waste management in the Wa Municipality.

Keywords: Capacity, Solid waste, Waste management, Privatization, Urbanization, Zoomlion.

1. Introduction

Urban solid waste management in most cities in Ghana is at present delivered in an unsustainable manner. Due to uncontrolled urbanisation, large quantities of waste are generated daily, and this exerts much pressure on an over strained solid waste management system. Coupled with weak institutional capacity and lack of resources (both human and physical) the city authorities face difficulties in ensuring that all the waste generated in the city is collected for disposal. Home

collection of waste is limited to high and some middle income areas while the poor are left to contend with the problem on their own. This leads to indiscriminate disposal of waste in surface drains, canals and streams, creating unsanitary and unsightly environments in many parts of the city (Kwasi and Markku, 2003).

A rising quality of life and high rates of resource consumption patterns have had an unintended and negative impact on the urban environment - generation of wastes far beyond the handling capacities of urban governments and agencies. Cities are now grappling with the problems of high volumes of waste, the costs involved, the disposal technologies and methodologies, and the impact of wastes on the local and global environment (CityNet, 1998).

Urban waste management is drawing increasing attention, as citizens observe that too much garbage is lying uncollected in the streets, causing inconvenience and environmental pollution, and being a risk to public health. Although government authorities apply all the means at their disposal, the piles of wastes only seem to grow from day to day. In an era of shrinking municipal budgets and a restriction of the scope of municipal government jurisdiction, the problem is likely to intensify unless alternate approaches can be developed.

Waste management is one of the major challenges confronting most rapidly growing economies and urban cities the world over. This is especially so in developing countries such as Ghana. The main problems associated with waste management in these countries include: poor waste management systems, inadequate sites and facilities for waste management operations, inadequate equipment, and operational funds to support waste management. These problems have become more complex in recent years as the volume and type of wastes being generated are increasing at alarming rates. This situation is a direct result of the high population growth and improved standards of living of our people (EPA of Ghana, 2002).

A typical solid waste management system in a developing country displays an array of problems, including low collection coverage and irregular collection services,

crude open dumping and burning without air and water pollution control, the breeding of flies and vermin, and the handling and control of informal waste picking or scavenging activities. These public health, environmental and management problems are caused by various factors which constrain the development of effective solid waste management systems. They can be categorized into technical, financial, institutional, economic, and social constraints. This makes some people to suggest that private sector participation is the only way to provide solid waste management services. The objective of this paper is to assess the capacity of Zoomlion to manage urban solid waste in the Wa Municipality.

The rest of the paper is organized as follows: Section 2 is the literature review. Following is the methodology in section 3. The results and discussion is presented in section 4. Lastly section 5 is the conclusion of the study.

2. Literature Review

Solid waste management refers to the following steps in waste management: the discarding of used materials, collection, transfer, recovery (including recycling), and disposal of municipal solid wastes. Municipal solid wastes are defined to include: refuse from households, non-hazardous solid (not sludge or semisolid) wastes from industrial and commercial establishments, refuse from institutions (including non-pathogenic waste from hospitals), market waste, yard waste, and street sweepings (Cointreau-Levine, 1994).

Solid waste management is often regarded as the most local of all public utilities. Since the first steps were taken to decentralise this service in developing countries, responsibility for it is increasingly falling to municipalities, as it has been the case in Europe for decades. Frequently subject to financial, material and work force constraints, municipalities try to manage just the most urgent needs, such as removing waste from cities to keep them clean. Many focus their efforts on developing basic cleaning services – street sweeping, waste collection, gutter maintenance and running landfills – with mixed results and high costs. In some cities in sub-Saharan

Africa, operating costs can account for 30 to 50% of a municipality's total annual budget. Yet this approach, based on collecting and storing waste in open landfills, falls short of managing municipal solid waste on a long-term basis (Dukhan, A. et al, 2012).

`Privatization' is defined as the process of reducing government activity or ownership within a given service or industry (Cointreau-Levine, 1994). Increasingly, the private formal sector is seen as a key participant in the full range of urban waste management activities, including collection, transportation, treatment, processing, separate collection, recycling, composting, and disposal of waste.

In the United States, nearly 12,000 firms participate in the collection, transport, treatment and final disposal of solid wastes; small firms and a few large companies are the operators of approximately 80 percent of domestic, commercial, and industrial urban services (Sanchez, 2004).

There are cases in which the private sector has succeeded in providing a good solid waste management service in cities where the public sector had previously failed, but it is more common to find that, where the public sector (local government) has failed, private enterprise also fails to deliver the required service (Coad, 2005).

According to Cointreau-Levine and Coad (1998), there are three important roles for the private sector in waste management. First, where existing public service delivery is either too costly or inadequate, private sector participation offers a means of enhancing efficiency and lowering costs through the introduction of commercial principles and greater attention to customer satisfaction. Second, in situations where local public funds for investment are in chronically short supply, the private sector may be able to mobilize needed investment funds. Third, the private sector is well situated to draw on local and international experience in the

waste management field and introduce proven and cost effective technologies along with management expertise.

Field studies conducted by the World Bank and others tend to substantiate these claims that the private delivery of municipal waste services can be successful in terms of greater efficiency, coverage and quality of service. Keys to successful private sector involvement in municipal waste management include creating contestable markets, establishing an appropriate regulatory framework and operations standards for contractors, and strengthening local government capacity to negotiate contracts and monitor performance. In the simplest terms, the focus must be on competition, transparency, and accountability.

Since the 1980s there has been a trend towards decentralisation and privatisation of the waste management operations in many cities in the South. This trend is in line with the resurgence of market-oriented prescriptions globally (Beall, 1997 in Hofny-Collins A.H. 2006), and has been implemented to fit with Structural Adjustment Programmes and the often associated Economic Recovery Programmes adopted by many governments. More recently (during the 1990s and presently) civic/community engagement and stakeholder participation have been added as themes to the debate on waste management. According Hofny-Collins, evidence is mounting that a decentralised integrated approach, integrating the efforts of the private sector, scavengers and local communities, holds promise of making a considerable contribution towards urban solid waste management.

According to Van de Klundert and Lardinois (1995), private and community sector participation in waste management is not, in itself, an a priori goal of solid waste policy. It is rather a means to achieve the general improvement of waste management systems operating or being planned in developing countries. Private sector participation in waste management systems should occur when it can

contribute to making those systems more responsive, more efficient, more economical, more equitable, or more environmentally responsible.

3. Materials and Methods

This paper is based on a field study conducted in Wa Municipality, Upper West Region, Ghana. The purpose of the field study was to explore what is happening on site regarding the capacity of Zoomlion to manage solid waste in the Wa Municipality. The techniques used in the field were survey questionnaires. One hundred and eighty (180) questionnaires were administered; 120 for household respondents (20 respondents each for six residential areas selected based on their income levels), 30 respondents for business/shop owners in and around the central business district; and 30 market traders respondents. Key informants and focus groups in the study area were also involved in this study through interviews but not with use of questionnaires.

4. Results and Discussion

4.1 Operation methods of Zoomlion in Wa Municipality

In the Wa Municipality, Zoomlion collects wastes and transfers to the disposal site owned by the Wa Municipality. They receive payments from the residents for their door to door collection service, and the Municipal Assembly pays for other services such as cleaning the public places, sweeping of the streets etc. The study realized that the door to door service of Zoomlion is served only in the high income areas while the middle and low income areas depend on communal containers and other improper methods of waste disposal.

4.2 Waste Disposal methods in the Wa Municipality

4.2.1Household respondents' solid waste disposal methods

The inhabitants of the municipality have resorted to different methods of solid waste disposal. Figure 1 below illustrates the solid waste disposal methods of the household respondents of the study.

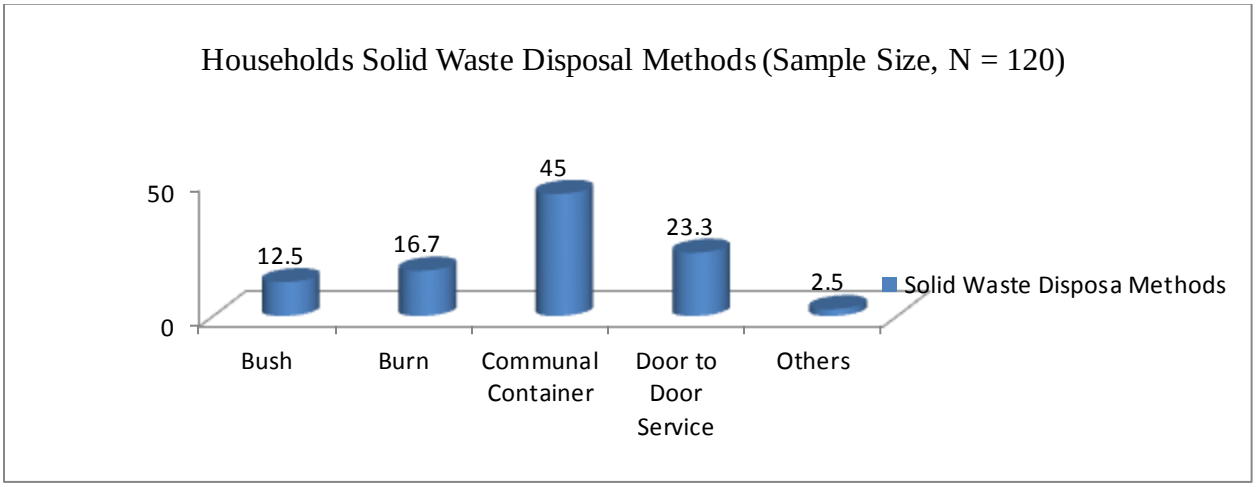

Figure 1: Solid waste disposal methods by household respondents

As shown in figure 1 above, majority of the household respondents use the communal system of waste collection (45%) as a means of waste disposal, 23.3% of the household respondents are covered by Zoomlion's door to door collection service and remaining percentages of 16.7%, 12.5% and 2.5% have resorted to burning, throwing of waste into the bush and other improper waste disposal methods respectively, which pollute the environment and have detrimental effect on humans and animal welfare. The total percent of 31.7 of household respondents resorting to inappropriate methods of solid waste disposal is an indication that waste managers in the municipality have failed to educate the public on proper waste disposal methods.

4.2.2 Business/Shop Owners solid waste disposal methods

Figure 2 below shows the various modes of solid waste disposal methods practiced by business/shop owners in and around the central business district.

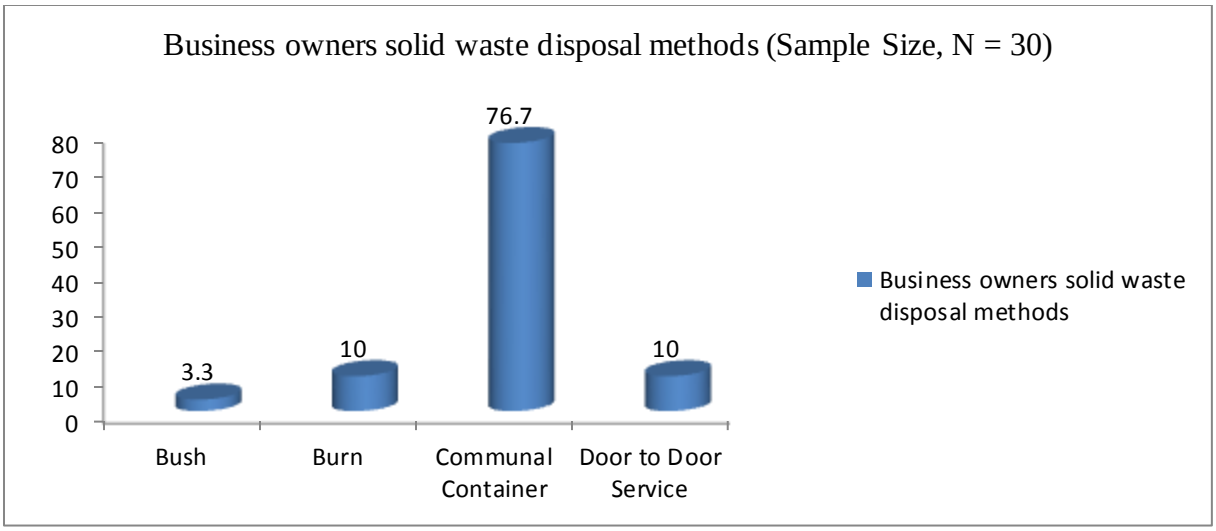

Figure 2: Solid waste disposal methods practiced by business/shop owners

Many business/shop owners (76.7%) depend on the communal collection system of solid waste. However, during the researcher's field work it was realized that most of the businesses in and around the central business district were accessible to collection vehicles and as such could be covered by the door to door service.

4.2.3 Market Traders Solid Waste Disposal methods

The bar graph below (figure 3) indicates the ways that market traders dispose their solid waste.

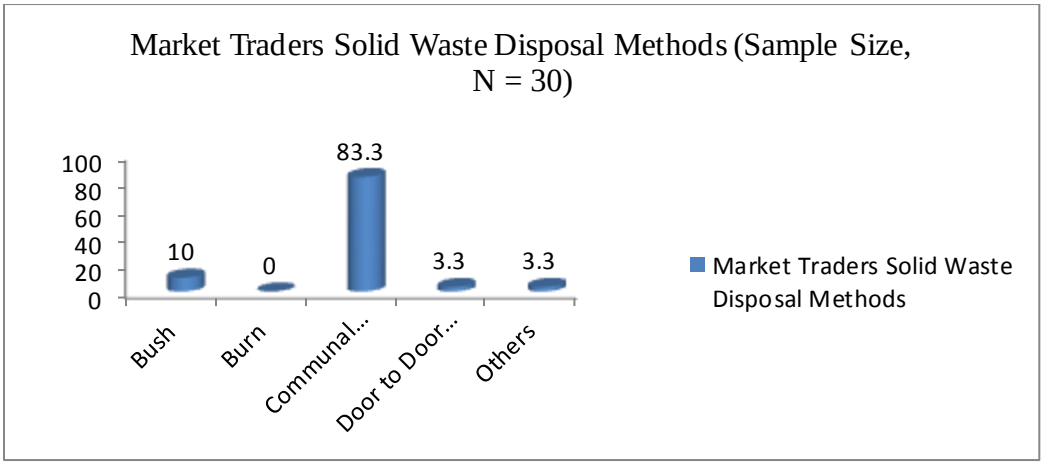

Figure 3: Market traders' solid waste disposal methods

Majority of the market traders (83.3%) depend on the communal collection method of waste. This can be attributed to their long stay in the market and the availability of the communal containers in the market.

4.3 Capacity of Zoomlion to Manage Solid Waste in the Wa Municipality

4.3.1 Human Capacity

The availability of human resource is the key factor for sustainability and further development of the private sector, since people are needed to work in this sector. Most of the activities of solid waste collection service are manual, so people are needed to work. Studies have shown that there are large variations in the number of workers required to provide solid waste collection service in a given city. The table 1 below indicates the staff strength of Zoomlion

Table 1: Staff strength of Zoomlion

TITLE/RANK	NUMBER	SKILLS	QUALIFICATION
Municipal Operation Supervisor	1	Skilled	Graduate
Municipal Operation Monitor	1	Partially skilled	Post-secondary
Municipal Tricycle Supervisor	1	Partially skilled	Post-secondary
Spraying Gang Leader	1	Partially skilled	None
Team Leaders	35	Unskilled	None
Riders and container side attendants	348	Unskilled	None

Source: field survey, September 2010

From table 1 above, it is clear that Zoomlion lacks the personnel with the requisite skill to manage urban solid waste in the Wa Municipality. In an interview with the Assistant Chief Municipal Environmental Health Officer of the municipal assembly on the staff capacity of Zoomlion, he bemoaned the lack of skilled personnel of Zoomlion in the municipality. This is because waste engineers and planners are needed to ensure proper planning of any waste management system.

4.3.2 Equipment Capacity

The collection vehicles and equipment are other important factors to consider for the sustainability of a private organization in waste management. Sufficient vehicles and equipment will ensure the provision of good service in a specific area. The table 2 below shows the fleet of equipment of Zoomlion in the Wa municipality.

Table 2: Fleet of Equipment disposition of Zoomlion

S/N	TYPE OF EQUIPMENT	NUMBER OPERATIONAL	NUMBER BROKEN DOWN	NUMBER IDLE
1	Compactor tracks	1		1
2	Skip and Roll-on/off tracks	2		3
3	Bull Dozer	1		1
4	Tricycles	51	4	
5	Communal Containers	50		
6	Brooms	250		
7	Pickers	320		
8	Foot/Hand forks	20		
9	Shovels	110		
10	Wheel barrows	52		
11	Rakes	258		
12	Cutlasses	21		

Source: field survey, September 2010

The main problems associated with waste management in Ghana include: poor waste management systems, inadequate sites and facilities for waste management operations, inadequate equipment, and operational funds to support waste management. These problems have become more complex in recent years as the volume and type of wastes being generated are increasing at alarming rates. From table 2 above, it is clear that Zoomlion is far ahead of the Municipal assembly in terms of waste management equipment (the municipal assembly has only one roll on/off track and one collection track); however, Zoomlion still lacks some key

equipment that are necessary for effective waste management. Equipment such as tipper trucks, tractors, front end loaders and landfill compactors that are used to perform specific functions in the waste management stream are lacking in Zoomlion's plant pool; however, the introduction of tricycles in waste collection enables Zoomlion to gain access into inaccessible locations in the municipality.

4.3.3 Cost Recovery

Cost recovery is part of the overall design of each private organization. The sustainability and further development of the private sector depends mainly on the recovery of the running costs, and in the case of Zoomlion this comes mainly from the service recipients. According to Choguill (1996), a key element of any sustainability criteria is that the cost of the service must be recovered from the users. Solid waste collection charges from the households are now commonly practiced in many developing countries. Payment for the services of Zoomlion to the Wa Municipality apart from the door to door service and other private organizations or individuals contracting Zoomlion, is made at source; the money is deducted from the Wa Municipal Assembly's share of the Common Fund. The Municipal Assembly does not determine or evaluate the operations of Zoomlion before payment is made. According to the Municipal Environmental Unit, if the amount that is paid to Zoomlion were given to the unit, they would have improved the solid waste management situation in the municipality better than what Zoomlion is currently doing because 'the Environment unit has the technical personnel but lack the financial resources and equipment to manage solid waste whiles Zoomlion has the financial resources and equipment but lack the technical personnel'. However, the Environmental Unit of the Municipal Assembly acknowledges that there has been an improvement in solid waste management with the presence of Zoomlion in the Wa municipality.

5. Conclusion

When it comes to managing waste, the private sector can contribute technical skills, organizational capabilities and flexibility. Yet private sector involvement alone will not solve all the problems. The public sector, while far from abrogating its responsibilities, has to strengthen regulations and step up project management. It is also vital to improve the financing of waste management services and to ensure a better-structured regulatory framework. The study revealed that Zoomlion lacks the expertise to manage solid waste and does not also have adequate equipment to effectively manage solid waste in the Wa Municipality. The researcher thus recommends that Zoomlion should employ waste management experts such as planners and engineers to boost their staff technical capacity and procure waste management equipment such as tipper trucks, tractors, front end loaders and landfill compactors to boost Zoomlion's capacity to effectively manage solid waste in the Wa Municipality.

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