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ANALYSIS OF SOCIAL ACCOUNTABILITY APPROACH IN SOLID WASTE MANAGEMENT IN NAIROBI COUNTY, KENYA

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ABSTRACT

The purpose of this study was to analyze social accountability in solid waste management in Nairobi County, Kenya. The study was guided by the stakeholder theory and social capital theory. The study was carried out on a sample size of 100 participants. The statistical package for social sciences (SPSS) was used to analyze the data. The coded data was tabulated and presented for statistical analysis by calculating the percentages, means, and variance on each variable. The analyzed data was then presented in tables and charts to give a clear picture of the findings. Regression analysis was conducted to determine the relationship between social accountability and solid waste management. Data from unstructured questions and interview responses was also done by analyzing the content through thematic analysis. The findings revealed that there is a positive relationship between social accountability and sustainable solid waste management. Various ways of promoting social accountability in solid waste management were suggested in the study including improving access to information, having a vibrant civil society, enhancing freedom of expression and association, civic education, state, and public consultation mechanisms, and establishing an independent citizen oversight committees or watchdog groups to improve public oversight. The study recommended that Nairobi City County should come up with the policy of ensuring that social accountability is adhered to in all initiative meant to enhance solid waste management. The Nairobi city-county should put more resources in activities meant to enhance social accountability and create an environment that would encourage members of the public to participate in all public hearing events and monitor government actions and hold the government responsible for its actions and omissions.

Keywords: *Social Accountability; Solid Waste Management*

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INTRODUCTION

Solid waste management is a great challenge in the rapidly urbanizing world (Mohsin & Chinyama, 2016). This is attributed to increased industrialization and urbanization, which affects the environment and public health in urban areas more so in developing nations (Laner, Crest, Scharff, Morris & Barlaz, 2012). However, these problems are experienced globally. In South Asia, solid waste collection is inefficient in the main urban centers (Chithra, Anilkumar & Naseer, 2016). Similarly, solid waste management in Pakistan is quite inadequate except in a few big cities where between 51% and 69% solid waste generated is collected. For example, solid waste collection coverage in Lahore is only about 68%. According to Masood, Barlow & Wilson (2014) recycling systems in Pakistan are very rare and little quantity of waste has been recycled mainly by the informal sector. For instance, in Lahore, only 27% of the solid waste is recycled and it's done by the informal sector. In Africa, Urban solid waste management is also a growing problem in most cities due to rapid population growth and the limited and deteriorating capacity of the municipal authorities to collect and safely dispose of solid waste (Shaful & Mansoor, 2003). For many years the sole responsibility of waste management had been left to respective local urban authorities which have the low capacity in terms of financial, operational, institutional structures as well as inappropriate technologies and poor management skills which affect the availability of sustainability of solid waste management services.

In Kenya, the growing population has made solid waste management a problem to the Nairobi city-county. Nairobi is the country's largest city with a population of 3,138,369 people according to the last official population which was taken in 2009 (UNCHS, 2001). The number is; however, estimated to have grown to 3.5 million people producing an estimated 2,475 tons of solid waste each day (UNEP, 2012). The increase in a solid waste generation has not been accompanied by an equivalent increase in the capacity of urban authorities to deal with this problem. Proper management of waste has thus become one of the most pressing and challenging environmental problems in Nairobi (JICA, 2010). With about 50% of the urban population not accessing the solid waste management services (Otieno, 2010), there is a need for an urgent solution going by the large population that is affected by the negative effects of this problem to ensure there is sustainability in solid waste management.

Sustainability in solid waste management means the use of a solid waste management system that is capable to maintain itself over time without reducing the resources required. The system must also be appropriate to the local conditions in which it operates (Lardinois, 1996). Sustainability of a solid waste system can be measured by its ability to meet the technical, social, economic, financial, institutional and environmental perspective of the area where it is applied this is so because the viability of a system varies from one area to the other.

Social accountability is a process of constructive and continuous engagement between citizens and government to check the conduct and performance of public officials, politicians, and service providers as they use public resources to deliver services, improve community welfare, and protect people's rights.

Statement of the Problem

The management of solid waste is considered a crucial public service and has a significant impact on the health of the members of the public as well as the general outlook of towns and cities (Pires, Martinho & Chang, 2011; Coad, 2011; Chithra, Anilkumar & Naseer, 2016). However, the way solid waste is generated, collected and disposed of is highly inefficient in developing nations, which affects the quality of the environment and become health hazard despite huge resources being used every year in solid waste management (Anjum, 2013; Ezebilo & Animasaun, 2011; Ogunyanwo & Soyingbe, 2014).

The major problems that hinder effective and efficient solid waste management are insufficient funds, weak institutional framework, lack of technical expertise, and less priority to solid waste management systems (Lee, Yeung, Xiong & Chung, 2016). Nairobi is notorious for dysfunctional waste management systems, yet it produces about 2,400 tons of waste on a daily basis. About 93% of these waste are reusable, but only 5% is recycled and composted. A study by JICA (2010) found that a mere 33% of the waste generated is collected for disposal at Nairobi's single official dumpsite in Dandora. The rest is dumped on the illegal dump sites across the county. The management of these dumpsites is poor leading to solid waste polluting the air, soils, and water.

Governments the world over have introduced a variety of conventional mechanisms aimed at improving the quality of service provided to its citizens. These conventional mechanisms are also known as horizontal accountability mechanisms that include checks and balances offered by government and investigative commissions, auditing and financial accounting, administrative mechanisms such as public sector code of conduct, rules, and procedures; these are essential mechanisms for ensuring transparency and accountability in the administration and management of public offices (UNDP, 1998; Malerna et al, 2004). However, despite these efforts, the institutionalization of the conventional mechanisms in public administration has yielded modest results (World Bank, 2006). Social accountability approach (SAA) has emerged as an important weapon in the fight for better governance and service delivery.

Although there have been numerous researches on ways of improving solid waste management in Kenya, empirical studies carried out on the concept of social accountability has been very few. Additionally, conclusions drawn from widely available data does not uniformly apply in developed as in the less developed countries (Michael and Popov, 2011). This study sought; therefore, to fill the gap in the knowledge of the concept of Social accountability in solid waste management. The general objective of the study was to analyze social accountability in solid waste management in Nairobi County, Kenya. The study examined the relationship between social accountability and solid waste management in Nairobi City County.

LITERATURE REVIEW

Theoretical review

The relevant theories reviewed for this study were the stakeholder theory and social capital theory**.** Stakeholder theory suggests that the purpose of a business is to create as much value as possible for stakeholders. The theory was coined by Freeman 1984 who argued that managers are not just answerable to shareholders but they need to consider "any group or individual who can affect or is affected by the achievement of the firm's objectives". The theory has over time been modified by different scholars who seem not to have one agreeable definition of the theory.

Stakeholder theory cuts across a wide array of disciplines such as healthcare, law and public policy among others this is so because in all disciplines there are stakeholders and in each context, it is used to describe different aspects. In a different field, however, the theory is seen to have a unifying hypothesis which is based on justice, fairness and responsibility to others. The theory is seen as a vehicle that connects ethics and strategy (Philips, 2003). It seeks to serve the interest of a broad group of stakeholders thus creating more value over time. This theory is relevant to this study. Stakeholders in solid waste management play an important role in designing, implementing and promotion of the SWM systems. These stakeholders are either affected positively or negatively by the SWM decision thus the need to involve them in the process through the concept of social accountability.

The proponent of the social capital theory is Coleman in 1990. He opined that social capital is the social relationships which come into existence when individuals attempt to make the best use of their individual resource. The social capital theory is the concept that predicts that higher associational activities inside a community are able to foster a sense of civic engagement where cooperation, reciprocity and mutual trust are developed and used in order to solve collective action and asymmetric information problems (Lollo 2012). This theory is relevant to the study since it advocates for cooperation among stakeholders. Social capital focuses on informal social relationships conducive to developing cooperation among economic actors this is the same emphasize that social accountability places its focus on. The two concepts are aimed at ensuring that the relationships created are used to achieve greater productivity; hence, improved service provision to the citizens. Social capital which can be equated with community cohesiveness is a critical determinant of such collective action. The cohesiveness of the community is in turn, a function of factors such sense of belonging, diversity, reciprocity, feelings of trust and safety, values and norms among others as illustrated in the social capital structure below. The community aspect is vitally important because waste collection involves positive externalities that lead to limited incentives for individual action.

Empirical review

The relationship between social accountability and solid waste management

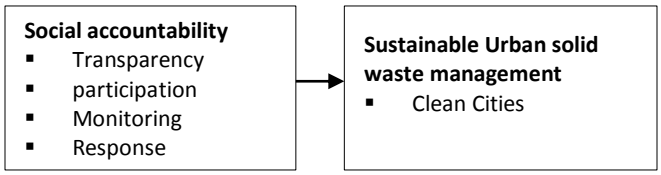
Graziano, Federico, Fabrizio & Davide (2014) analyzed theoretically and empirically how social accountability affects solid waste collection and disposal. The study results revealed that there is a positive impact of social accountability in large waste collection service if it is managed by limited liability companies. World Bank (2013) reviewed social accountability in housing and utility service in Belarus. The results show that citizen awareness and participation in the separated waste collection are integral to the success of solid waste management. Therefore, the members of the public should play a major role in operations solid waste and preparation of its recycling.

Eng & Hort (2015) researched "Social accountability in service delivery in Cambodia" The focus of the research was investigating how social accountability initiatives have worked in Cambodia and the extent to which they SA have delivered its promises. One of the initiatives was urban clean water and solid waste services. The findings indicated that more active and expansive citizen engagement, participation and oversight in the public decision-making process have been achieved resulting in more democratic and accountable governance and yielding better results in the end. Therefore, social accountability positively influences service delivery in solid waste management in Cambodia. On his part, Lorenzoni (2014) noted that the lack of cooperation from the municipal slowed and made the municipal works well. The lack of cooperation by the authority make the citizen feel that their efforts do not earn many changes as far as service delivery is concerned due to political interference; hence, social accountability failed to generate pressure upon the authorities to compel it to act differently in service delivery.

UN Habitat (2012) carried out an assessment of solid waste management within urban settings in Burundi, Rwanda, and Tanzania. The results indicated that Rwanda had good attributes in SWM compared to the rest, the assessed towns in Rwanda are very clean and free from solid waste. Rwanda's government accords very high priority to SWM and the political support, in turn, makes solid waste management conducive in the country. Rwanda unlike many other developing countries has municipal by-laws prohibiting dumping of household waste outside individuals' private property and encourages social accountability. The result is urban solid waste management improvement since its introduction

(REMA, 2010). This is evident that social accountability influence solid waste management, especially where there is political goodwill and commitment by all stakeholders. A recent systematic review by Molina et al. (2016) finds that local monitoring through the concept of social accountability can improve service delivery.

Conceptual Framework



Independent Variables **Dependent Variable**

Figure 1: Conceptual framework

Source: Author (2019)

METHODOLOGY

The study adopted an explanatory research design, which according to Firebaugh (2008), is conducted to discover and report the relationships between various aspects of the phenomenon under study. The study targeted a population of 187,020 including Chiefs, Nairobi City County Workers, Residents Umoja I, Umoja II, Kariobangi South and Mowlem wards that makeup Embakasi West constituency, religious leaders, and members of civil society. However, a sample of 100 participants was used in the study, but 89 filled and returned the questionnaires. The study used purposive sampling and stratified random sampling. Both questionnaires and structured interview guide were used to collect data. Descriptive and analytic statistics were used to analyse the data with the aid of the Statistical Package for Social Sciences and Excel to present the findings in tables and charts. Regression analysis was also conducted to establish the relationship between social accountability and solid waste management. The regression equation was as follow

$Y= \beta 0 + \beta_1 X_1 + \varepsilon$ whereby; **Y** = Solid waste management; β_0 = Constant; β_1 = Coefficients of determination; X_1 = social accountability; and ε = Error term.

RESULTS

Descriptive Statistics

The Study analysed collected data for the relationship between social accountability and solid waste management in Nairobi County. The findings were presented in Table 1.

Table 1: Descriptive analysis for the relationship between social accountability and SWM

Statement	Vet great extent	Great Extent	Moderate Extent	Low Extent	No Extent	Mean	Standard Deviation
To what extent has social accountability has improved solid waste management in Nairobi City County?	66.7	33.7	0	0	0	1.3371	0.47539
To what extent has the Nairobi County used social media channels and new technologies to improve transparency on a matter relating to solid waste management	3.4	0	11.2	36.0	49.4	4.2809	0.91687
To what extent has the banning of use, manufacture, and importation of polythene bags in Kenya affected the state of solid waste management in Nairobi County?	44.9	44.9	10.2	0	0	4.3483	0.65888
Aggregate Score						**3.3221**	**0.68371**

Source: Field data, 2019

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The findings of the descriptive statistics show that the aggregate means score 3.3221 and aggregate standard deviation of 0.68371. The majority of the respondents, in fact, all of them noted that social accountability has improved solid waste management in Nairobi City County to a great extent as shown by 66.7 % who indicated very great extent and 33.7% who indicated great extent. The variation of responses was low as indicated by a low standard variation of 0.47539 However, the results show that Nairobi County has not used social media channels and new technologies to improve transparency on a matter relating to solid waste management as expected. This is shown by the 49.4 % of the respondents who indicated that the county has done this to no extent, 36% to the low extent and 11.2% to a moderate extent. The variation of the responses was varied as indicated by the high standard of deviation of 0.91687. The findings revealed that the banning of use, manufacture, and importation of polythene bags in Kenya affected the state of solid waste management in Nairobi County as indicated by 44.9% of the respondents who indicated very great extent and 44.9% who indicated great extent. Only 10.2% indicated moderate extent. This is demonstrated by a slightly higher standard of deviation of 0.65888. The participant noted that the banning of plastic bags, which contributed more to the solid waste in Nairobi has reduced such wastes which have made it easier to manage the waste. However, some were quick to note that even the non-woven bags are contributing to solid waste but the rate of their disposal is low since they can be reused more compared to plastic bags.

Inferential Statistics

Multiple regression analysis was carried out to determine the relationship between social accountability and sustainable solid waste management. The results are presented in Table 2.

Table 2: Results of regression analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.007	1	.007	.003	.959[b]
	Residual	222.937	87	2.562		
	Total	222.944	88			

a. Dependent Variable: Sustainable Solid waste management

b. Predictors: (Constant), Social Accountability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.60[a]	.36	.31	1.60078

a. Predictors: (Constant), social accountability

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.118	1.854		9.773	.000
	SA	.006	.121	.006	.051	.959

a. Dependent Variable: Sustainable Solid waste management

Source: Field Data (2019)

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The regression model that was estimated through the results of regression analysis in Table 2 was presented below;

Solid waste management= 18.118+ 0.006 social Accountability

The results of the model summary indicated that the coefficient of determination was 0.36 meaning that social accountability is responsible for 36% of the variation in the sustainability of solid waste management. This implied that other factors that were not studied in this study were responsible for 64% of the variation in the sustainability of solid waste management. The regression analysis, as indicated by the equation above, when social accountability is held constant at zero, the sustainability of solid waste management would be at a level of 18.118. This clearly implied that there are other factors that lead to sustainability of solid waste management besides social accountability.

The study sought to determine the relationship between social accountability and solid waste management in Nairobi County. The results of regression analysis demonstrated that social accountability is significant at β=0.006; t = 0.051; p = 0.049. This implied that at 95% confidence level, social accountability has a positive effect on sustainable solid waste management in Nairobi City County. The regression analysis equation also implied that a unit increase in social accountability leads to 0.006 sustainable solid waste management. Further, it implied that there is a positive relationship between social accountability and sustainable solid waste management. The findings were in support of previous studies by Graziano et al., (2014) and Eng, & Hort (2015) that indicated that social accountability positively influences solid waste management.

CONCLUSION AND RECCOMMENDATION

The study sought to establish the relationship between social accountability and solid waste management. The findings revealed that there exists a positive relationship between social accountability and solid waste management. Regression analysis established that social accountability is responsible for 36% of the variation in the sustainability of solid waste management. Therefore, it was prudent to conclude that social accountability is an important approach to enhance sustainability in solid waste management.

The study recommended that the Nairobi city-county should put more resources in activities meant to enhance social accountability such as public participation so as to improve solid waste management. Besides, it was recommended that Nairobi City County should do all within its power to create an environment that would encourage members of the public to participate in all public hearing events and monitor government actions and hold the government responsible for its actions and omissions.

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