

Government policies: Enabler or inhibitor of service delivery in solid waste collection and disposal?

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Abstract - Despite the many economists and politicians advocating for liberalization of the market, market forces have failed in many fronts. There is need for intervention to correct these failures and ensure stability in the market. Governments have come up with policies to safeguard the interest of all citizens from manipulations of the market. These policies ensures that the public receives goods and services from the private sector, and also get value for money. In solid waste collection in various cities, the policies have been used to level playing ground for various firms involved as well as safeguarding the interest of the residents. This study sought to establish whether government policies affects service delivery by solid waste collecting firms in Nairobi City County (NCC) under PPP arrangement in Kenya. The study used a census method, where fifty seven private companies involved in solid waste collection in NCC, were given questionnaires to answer. The main respondents were company's managers and supervisors since they were well equipped with policies, strategies and general operations of these companies. This ensured a reliable source of data. Reference [14] observed that government policies were among the key factors affecting the operations of PPPs in different sectors of the economy. Therefore, this study aimed to establish whether government policies does affect service delivery by solid waste collecting firms under PPP arrangement in NCC. Government policies in this study was determined by three key indicators: Dumping in Dandora dump site, registration procedures and zoning. The results indicate that government policies had an R2 result of .217 or 21.7%, which implies that Government policies can explain up to a total of 21.7% of the total variability in the dependent variable, service delivery by solid waste collecting firms under PPP arrangement in NCC. The results confirmed the observation by Reference [14], that a government policies is a key determinant in operation of PPPs. The results also showed that government policies has a statistically significant positive influence on service delivery by solid waste collecting firms under PPP arrangement in NCC (p-value = .000). This is less than the level of significance of 0.05. Therefore, any change in the government policies would result in would result in .515 times changes in service delivery by solid waste collecting firms under PPP arrangement in NCC.

keywords - Zoning, Service delivery, Registration of firms, Dumping

I. Introduction

According to Section 42 of the Constitution of Kenya, everyone is entitled to clean and healthy environment. This includes the right to use resources in a manner that it will also benefit the current and forthcoming generations. Section 69 (2) confers the duty of environmental conservation to everyone alongside government agencies, thus ensuring ecological sustainability [2]

Like many other countries, Kenya is keen in increasing its industrial pace which is occurring in major towns. The increase in industrial development has led to rural urban migration with perception of rural population that they will meet their needs if they move to towns. The increase in urban population has resulted to increase in waste generation. Reference [2] attributes the increase in waste in urban areas as being caused by rising standards of living, rapid development and increase urban population. Reference [11] adds to [2] view that beside population increase, changing in consumption patterns due to increased incomes have occasioned an increase in solid waste generated in urban areas.

To address the SWM problems, Kenyan government have enacted policies and created institutions at various levels of governance as way to secure clean environment as dictated by constitution of Kenya 2010. There are over seventy seven statutes at the country level enacted to deal with environmental concern. There is concern that legislation related to Solid Waste Management (SWM) are fragmented in laws coming inform of clauses that deals with regulation of SWM for instance Public Health Act of 2012 and Local Government Act of 2012 [15] and [8]. Reference [15], is of the view that such fragmentations have led to enforcement being carried out by different agencies often leading to duplication of responsibilities and hence missing regulatory provisions needed when developing an effective SWM systems.

In 1999 a milestone in SWM was achieved through enactment of Environmental Management Coordination Act (EMCA). The act was created as framework law on environmental management. These laws didn't supersede the previous laws but reinforced them in order to better manage the ailing environment in Kenya. Several legislation and guidelines have been developed through provisions of EMCA to govern environmental management especially related to SWM.

National Environmental Management Authority (NEMA) is such organization created through provisions of EMCA. It is mandated to streamline environmental issues in Kenya although each county has an environmental department that deals with environmental concern. NEMA developed a SWM strategy in 2014 that was aimed creating a common platform in order to systematically deal with waste management. The strategy introduces new approach intended at improvement of SWM in Kenya through job and wealth creation which will ultimately reduce pollution in the environment [10].

Another initiative directed towards reduction of solid waste was developed by NCC of the integrated SWM plan (2010-2020). This plan envisions creation of safe, secure and sustainable SWM system fit for Nairobi as a first class world city. The plan aims at improving public health for Nairobi residents through protection of ecology and maximization of resource recovery through engagement of all stakeholders [9].

II. LITERATURE REVIEW

A. Dumping in Dandora site

According to reference [7], most developing nations lack sanitary landfills and their dumpsites are far posing a challenge to garbage transporters in terms of transportation costs often leading to dumping in illegal sites.

In Nairobi, Dandora dumpsite is located 15km from the Central Business District. Though this distance may seem short, it is characterized by poor roads, lack of space to dispose the waste as it is full and is controlled by cartels. The outlawed Mungiki sect is one of the cartels in the dumping site. They are involved with extortionist practices through intimidation and violence [17]. This had led to many firms who want to dispose there fear and as a result dumping in illegal places. This is done to avoid the wrath of cartels and breakdown of their vehicles due to poor road network.

Beside the requirement to dump solid waste in Dandora dump site which is already full, it has been pointed out to be the cause of environmental and public health hazard. Reference [3] recommended relocation of the site to Ruai some 25KM away as this would reduce environmental and public health problems experienced by city residents.

B. Registration of garbage collectors

Government regulations play a big role in the business environment, and have an impact on the returns that the investor is likely to get from his investment. As a result, government regulations influence investor behavior. Many countries have government regulations in place, but they end up creating reforms so as to reduce some of the negative effects caused by these regulations particularly in areas that affect the economy of the country.

Many investors avoid investing when they face too many obstacles. Government regulations have been identified as one of the factors that create obstacles for investors [1]. Whereas government regulations are formed with the view of promoting safe products, and protecting consumers, many investors look at the regulations as factors that lower their returns on investment. Licensing is a government regulation that is aimed at ensuring that the investor or business complies with some set rules that enforce the quality and safety of product, consumer protection against harmful products, and fair competition. Therefore, licenses are permits given out by the government to the investors or businesses so as to allow them to carry out trade, participate in certain activities and to use or own items.

The results from World Bank in 2004 on investment climate in Kenya indicated that business environment is characterized with poor governance, unstable financial institutions, poor infrastructure, poor service delivery and regulatory and bureaucratic regimes. This makes difficult for businesses to survive and compete with their neighbours [20].

According to reference [19] there are about 1325 license requirements in Kenya. Some of these licenses are unnecessarily expensive to acquire and increase registration time. This makes Kenya to perform poorly compared to its neighbours in terms of doing business.

These challenges of registration are also familiar in solid waste collection business in Nairobi City County. Reference [17] opined that experience from different businesses seeking licenses to operate solid collection businesses in Nairobi, getting into the waste management business in the city is practically impossible because one faces a number of hurdles right. The city authority provides a long list of bidders, which includes a fleet of trucks specifically designed to collect and transport garbage, have professional staff with branded uniforms and trained in waste collection and disposal. The process of certification in each stage is lengthy and bureaucratic. This is choreographed to create environment for soliciting bribes.

C. Zoning

Zoning is a tool used by the urban planners to control land use. In Nairobi the county has used zoning as a way to manage solid waste. This is done by allocating some areas (zones) to specific private garbage collectors as their collection zones. The solid waste collectors are responsible for collection of waste in their zones at a fee charged to the residents. According to reference [5], zoning for solid waste collectors have a number of benefits including; it reduces distances as firms now concentrate in particular regions and hence low transport cost, it binds the residents to a particular garbage collector due to agreement signed and hence demanding accountability to the residents on the side of the firm. It also reduces competition to a concentrated areas such as city center hence increasing solid waste collection coverage to Nairobi residents. Reference [4] opined that zoning will encourage new entrants into the sector thus enhancing competition this is because of entry of small garbage collecting firms who would not have survived the onslaught of big firms.

Zoning as an allocation of firms is done based on each firm's capacity and size of each zone. The size is determined by population density of a particular locality which mostly is wards in the county. Nairobi City County (NCC) ensures a level playing ground and also play as a monitor in garbage collection exercise. With streamlining zoning, garbage collection fees and contractual arrangement, predatory pricing is weeded out since firms used to such strategy to compete out small firms will be on check [5]. This will create an incentive to entrance of small firms in the industry ensuring garbage collection even in low income areas that are rarely covered by municipal services [12].

To conclude, reference [18] noted that if legislation and governance are put in place, setting of monitoring department in ward level in the county and developing reliable infrastructure, it is then possible to eliminate illegal dumping [15] and [8].

III. Methodology

The study used descriptive research design. This method was used to establish whether the independent variable capacity of private companies affects the dependent service delivery by solid waste collecting firms under Public Private Partnership (PPP) arrangement in NCC. The study was done in Nairobi City County.

The target population was all solid waste collecting companies under PPP arrangement in NCC. The researcher used a census study because the population was only 57, thus making it easy to collect data from every unit of the population. Questionnaires were used to collect data from the supervisors and managers of solid waste collectors. The instruments were validated by researchers from Jomo Kenyatta university of Agriculture and Technology (JKUAT) and pilot tested for reliability using cronbach alpha reliability test where they attained a score of .848 which is above the acceptable threshold. The primary data collected was processed by first editing it to detect possible errors; the questions and variables were coded using the Statistical Package for Social Sciences (SPSS). Data analysis was done using the SPSS program and tables and figures were presented using the APA format. Regression analysis was used to establish the relationship between independent variable government policies and dependent variable service delivery by solid waste collecting firms under PPP arrangement in NCC. i.e. $Y = a + b1X1$

IV. Results and Discussions

An analysis of the descriptive statistics on the independent variable (Government policies) was carried out. Findings from the study were expressed as percentages and are summarized in

Table 1. The results indicated that requirement to dump in Dandora dumpsite have negative effects on the firms standing at over 81.5% while 8.8% couldn't confirm or deny there was an effect. Dandora dumpsite is controlled by cartels who demand money for firms which bring their solid waste there [17]. Registration procedures seem to attract the highest percentage in terms of negative perception with 88.9%. This view is supported by reference [17] who noted that for one to be registered, city authority provides a long list to bidders, which includes a number of trucks specifically designed to collect and transport solid waste, have professional staff with branded uniforms and trained in solid waste collection and disposal [17]. Institutional requirement is also a handle as noted above. 70.2% of the respondents view it in a negative light as a hindrance in registration process. Zoning is viewed positively by most respondents standing at 70.1%. This view supports reference [5] who opined that zoning waste collection would reduce competition in small concentrated areas and allows new, initially small but growing, solid waste collectors to more productively participate in Nairobi's waste collection sector and greater waste management.

Table 1: Descriptive Statistics for Government policies on solid waste collection in NCC

Government policy	1	2	3	4	5
Dumping at Dandora dumping site	-	9.7%	8.8%	49.4%	32.1%
Registration procedures	-	11.1%	-	69.1%	19.8%
Institution requirements (such as qualification of workers, equipment requirement)	-	29.8%	-	70.2%	-
Adhering to Zoning	10.5%	59.6%	9.8%	20.1%	-

Where 1: very positive effects, 2: positive effects, 3: neutral, 4: negative effects 5: very negative effects

A. Descriptive Statistics for answers of Government policies on solid waste collection

The respondents were asked to identify the challenges of the policies above. The results are presented in Tables 2, 3 and 4. On dumping in Dandora, 39.6% said they face challenge of poor road network to Dandora site, 18.3% cited long distance as a challenge while to 42.1% of respondents cartels operating at the dumpsite pose a challenge. Registration procedures challenges were cited as time consuming by 33%, 28.2% cited it is expensive while 38.8% identified requirements as a challenge. On zoning 38.3% said it enhanced competition, 46.6% cited reduced conflict among the firms while 15.1% cited it ensures accountability to clients.

Table 2: Descriptive statistics of reasons for choice of above response on dumping in Dandora dumpsite policy

	1	2	3
Dumping in Dandora	39.6%	18.3%	42.1%

Where 1 is Poor road network, 2 long distance and 3 cartels

Table 3: Descriptive statistics of reasons for choice of above response on Registration procedures policy

	1	2	3
Registration procedures	33%	28.2%	38.8%

Where 1 is time consuming, 2 is expensive/ costly and 3 Lots of documents

Table 4: Descriptive statistics of reasons for choice of above response on Zoning Policy

	1	2	3
Zoning	38.3%	46.6%	15.1%

Where 1 is enhanced competition, 2 is reduce conflict and 3 ensure accountability to customers

B. Regression Analysis between Government policies and implementation of PPPs in garbage collection and disposal in NCC

To evaluate the influence of Government policies on service delivery by solid waste collecting firms under PPP arrangement in NCC, a simple linear regression analysis was performed taking Government policies as the independent variable. The findings were presented in Tables 5, 6 and 7. Table 5 presents an R² result of .217 or 21.7%, which implies that Government policies can explain up to a total of 21.7% of the total variability in the dependent variable, service delivery by solid waste collecting firms under PPP arrangement in NCC.

Table 5: Model Summary of Government policies and service delivery by solid waste collecting firms under PPP arrangement in NCC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
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1	.466a	.217	.203	0.5171
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C. ANOVA for Government policies service delivery by solid waste collecting firms under PPP arrangement in NCC

An ANOVA test was performed to test whether the overall model fitted on the data was good. The results obtained were presented in Table 6. The results indicate that, the model fitted on the data was statistically significant. This is supported by an F value of (15.26, 1, 55) with a p-value (.000) which is less than .05 the level of significance. This means that Government policies have a statistically significant influence on service delivery by solid waste collecting firms under PPP arrangement in NCC is accepted.

Table 6: ANOVA for Government policies and service delivery by solid waste collecting firms under PPP arrangement in NCC.

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.080	1	4.080	15.260	.000
	Residual	14.706	55	.267		
	Total	18.787	56			

To support the ANOVA findings on Government policies and service delivery by solid waste collecting firms under PPP arrangement in NCC, the regression coefficients were obtained and presented in Table 7. These results show that Government policies has a statistically significant positive influence on service delivery by solid waste collecting firms under PPP arrangement in NCC (p-value = .000) which is less than the level of significance of 0.05. Therefore, any change the Government policies would result in .515 times changes in the service delivery by solid waste collecting firms under PPP arrangement in NCC.

Table 7: Coefficients of Government policies and service delivery by solid waste collecting firms under PPP arrangement in NCC

	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	1.799	.286	6.280	.000
Government policies	.515	.132	3.906	.000

Using the summary presented in Table 4.26, a linear regression model of the form, $y = \alpha + \beta x_i$ can be fitted as follows:

Service delivery by solid waste collectors = 1.799 + 0.515 Government policies

D. Checking for Linear Relationship between Dependent Variable and the independent variables

Reference [6], [16] and [13] opined that Pearson’s correlation is used when working with two quantitative variables in a population. The resulting relationship can indicate a positive linear relationship or lack of relationship at all. The authors noted that Pearson’s correlation coefficients indicate the extent of interdependence between two variables.

In order to establish whether there was any form of relationship between Government policies and service delivery by solid waste collecting firms under PPP arrangement in NCC, Pearson correlation was used. The findings are summarized in Table 8. The results indicate that, Government policies have a strong and significant (p-values less than 5% level of significance) linear relationship with service delivery by solid waste collecting firms under PPP arrangement in NCC.

Table 8: Linear Relationship between Dependent Variable and the independent variables

		Policies	Service delivery
Policies	Pearson Correlation	1	.466**
	Sig. (2-tailed)		.000
	N	57	57
Service delivery	Pearson Correlation	.466**	1
	Sig. (2-tailed)	.000	
	N	57	57

X1- Government policies and Y- Service delivery by solid waste collecting firms under PPP arrangement in NCC

IV. CONCLUSION

The study concludes that government policies affects service delivery by solid waste collecting firms under PPP arrangement in NCC. Government policies present an R² result of .217 or 21.7%, which implies that Government policies can explain up to a total of 21.7% of the total variability in the dependent variable service delivery by solid waste collecting firms under PPP arrangement in NCC. Government policies also has a statistically significant positive influence on service delivery by solid waste collecting firms under PPP arrangement in NCC (p-value = .000) which is less than the level of significance of 0.05. Therefore, any change the Government policies would result in .515 times changes in the service delivery by solid waste collecting firms under PPP arrangement in NCC. In establishing the existence of relation between government policies and service delivery by solid waste collecting firms under PPP arrangement in NCC, Pearson correlation results indicated a value of .466 showing a linear moderate relation between government policies and the dependent variable.

Recommendations

Government policy is key element in service delivery by solid waste collectors under PPP arrangement in NCC, the following recommendations were made;

- Have friendly unambiguous policies that will encourage more investors in SWM

- Have a clear separation of roles between different entities to avoid confusion to investors. For example there should be a clear cut roles between NEMA and NCC environmental department
- Hiring more monitoring officials and training them in order to enhance enforcement for sustainable waste management
- Establishing more dumpsites and even encourage private investor to put up private dumpsites. This will remove cartels from the sites and even reduce distance travelled by garbage collectors to the dumpsites. The investor will also see to it that he gets the best from the site by having recycling unit or an energy generation firm on the site.

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