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The Role of Government and Private Partnership in Eradicating Street Waste Dumps in Port Harcourt

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Abstract: This study is concerned with unraveling the role of government and private individuals in eradicating street refuse dumps in Port Harcourt city. The study adopted the survey research design and 400 copies of questionnaire were administered in the city. To ensure effective distribution the area was first stratified using the existing land uses. The analysis was done using means and percentages. However, findings include 70% of respondents highlighted that government waste management agency is not efficient in the area, and that this has forced most residents to dump waste indiscriminately along streets in the area. 73% of respondents also suggested that private waste managers charge too high for waste collection. Problems associated with indiscriminate waste disposal in the area includes, untidy streets (90%); Air pollution (73%); Road traffic obstruction (23%); spread of rodents (53%); spread of diseases (82%) etc. The study however concluded that, government and private agencies must partner to combat waste generation problem, the people of Port Harcourt city should be advised on proper waste management techniques such as sorting, burying organic waste etc; there is an urgent need for waste treatment plants at strategic points in the city; stiff fines should be placed on violators in the area.

Keywords: Role, Street, Waste-dumps, Port Harcourt

1. Introduction

Waste is referred to as anything that has no material, social and economic value to someone in possession of it [1]. This has been classified as solid, sewage or at time municipal waste etc. however the classification waste is given, one thing is the underlying fact; that is that it does not have any value to the person that was in possession of it. Nevertheless, more recently it is becoming clearer that the term waste is a relative one. This is because what one person classifies as waste may just be of value to another person. Therefore, the ability to manage waste goes far beyond the outright sanctions and legislative laws imposed by governments, but extends to the ability of a people to utilise civilization and technological advancement in a bid to manage waste [2-6].

However, one of the major problems associated with urbanisation in the developing world is poor waste management and this is easily seen as one traverses major cities in the developing world. What is evident from literature is that most of these cities are largely developed without a master plan [7]. Thus as the places are becoming urbanised there are no plans to put in place a waste management plan, which would include the waste management practice, treatment plants and dump sites. Other researchers have advanced a poor technological advancement as a major factor that account for poor waste management in the developing world. While others [8-13] have insisted that the population and the consequent generation of waste that exceed the capacity of waste collection have contributed to poor waste management in the developing world.

Furthermore, there have been strong correlations between environmental conditions and human health in previous studies [14-16], therefore indicating that there are far reaching implications for humans when there is poor waste management in the environment [17-19]. It is therefore worrisome to observe that waste litters cities of developing countries which is the case of port Harcourt. In Port Harcourt, as one moves round the city there is litter of waste everywhere especially along the sidewalks and the route centre demarcations. This tend to breed diseases carrying

agents such as mosquitoes, rats, flies etc [20-25], on one hand, and on the other hand disorganises the city and harasses commuters with the stench it produces. This study is thus set out to highlight the role government/private partnership would play in eradicating street waste dumps in Port Harcourt.

2. Materials and Methods

Port Harcourt is found within longitude 6°56[1]E and 7°03[1]E and latitude 4°43[1]N and 4°54N of the equator. The area is bordered to the North by Obio/Akpor Local Government area, to the South by Okrika, to the East by Eleme and to the West by Degema Tour Local Government Areas [26]. In terms of drainage, the area is drained by Bonny River with an average elevation of about 18m above sea level [26]. Port Harcourt lies in the sub-equatorial region, with the tropical monsoon climate which has high temperatures, low pressure and high relative humidity throughout the year. Rain is also experienced all year round. This particularly makes waste management in the area so difficult due in part to the waste management practice which is still very crude. The weather of the area among other local forcing is influenced by mT and cT airmasses [27]. The population of the area has witnessed such tremendous growth over the years without corresponding improvement in social infrastructures. This partly accounts for the poor sanitary conditions in the area. For example estimates showed that the population of the area was around 500 people as at 1915 which rose to 30,200 in 1944. The population was 179,563 as at 1963 and in 1973 rose to become 231, 532 people. The 1991 census put population figure of Port Harcourt at 440,399 people which rose to 1,255,387 person in 2006 census, by using the growth rate of 5.8%, the population is projected to be 2,085,204 in 2015.

In terms of methods the study adopted survey research design and copies of questionnaire were administered on the population of the city using the Taro Yamane formula (see equation 1) and assumption to select 400 samples as sample population. To ensure effective distribution of the questionnaire, the study area was first stratified using the existing land uses and the questionnaires were administered to clusters of population who are near and exposed to the waste deposits themselves. The questionnaires were validated by a psychometrician and reliability was achieved by conducting a pilot survey of 10% of total respondents and question entries were valid at 0.05 confidence level before they were administered. The analyses of data were done using means and percentages.

$$n = N/\{1 + N(e^2)\} \quad (1)$$

Where:
n= sample size required
N = number of people in the population
e = allowable error (%)

3. Presentation and Discussion of Results

Table 1. *Age distribution of respondents.*

Age Group	Frequency	%
25-30	26.8	6.7
31-35	37.6	9.4
36-40	77.6	19.4
Above 40	258	64.5
Total	400	100

Source: Authors' fieldwork (2016).

In table 1, available information shows that only 6.7% and 9.4% respectively are within the age cohort of 23-30 and 31-35 years respectively. The table also reveals that majority of the sampled population fall within the above age 40 cohort. This thus substantiates that the sampled population have a fair knowledge of the subject matter for which they have responded to.

Table 2. *Gender distribution of respondents.*

Gender	Frequency	%
Male	197	49.3
Female	203	50.7
Total	400	100

Source: Authors fieldwork (2016).

Table 2 shows that male respondents are 49.3% and the female population is 50.7%. The female respondents are therefore more than the male respondents.

Table 3. *Highest education qualification of respondents.*

Education	Frequency	%
Basic 6	24	6
Basic 9	42	10.5
First Degree	209	52.25
>first degree	125	31.25
Total	400	100

Source: Authors fieldwork (2016).

In table 3 one thing is obvious and this is that the people in the area have access to formal education. And as such ought not to have such sanitation problems. This assertion is based on the fact that only about 16.5% (that is by adding up those with basic 5 and basic nine qualifications) have below a B. Sc. The other 83.5% have a BSc and above. In such a society the problem of waste management ought not to arise, since the local inhabitance have access to information about the problems that may arise as a result of poor waste management.

Table 4. *Do you generate waste?*

Options	Frequency	%
Yes	400	100
No	00	00
Total	400	100

Source: Authors fieldwork (2016).

Table 4 shows that all respondents generate waste in one way or the other. This waste may have been generated either

at the business places, eatery, home or farms (see table 5).

Table 5. *What type of waste do you generate?*

Types of waste generated	Frequency	%
Household waste	347	86.7
Business waste	276	69
Organic waste	123	30.7
Sewage sludge	137	34.3
Medical waste	106	26.5
Mixed waste	354	88.5
Chemical waste	27	6.75

Source: Authors fieldwork (2016).

Table 5 reveals the types of waste that respondents generate. However organic waste (30.7%), Chemical waste (6.75%) and medical wastes (26.5%) are the lowest in the area. Nevertheless household waste and mixed waste are the highest in the response chart with 86.7% and 88.5% respectively. However there is one notion that is being exposed here that is, that people do not just generate waste in one place, they generate waste where they work, where they eat, where they farm etc.

Table 6. *How do you manage the waste you generate?*

Options	Frequency	%
source reduction and reuse	21	5.25
Recycling	35	8.75
Landfills	73	18.25
Incineration	128	32
Any how	143	35.75
Total	400	100

Source: Authors fieldwork (2016).

Table 6 reveals that the waste management practice by respondents in the area is still very crude. This assertion stems from the fact that, only 5.25% and 8.75% agreed to the use of source reduction &reuse and recycling respectively. On the other have 35.75% of respondent have agreed to the dump anyhow waste management pattern. This further reveals that when the people do not have a means of disposing off their waste they find a way to dump them, and this includes dumping them on the roads, unsettled lands canals etc

Table 7. *Is the government waste management agency efficient in waste management here?*

Options	Frequency	%
Yes	120	30
No	280	70
Total	400	100

Source: Authors fieldwork (2016).

Table 7 explains that the government waste management agency is not doing enough to manage waste. This assertion is based on the fact that 70% of the total respondents suggested that government waste management agency is not efficient in waste management in the area, while only 30% suggested that the government is doing efficiently in terms of waste management.

Table 8. *If they are not efficient, how then do you manage the waste you generate?*

Options	Frequency	%
Self help	129	32.25
Pay private individuals	91	22.75
Do nothing	180	45
Total	400	100

Source: Authors fieldwork (2016).

Table 8 further reveals that waste management in the area is poor. From the perspective of the respondents when the government waste management agency fails to show up for waste collection they resort to self-help (32.25%) which also includes dumping it anywhere, as long as it is not near your house; pay private individuals (22.75%) to help collect the generated waste of which they may not be sure where the waste is to be deposited; or they do nothing (45%) which indirectly means that they have no intention of paying for waste collection. Yet waste is offensive as such after a while it must be dumped somewhere, an indication that most of the waste from such respondents would likely end up at the streets.

Table 9. *Is it expensive to pay for waste collection in this area?*

Options	Frequency	%
Yes	292	73
No	108	27
Total	400	100

Source: Authors fieldwork (2016).

Table 9 explains that the cost of managing waste in the area is expensive. This is so because 73% of the total respondents have suggested that waste management in the area is expensive while only 27% suggested otherwise. The implication of this is that most of the population are poor and cannot afford fees charged for waste collection yet they cannot co-exist with the waste they generate, hence the waste finds habitation along streets and major roads in the area.

Table 10. *Do you agree that the rate charged for waste collection is entirely accountable for waste dumps on streets here?*

Options	Frequency	%
Yes	198	49.5
No	202	50.5
Total	400	100

Source: Authors fieldwork (2016).

Although charges for waste collection is a factor accountable for the volume of waste found in the streets of Port Harcourt, majority (50.5%) of respondents have suggested that, that is not the only factor responsible for waste littering the streets of Port Harcourt. However the other factors listed by the respondents are found in table 11.

Table 11. *If not, what are other factors responsible for street waste dumps here?*

Options	Frequency	%
Improper education of residence	264	66
I don't care attitudes	126	31.5
In a rush syndrome	243	60.75
Lack of street waste bins	372	93
Social class mixture	74	18.5
Incompetence on the part of waste managers	368	92
Increase in unplanned population	374	93.5

Source: Authors fieldwork (2016).

Table 11 reveals that improper education of the city duelers (66%), I don't care attitude (31.5%), in a rush syndrome (60.75%), Lack of street waste bins (93%), Social class mixture (18.5%), incompetence on the part of waste managers (92%), and increasing unplanned population (93.5%) are factors responsible for the street waste dumps found in the area.

Table 12. *What are the dangers you feel are inherent of street waste dumping?*

Options	Frequency	%
untidy streets	360	90
Air pollution	292	73
Road traffic obstruction	92	23
Spread of rodents	212	53
spread of diseases	328	82
Accident	92	23

Source: Authors fieldwork (2016).

Table 12 shows that some of the dangers the inhabitants of Port Harcourt are already faced with include untidy streets (90%), air pollution (73%), road traffic obstruction (23%), spread of rodents (53%), spread of diseases (82%), and accidents (23%).

Table 13. *What do you think can be done to eradicate street dump in Port Harcourt city?*

Options	Frequency	%
Proper education of residence	264	66
Provisions of street dump bins	372	93
Street waste policing	234	58.5
Partnership between government and private individuals	279	68.5
Incentive for waste deposits	213	53.25
Provision of waste treatment and management plants	319	78

Source: Authors fieldwork (2016).

Table 13 respondent have suggested that if the followings are done street waste dump would be eradicated: Proper education of residence (66%); Provisions of street dump bins (93%); Street waste policing (58.5%); Partnership between government and private individuals (68.5%); Incentive for waste deposits (53.25%); Provision of waste treatment and management plants (78%).

4. Conclusion and Recommendation

This study set out to identify how government and private partnership will help eradicate street waste dumps in Port-Harcourt. It utilized the survey research design and copies of questionnaire were administered in the study area. While the means and percentages were used to analyze result. It was found that types of waste generated included organic waste (30.7%), Chemical waste (6.75%), medical wastes (26.5%), household waste (86.7%), and mixed waste (88.5%). Furthermore waste management practice in the area is still very crude because, only 5.25% and 8.75% agreed to the use of source reduction & reuse and recycling respectively. Again the government waste management agency is not doing enough to manage waste as 70% insisted that they were inefficient in managing waste in the area, yet waste management by private individuals are very expensive, thereby forcing the people there to dispose of waste as determined by them. This is beginning to have the following impacts there, untidy streets (90%), air pollution (73%), road traffic obstruction (23%), spread of rodents (53%), spread of diseases (82%), and accidents (23%).

Nevertheless, it is important to recommend the following as the dangers associated with poor waste management is better imagined than experience:

i. The government should partner with NGOs to provide adequate lecture on best practice when it comes to waste management. When the respondents mentioned that poor education was a major problem they did not mean acquisition of degree (see table 3) they meant that inhabitants be trained on how to manage waste. Therefore they need to be trained about waste sorting, reduction and reuse and recycling on one hand, and on the other hand what dangers are inherent the dumping of waste indiscriminately. These training should not be restricted to English language but to local dialects.
ii. Waste treatment plants where waste materials can be recycled should be built by both government and private individuals in the area. However, because the government owned treatment plants may not work as is with other government parastatals in Nigeria, it may be necessary to hand over the soon to be built waste treatment plants to credible private individuals to manage at subsidized rate.
iii. Waste collection vehicles and street side waste bins should be provided by government and NGOs to private individuals to manage. The managers should be made to pay the government in low rate instalments which will be spread over 4 to five years of payments. By so doing, waste management and unemployment will be simultaneously handled.
iv. Similarly, waste treatment plants should be made to pay for waste received from individual directly. As such people will be encouraged to collect their waste and deposit them at the recycling plants.
v. Street cameras can be placed at strategic points along

streets in the area. This will help identify those depositing waste at odd hours along streets in the area. Similarly, state sanitary officers can be employed to police the roads to arrest any person found wanting.

It is our opinion that following these recommended steps the state would have eradicated street side waste dump in Port-Harcourt city.

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