

The Impact of Open Waste Dumps on Rental Values of Residential Properties in Port Harcourt, Nigeria

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Abstract: *The study was undertaken in order to expose the negative impact of open waste dumps located in residential areas on residential real estate investment and the residential environment. The purpose of this study is to examine the impact of open waste dumps on rental values of residential properties. The data used was gathered from a self administered questionnaire, interview, and observation. The study compared rents of residential properties located close to open waste dumps and those located further away in Rumuola and Rumuolumeni communities in Port Harcourt. The research reveals that there is a difference in the rent of residential properties located close to the open waste dumps and those far away from the dumps. The study also reveals that the negative impact on rents was higher for "BACHA" than other dwelling units. The study also revealed that there is overcrowding in the dwelling units as high as 7-8 persons per room which is injurious to health of the occupants. The authors recommend an extensive enlightenment campaign to the public, on the reduction, reuse and recycling of waste. The authors also recommend that the government should construct engineered sanitary landfill to reduce or possibly eliminate health risk, property investment risk in terms of income and value reduction and environmental problems. It is obvious that waste menace cannot be tackled by the government alone but a public – private partnership approach should be adopted.*

Keywords: open waste dumps, rental values, residential, properties

1. Introduction

Waste Disposal is one of the major and very complex environmental problems facing low income countries like Nigeria. It is settled that one of the main problems facing Port Harcourt and which has become an intractable nuisance is the open and indiscriminate dumping of waste which include human waste, animal waste and other waste components. Piles of decaying garbage litter in strategic locations in the area. Solid waste and other waste in such open dump site is, unarguably a source of atmospheric and water pollution, land contamination, health hazards and environmental degradation. In Port Harcourt and most fast growing cities in Nigeria like Lagos and Ibadan it is not uncommon to see open waste dumps located in close proximity to residential areas. According to Parker (ND) the Law of Garbage is: "Everybody wants it picked up, but nobody wants it put down." And, the second part of this Law is: Nobody wants it put down anywhere near where they live, the so-called "not in my back yard" syndrome (NIMBY), or "locally unacceptable land use" (LULUs). But the reality is that open waste dumps are located close to residential areas where people live. It is universally accepted that the location of a property influences the price or rent of the property either positively or negatively. The aim of this study is to examine the impact of open waste dumps on rents of residential properties in Port Harcourt, Nigeria. The study compared rental values of properties located in close proximity to and those located far from the open waste dumps. The study revealed that there are differences in rental values.

1.1 Description of the Study Area

What is today known as Port Harcourt was prior to 1913, a farm land and a secondary forest. The Ikwerre people are the owners of the land and called it "Obomutu". However, areas adjoining the creeks were occupied mainly by the local

fishermen. This fact is manifested in the names such as (Aker or Nkpor) meaning fishing villages. Currently, Port Harcourt is one of the fastest growing cities in Nigeria with a population of over one million people. It is located in the Niger Delta Region of Nigeria. The city is popularly known as the "Garden City" and presently referred to as the "oil city" because of the location of most multi-national oil companies in the city. Port Harcourt is the administrative headquarter of Rivers State and it has two local government areas; Port Harcourt city local government area and Obio-Akpor local government area. Rumuola and Rumuolumeni communities are located in Obio-Akpor local government area.

Rivers state is located in the South – South geopolitical zone of Nigeria and one of the crude oil rich states in the Niger Delta Region. The city is fast losing its beauty as the garden city as a result of the presence of waste dumps and blocked drains which is a concern for government, residents and environmentalists. The city can also be described as an educational centre with the establishment of three universities, namely: University of Port Harcourt, Rivers State University of Science and Technology, and the University of Education. The city is the investors' haven because businesses thrive here. Rental income trends reveal an upward movement except negatively affected by environmental factors.

2. A Brief Review of Related Literature

2.1 Concept of Waste

Waste is any solid or semi-solid materials which have been discarded by its primary owner or original user, and may or may not be found useful by any other person but constitute nuisance to people's health and the environment when left untreated. Waste could be explained to mean leftovers, used products whether liquid or solid having no economic value

or demand and which must be disposed or thrown away (Isirimah, 2002). The issue of waste disposal and management were not problems to early humans, due to the fact that there were no population explosion and technological advancement at that time. However with the growing population at an alarming rate coupled with technological advancement, overtime waste disposal and management began to constitute a serious problem. **Open waste dumps** refer to the uncovered areas of the earth surface that are used to dump waste of all kinds.

2.2 A Review of Related Researches

According to Mundy (1995) a clean (uncontaminated) property has a value equal to full market value and a dirty (contaminated) property which poses health or financial risk (either real or perceived) will affect value significantly in several ways. According to him a disclosure requirement by the sales agent or seller, lender and appraiser uncertainty may have a noticeable effect on the marketability of the property. He added that when a property loses its marketability, it also loses its value. He also stated that income effect is the present value of the difference between the property value as if uncontaminated and the property value as if contaminated.

Reichert et al (1992), in a hedonic regression analysis for homes located near a Cleveland landfill in Ohio found that the estimated marginal implicit Price (MIP) for distance was negative, implying homes had higher prices near the landfill. Furthermore, this estimated MIP was found to be statistically insignificant, with high sampling variability and absences in relationship between proximity to the landfill and home prices was argued to be caused by an unmodelled heterogeneity in neighborhood quality. By the use of a smaller and more homogeneous study area, residential properties near the landfill were found to sell for less than homes farther away.

Adewusi and Onifade (2006) focused on the effect of urban solid waste on physical environment and property transactions in Surulere Local Government Area of Lagos State. The study administered questionnaires randomly on residents and firms of estate agents to gather data on the subject matter. Data obtained were analyzed using frequency tables and percentage ratings. The study found that rents paid on properties adjoining waste dumpsites were lower compared to similar properties further away and also, property transaction rates were very slow and unattractive as one approaches a dumpsite.

Bello and Bello (2008) conducted a research on the willingness to pay for environmental amenities in Akure Nigeria. The study included environmental amenities such as refuse, waste water disposal, water and electricity supplies, neighbourhood roads and other locational services. The study used a two-staged hedonic model to examine the willingness to pay for better environmental services by residents of two neighbourhoods in Akure, Nigeria. He combined multiple regressions and predictive model to determine property values as a function of housing attributes and logistic model as willingness to pay. The study identified households' income, distance away from the refuse dump site and

regularity of electricity supply as the major factors that influenced household's willingness to pay for better environmental services. The study recommended economic empowerment of the people, diligent consideration in the location of dumpsites and adoption of public-private initiative in the provision of public infrastructure. The study established that real estate values are readily influenced by residents willingness to pay for both structural as well as neighbourhood characteristics where the real estate is located.

A 1991 study in Los Angeles – San Fernando Valley of the effects on neighborhood property values from a landfill concluded that the “results suggest that a landfill, if well-designed and managed, can be a good neighbor and have no statistically measurable negative impact on surrounding property values.” The study analyzed 1,628 house sales in the San Fernando Valley of Los Angeles from 1978 to 1988. The target neighborhood, located adjacent to the landfill, was compared to two other neighborhoods that were similar in demographics, socioeconomic characteristics, and other factors, but were outside the area affected by the landfill. (Parker, ND).

According to Parker (ND) the effects of landfills and other solid waste facilities on nearby residential properties cannot be easily generalized; however, academic research and other evidence indicate that residential property values are not necessarily adversely affected by close proximity to such facilities. In some circumstances, the impact can be positive. State-of-the-art, environmentally safe landfills, transfer stations, and waste-to-energy facilities are able to contribute to healthy land values through host community fees, tax revenues, jobs, reliable waste disposal services, energy generation, and infrastructure improvements.

A recent staff paper by two Pennsylvania State University professors, “The Impact of Open Space and Potential Local Disamenities on Residential Property Values in Berks County, Pennsylvania,” examined the impact of neighboring land use on residential property values in a predominantly rural county. Included in the category of land uses (“potential local disamenities”) were: landfills, airports, mushroom production, large-scale animal production, sewage treatment plants, and high-traffic roads. Among the staff paper's conclusions was that the residential property values-price distance relationship was most significant for landfills and large-scale animal production facilities

3. Research Methods

The study covered two open dump sites located along Timothy lane and Rumuolumeni road, at Rumuola and Rumuolumeni communities respectively in Obio/Akpor Local Government Area of Port Harcourt metropolis. The study interviewed 98 landlords and tenants of the residential properties located close to and far away from open waste dumps in Timothy lane and Rumuolumeni road. The instrument for data collection is a structured questionnaire. A random sampling technique was adopted to select the sample size of ninety eight respondents.

4. Results and Discussions

The results of the study are presented below.

4.1 Types of Dwelling Units

The dwelling types found in the study area are bungalows, block of flats, row houses (with shared facilities such as toilets, kitchen and bathrooms), one room apartments popularly known in Nigerian parlance as “self-contained”, and temporary structures built with either wood or corrugated iron sheets (CIS) known as “BACHA”. Table 1 shows that approximately 70% of the houses are “BACHA” and “Row houses” while bungalows, block of flats, and “self contained” represent 30%. The implication is that the occupants will be predominantly indigenes and low income earners.

Table 1: Types of Dwelling Units

S/No	Dwelling Types	No	%
1.	Temporary structures (Batcher)	34	34.70
2.	Row house	34	34.70
3.	Self contained(one room apartment)	15	15.30
4.	Block of flats	10	10.20
5.	Bungalow	5	5.1
	Total	98	100

Source: Field Survey October, 2011

4.2 Occupancy Ratio

The study revealed that the occupancy ratio is high with 7-8 persons occupying one room representing over a quarter (36.73%) of the respondents. This is also an indication that the dwelling units are occupied predominantly by low income earners. Observation by the researcher revealed that low income earners in Port Harcourt occupy mostly “BACHA” and row houses. High occupancy ratio is said to be injurious to health of residents since infectious and contagious diseases spread easily in such environment. In addition, overcrowding has been shown to have psychological effect on people leading to deleterious social behavior (Olutuah,2003).

Table 2: Occupancy Ratio

S/No	Average no of persons per room	No	%
1.	1 – 2	4	4.1
2.	3 – 4	5	5.10
3.	4 – 5	19	19.38
4.	6 – 7	34	34.69
5.	7 – 8	36	36.73
	Total	98	100

Source: Field Survey October, 2011

4.3 Loss of Economic (Rental) Value:

Open waste dump site constitutes reduction in the rents of properties close to the dumps in the study area as shown in table 3. Table 3 revealed that there a significant difference in rent of properties located close to the open waste dumps and those located farther away from the dumps. Table 3 shows that the rent for BACHA located close to the waste dumps ranges between N(12,000 -18,000) while the rent for those located far from the waste dumps ranges between N(24,000 - 36,000). This shows a 50% difference in rent of BACHA

located close to and far from the open waste Dumps while the difference for two(2) bedroom bungalow ranges between (32 – 42.33) %. The lowest rate of change is rent for self-contained which ranges between (12.5 – 29.41%).

The results of this study are related to income effect theory of Jaffe (1995) which states that the income effect of a contaminated property is the present value of the difference between the property value as if uncontaminated and the property value as if contaminated, and is related to lost income. The results of this study is similar to the study of Adewusi and Onifade (2006) which focused on the effect of urban solid waste on physical environment and property transactions in Surulere Local Government Area of Lagos State, Nigeria. Their study administered questionnaires randomly on residents and firms of estate agents to gather data on the subject matter. Data obtained were analyzed using frequency tables and percentage ratings. The study found that rents paid on properties adjoining waste dump sites were lower compared similar properties further away and also, property transaction rates were very slow and unattractive as one approaches a dumpsite.

The study also revealed that some of the dwelling units (Plate 2) were recently vacated as tenants find it risky and unhygienic to live in such environment, this results to loss in rental income due to the increase in its void period. This affects not only the rental income but also creates negative impact on the economy in terms of reduction in property tax.

A close proximity to open waste dumps implies that there will be a subsequent reduction in the capital value of such properties and long period of voids (vacancy rates) as prospective tenants are unwilling to pay for such properties as complained by the property owners interviewed. Plate 4 shows that access to some houses is completely blocked with waste at Rumuolumeni road; this is the handiwork of neighbouring occupants as revealed by the residents.

Table 3: Rent Passing Per Annum of Residential Properties Close to and Far From the Open Waste Dumps in the Study Area

Source: Field Survey October, 2011. NB: \$1 = N160

S/N	Dwelling Types	Rent passing per annum in areas far from the dump sites Naira(N)	Rent passing per annum in areas close to the dump sites Naira(N)	Difference in Rent Passing Between Dumpsites Close and Far Naira(N)	Rate of change in Percentage (%)
1.	Temporary structure (Bacha)	24,000–36,000	12,000–N18,000	12,000 – 18,000	50 - 50
2.	Row house (single room with facilities such as toilet, bathroom, and kitchen shared)	54,000 – 108,000	42,000 – 60,000	12,000 – 48,000	22.22 – 44.44
3.	Self contained	80,000 – 120,000	70,000	10,000 - 50,000	12.5 – 29.41

	(one room apartment)				
4.	One bedroom flat (2 room apartment)	150,000 – 170,000	130,000	20,000 - 40,000	13.33 – 29.53
5.	2 Bedroom bungalow (3 room apartment)	250,000 – 300,000	170,000	80,000 – 300,000	32 - 43.33



Plate 4: A Dump Site at Rumuolumeni Road



Plate 1: The Dump Site at Timothy Lane, Rumuola



Plate 2: The Dump Site at Timothy Lane, Rumuola

4.5 Method of Waste Disposal

Table 4 shows that the method of waste disposal in the study area is the open waste dump. Table 4 further shows that other known methods of waste disposal are not used.

Table 4: Method of Waste Disposal

S/N	Methods of Waste Disposal	No	%
1.	Sanitary Landfill	-	-
2.	Anywhere in the neighbourhood	-	-
3.	In the borrow pit (open waste)	98	98
4.	Designated transient disposal site	-	-
5	Incineration	-	-
6	Composting	-	-
7	On the road	-	-
	Total	98	100

Source: Field, Survey October, 2011

5. Conclusion

The study examined the impact of Open waste dumps on rental values of residential properties. The study revealed that open waste dumps cause a reduction in rents of residential properties in Rumuola and Rumuolumeni communities in Port Harcourt. The reduction in rent is highest in the “BACHA” while two bedroom bungalow is the lowest. The study also revealed that there overcrowding in the dwelling units as high as 7 – 8 persons per room. This is a common characteristics of dwelling units occupied by low income earners in the city. The study concludes that open waste dumps adversely impact on residential real estate investment, pose a threat to human health and the residential environment and should not be site in residential neighbourhoods. The author recommends that the government should construct engineered sanitary landfill to reduce or possibly eliminate health risk, property investment risk in terms of income and value reduction and environmental problems. The author also recommends that the residents should be educated on the three (3) R’s of waste management, that is reduction, reuse and recycling to discourage the throw away approach currently practiced and reduce the quantity of waste that is thrown away.

4.4 Environmental Problems

The perceived environmental problems include underground water pollution as a result of leachate from the dump sites located close to properties (see Plate 1, 2 3 & 4) which may pollute water, thereby reducing the quality of the water, air pollution, odour problem and reduction in aesthetic quality. Other environmental problems include Proliferation of Insects and rodents such as flies, mosquitoes, cockroaches, rats etc which can endanger public health through breeding of ailment such as dysentery, cholera, yellow fever, malaria, filariasis.



Plate 3: A Dump Site at Rumuolumeni Road

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