Assessment of Impact of Residential Wastewater Disposal on Property Values in Ilaro, Ogun State

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Abstract: - **Wastewater is generated in residences from daily activities of human beings such as bathing, washing, cooking etc. This wastewater especially from the kitchen contains oil and grease and other chemicals added to it during use. The several ways by which residents disposed off their wastewater have raised both environmental and public health concerns. It is strikingly noticed nowadays that buildings are either not provided with sewage treatment facilities or such facilities are non-functional. This study, however examines how domestic wastewater from residential apartments in Ikosi, Orita Pahayi and Oke Odo neighourhood of Ilaro, Ogun State. One hundred questionnaires were distributed randomly in each neighourhood. The simple percentage and frequency table were used in analyzing the data. The result reveals that wastewater is not properly disposed off in the buildings in the study area. This indiscriminate domestic sewage disposal negatively impacts on the rental values of buildings as well as worsen the environmental health status of residents in the area.**

Keywords: **Property Values, Residential Wastewater, Health, Environmental**

I. INTRODUCTION

Domestic wastewater is the water that contains all the materials added to the water during its use (Mara, 2003). Wastewater are also referred to as effluent from sinks and basins, unwanted water as a result of rainfall on the surface of the earth, a building or an estate. The constituents of domestic wastewater are water from the bathroom, kitchen, toilet and human body waste which are as a result of day to day activities of human beings.

Currently, the disposal of domestic wastewater in Ilaro by the residents is not efficient; used water from various residential houses and on site wastewater is mostly discharged into the streets without proper drainage. Most residents discharge their wastewater directly into the gutter in front of their homes without properly conforming to essential environmental sanitations practices while some channel it into soak away pits in their compound.

The poor sewage disposal practice and inefficient drainage system also have effects on capital and rental values of properties, areas with good drainage network and houses with proper drainage system tend to increase in value when compared with houses with inefficient drainage network. Apart from residents being prone to different kind of diseases and sicknesses, improper disposal of wastewater causes

environmental pollution such as offensive odour, blocked drainage due to dumping of refuse and free flow of wastewater on the street.

II. LITERATURE REVIEW

Wastewater can be defined as any water that has been adversely affected in quality by anthropogenic influence. Wastewater can originate from a combination of domestic, individual, commercial or agricultural activities, surface run off or storm-water, and from sewer inflow or infiltration. It can also be defined as the water that has been used and is no longer needed for any other particular purpose. (Larry, 2002).

Wastewaters originating from residential areas depend on the type of accommodation. An apartment with various equipments such as water closet, vehicle, washing machine, several bathrooms and toilets tends to generate more volume of wastewater.

Benneh et al (1993) observed that residential domestic waste forms the bulk of all sources of solid waste produced in urban areas. These household wastes are known to have high densities with high moisture content and the organic component of solid waste, which properly accounts for about 70% to 90%, while tins, cans and paper are probably responsible for about 5% to 10% of the total waste produced.

Ayodele,(2007) viewed waste management as source reduction, refuse recycling, controlled combustion and controlled landfill. Furthermore, value can be recovered by generating energy from waste.

Adetokunbo and Herbert, (2003) submitted that management of waste is a key element in the protection of public health, because failure to manage waste properly exposes people to increased risk of infectious diseases.

Onifade (2010) pointed out that the modern trend of waste disposal is towards conserving, recycling and reusing waste and reducing waste production as opposed to the throw-away approach that waste, sewage and other forms of solid biomass can be converted by bacteria and various chemical processes into biogas.

III. METHODOLOGY

3.1 The Study Area

Ilaro, the headquarters of Yewa South Local Government Area of Ogun State, lies on latitude 6° 90 North and

longitude 3° 01 East. Its straight location serves as an important notable town in the state and has thus attracted a considerable amount of socio-economic activities. The town is 62 km away from Abeokuta, the capital of Ogun State. Ilaro is bounded in the north by Ibese (Yewa North LGA), in the souch by Oniyanmo (Ifo LGA) in the west by Oteyi (Ewekoro LGA) and ot its east lies Ebute Igbo Oro (Yewa North LGA). It covers about 9.5 square kilometers.

3.2 Methods

This study was undertaken in Ilaro in august, 2019. Sources of data for this study are both secondary and primary sources.

Structured questionnaires were distributed to the residents of the study area. Random sampling was employed. 300 questionnaires were distributed in all. Simple statistical tools such as tables, percentages were employed for the analysis.

IV. RESULTS AND DISCUSSION

A total number of 300 questionnaires were administered while 240 were returned.

4.1 Sources of Water Supply

Table 1: Sources of Water supply in the study area

Area	Oke Odo		Orita Pahayi		Ikosi	
Sources	No of Response	%	No of Response	%	No of Response	%
Borehole	40	50	80	88.9	60	85.7
Tap	-	-	-	-	-	-
Well	30	37.5	10	11.1	3	4.3
Water vendor	10	12.5	-	-	7	10
Total	80	100	90	100	70	100

Source: Field Survey, 2019.

Table 1 above shows the sources of water supply in the three neighbourhoods. The major source of water supply in Oke Odo area is borehole with 50% of the respondent depending on this source for their water demands, supply from well is 30% while 12.5% respondents rely on water vendors to meet their water needs. The vendors who mostly get water from borehole is the least water source. This implies that the majority of the dwellers depend on borehole as the major supply of water. In Orita-Pahayi, the major source of water supply is borehole with 88.9% relying on this source while 11.1% of the residents depend on well. Ikosi residents

depends on borehole as their major source of water supply with 85.7%, 10% rely on well as their source of water supply while those who source from well 4.3% forms the lowest.

From this result, it can however be shown that the three neighourhood depend largely on borehole as their major source of water supply and none of them depends on tap water which implies that the government has failed in providing safe portable drinking water.

4.2 Wastewaters Source

Table 2: Sources of wastewater

Major Source of Wastewater	Oke Odo		Orita Pahayi		Ikosi	
	No of Response	%	No of Response	%	No of Response	%
Laundry	16	20	22	24.4	10	14.3
Washing Utensils	14	17.5	16	17.8	13	18.6
Flushing	12	15	17	18.9	8	11.4
Bathing	38	47.5	35	38.9	39	55.7
Total	80	100	90	100	70	100

Source: Field Survey, 2019.

Table 2 above shows that wastewater is majorly generated from bathing in Oke-Odo with 47.5%, Orita Pahayi with 38.9%, Ikosi with 55.7%. the table also shows that wastewater is also generated from laundry, washing utensils

with the least from flushing in Oke Odo with 15% and Ikosi with 11.4%.

4.3 Wastewater Disposal

Table 3: Means of Wastewater Disposal from Buildings in the Study Area

Means	Oke Odo		Orita Pahayi		Ikosi	
	No of Response	%	No of Response	%	No of Response	%
Gutter	13	16.3	10	11.1	10	14.3
Soak away pit	6	7.5	12	13.3	50	71.4
Dug Pit	1	1.3	3	0	-	-
Free flow	59	73.8	65	72.2	10	43.3
Total	80	100	90	100	70	100

Source: Field Survey, 2019.

From table 3 above, the commonest way of disposing wastewater in Oke Odo (73.8%) and Orita-Pahayi (72.2%) is free flow into the street. The reason adduces to this is the lack of proper drainage network in the two neighborhoods' as well as inadequate provision of alternatively cheap means of sewage disposal such as septic tank and soak away pit. In Ikosi, majority of the residents (71.4%) disposes their wastewater in soak away pit.

4.4 Effect of Poor Drainage System

Table 4: Effect of Poor Drainage System

Options	Oke Odo		Orita Pahayi		Ikosi	
	No of Response	%	No of Response	%	No of Response	%
Road Blockage	52	65	60	66.6	65	92.9
Diseases Breeding	2	2.5	5	5.6	-	-
Air Pollution	10	12.5	14	15.6	-	-
Offensive Odour	16	20	11	12.2	5	7.1
Total	80	100	90	100	70	100

Source: Field Survey, 2019.

Table 4 shows the effects of poor drainage system in the case study. In Oke-Odo, the implications of poor drainage system are the breeding of diseases and offensive odour with 65% AND 20%. In Orita-Pahayi the residents believe that poor drainage system results in breeding of diseases and air pollution with 66.6% and 15.6%. lastly, in Ikosi, the occupants agree that the most common effect of poor drainage is breeding of diseases with 92.9% response.

4.5 Wastewater Management

Table 5: Wastewater Management

Options	Oke Odo		Orita Pahayi		Ikosi	
	No of Response	%	No of Response	%	No of Response	%
Flushing of gutter	4	5	6	6.7	-	-
Emptying soak-away pit regularly	20	25	23	25.6	67	95.7
Free flow into the street	56	70	61	67.7	3	4.3
Total	80	100	90	100	70	100

Source: Field Survey, 2019.

Table 5 above reveals that nothing is done to manage the waste water from different houses, wastewater flows freely into the street in Oke-Odo and Orita Pahayi neighbourhood with 70% and 67.7%, thereby rendering the road not motorable. While in Ikosi means of management is by emptying soak away at regular intervals with 95.7%

4.6   Property Values

Table 6: Rental Value of Property in the Study Area

Property Type	Oke Odo		Orita Pahayi		Ikosi	
	2017	2019	2017	2019	2017	2019
Single Room	35,000	40,000	40,000	50,000	40,000	50,000
Mini flat	100,000	120,000	120,000	150,000	110,000	140,000
2 bedroom flat	150,000	180,000	180,000	200,000	160,000	180,000
3 bedroom flat	200,000	220,000	220,000	250,000	200,000	240,000
Total						

Source: Field Survey, 2019.

Table 6 shows the rental values of different categories of residential houses in the three neighbouhoods. Despite the fact that there were no drainage in Orita –Phayi the rental values of the residential properties in the neighbourhood is higher than that of Ikosi followed by Oke-Odo neighbourhoods. This can be said to be as a result of nearness to the Federal Polytechnic Ilaro because most houses are occupied by the staffs and students of the institution.

4.6   Discussion

The analysis shows that in the three neigbouhoods, their major source of water supply is borehole and this put a lot of pressure on underground source of water supply. Also, it indicates that in the event of any drop in the aquifer storage or borehole breakdown, there will be a great challenge of sourcing for water in these nieghbourhoods. It was also revealed that the major way by which wastewater is generated in the three neighourboods is thorugh bathing and the means of disposing and managing wastewater from the buildings in Oke Odo and Orita-pahayi is through free flow of wastewater into the street without proper sanitation, while in Ikosi neighbourhood, majority of the residents do it by discharging it into soak away. Therefore, the rental values of similar properties in Oke Odo and Orita Pahayi is lower when compared to those in Ikosi. The study reveals that poor drainage and management of residential wastewater have negative effect on the residents ranging from breeding of diseases, offensive odour and road blockage.

V. CONCLUSION AND RECOMMENDATIONS

Improper disposal of wastewater can lead to environmental degradation which in turn has negative effect on rental values of properties in the study area. Residents in areas with improper drainage system are prone to different kind of diseases and pollution. Therefore wastewater should be disposed and managed properly in order to prevent the aforementioned effects on the people and the environment.

Recommendations

Government through the ministry of health should construct a central collection center in the town where wastewater will be channeled to a wastewater treatment plant to be treated and recycled for reuse.

Proper education should be given to the citizens through he environmental sanitation agencies on health implication of improper disposal and management of wastewater such as spread of diseases, illness and air pollution.

Construction of efficient drainage network by the government in the Town and should also ensure that individual houses have good drainage in front of their houses and make sure that the drains are properly flushed to prevent blockage.

Disciplinary measures should be taken on anybody who dispose refuse into the drainage in order to prevent this government should provide refuse disposing point or incinerator.

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