

Household Solid Waste Disposal in Public Housing Estates in Awka, Anambra State

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Abstract

This paper presents the results of a study on household solid waste disposal in the public housing estates in Awka, Anambra State. The study identified solid waste disposal methods from the households in AHOCOL, Udoka, Iyiagu and Real Housing Estates with an intention to make proposals for better solid waste disposal. A total of twenty percent representing one hundred and one of the entire household population of the estates were examined through a fourteen item questionnaire. Interviews were conducted on the agencies responsible for these estates. Data collected were statistically analysed with the use of frequency distribution, percentages, bar charts and pie charts. Results obtained revealed among others that the households in the estates store their generated waste in household waste bins which are disposed into public refuse dumps within the estates and are evacuated after a long while. The paper recommended among others, introduction of removable solid waste dumping system and the revitalization of Anambra State Environmental Sanitation and Protection Agency (ANSEPA) in the state.

Introduction

Public housing or subsidized low rental housing has been accepted as one of the solutions to the housing problems facing this country (Onibokun, 1977). The past military government pursued the idea with interest which led to all the political parties that contested the 1978 Federal and State elections to accord very high priority to housing in their manifestoes. Consequently, the federal government public housing scheme took off in all the states of the federation.

In an apparent realization of the fast rate of degradation of our residential environments, federal and state governments accepted housing provision as a social commitment and decided to create “decent” living environment. It was therefore meant to be a model of housing provision. Good housing conditions create foundations for health, social, economic and political relationships while substandard housing can have serious repercussions on individual and communal health and peace.

Solid waste disposal has become a matter of concern on the face of rapid growing population and increase in consumption rate. According to Cheremisonoff and Morres (2001) solid waste can be classified into garbage, rubbish, ashes and refuse generated in our homes and neighbourhoods. Solid waste is generated by domestic, commercial, industrial, health care, agricultural and mineral extraction activities and accumulates in streets and public places. These pollutants are unwanted by products of man’s activities or used substances, which have several consequences.

The problem of solid waste disposal in our public housing estates is a serious one. It constitutes one major cause of health hazards in our Urban areas apart from creating an unpleasant environment (Owadugu, 2003). It has been observed that the majority of deaths which occur in our urban areas are as a result of disease traceable to air pollution (Macpherson, 1989). Yet there are few literature in solid waste disposal with respect to public housing estates.

Public housing estates in Awka are generally experiencing various forms of waste management problems, which is now creating unpleasant sites. Various forms of solid wastes are found in open streets and around residential homes (Okoye, 2004). The situation is worse after every rainfall as the inhabitants throw their refuse into the existing flood drains. The result is that the streets are littered with wastes after rainfall, while the drains are blocked with wastes thus encouraging urban flooding. The occupants of these estates must have expected a degree of comfort, cleanliness and pride that they are in reserved quarters only to behold an environmentally unkept accommodation. There is no doubt that the lives of these occupants are at stake. This research work intends to address the following questions. Where do the households in the public housing estates dispose their wastes? How often are the solid wastes removed from their disposal dumps? Does the undisposed solid waste pollute the estate environment? What are the implications of the findings for planning, execution and management of public housing estates?

Research Aim and Objectives

The aim of the research is to study household solid waste disposal methods in public housing estates in Awka with a view to proffer solutions and provide adequate information for planners and designers to improve the provision of public housing. The objectives are to identify solid waste disposal methods in the households in the public housing estates in Awka. To examine where the waste dumps are located within the estates. To identify the planning implications of the above findings and to proffer solutions.

Research Methodology

The research conducted in May, 2004 covered four public housing estates in Awka, capital of Anambra State – Nigeria. These estates were Udoka, Ahocol, Iyiagu and Real housing estates. Figure 2 below shows the location of Awka in Anambra State while Figure 3 identifies the location of the four public housing estates under study. Data for the study were collected by questionnaire. A twenty percent systematic sampling of 501 housing units occupied in the four estates was made which reflected 32 at Udoka, 28 at Ahocol, 23 at Iyiagu and 18 at Real housing estate. Every fifth house in all the streets in the housing estates was examined. Where it is a semi detached housing unit comprising more than one household only one-household was studied. The female household heads were examined except in a case where such is absent. This is because females are believed to be more concerned with domestic wastes than males.

The questionnaire was categorized into two sections. Section A was on personal data which elicited responses on estate of residence, gender, age, educational

background, occupation among others while Section B was based on household solid waste disposal. It included questions like how does your household dispose of its solid waste? Where are they finally dumped within the estates? How often is the solid waste eventuated from the dump?

Data were presented and analyzed using the frequency distribution, averages, percentages of all respondent, bar and pie charts and photographs which show the located solid waste dumps and household disposal methods.

Results and Discussion

Waste Disposal Methods; Littering Parts of the Estate with Household Waste and Availability of Solid Waste Disposal Dump within the Estates.

Table 1 and Figure 4 below reveal that 53.3% of the respondents dispose their solid waste through public refuse dump. A total of 21.1% use method of incineration (burning) while 13.1% dispose through open space method. 11.5% of the respondents dispose through compositing. Each of these solid waste disposal methods have their implications. 53.3% dispose through public refuse dump implies that the estates should be provided with designated dump sites that should be evacuated regularly to keep the environment clean. Housing estates like Udoka, Ahocol and Real do not have designated refuse dumps. 21.1% indicated through burning but no such site was seen through out the estates. It may be that they are conveyed to a site outside the estate. 13.1% that indicated open spaces may belong to the category that disposes their solid waste in nearby bushes and drainage channels at night causing serious environmental hazards.

Indiscriminate Dumping of Refuse

On the respondents' experience of the estate being littered with solid waste, Table 2 showed that a total of 48.5% replied positively while 33.7% said no. However, 17.8% responded that sometimes it does occur. Field observation showed that estates like Ahocol, Iyiagu and Real are being littered with solid wastes along the roads. This may be attributed to the social life of the residents, unavailability of designated public refuse dumps and no sanitary regulations.

Availability of Waste Disposal Dumps

On the availability of solid waste disposal dump within the estate, Table 3 showed that 58.4% of the respondents replied yes while 41.6% said there is none. Field observation showed that there are solid waste disposal dumps in all the estates. While Iyiagu has an official designated public refuse dump close to the junior staff quarters, refuse dumps in other estates were indiscriminately provided. This may have led to the careless dumping of solid waste in the estates thereby littering the environment. Solid waste management is a continuous environmental concern.

Table 1: Respondents' Solid Waste Disposal Method

Disposal Methods	Ahocol	Udoka	Iyiagu	Real	Total	%
Open Space	5	5	4	2	16	13.1
Public Refuse Dump	15	20	14	16	65	53.3
Incineration (burning)	12	4	6	5	27	21.1
Recycling	0	0	0	0	0	0
Composting	8	3	0	3	14	11.5
Total	40	32	24	26	122	100

Source: Field Survey, 2004.

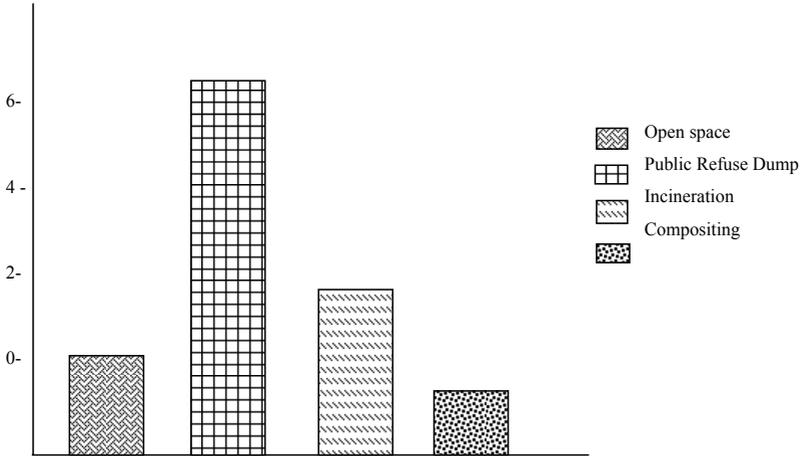


Figure 4: Bar Chart on Method of Solid Waste Disposal in the Estates

Table 2: Respondents' Opinion on Indiscriminate Dumping of Refuse on Parts of the Estate.

Variables	Ahocol	Udoka	Iyiagu	Real	Total	%
No	13	8	9	4	34	33.7
Yes	9	19	9	12	49	48.5
Sometimes	6	5	5	2	18	17.8
Total	28	32	23	18	101	100

Source: Field Survey, 2004.

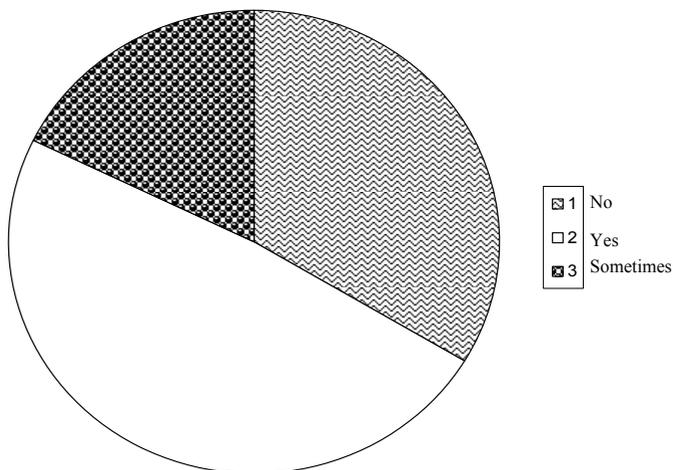


Figure 5: Pie Chart on Parts of the Estate being littered with Solid Waste

Table 3: Availability of Solid Waste Disposal Dumps within the Estate

Variables	Ahocol	Udoka	Iyiagu	Real	Total	%
Not available	13	8	9	4	34	58.4
Available	9	19	9	12	49	41.6
Total	28	32	23	18	101	100

Source: Field Survey, 2004.

Respondents' View over Solid Waste Evacuation from the Dumps and Extent of Pollution through Undisposed Solid Waste

Table 4 below reveal that solid waste disposal dumps in the estates are removed after a long time. 77.2% of the respondents supports this view while 10.9% indicated once a month. However, this is only applicable to Real housing estate. A total of 11.9% indicated once in 2 weeks. Furthermore, on the respondents view about the extent of the pollution through undisposed solid waste, Table 5 and Figure 7 below showed that 60% said that the pollution is much while 25% said it is not much. 15% of the respondents did not see any pollution in any undisposed solid waste dump. Solid waste disposal dumps left for a long time have effect on the soil, ground water quality, air quality and in turn produce unpleasant odour, unpleasant site and create disease prone environment. The poor health problems of the residents in these estates may not be unconnected to this unkept environment.

Table 4: Solid Waste Evacuation from the Dump

Duration	Ahocol	Udoka	Iyiagu	Real	Total	%
Once a week	0	0	0	0	0	0
Once in 2 weeks	0	10	0	2	12	11.9
Once in a month	0	0	0	11	11	10.9
After a long time	28	22	23	5	78	77.2
Total	28	32	23	18	101	100

Source: Field Survey, 2004.

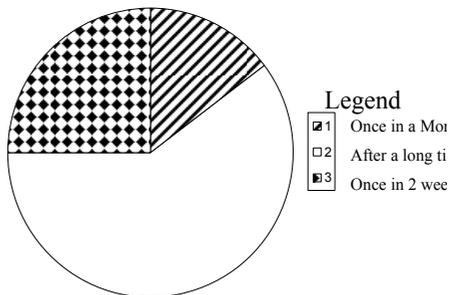


Figure 6: Pie Chart on Solid Waste Evacuation from the Dump

Table 5: Pollution through Undisposed Solid Waste

Extent	Ahocol	Udoka	Iyiagu	Real	Total	%
Much	6	15	10	17	48	60
Not much	8	1	6	5	20	25
Not at all	2	8	1	1	12	15
Total	16	24	17	23	80	100

Source: Field Survey, 2004.

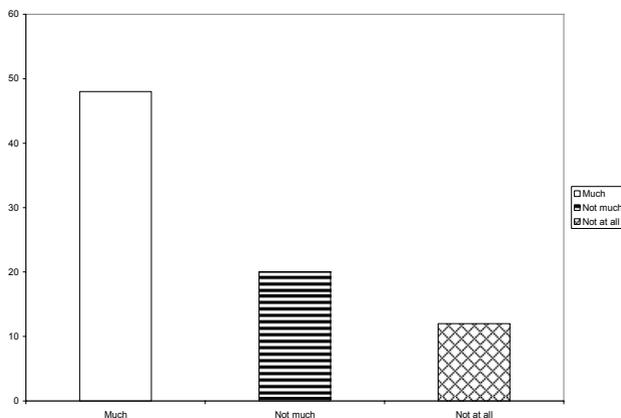


Figure 7: Bar Chart on Respondents' Assessment of Pollution through Undisposed Solid Waste

Solid Waste Disposal in Ahocol, Udoka, Iyiagu and Real Housing Estate

Plates 1 – 4 show photographs which indicate that households in Ahocol, Udoka, Iyiagu and Real estate store their generated solid waste in buckets or collection points outside the residential unit or close to the building wall. While some carry it to the dump located within the estates daily, others do so once a week. This has helped to keep the dwelling units clean. Field observation shows that the dwelling units are kept tidy except that the indiscriminate disposal dumps make the environment unpleasant.

Field survey also shows that Udoka has one solid waste disposal dump while

Ahocol, Iyiagu, Real estate have three each within the estates. Plate 5 – 8 show selected photographs of solid waste disposal sites in the four estates. Apart from a disposal site at Iyiagu housing estate (Plate 7) which was said to be provided for in the original design of the estate, other solid waste disposal dump sites were indiscriminately carved out by the residents. It was discovered from the field survey that the lands allocated for solid waste dumps have been converted to residential uses.

Plate 5 which shows solid waste disposal dump at Ahocol estate is indiscriminately located close to the wall of the east end of the estate. Occupants close to the dump dispose all manner of waste in it including woods. The palm trees around it assist in spreading odour both within the estate and outside.

Plate 6 shows solid waste disposal dump at Udoka housing estate, indiscriminately located close to an uncompleted building and along a road; while Plate 7 indicates the Iyiagu housing estate waste disposal dump which was originally provided in the estate's design. The disposal building was designed in a way to either burn the waste or allows it to decompose. Residents were expected to pour directly through a hole provided on the top of the building to assist in easy management. However, the photograph shows that solid waste were scattered all over the building. Plate 8 shows solid waste dump at Real housing estate, also indiscriminately located close to a wall near the west end of the estate where palm plantation is grown. The ground on which the dump is located slopes down suggesting that storm water may wash down some deposits of the waste. According to the respondents, solid waste generated from the various households are manually conveyed by the households to the disposal dumps.

An interview was conducted on the agencies managing these estates to specifically find out how the solid waste dumps are being evacuated. These Government Agencies were Anambra Home Ownership Company Limited, for Ahocol estate Phase 1 and 2; Anambra State Housing Development Corporation, for Udoka housing estate and Anambra State Ministry of Works, Housing and Transport for Iyiagu and Real housing estates. The responses from these agencies were the same. None of the agencies accepted responsibility for disposal or evacuation of solid waste from the dumps in the estates.

They said the occupants arrange on how their waste should be evacuated. Further inquiry shows that the residents of the estates do inform the Anambra State Environmental Sanitation and Protection Agency (ANSEPA) who has the responsibility of maintaining sanitation in the entire state to assist in evacuating the wastes. But due to the enormous tasks before ANSEPA and their insufficient machineries they respond to this call once in a long while. Solid waste in these estates is therefore left to decay and at times residents resort to burning the waste to reduce the unpleasant site.

Conclusion and Recommendations

This research has made some definite findings based on the occupants' assessment and the researchers' personal observations on the situation of our public housing estates with respect to household solid waste disposal. It is therefore evident that while Government is interested in establishing public housing estates to reduce the housing problems of the citizens, less or no attention is given to the cleanliness of the

estates. No wonder the conversion of designated solid waste dumps into residential plots. Public housing estate designs have become mere paper work which lack implementation. Some estate designs do not show areas for solid waste dumps and thus introducing doubt on the caliber of professionals that were involved in the design making.

The Government institutions responsible for any housing estate should also consider the solid waste disposal management as a major area of concern in public housing provision and should own the responsibility of environmentally maintaining these estates. Sites for solid waste disposal dumps should be provided for in the original design of public housing estates and to be strictly implemented. The Anambra State Environmental Protection Agency should be revitalized and properly equipped to face the challenge of the increasing waste generation and the problems of disposal in the state. They should introduce removable solid waste dumping system and sanitation levy which should be paid directly to them. Anambra State Environmental Protection Agency should enter into contract deals with plastic and steel companies to make such industries recycle used discarded materials while households should be encouraged by regulation to sort out their solid wastes before disposal into dumps. Private agencies may be involved in removal of solid wastes from dumps but with strict supervision.

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