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ENVIRONMENTAL EFFECTS OF ABANDONED PROPERTIES IN OGBOMOSO AND OSOGBO, NIGERIA

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Abstract

This study appraises the effects of landed property abandonment in Osogbo and Ogbomoso. Information on each of the observed effects was obtained through the administration of 658 structured questionnaires (304 and 354 for Ogbomosho and Osogbo respectively) to 25 sampled blocks from each city, sampling 20 respondents from each block. Case records from hospitals and police stations in the study area were also analyzed in the study. All observed environmental effects were ranked with N par and Kruskal-walis test. ANOVA and chi-square test were used to explain the variation in the incidence of environmental effects among the residential densities. Correlation analysis was also used to explain the relationship between the incidence of abandonment and variables of environmental problems. Effects observed include pollution, health problem, city's financial loss, obscenity, crime, property value decline, development control problem, wastage of resources, dangerous reptiles, accident and vagrancy. The brunt of abandonment is found to be more in the medium residential density. The study thus recommends an aggressive environmental management that offsets blighted conditions in the environment.

Keywords: *Effects, Buildings, Lots, Abandonment, Landed Properties, Environment*

Introduction

Environmental management and the promotion of the environmental quality have been addressed in different contexts. Among others, there have been the analyses of environmental pollution and its abatement (Adedibu 1983), and studies on environmental sustainability and the conservation of natural resources (Paddison *et al* 1988, Cohen 2001). The studies on the repairing and rejuvenating the decaying existing built up area occasioned by the advent of urban renewal (Onibokun *et al* 1987) are also not novel. Undoubtedly however, the urban environment is yet plagued with myriad of environmental problems, which eat deep into the physical, health, social, economic, legal and cultural fabrics of the environment. The fundamental preoccupation of planning for public purpose; is to make the city safe, healthy and beautiful (Keeble, 1969), and sustainable too (Nenno, 1996). To achieve this in any built up environment, prevalence of abandoned buildings and their environmental impacts on the aesthetics and the general livability of towns and cities must be addressed.

A high incidence of landed property abandonment has been observed the world over (Setterfield, 1997; Cohen, 2001; Mallach, 2004). The number of abandoned buildings in Baltimore in 2001 is between 12,700 and 42, 480 (Cohen 2001). Between 1996 and 2001 Detroit, Michigan demolished 18,200 condemned buildings with an estimated 10,000 substandard structures still remaining. Razed buildings were estimated to be more than 20% of urban structures in Houston, Texas and more than 12% in Las Vegas, Nevada (Mallach, 2004). Forth- Worth environmental management department in the United States has currently identified over 3,250 abandoned buildings in the city. This rightly suggests that the problem of landed property abandonment can be

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more ingrained in less developed countries like Nigeria.

Buildings will inevitably deteriorate and may subsequently be abandoned as they age unless they are properly maintained. Besides, changes in technological and commerce trend may edge out some structures; making them obsolete and prone to abandonment. The case in the cities studied is not different. Obsolete structures and infrastructures are very much part of the core city's landscape. Spurred by the family traditional and communal land tenure system, the old buildings remain where they are as a rule either boarded or not; and not just anyone could put them into use without general consensus of the family. This factor alone is capable of inducing abandonment. The political will and influence is on the decline and this probably account for the out migration of the indigenous population. This may be deduced from the trend of the demography in the available data (NPC 1991). Imperil structures smothered in damp shrubs and vine are therefore found in their good number dotting and forming part of the cities' built up environment. The implication of this can be enormous; it is capable of inducing or at least encourages one or more environmental, social and economic problems within the developed area. For instance, the presence of abandoned structures has been observed to encourage arson and other crimes, waste dump, and property value decline where they exist (Adedibu and Akindele, 2007).

While some of these structures are actually under construction but are characterized by bushy growth in and around them (if not roofed), some are old and dilapidated and partly roofed. It is even not uncommon to see some buildings dilapidating yet under construction. The age of some of these structures are only better imagined. Some of the structures carry red paint marks en-signed by the officers of the local planning authority, which connote that they are defaulters to the rules of development control in the city. They are therefore wrong things in the wrong places performing wrong functions because of wrong environmental management attitudes. They unnecessarily mark the area in which they are found with slum characteristics.

The sites are replete with unhealthy pollution activities especially within the area where toilet and waste disposal facilities are inadequate or non-existent (Olaniyi 2005). This may be why the prevalent health problems in the city are diarrhea, typhoid fever and other filth related health problem. Such sites are also vagrants delight, miscreants convenient abode and the den where criminals plan, conclude or perpetrate nefarious acts in the neighborhood (Spelman,1993). Drawing from Agbola (2002) who pointed out that a major dangerous or hot point in Abuja Nigeria are mostly those areas where development is not complete, where there are shanty developments and unused buildings are the settlement of miscreants. This confirms two things. First that abandoned structures are associated with crime and second that the incidence of abandoned structures occurs even in the fastest growing cities of the world.

Much questions demand answers. Is the quantity of abandoned properties large enough to be relevant to the discussion of urban blight? What are the possible explanations that the spatial distribution pattern of landed property abandonment would give? What are the particular intrinsic and extrinsic consequence of abandoned landed properties in their host environment? etc. this study therefore appraises the environmental effects of abandoned landed properties in Ogbomoso and Osogbo, Nigeria.

Methodology

The study relied on both primary and secondary data. Bulk of the information on the effects of abandonment was obtained through direct observation and the administration of structured questionnaires in both Ogbomoso and Osogbo cities. Aside the literatures from journals textbooks and other academic materials, secondary data was obtained from hospitals and police stations to investigate how much of a

catalyst abandoned structures had been to poor health and crime.

For effective area coverage within the cities and their residential density areas, urban blocks were sampled. Blocks here refer to a group of buildings surrounded by public spaces and in this study majorly the roads. The total number of blocks in the cities was determined by counting from the road network map of each of the city comprising Ogbomosho North and South local government areas in Ogbomoso and Olorunda and Osogbo Local Governments in Osogbo. A total number of 254 blocks are found in Ogbomosho while 243 were found in Osogbo. For the reason of convenience, 10% of the total number of blocks in each city was sampled and 20 questionnaires were allotted to each sampled block and its environs. Approximately 25 blocks are sampled in each city, with 20 questionnaires to each of the sampled block and thus 500 questionnaires were distributed in each city.

Salient areas that make up the cities were listed. Lucky dip exercise was carried out to randomly sample areas. Nine areas were selected for the high, 12 for the medium and 4 for the low densities respectively, nine areas were similarly in Osogbo's high density, 13 were selected for the medium and 3 for the low density areas respectively. This distribution is informed by the percentage proportion of the total number of areas relative to the grand total of all the areas listed for each city. All the observed environmental effects were ranked with N par and Kruskal-walis test. ANOVA and chi-square test was used in explaining the variation in the incidence of environmental effects among the residential densities. Correlation analysis was also used to explain the relationship between the incidence of abandonment and variables of environmental effects.

Results and Discussion

For the low density area, osogbo has 0.0001225 vacant land per m^2 while Ogbomoso has 0.0001925. Osogbo has 0.2725 abandonment per building while Ogbomoso has 0.2257. Osogbo has 0.00025 abandoned building while Ogbomoso has 0.0003875 per m2. The percentage of abandoned building relative to the total number of building in Osogbo is 27.21% while that of Ogbomoso is 22.62%. This implies that in the low density area, at least one vacant land is found within an acre or 10,000m2 in Osogbo and 1.9 or 2 are found within an acre in Ogbomoso. Out of 1000 houses in Osogbo 272.5 or 273 are abandoned but in Ogbomoso only about 226 in 1000 houses are abandoned. At least 0.00025 abandoned buildings are found per m^2, 3 abandoned buildings are found in 1 acre in Osogbo while 0.0003875 abandoned building per m^2 4 abandoned buildings are found in 1 acre in Ogbomoso. Out of every 100 buildings about 27 is abandoned in Osogbo while about 23 abandoned in Ogbomoso. The seemingly low incidence of abandonment in Ogbomoso in terms of percentage and per 10,000 houses must be in function of the higher absolute number of houses per block in the town. More houses are in the city and the sampled block the percentage of abandoned building therefore seems to be low.

For the medium density, Osogbo has a minimum of two vacant land in 1 acre while Ogbomoso has a minimum of six vacant land in 1 acre (these figures are obtained by multiplying vacant land per m2 by 10,000) out of 1000 buildings at least 192 are abandoned in Osogbo and about 251 are abandoned in Ogbomoso. This corresponds to 19.4% and 25.1% of abandoned buildings per block in Osogbo and Ogbomoso respectively. Also multiplying abandoned buildings per m2 by 1000, it can be deduced that at least 2 and 4 abandoned buildings are found in 1 acre of the medium density of Osogbo and Ogbomoso respectively.

In the high density Osogbo and Ogbomoso has a minimum of two vacant land in an acre. Out of every 1000 buildings, about 163 are abandoned in Osogbo and about 221 in Ogbomoso. At least 3.5 or 4 buildings and 3 buildings are abandoned in every 1 acre in Osogbo and Ogbomoso respectively. Out of

every 100 houses 16 are abandoned in Osogbo and 22 are abandoned in Ogbomoso.

Generally, the ratio of vacant land comparing Osogbo and Ogbomoso is 1:4 respectively, that is, when there is a vacant land in Osogbo there are about 4 in Ogbomoso. The incidence of abandonment is also higher in Ogbomoso. For instance, in every 1000 buildings 196 are abandoned in Osogbo but 236 in Ogbomoso. Similarly, in an acre 2 (2.3) are abandoned in Osogbo while about 4 (3.7) are abandoned in Ogbomoso.

Table 1 Spatial Incidence of Abandonment

Density	Vacant Land/M^2		Abandonment / Building		Abandoned Building/ M^2		% of Abandoned Building	
	Osogbo	Ogbomoso	Osogbo	Ogbomoso	Osogbo	Ogbomoso	Osogbo	Ogbomoso
	0.0002	0.0005	0.37	0.25	0.0004	0.0006	36.84	25
	0.0001	0.0002	0.19	0.19	0.0002	0.0005	19.05	19.05
	0.0001	0.00003	0.53	0.15	0.0004	0.00005	52.94	15.38
	0.00009	0.00004	0	0.31	0	0.0004	0	31.03
*	0.0001225	0.0001925	0.2725	0.2257	0.00025	0.0003875	27.2075	22.615
	0.0001	0.0002	0.17	0.06	0.0002	0.0001	17.39	6.06
	0.00004	0.0004	0.19	0.29	0.00002	0.0015	19.35	28.57
	0.0001	0.0006	0.15	0.29	0.0002	0.001	15.38	29.17
	0.0002	0.0004	0	0.15	0	0.0002	0	14.81
	0.00009	0.0003	0.13	0.10	0.00009	0.0003	13.04	9.52
	0.0001	0.0003	0.41	0.30	0.0004	0.0003	30.77	29.73
	0.0001	0.00006	0.06	0.39	0.0002	0.0001	5.88	38.89
	0.0002	0.00006	0.2	0.31	0.0002	0.0001	20.00	30.77
	0.00004	0.0001	0.77	0.19	0.0001	0.0003	30.30	19.23
	0.00005	0.00009	0.08	0.47	0.00005	0.0005	8.33	47.06
	0	0.0002	0	0.19	0	0.0002	0	19.35
	0.0001	0.0002	0.09	0.28	0.0001	0.0004	8.70	27.59
	0.0002	*0.00067	0.25	*0.251667	0.0004	*0.0004167	25.00	*25.0625
*	0.000102	0.0004	*0.1923077	0.21	*0.000151	0.0006	*19.43385	20.59
High	0.0003	0.00004	0.22	0.18	0.0005	0.0002	21.62	17.86
Density	0.0001	0.0004	0.14	0.19	0.0003	0.0006	13.73	18.75
	0.0002	0.00003	0.08	0.40	0.0002	0.0001	7.69	40.44
	0.0005	0.00002	0.11	0.13	0.0005	0.00002	10.81	12.82
	0.0003	0.0001	0.39	0.30	0.0006	0.0003	38.71	30.43
	0.00007	0.00007	0.15	0.33	0.0002	0.0003	15.38	33.33
	0.00007	0.0003	0.07	0.19	0.0002	0.0004	6.52	19.35
	0.0001	0.0003	0.14	0.06	0.0003	0.0002	14.29	6.06
*	0.000205	0.000184	0.1625	0.22111111	0.00035	0.00030222	16.09375	22.181111
City mean	0.000138	0.0004188	0.1956	0.2364	0.0002304	0.0003708	17.2688	23.6336

* Mean for the Density

It would be observed here that the incidence of abandonment is high. Between a fifth and a quarter populations of houses in the cities concerned were abandoned. It is appalling that most of the abandoned buildings and plots clusters at some particular areas within the cities. But the chief cause of abandonment has been identified to be urban diseconomy or downturn economy (Adedibu and Akindele, 2007). The incidence and pattern of abandoned landed properties may be due to the fact that, investors of housing would naturally prefer thriving areas

where population with economic power resides. The urban poor are therefore clustering together in line with the theory of social stratification. There are various and complex implications of this. The scale at which each of the adverse effects borne by abandoned landed properties would be expressed has the propensity to be high. For instance over a reasonably wide distance in the neighborhood, there won't be lightning in the dark hours of the day as a result of the clustered landed property abandonment. This provides cover; much more for any criminal activities with a great reduction in opportunity for arrest.

Abandonment and Pollution

Pollution activities in this study include refuse dumping and defecation in the building and on vacant lands. Table 2 shows the response of high, medium and low residential density directs of both Ogbomosho and Osogbo on whether dumping and or defecation are done on abandoned landed properties in their area.

Table 2 shows that dumping and defecation into abandoned building is higher in Ogbomosho (55.63%) and much more in the medium density (73.04%) where abandonment incidence is high. For both cities, the incidence of abandonment is greater in the medium density than the high and then the low. The chi- square test performed showed that there is significant difference in 'dumping and defecating into abandoned buildings' among the three residential densities at 95% confidence level. This connotes that the problem of the dumping of refuse and human dung because of the presence of abandonment is felt at some areas very much significantly above others. This may be because abandonment is higher in Ogbomosho and also higher In the medium densities than other city and areas.

The Correlation Result

The presence of abandoned building was correlated with 'dumping and defecation into abandoned building'. The correlation coefficient was 0.70. This suggests a high positive correlation between them. Correlation analysis also showed (0.53) a relative high correlation between "presence of abandoned land" and "dumping and defecating on vacant land". Chi square test showed a significant difference in the incident of defecating on vacant land among the residential densities of both cities. Table 01 show that its incident is highest in the medium density especially for Ogbomosho. Correlation test shows a high correlation (0.76) between "presence of abandoned land" and "defecating on abandoned land". The implication of this is that, the presence of abandonment encourages residents nearby to dump refuse and defecate in them. The fight against pollution activities by town planning and environmental management would be a mere wish if nothing is done to eradicate the problem of landed property abandonment.

Abandonment and Health

The incidence of pollution activities as a result of abandoned landed properties is suggestive of the fact that health problems may be generated by the presence of abandonment. Abandoned buildings with lead point asbestos are also very dangerous to health. Abandoned building especially the dilapidating ones are potential accident points where suspending debris or the whole house can fall on passersby. Junks and thrashes can contain sharp objects that can injure residents in the neighborhood.

The incidence of health problems was measured in the study by investigating the commonest sickness in their area. The indicated sicknesses are classified into two: Filth related and others. The filth related ones include malaria. Typhoid, dysentery cholera and diarrhea. The health statistics of the cities were also taken from the major hospital (BMC, State hospital of Ogbomosho and The Ministry of Health Osogbo). Table 03 shows the commonest sickness in each density of the cities.

The result of the analysis of variance (ANOVA) performed showed that there is no significant difference in the occurrence of filth related diseases within and among the cities and their densities, at 95% confident level. Nevertheless, filth related health problem is predominant in both cities. This in theory may mean that filth related health problem may not be

associated with abandoned structures in the study. However, an interpretation may be that, there is a high correlation between high incidence of abandonment and filth related diseases. This is because the listed filth related health problems are contagious and may be spread through the vectors of flies, rodents humans etc from regions of high abandonment to areas where the incidence of abandonment is low.

Abandonment and Property Value

Location and situation surrounding landed property are some of the determinants of its capital or rental worth. The issue of concern in this study is to know the relationship between the presence of abandoned landed properties and property value in the study area. One of the methods used is the determination of the rental as well as property values in the different areas. Residents were further required to rank the rent level in their area. These rent levels were correlated with the presence of abandoned buildings using the Spearman rank correlation coefficient. The correlation is significant at the 0.01 alpha level (2-tailed). This means that the presence of abandonment negatively affect the level of rent of the property value in areas where they exist. The table below shows the relationship between the presence of abandoned buildings and the level of property value decline.

Table 4 shows in general that respondent agreeing with the presence of abandonment rates property value decline higher than others. The situation is essentially true of Ogbomosho when only 32.7% of respondents that has abandoned buildings in their area rated property value decline as significant and; where none of those who have no abandoned buildings rated property value decline above "very low". The case is very similar in Osogbo where only 32.3% of the respondents with abandoned buildings rated property value decline as insignificant only that 10 more out of the respondent without abandoned buildings rated property value decline as only low. The presence of abandoned building was further correlated with the level of property value decline and the correlation is significant at 0.01 level (2-tailed). It can therefore be concluded that abandonment in the two cities causes property value decline.

Abandonment and Crime

This section tests the hypothesis that abandonment correlates with crime in the study area. The differences in occurrence of crime as a result of abandoned building among the densities and cities are also verified. To achieve this, respondents were required to indicate the type of crime in existence in the area as well as rate the degree of occurrence. They were asked if abandoned buildings had facilitated crime in their area and if it is potential crime facilitator. This is in case of when they do not have abandoned buildings in their area or cannot link the abandoned building in their area with a specific crime.

Table 5 shows that abandonment facilitates crime as 53.95% of the total respondents agree to it. Nonetheless, fewer in Ogbomosho (49.09%) but more in Osogbo (57.95%) confirms the same. This suggests that abandonment may correlate with crime but that crime is associated with urbanization especially when seen from the standpoint of high state of anomie and anonymity.

According to table 06, 95.23% of the study's total respondents agree that abandoned buildings are potential crime facilitator. 52.6% this class of respondent from Osogbo, the rest 47.4% is from Ogbomosho. This suggests that Osogbo has more crime experiences connected with abandoned structure. All the same, it is agreed that abandonment may encourage crime.

The N par Test Result

Five types of crime can be associated with abandoned buildings: arson/fire hazard, theft, rape, drug or hemp smoking and property vandalization. Also associated with abandoned buildings is property value decline. Respondent were asked to indicate the ones that had been observed and simultaneously rate the level of their occurrence. The ratings of each crime were differently summarized. The N par test was used to combine the summary of each case, computing

the mean for the level of each crime by their mean. The Friedman Test was specified to run a chi-square for the ranks at 99% confidence level. The result showed that there is significant difference in the type and level of crime in the study area at 99% confidence level. The N par test split out that the level of theft (4.44) is highest followed by drug or hemp smoking (4.37) followed by property vandalization (3.42) followed by property value decline (3.40) followed by rape (2.80) and the least is arson (2.58). This result is general for both Ogbomosho and Osogbo.

To verify the variations in the level of crime between the two cities, the 'Kruskal walis' test was performed. Although this is similar to ANOVA but was preferred in the study because it first summarizes the level of each crime as rated by respondents then the differences between and among the variables.

The level of occurrence of each crime was ranked separately for both cities. This showed that all type of crime but for rape have greater incidence in Osogbo. Invariably, this study reveals that, abandonment decrease with urbanization but its negative effect increase with urbanization. For instance, with fewer abandonment buildings, Osogbo has higher incidence of crime compared to Ogbomosho. Chi-square test showed a significant difference in level of arson between the cities at 95% confidence level. theft between the cities at 99% confidence level; rape at 99% confidence level and drug or hemp smoking property vandalization and property value decline between the cities are relatively low.

The Police Crime Statistics

For the purpose of this study, statistics of crime were sampled from the police headquarters of both cities. The statistics contained the total number of such cases as theft, rape, Drug or hemp smoking, arson and that may be connected with abandoned buildings for each year. All type of cases was categorized into two: Crimes that can be connected with abandoned buildings and others. The mean of each category of crime was calculated to summarize the findings. Table 06 shows the crime situation in relation with abandoned buildings in the cities.

It can be seen from the above that abandoned building facilitates about 37.48% of the total crime annually. Cases that can be connected with abandoned buildings occur more in Oshogbo perhaps because the total annual number of crime in the town is also higher relative to Ogbomosho's.

Abandonment and Municipal Financial Loss

The municipal financial loss is a function of the financial commitment of the municipality to clearing dumped wastes and junks from vacant land and abandoned buildings. Cleaning waste from abandoned building should remain the onus of the property owners. This may be why abandoned buildings are still replete with accumulated waste. Nevertheless, abandoned landed properties, especially the ones to public places or too open to the important streets will have their waste taken care of by the community health officer in the public. Clearing waste from private landed properties therefore is not a target of the municipal. However, about #100,000 [#40,000 (about $350) from Oshogbo #50,000 ($420) from Olorunda, #50,000 (about $420) each from Ogbomosho north and south local governments] from each city sinks into waste clearance on monthly basis. This totals about #1.2million (about $10,000) annually for each city.

Recommendation and Conclusion

The insidious effect of abandonment on the physical and socio-economic fabric of the city is phenomenal. It as no aesthetic value, it is a practical symbol of wastage, it lowers the value of the adjoining properties, it create financial burden to the municipal, for instances, more than a million naira ($10,000) is wasted on clearing wastes that accumulate in it. It facilitates crime; at least 37% of the total crimes in both cities have connection with abandoned buildings. This is because abandonment reduces the efficiency of law enforcement agents who are reluctant to enter

into abandoned buildings for legal reasons. This is corroborated by Spelman (1993) that when they enter into it, it is dangerous yet; the probability of making an arrest is low.

Abandonment should therefore be combated. This can be done legally, socially and economically. This study thus recommends that an anti-blight ordinance is needful to encourage a reputable management culture among the citizens. It is also imperative that well equipped physical planning units; provided with an additional unit who are to see to blight control in the area will also be of help. All speculative land may be taxed. This will discourage speculation and abandonment, it will rather promote development. With all these in place, it is believed that the brunt of abandonment in our urban centers shall be mitigated.

Table 2 Dumping and Defecation into Abandoned Building

% Abandoned Building with Refuse and Dung				
	High Density	Medium Density	Low Density	Total
Ogbomosho	45.21%	73.04%	40.74%	55.63%
Osogbo	43.75%	45.22%	34.21%	43.24%
Total	44.69%	42.27%	38.04%	42.36%

Table 3 Commonest Sickness/Disease Per City and Density

% Filth Related Sicknesses				
	High Density	Medium Density	Low Density	Total
Ogbomosho	99.17%	97.35%	100%	98.58%
Osogbo	100%	97.60%	97.73%	98.23%
Total	99.51%	97.51%	98.91%	98.39%

Table 4 Abandoned and Property Value

City	Presence of Abandoned Building	Level of property Value Decline Insignificant%	Very Low %	Low %	High %	V.High %
Ogbomosho	High	14.74	17.53	24.30	28.29	15.14
	Low	90.91	9.09			
Osogbo	High	12.89	11.33	13.67	29.30	32.81
	Low	34.88	44.19	15.12	4.65	1.16
Total	High	13.81	14.40	18.93	28.80	24.06
	Low	41.24	40.21	13.40	4.12	1.03

Table 5 Abandonment and Crime facilitation

City	If Abandonment Facilitates Crime		
	Facilitates (%)	Do not facilitate	Total (%)
Ogbomosho	49.09	50.91	45.23
Osogbo	57.95	42.05	54.77
Total (60%)	53.95	46.05	100

Table 6 Abandonment as potential crime facilitator

City	Abandonment, a potential crime facilitator		
	Yes (%)	No (%)	Total
Ogbomosho	97.07	2.93	46.51
Osogbo	93.63	6.37	53.49
Total	95.23	4.77	100

Table 7 Proportion of Crime Associated with Abandoned Buildings

City	Crime in Abandoned Building (%)	Others (%)	Total (%)
Ogbomoso	29.52	70.48	44.86
Oshogbo	43.95	56.05	55.14
Total	37.48	62.52	100

Source: Police HQ (Ogbomosho and Oshogbo) 2010

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