

Rapid Urbanization and Environmental Poverty in Residential Areas of Agbowo, Ibadan, Nigeria

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Abstract: The study examined rapid urbanization and environmental poverty in residential areas of Agbowo, Ibadan, Nigeria. Systematic random sampling technique was used in selecting 169 (0.81%) out of 20,915 residential buildings in Agbowo. Pearson Product Moment Correlation shows a significant mean relationship of $r = 0.994$; $p < 0.05$ existed between urbanization and social facilities, follow by housing condition with mean relationship of $r = 0.008$; $p < 0.05$ and environmental pollution with mean relationship of $r = -0.092$; $p < 0.05$. However, regression analysis shows that urbanization posed the highest challenges to social facilities with $\beta = 0.998$; $p < 0.05$, followed by environmental pollution with $\beta = 0.027$; $p < 0.05$ while housing conditions had no significant challenge with $\beta = 0.011$; $P < 0.05$. Indicators of environmental poverty such as inadequate social facilities and environmental pollution are major challenges in residential areas of Agbowo due to rapid urbanization.

Keywords: Urbanization; Environmental; Poverty; Residential; Agbowo.

Date of Submission: 20-03-2019

Date of acceptance: 06-04-2019

I. BACKGROUND TO THE STUDY

1.1 Introduction/Statement of Research Problem

According to Mannion (1997), “rapid urbanization exerts a strong impact on the peripheral areas in the wake of continuous urbanization and modernization processes with the increased demands they make for land, housing, physical infrastructural development and transportation can affect significant changes in the peripheral areas/settlements”. Owoeye (2013) attributed these changes to the improvement of infrastructural facilities as well as the socio-economic development which play crucial roles in organization and changes in peripheral areas near the urban centres.

Mabogunje (1985) expressed that “the increasing environmental poverty in the large metropolitan centres have become much pronounced which involved not only the living conditions but also the ease of circulation in the city, house congestion, poor waste disposal and management, inadequate water and power supply, inadequate parking space, traffic congestion and delay, flooding and host of others”. Mabogunje (1985) further said that “poor management of Nigerian cities is manifested through an inability to generate adequate resources and anticipation of future needs”. Therefore, the cause of the problems in Nigerian cities could be attributed to the growing disequilibrium in the processes of development and capabilities to manage them.

Agbowo is manifesting some of the indicators of environmental poverty such as housing congestion, traffic congestion, poor drainage and sewage system, indiscriminate discharge of liquid and solid waste, environmental pollution, inadequate social facilities and over-utilization of existing infrastructural facilities. There has been a lot of informal physical development in Agbowo; some houses that were hitherto residential have been converted to commercial uses, places that were originally earmarked as setback are used for shops and stores against this background, the study examines how rapid urbanization has caused environmental poverty in the residential areas of Agbowo.

1.2 Research Hypotheses

1. There is no significant relationship between urbanization and poor housing condition in Agbowo community.
2. There is no significant relationship between urbanization and inadequate social facilities in Agbowo community.
3. There is no significant relationship between urbanization and environmental pollution in Agbowo community.

1.3 Methodology

The research adopted a cross-sectional survey research design. Quantitative method design was used in data gathering, analysis and presentation. Ibadan North Local Government areas, Oyo State, Nigeria is made up of several communities that are spatially developed, among which are Agbowo, Old Bodija, New Bodija, Agodi, Gate, Sango, Ikolaba, Ashi and Samonda. One community where environmental poverty is highly predominant was purposefully selected. The community selected for this research is Agbowo (See figure 1.1). According to Planning Authority of Ibadan North Local Government (2015), Google Earth (2017) and ground truthing (2017) the total number of residential buildings in the study area at the period of carrying out this research was 20,915. The Systematic sampling method was used for the selection of sampled buildings while 0.81% sample size was chosen for the study. The sampling interval is 124 which imply the selection of one building from every 124th residential buildings along the roads. A total of 169 houses were selected for the administration of questionnaires. In each of the selected residential building, a household was randomly selected irrespective of its residential status (whether it is the landlord's or tenants) and the head of the selected household was interviewed with the aid of the set of pre-tested questionnaire. It was only in the absence of the household head that the oldest adult member of the household aged at least 18 years provided the required information.

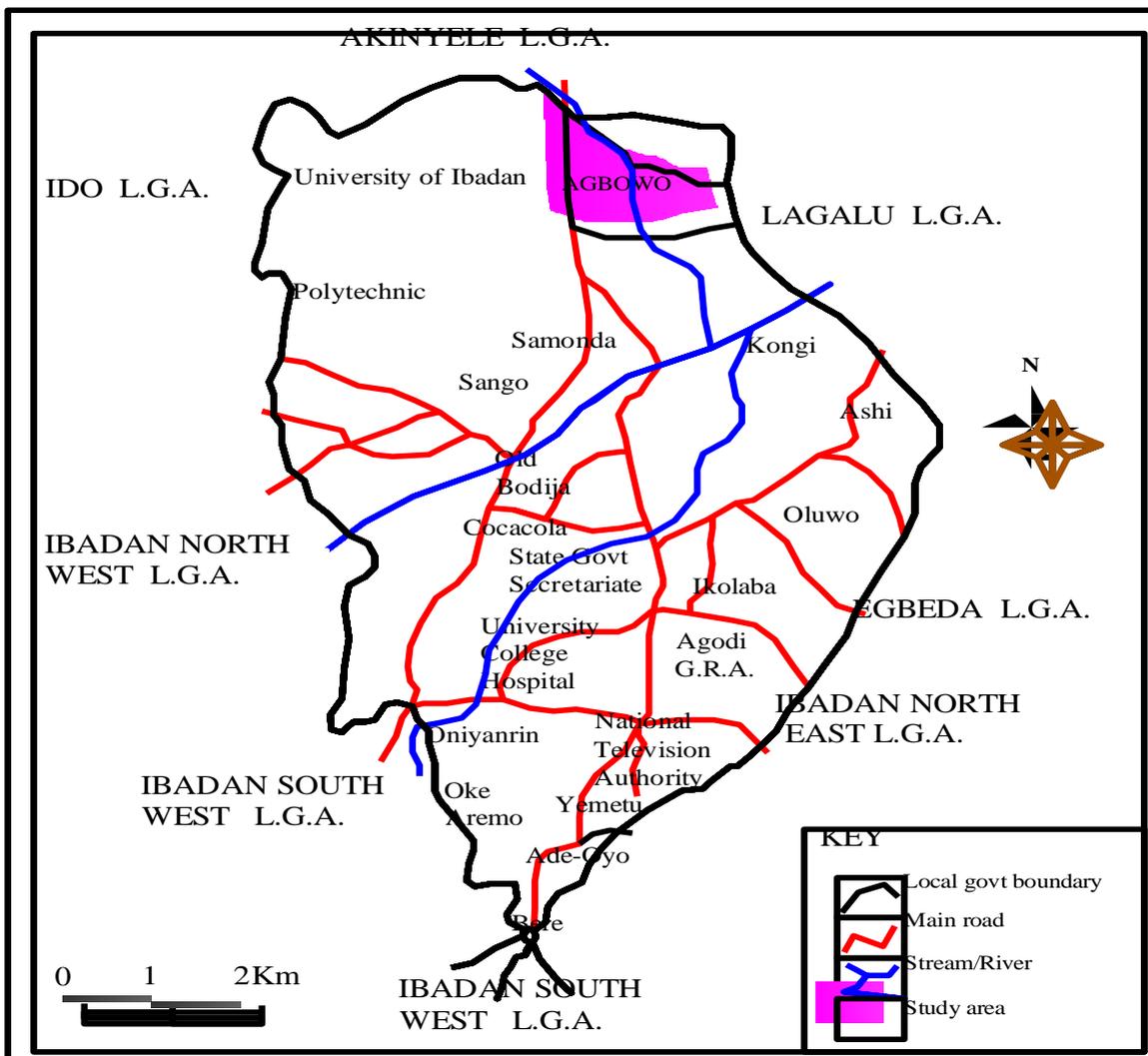


Figure 1.1: Agbowo in the Context of Ibadan North Local Government Area
 Source: Ministry of Land and Housing, Ibadan (2017)

II. RESEARCH FINDINGS

This section considers the existing situation of Agbowo physical development in terms of population distribution and housing density, assessment of social facilities, housing condition, drainage type, road traffic and transportation, waste generation, disposal and management.

2.1 Population Distribution and Housing Density in Agbowo

Based on the 1991 population census figure which was adjudged to be the most reliable, the projection was made for Agbowo for the year 2017 by using National Population Commission (1991 and 2006) growth rate of 2.83 and 3.18% respectively and a compound interest formula. Table 2.1 reveals that the number of males in the study area is 22,440 which were projected to be 48,289 with 49.7%. The number of females is 22,738 which was projected to be 48,930 with 50.3%. This shows that there are more females in Agbowo than males. The population of Agbowo drastically rose from 45,178 to 97,219 which imply that the population of Agbowo has increased sporadically by 52,032 from 1991 to 2017. This is very significant and has resulted in traffic congestion, poor housing condition, inadequate social facilities and environmental pollution. Occupancy rate formula was used to determine the existing occupancy rate in Agbowo. This was carried out by dividing the existing population with the result gotten when multiplied the total number of residential buildings by National Population Commission (2006) ideal occupancy rate of two people per room. The result revealed that the existing occupancy rate in Agbowo is 2.6. This implies 3 people per room which is against the ideal occupancy rate of 2 people per room and also attests to the manifestation of rapid urbanization in Agbowo.

Table 2.1: Sex Distribution in Agbowo

Sex	Population (1991)	Projected Population (2017)	Percentage
Male	22,440	48,289	49.7
Female	22,738	48,930	50.3
Total	45,178	97,219	100.0

Source: National Population Commission (1991) and Author's Projection (2017)

Hypothesis 1

Pearson correlation coefficient was calculated for the relationship between urbanization and poor housing condition (See table 2.2). A weak positive correlation was found ($r=0.008$, $p<0.05$), indicating a weak but significant linear relationship between the two variables. Hence, the null hypothesis that states that there is no significant relationship between urbanization and poor housing condition is therefore rejected. This validates the assertion of Akinmoladun (1999) that "uncontrolled and unplanned urbanization leads to overcrowding, poor and substandard housing".

Table 2.2: Relationship between Urbanization and Housing Condition in Agbowo

Variable	N	Mean	Std. Deviation	R	Sig (2tailed)	p	Remark
Urbanization	168	2.1806	1.02597				
Poor housing conditions	168	1.5611	.28316	.008	.000	<0.05	Significant

Source: Statistical Package for Social Sciences (2017)

2.2 Assessment of Drainage in Agbowo

The results from the table 2.3 shows that 72.2% of the respondents agreed that drainage system is available in Agbowo area and the common type drainage available is open, The residents of Agbowo dispose their waste inside the drainage when it is raining which often leads to incessant erosion and flooding. The finding also revealed that the condition of the drainage system is neither fair nor good, notwithstanding, 20.6% of the respondent agreed that condition of the drainage was bad (See table 2.3). Increasing environmental poverty as a result of incessant erosion and flooding in residential areas of Agbowo can be ascribed to weak or poor urban governance. This supports the assertion of Frederick (2009) that "rapid urbanization exacerbating the ability of authorities to ensure environmental quality", thus, enviromental degradation and poverty are challenging the governability of social institutions Like Agbowo.

Table 2.3: Drainage System in Agbowo

Drainage system	Frequency	Percentage
AVAILABILITY		
Available	122	72.2
Not available	47	27.8
TYPE		
Open	107	63.3
Close	62	36.7
CONDITION		
Good	67	39.7
Fair	67	39.7
Bad	35	20.6

Source: Field Survey (2017)

2.3 Road Traffic and Transportation in Agbowo

Table 2.4 revealed the road status and packing pattern in Agbowo area. The finding from the table revealed that the number of un-tarred roads (55.1%), almost double the tarred roads (31.4%) and the footpath is significantly small compared with the available roads. This is an indication of accessible but densely populated community. The finding also revealed that buildings in Agbowo are compacted that 53.3% of the residents park their vehicles on the street. And only 17.2 % of the population is able to secure car park in their various houses while other park their car in the garage and other available spaces. This also validates the assertion of Akinmoladun (1999) that “unplanned and uncontrolled urbanization leads to inadequate parking space”.

Table 2.4: Road Access and Packing Pattern in Agbowo

Road System	Frequency	Percentage
NATURE OF ROAD		
Tarred	53	31.4
Not tarred	93	55.1
Footpath	11	6.5
Not available	12	7.1
PARKING PATTERN		
On street	90	53.3
Car park	29	17.2
Garage	24	14.2
Other	26	15.4

Source: Field Survey (2017)

Hypothesis 2

Pearson correlation coefficient was calculated to examine the relationship between urbanization and inadequate social facilities (See table 2.5). A strong, positive, significant correlation was found ($r= 0.994$, $p<0.05$). This implies that there is a linear relationship between urbanization and inadequate social facilities, therefore, the null hypothesis that state that there is no significant relationship between urbanization and inadequate social facilities is therefore rejected. The result supports the assertion of Mpofu (2013) that “as human populations increase in Sub-Saharan Africa, they often lead to the decline in the number of open spaces available which in turn result into inadequate or absence of social facilities”. In Agbowo, places originally earmarked for a playground and parking space has been converted to illegal residential development. The settlements become slums of the most appalling nature which is an indicator of urban environmental poverty.

Table 2.5: Relationship between Urbanization and Available Social Facilities

Variable	N	Mean	Std. Deviation	R	Sig (2tailed)	p	Remark
Urbanization	168	2.1806	1.02597				
Inadequate social facilities	168	2.5640	1.53093	.994	.000	<0.05	Significant

Source: Statistical Package for Social Sciences (2017)

2.4 Sources of Waste Generation in Agbowo

The percentage of solid waste generated from residential area is about 33.73%, commercial 30.77%, industrial, 1.77%, religion and institutional accounted for 13.02% and 20.71% respectively (See table 2.6). The types of solid waste generated by the institution in Agbowo are basically paper, nylon of pure water and biscuit while the industrial waste in include; paper, nylon, metal, plastic and the like. The level of waste being generated in Agbowo is a challenge because of the lack of waste management policy and governance. This supports the assertion of Mpofu (2013) that “urban neighbourhood-related environmental problem is waste disposal that leads to the littering of the physical environment with solid waste” which is an indicator of urban environmental poverty.

Table 2.6: Sources of Solid Waste Generated in Agbowo

Solid Sources of Waste	No. of Buildings	Percentage
Residential	57	33.73
Industrial	3	1.77
Commercial	52	30.77
Religion	22	13.02
Institutional	35	20.71
Others (specify)	-	-
Total	169	100

Source: Field Survey (2017)

The identified storage facilities are prominently used by the residents of Agbowo for waste storage. There are various modes of waste storage/disposal in Agbowo, among these are metal bin which accounted for 46.15%, the plastic bin is about 31.96%, basket and carton takes 10.65% and 3.55% respectively. Others modes include burning waste in the ground which takes about 7.69% of the total (See table 2.7). One of the reasons why plastic bin and metal dustbin take the largest percentage of solid waste storage in Agbowo, this is because it serves as a convenient means of storing waste before disposal, it is pollution free and enhances the clean environment. This supports the assertion of Izeogu (2009) that “with improvements in incomes of the urban employed, consumption patterns changed so that the emphasis shifted to the packaged product, which tends to produce large amounts of litter such as plastic, tin and bottles” as it is being experienced in Agbowo.

Table 2.7: Mode of Solid Waste Storage

Sources	No. of Buildings	Percentage
Plastic bin	54	31.96
Basket	18	10.65
Carton	6	3.55
Dustin (metal)	78	46.15
Others (specify)	13	7.69
Total	169	100.00

Source: Field Survey (2017)

The table 2.8 shows methods of waste disposal in Agbowo community, it revealed that majority of respondents used dustbin (69.1%) as a mean of waste disposal, also 16% of the respondents burnt their waste while 10.7% used incineration. This implies that the majority of those that used dustbin are likely to dispose of their waste inside the drainage because there is no effective waste management system which eventually leads to environmental pollution and flooding. This supports the assertion of Nwaka (2000) that “in Nigeria only 30 per cent of waste is satisfactorily disposed of, the rest is being dumped by the roadside or into nearby drainage channels, rivers and streams”.

Table 2.8: Waste Disposal in Agbowo

Disposal Methods	Frequency	Percentage
Incineration	18	10.70
Dustbin	117	69.10
Burning	27	16.00
Other	7	4.20
Total	169	100.00

Source: Field Survey (2017)

Hypothesis 3

Pearson correlation coefficient was calculated for the relationship between urbanization and environmental pollution (See table 2.9). A weak negative correlation was found ($r = -0.092$ $p < 0.05$), indicating a significant linear relationship between the two variables. Hence null hypothesis that state that there no significant relationship between urbanization and environmental pollution is therefore rejected. This validates the assertion of Lovelock (2000) that “the main environmental problems in the residential neighbourhoods of Sub-Saharan Africa are related to various aspects of water, air and noise pollution”. The major source of water pollution in Agbowo can be traced to the indiscriminate discharge of liquid waste from the large quantity of household, industrial, institutional, hospital and other land use activities. Water pollution is responsible for the manifestation of common diseases in Agbowo among which are: diarrhoea, dysentery, typhoid, food poisoning and intestinal parasites. The manifestation of water-borne diseases in Agbowo confirmed the findings of UN-Habitat (2009) that “many houses in Sub-Sahara Africa suffer from the prevalence of pathogens because of the lack of basic infrastructure and services such as sewer, drains, or liquid wastes and safe disposal of wastes”. The major source of air pollution in Agbowo can be traced to fuels for heating and electricity generation, burning of garbage, emission from poorly maintained motor vehicles and motorcycles congested in narrow streets. This contributes substantively to air pollution through emissions of carbon monoxide, oxides of nitrogen and hydrocarbons (Mpofu, 2013). Noise pollution is also a major problem in Agbowo which is majorly generated from congested traffic on the highway and streets.

Table 2.9: Relationship between Urbanization and Environmental Pollution

Variable	N	Mean	Std. Deviation	R	Sig (2tailed)	p	Remark
Urbanization	168	2.1806	1.02597				Significant
Environmental pollution	168	1.3381	.36094	-.092	.000	<0.05	

Source: Statistical Package for Social Sciences (2017)

III. POLICY RECOMMENDATIONS

Based on the research findings appropriate recommendations on how to improve the quality of the physical environment in Agbowo community are hereby suggested:

3.1 Urban Governance- the findings of the research revealed that weak/bad governance in community management contributed mainly to the environmental poverty of Agbowo. This calls for in-depth efforts of the community stakeholders through policies, programmes, projects and plans to educate and raise awareness for a broad capacity building of Agbowo residents on issues related to good urban governance in order to improve the environmental quality of Agbowo community.

3.2 Planning and Community- social and community behaviours of people in Agbowo in terms of indiscriminate discharge of liquid and solid wastes contributed to the environmental poverty. There is the need to form urban management team for Agbowo, this would foster cooperation between the stakeholders and residents to embark on development programmes that will improve the physical environment of the community and better the lot of the inhabitants. Also, it would be sensitized the community dwellers to develop the habit of a sense of belonging in taking proper care of the physical environment in order to ensure quality.

3.2 Sustainable Community- Agbowo community is not sustainable in terms of provision for basic needs of people along with necessary care, housing provision and quality, pollution free environment, adequate social facilities and good community governance. Therefore, improving the quality of Agbowo will require strong policy driving on responsible and proactive decision-making and innovation that minimizes negative impact and maintains a balance between ecological resilience, economic prosperity, political justice and cultural vibrancy.

3.3 Redevelopment programmes- absences of urban plans and controls have been identified as one of the contributing factors to the level of environmental poverty in Agbowo. This suggests the adoption of redevelopment programmes like urban renewal/upgrading and development control as pro-active measures to save the physical environment of Agbowo from further disintegration into an uncontrollable slum. This calls for the intervention of Agbowo community managers, politicians, policy makers, planners and other professionals in the formulation of action driving policies and strategies in line with redevelopment programmes on rejuvenation of the physical environment of Agbowo so that it would be sustainable in the broad sense of being

able to ensure that residents live in safe, healthy and dignified physical environment with relatively easy access to social facilities.

3.5 Environmental Laws- casual observation revealed that the impact of different environmental laws promulgated in Nigeria have not been reflective in Agbowo, among these laws is: Environmental Sanitation Edicts, Environmental Impact Assessment, Urban and Regional Planning Law, Environmental Protection Agency etc. The ineffectiveness of these laws is attributed to the fact that different environmental stakeholders have failed in their duties in the implementation and sustainability of environmental laws. However, for environmental laws to be effective in Agbowo, State and Local governments, citizens, judiciary, non-government organizations and media houses needs to cooperate, coordinate and make a regular consultation. The rights and duties of the government, its agencies and the residents, in general, must be precisely defined and enforceable by everyone for environmental protection to be effective and sustainable in Agbowo.

IV. CONCLUSION

The agglomeration of people to central areas of the Nigerian cities and the resultant physical, social and economic effects has been a major concern to community managers, politicians, policy makers, planners and other professionals over the years. This phenomenon, which is one of the principal consequences of massive internal migration, has added to many socio-economic challenges such as; poverty, youth delinquency, insecurity, slum, decay, land change and conversion, housing shortage, inadequate community facilities and infrastructure all of which are the general features of environmental poverty.

According to Onibokun (2006), one of the contributing factors to environmental poverty is the unsustainable urban development and management approach hitherto practiced in Nigeria where there is total dependence on government for everything- government must provide houses, markets, roads, drains, water, environmental sanitation, parks and gardens, schools etc; government sets the priority and determines the needs; the people in reaction, stand aloof and watch public resources go down the drains on misplaced priorities. To improve the environmental quality of Agbowo, the unsustainable urban development and management must give way to a new approach called environmental planning and management process whereby every individual in the community is seen as a stakeholder in ensuring sustainable environmental quality.

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Femi A. Balogun. " Rapid Urbanization and Environmental Poverty in Residential Areas of Agbowo, Ibadan, Nigeria." IOSR Journal of Humanities and Social Science (IOSR-JHSS). vol. 24 no. 04, 2019, pp. 51-57.