

Assessing habitats of vulnerability in African cities: A case of poverty housing in Ibadan Metropolis, Nigeria

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Most cities in developing countries have witnessed unprecedented rapid urbanisation and urban growth which many researchers have likened to ‘urbanisation of poverty’. The physical manifestation of this phenomenon has triggered urban residents’ exposure to disaster risk due to the proliferation of unplanned, informal settlements, insecurity of tenure, and inadequately maintained essential/infrastructural services. Lack of good practices in urban planning/housing development and risk reduction initiatives have increased the vulnerability of city dwellers, as more than a billion urban residents are living in deplorable conditions. This study aims to assess the housing and urban vulnerability of an African city to natural and man-induced hazards. A well-structured questionnaire survey administered to 156 households in Bere, a pre-colonial community in the core area of Ibadan metropolis, to provide a clear picture of the degree of residents’ exposure to disaster risks and their coping capacity. The study advocates the strengthening of local institutional capacity and provides policy recommendations on how to mitigate disaster risk and reduce vulnerability.

Keywords: Cities, Developing countries, Disaster Risk Reduction, Vulnerability, Urbanization, Housing, Urban poor.

1.0 Introduction

The unprecedented pace of urbanisation and urban growth have made developing nations' cities vulnerable to multiple disaster risks due to the high concentration of people, overstressing of the city's inadequate resources such as essential services, urban infrastructure and economic assets (Mitlin & Satterthwaite, 2013). Like many other cities in developing countries, Nigerian cities are being confronted by what many authors describe as urbanisation of poverty (Ravallion, Chen, & Sangraula, 2007), characterized by substandard housing, inadequately maintained basic and infrastructural services (WHO/UNICEF, 2012).

Most urban residents and their assets in Nigeria are increasingly vulnerable to natural and human-induced hazards (I. Adelekan et al., 2015) as a result of low income, insufficient resources and their inability to secure protected lands. These low-income neighbourhoods usually located on marginal lands near flood plains, steep slopes, seashores and other hazardous areas (Hardoy, Mitlin, & Satterthwaite, 2001).

There is a need to develop a better understanding of the underlying causes and influence of a multitude of disaster risks emerging from natural and man-induced hazards in vulnerable cities in Africa, so as to provide policies that will lead to a reduction of disaster risk and vulnerability. This study focuses on the assessment of poverty housing and urban poor's vulnerability characteristics in Bere communities located in the core area of Ibadan metropolis through households' survey, measuring the conditions of physical, social, economic and environmental characteristics of the selected community. It provides a better understanding of root causes, the degree of vulnerability, exposure to disaster risk and coping capacity. The study concludes by advocating policy recommendations in view of scaling up efforts to reducing the vulnerability of the urban community and its inhabitants through disaster risk reduction strategies.

2.0 Housing quality and urban vulnerability

Most cities and urban areas of developing world are identified by unplanned urbanization and poorly managed urban growth. This uncontrolled built environment creates issues that are compounded by the impact of climate change on inhabitants, housing and infrastructure (I. O. Adelekan, 2012). The exposure of city dwellers to environmental risk and vulnerability are due to the intersections of the physical processes—ineffective urban planning, inadequate housing/infrastructural development, and attitudinal actions of urban poor—consumption patterns and lifestyle choices (Blaikie, Cannon, Davis, & Wisner, 2014). Also, Parry (2007) affirms the challenges of high concentration of people with increased social and physical vulnerability (poor socioeconomic conditions and lack of reliable basic services and infrastructures) are aggravated by the impacts of climate change and hazards.

In Ibadan metropolitan city, for instance, an evaluation of housing and urban environmental quality by Coker, Awokola, Olomolaiye, and Booth (2008) confirm the precarious conditions of seventy-two percent of houses in the core area of the city. They are structurally unfit for habitation and also lack basic amenities such as clean water, sewage disposal and proper drainage system. They are susceptible to floods and other risks because they settle in an array of substandard houses, poorly designed and constructed close to flood plains or riverine areas. It is evident that in the developing world, most of the urban poor are residing in risky places as a result of lack capacity and fewer resources.

3.0 Urban planning and development management in African cities

In most developing countries, cities are facing challenges of rapid urbanisation and urban growth with corresponding inadequate municipal services and failed infrastructures, as well as the spread of illegal housing development. For example, over sixty percent of the urban residents living in slums in Africa (UN-Habitat, 2013), and their assets are most susceptible to disaster risks (I. Adelekan et al., 2015), as a result of failure to strictly adhere to appropriate planning and land use management. This development trends usually lead to land use conflicts, slum proliferation, increase vulnerabilities and disaster risk (Pelling & Wisner, 2012). Regardless, (Wamsler, 2006) affirms that urban growth, whether planned or unplanned, rarely plays a distinct role in reducing disaster risk.

In most African cities, the urban planning policies and building codes guiding the land use/development are not regularly updated to meet urban growth's new direction. The local planning authorities are ineffective, ill-equipped to enforce planning regulations and ultimately lack the capacity to oversee urban development management so as to reduce disaster risk (Parnell, Simon, & Vogel, 2007). For example, the local authorities that are responsible for monitoring and enforcing urban development planning and building codes in all the urban districts in Ibadan fail to meet expectations (I. O. Adelekan, 2012). They have limited resources and power to play these important roles (Satterthwaite, 2011). In other to revitalize urban planning processes, concerted actions must be taken by all levels of governments, and respective local communities with the collaboration of the relevant international institutions so as to build sustainable resilience for city residents particularly in developing countries.

4.0 Research methods

The research is based on primary data drawn from questionnaire administration and field observation. Secondary data were sourced from academic journals, textbooks and government documents. A household survey of housing, its neighbourhood characteristics and urban vulnerability to disaster risk in Bere, an urban indigenous community situated at the core of Ibadan metropolis. The study employed systematic random sampling technique to choose each household in the selected study area.

A semi-structured questionnaire was carried out to understand how vulnerable the human settlements and, their residents to natural and man-induced hazards. The questions were centred on households' socio-economic and demographic characteristics of respondents, housing quality; physical/structural conditions of the housing stock, as well as assessment of basic/infrastructural services, residents' environmental conditions and, flood risk perception /coping capacity.

This research was carried out in Bere, a traditional community located at the heart of the metropolitan city of Ibadan-Nigeria. The Bere community is under the category of highest density areas, one of the three major classifications of residential land use characteristics in urban areas Ibadan (Adigun, 2013; Afon & Faniran, 2013). A random sampling was adopted to select one of the traditional communities from high-density residential areas of the heart of Ibadan city.

4.1 Overview of the study area

The city of Ibadan, the administrative headquarter of the old western region of Nigeria and now Oyo state's capital. Ibadan (Figure 1) is the third largest metropolitan area, by population in the country, after Lagos and Kano with a population of 2.55 million people with about 634.3 kilometre square and equivalent of 828 persons per square kilometres, one of the highest densities in the country. Out of this population figure,

the core area of Ibadan has 1.34 million residents (I. O. Adelekan, 2012; Ayeni, 1994). The urban growth and urbanisation witnessed in the city are widely attributed to the influx of rural-urban migrants, due to the availability of economic opportunities such as the presence of industries, an array of institutions and infrastructural services (Owoeye & Ogundiran, 2014). This unprecedented development overwhelmed the little resources available, and inadequately maintained services (Salami, Von Meding, Giggins, & Olotu, 2015).

Ibadan metropolitan city is known as flood prone area with several cases of flooding records since 1902. The unprecedented flood incidences that killed hundreds of people and destruction of properties of residents worth millions of naira. More than 500 hundred, and 130 people lost their lives in flood disasters that occurred on 31st of August 1980 and 26th August 2011 respectively (Agbola, Ajayi, Taiwo, & Wahab, 2012). The poor sewage disposal of domestic and industrial waste largely contributed to flood incidences due to blockages in river channels.

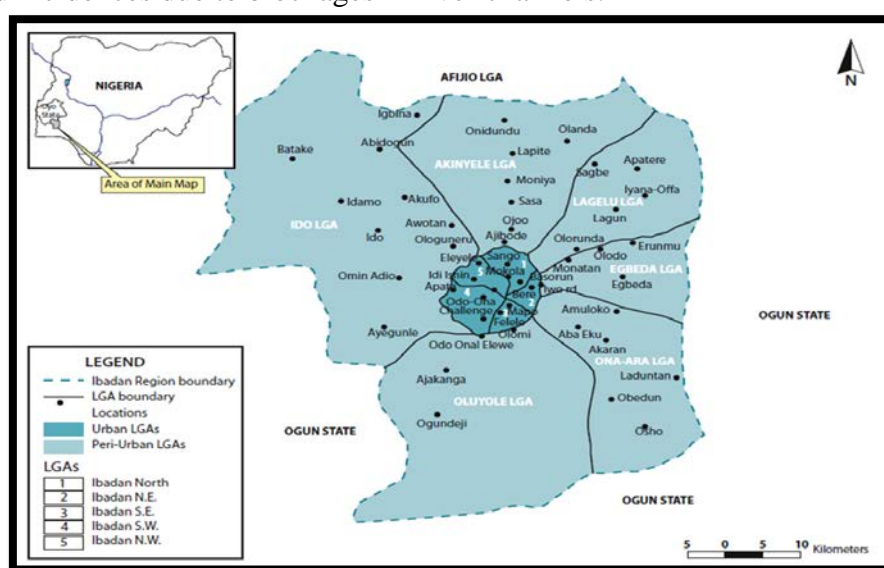


Figure 1: Map of Ibadan showing the urban core of the city.

Source: (I. Adelekan, 2010)

5. Results: Housing and urban vulnerability characteristics of Bere community

5.1 Demographic features

In this study, the results indicated that 108(69%) of the 156 households' respondents surveyed were male while 48(31%) were female (Table 1). Sixty-six (42%) of the head of households sampled were between the ages of 41 and 50 years while (25%) were above 50 years old. Fifty-one (33%) were below the age of 40 years.

Table 1: Demographic Characteristics of Households' head in Bere Community

Parameters	Frequency (n=156)	Percentage (%)
Gender		
Male	108	69.2
Female	48	30.8
Marital status		
Single	13	8.3
Married	131	84.0
Widowed	9	5.8
Separated	2	1.3

Others	1	0.6
Age		
18-20	2	1.3
21-30	28	17.9
31-40	21	13.5
41-50	66	42.3
51 above	39	25.0
Total	156	100

Source: Fieldwork (2015)

5.2 Socio-economic profile of the respondents

Household size: Majority of the households' respondents (64%) had between 4 and six persons while (16%) and (15%) of the sampled residents had between 1 to 3 and 7 to 9 persons respectively. Only (5%) of the inhabitants surveyed in the study area were 10 and above in their households.

Households' head: Out of 156 head of the households sampled (Table 2), 149(95%) of them were male, and just 7(5%) are a female head of the homes. This indicated that the community is dominated by the male head of the household.

The level of education and occupation: Most of the residents surveyed (85%) in the selected population had very low education qualifications. While just 9(6%) of the head of households had post-secondary school education, fourteen (9%) did not have formal education. The households' education status mostly affected the nature of their occupation or employment, as the majority of respondents engaged in the informal economy. Seventy-two (46%) of sampled population are traders, (37%) and (5%) are farmers respectively while (1%) each are civil servants and professionals.

Monthly income: The study shows that the (74%), the majority of the respondents' earnings in a month in the study areas is less than N20, 000. While (17%) of sampled households' monthly income are between N20,000 and N40,000, nine (6%) of the households' head are jobless with no monthly income.

Land tenure security: Only 29 homes (19%) of the respondents approved their properties while (59%) of all the buildings sampled were not approved. Another (21%) of respondents were not sure of the tenure security status of their houses.

Table 2: Socio-economic characteristics of Households' head in Bere Community

Parameters	Frequency (n=156)	Percentage (%)
Household's head		
Male	149	95.5
Female	7	4.5
No of children		
None	2	1.3
1-3	76	48.7
4-6	72	46.2
7-9	3	1.9
Above 10	3	1.9
Households' size		
1-3	25	16.0
4-6	99	63.5
7-9	24	15.4
10+	8	5.1
Total	156	100

Source: Fieldwork (2015)

5.3 Physical/structural characteristics of building stock

Age of the buildings: The research indicates (Table 3) that most of the buildings (95%) were timeworn and years of construction are between 10 years and above. Five percent (5%) of the respondents' houses were aged between one and nine years.

Wall construction materials: As shown in Table 3, most of the buildings sampled (95%) in the selected community utilised substandard building materials like mud for their houses with less than (5%) used quality materials such as cement blocks. This is responsible for a higher proportion of timeworn, run-down buildings and large numbers of indigenous people living in low-quality housing that cannot protect inhabitants under hazard conditions.

Structural conditions of the buildings: The structural stability of the sampled houses are in deplorable conditions. The results indicated that (57%) of the Bere households' dwelling units need major repair, and another (35%) need minor repair. Also, only twelve buildings (8%) of the surveyed houses are in good conditions. Therefore, most of these houses and their inhabitants are susceptible to natural hazards such flooding and heavy windstorms.

Table 3: The physical/structural characteristics of Households' dwellings

Parameters	Frequency (n=156)	Percentage (%)
Age of the building		
1-3	1	0.6
4-6	1	0.6
7-9	6	3.8
Ten years and above	148	95.0
Wall construction materials		
Mud	114	73.1
Cement block	15	9.6
Sun-dried brick	6	3.8
Bamboo with mud	21	13.5
Structural conditions		
Needs minor repair	54	34.6
Needs major repair	89	57.1
In good condition	12	7.7
Others	1	0.6
Total	156	100

Source: Fieldwork (2015)

5.4 Basic/infrastructural facilities conditions of the neighbourhood

Access to water: The results (Table 4) indicated that limited access to essential services such as access to clean water, as (69%) of the residents walk to fetch water in about 200 meters away from their homes. While around (30%) of Bere community only have access to water in the well. Toilet facilities and waste disposal: Also, the majority of households' surveyed (85%) only have access to a pit latrine. Poor drainage systems/garbage collections (72%) and indiscriminate open dumping of refuse, leading to blockage of drainage channels and causing houses to be flooded, as well as jeopardizing environmental landscape and public health.

Table 4: Basic/infrastructural facilities conditions of the neighbourhood

Parameters	Frequency (n=156)	Percentage (%)
Access to water		
Borehole	12	7.7
Well	48	30.8
Outside my yard (<200m)	86	55.1
Outside my yard (>200m)	9	5.8
Through water tanker	1	0.6
Access to toilet facilities		
Water closets	9	5.8
Pit latrine	133	85.3
Public toilet	4	2.6
Bush	1	0.6
Dumping ground	3	1.9
others	6	3.8
Waste disposal		
Very inadequate	50	32.1
Inadequate	62	39.7
Fair	18	11.5
Adequate	25	16.0
Very adequate	1	0.6
Total	156	100

Source: Fieldwork (2015)

5.4 Flood risk perception and adaptation strategies

In Table 5, the results indicated that (79%) had records of flood-related damages to their properties. While (24%) were severely damaged, fifty-five percent were not, as (21%) had no history of the flood disaster. Also, regarding the root underlying causes of floods in the sampled areas, about (54%) believed it was as a result of blockage of waterways/river channels and (44%) chose prolonged rainfall as the second cause of flood disasters. Previous research by Agbola et al. (2012) corroborate the outcome of this study. Coping and adaptation strategies adopted by respondents are the maintenance of buildings (25%), use of quality construction materials (17%) and (4%) for support from family and friends. More than half (54%) of the heads of household believed that seeking for spiritual interventions from Almighty God as their first coping measure. In the research on the cyclone occurrence in coastal Bangladesh by Haque and Blair (1992), more than (70%) of inhabitants relied on prayer as an important adaptation strategy.

Table 5: Flood risk perception and adaptation strategies

Parameters	Frequency (n=156)	Percentage (%)
Flood-related damage before		
No	33	21.0
Yes, but not severely	86	55.0
Yes, severely	37	24.0
Causes of floods		
Heavy rainfall	68	43.6

Blockage of waterways	84	53.8
Building on flood liable plains	4	2.6
Improper planning and poor land use	1	0.6
Adaptation strategies		
Maintenance of building	39	25
Use of quality construction materials	27	17.2
Support from family/friends	6	3.8
Prayers	84	54
Insurance	0	0
Total	156	100

Source: Fieldwork (2015)

6.0 Discussions

This study has evaluated the housing and urban vulnerability of Bere, one of the pre-colonial communities in the core centre of Ibadan metropolitan city. This was achieved through households' survey of the exposure and susceptibility of human settlements, basic physical and neighbourhood infrastructure to disaster risks such as floods and weather storms. The assessment of socioeconomic profiles of heads of household in the selected society revealed that the majority of respondents involved in the only informal sector of the economy for survival. Most of the households sampled also had very low level of educational qualifications.

According to the outcome of this research, the residents of Bere community are slum dwellers by the housing quality and their neighbourhood characteristics. The households share the same features of slums as defined by United Nations; lack of essential services, substandard housing and poor building structures (UN-Habitat, 2004). Previous researchers have also affirmed that those who live in poverty housing in low-income communities without adequate infrastructure services are most vulnerable to environmental hazards and climate (Peduzzi, 2011; UN-Habitat, 2011). Based on the results of the vulnerability assessment, Bere community fits into the categories of inner city slums such as in Cairo, Dhaka as described by Baker (2012). Situated in the historic core of Ibadan city, facing series of disaster risks range from the life-threatening condition of the structures, inadequate basic services to records of the high density of inhabitants and challenging of vehicular access to narrow roads in case of emergency. It is evident that most of the urban residents in the study area are facing a great deal of variety of disaster risks such as physical vulnerabilities; flood hazards, weather storms and social vulnerabilities; informal economy, low education, lack of skills and social exclusion from local institutions (UN-habitat, 2011).

7.0 Policy recommendations: Local institutions as a focal point

Local authorities have significant roles to play in reducing disaster risks and vulnerabilities of human settlements, as a result of local governments' constitutional responsibility of providing basic infrastructure services, development of urban planning and strict adherence to building codes (Johnson, 2011). In the case of Ibadan city and most of the urban areas in African cities, the efforts are counterproductive due to limited resources and power (Satterthwaite, 2011), ineffective urban planning, bad governance, and lack of tools/skills to monitor urban development (Myers, 2011; UN-Habitat, 2009). Also, for instance in Nigeria, the only public sector for risk management is National Emergency Management Agency (NEMA). NEMA approach

to risk management is more reactive than proactive because of inadequate funding, equipment and skills (I. O. Adelekan, 2012; Olorunfemi & Adebimpe, 2008). Therefore, for local institutions and disaster risk management agency in cities of developing countries to be effective in reducing vulnerability, a continuous, collective collaboration by the international community, civil organisations and NGOs to develop initiatives to assist cities and urban residents build resilience to mitigate the impacts of natural and human-induced hazards.

8.0 Conclusion

Globally, in African cities, urban residents and their assets are most vulnerable to disaster risk due to the exposure to various hazards (I. Adelekan et al., 2015). According to Hanson et al. (2011), there are three distinctive characteristics of their vulnerability; inadequate planning, low quality of housing with poor disaster resistance, and informal economy and insufficient resources. Bere, a traditional urban community in the core area of Ibadan metropolis is vulnerable to hazards such as floods, weather storms and other environmental risks that are health related with the low adaptive capacity to any future disaster. This inner city slum is characterised by tenure insecurity, very low quality, structurally weak and inadequately maintained dwellings, lacking essential services and occupied by low-income residents. The residents' physical and socioeconomic characteristics coupled with inadequate urban planning and bad governance contribute to the limited community resilience. It is crucial to integrate disaster risk management into urban planning/development, and strengthening institutional capacity so as to achieve sustainable risk reduction.

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Urban Flooding and Vulnerability of Nigerian Cities: A Case Study of Awka and Onitsha in Anambra State, Nigeria. Kingsley Efobi *
Christopher Anierobi Department of Urban and Regional Planning, University of Nigeria, Enugu campus PMB 01129, Nigeria * E-mail of
the corresponding author: okey.efobi@unn.edu.ng. The cities of Awka and Onitsha in Anambra state, Nigeria featured among the
vulnerable cities which are susceptible to flooding. This study set out to find out the causes of flooding in these cities with a view to
recommending measures that will help ameliorate the situation. On the 26 th of August 2011, the flooding disaster which occurred in
Ibadan metropolis caused monumental destructions in the city. Inadequate housing has a significant impact on the livelihoods of poor
people in Nigeria. It affects their economic, political, and social development, as well as providing poor resistance to natural and human
induced hazards. More vulnerability reduction interventions are needed to tackle the devastating impact of climate change on the urban
poor who are highly vulnerable as a result of their unplanned environmental conditions, low-quality shelter and poor infrastructural
systems. This paper aims to develop a viable strategic framework specifically address the impact and vulnerability of dwellers at Metropolis,
our efforts on understanding metropolitanisation and the responses from our members, the governments of major cities and metropolitan
areas, whose diverse institutional profiles show ways to achieve sound metropolitan governance for a more sustainable development. Resulting from pioneering research carried out by LSE-Cities, the initial sample of indicators contains a total of 2,789 data points about
58 metropolitan spaces from Africa, Asia, the Americas and Europe. Generally, there are high levels of unemployment in African
metropolises: almost twice that of the international average. This is a significant contributing factor in the low levels of financial
resources that are available to local governments to put in place measures to address basic needs. The understanding of the concepts
of poverty, vulnerability and their linkage is important in the efforts to improve the standards of living in the world. Whilst vulnerability has
often been closely associated with poverty, it has also been seen as being distinct. Natural disasters involve crop damage, housing
and similar damages caused by cyclone, flood, river erosion as well as drought and rising salinity. Health hazards include both
expenditures on member illness and livestock death through diseases. Poverty - just like its conceptual and social structural opposite
pole, wealth - has many dimensions and manifestations. It always means a reduced (or complete lack of) access to material, economic,
social, political or cultural resources needed to satisfy basic needs.