Housing Conditions in Rural Nigeria: Empirical Evidence from Oil-Rich Akwa Ibom State

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ABSTRACT

The study assessed the conditions of rural housing and the extent to which housing conditions related to household socio-economic characteristics of an oil-rich Nigerian State of Akwa Ibom. The study design was based on household cross-sectional survey. Direct observation and questionnaire administration were employed to collect both socio-economic and housing data from 540 randomly sampled households spread across 90 rural communities. Housing condition was evaluated using five broad indicators: safety/security, indoor temperature/ventilation, building condition, hygiene/sanitation and environmental quality, while socio-economic characteristics were examined using income, educational attainment, occupation, household size and crowding. Alongside descriptive statistics, the multiple correlation technique was used to analyze the relationship between housing conditions and socio-economic variables. Results showed an overwhelmingly poor condition of housing among the rural households. Majority of households were found deficient in facilities necessary to encourage safety, security, comfort, hygiene, sanitation, and environmental quality. The study also found households' socio-economic characteristics to be highly correlated with housing conditions and therefore provides the basis for massive rural empowerment and development drive as a means to counter rural housing decay.

Keywords: Rural Nigeria, Housing Conditions, Socio-economic Characteristics, Housing Indicators, Akwa Ibom State

INTRODUCTION

Housing has been universally accepted as the second most important and essential human need after food. Everyone has the right to decent housing necessary for personal security and comfort [1]. This is in line with the understanding that good housing remains critical to individual's social contentment, efficiency, productivity, and general well-being [2, 3]. To address the global housing crises, the United Nations made declarations targeted at providing shelter for the world's shelter-less prior to the arrival of the present millennium. Nearly two decades after the UN declaration, the housing situation especially in developing countries are yet to record significant improvement [4].

However, it is important to note that the word "housing" covers a lot of territory; housing in all of its ramifications is more than mere shelter, it is more than a roof over one's head; housing embraces all the social services and utilities that go to make a community or neighborhood a livable environment [5]. Housing also indicates adequate space, privacy, safety, ventilation, lighting, water supply, sanitation, and waste facility required for environmental health [2, 6-8].

The foregoing provides the necessary framework for assessing housing conditions in Nigeria. As the Nigerian population increases at an average rate of 3.2% per annum [9], concerns about the provision of adequate housing for its citizenry continue to heighten. This concern has attracted scholarly research into the Nigerian housing situation. However, such efforts had been directed at urban housing with very scanty research on rural housing conditions [10, 11, and 8]. Where such studies exist, the authors seem to be narrow their focus on the social and cultural processes by which certain house forms evolved rather than the actual housing conditions [12-14]. A critical examination of the new Nigerian housing policy reflects a marked bias in favour of the urban sector with little applicability and relevance to the rural situation.

Most urban-based studies have confirmed the hypothesis linking housing conditions to household socio-economic characteristics [15, 10 and 11] and therefore provide the theoretical underpinning for verifying such hypothesis among rural households. The need to focus scholarly housing research and policy formulation on the rural areas needs no stressing. Firstly, the rural backlands plays host to more than 70% of the Nigerian population. Secondly, the provision of adequate housing for rural households is critical for stemming the tides of rural-urban drift and stabilizing rural population. Thirdly, assessing the status of rural housing conditions is a fundamental step to achieving community population health and environmental sustainability in Nigeria. Against this background, the present paper seeks to examine the conditions

of housing in rural Nigeria using Akwa Ibom State as a case study.

Housing Development in Akwa Ibom State

Akwa Ibom State is one of the oil-rich littoral states located on the south eastern corner of Nigeria (Fig. 1). It lies between Latitude 4°32' and 5°33' North of the Equator, and Longitudes 7°25' and 8°25' East of Greenwich Meridian. With a landmass of 8,412 square kilometers and a population of 3,956,112 persons [9], the State remains one of the most densely populated areas in Nigeria with a population density of 470 persons per square kilometer.

Housing conditions in the area are believed to have evolved through the period of three important epochs – the pre-colonial, colonial, and post-colonial [3]. Housing during the pre-colonial era not only provided shelter for a family but also served as a center for its total residential environment, a focus of economic activities as well as a symbol of achievement and social acceptance [16]. The house form was rectangular with few rooms and a detached kitchen without toilet facilities. The materials used for the construction of the houses were locally sourced from the forests and mangrove swamps. The building had few openings for lighting and ventilation while services such as electricity and potable water were absent. Water was sourced from streams which were often located at far distances and in difficult terrain.

As observed, the arrival of the colonial masters brought a positive impact on the housing conditions of the people [17]. Materials such as cement, rods, steel, metal sheets and glass were introduced to build construction. The form, sizes and heights of buildings were increased with structures becoming relatively better. However, very few communities had electricity and water supply through the use of generators and wells respectively. Pail and pit latrines became popular and replaced the open latrines in most communities.

The post-colonial era witnessed improvements in housing in some urban communities due to the availability of new construction materials and technologies. These houses had better hygiene and sanitation and the neighborhoods had water supplied to them directly or made available within short distances through the provision of public mains, wells and boreholes. It was possible to have water closets and bath tubs within such dwelling. However, some of the houses had no kitchen and therefore, cooking was done along corridors, verandahs and even inside the sleeping rooms which were already overcrowded. Waste generated by the houses was buried, burnt or thrown into a nearby bush, gutters and rivers. Electric and mechanical devices were used in some houses for indoor temperature controls.

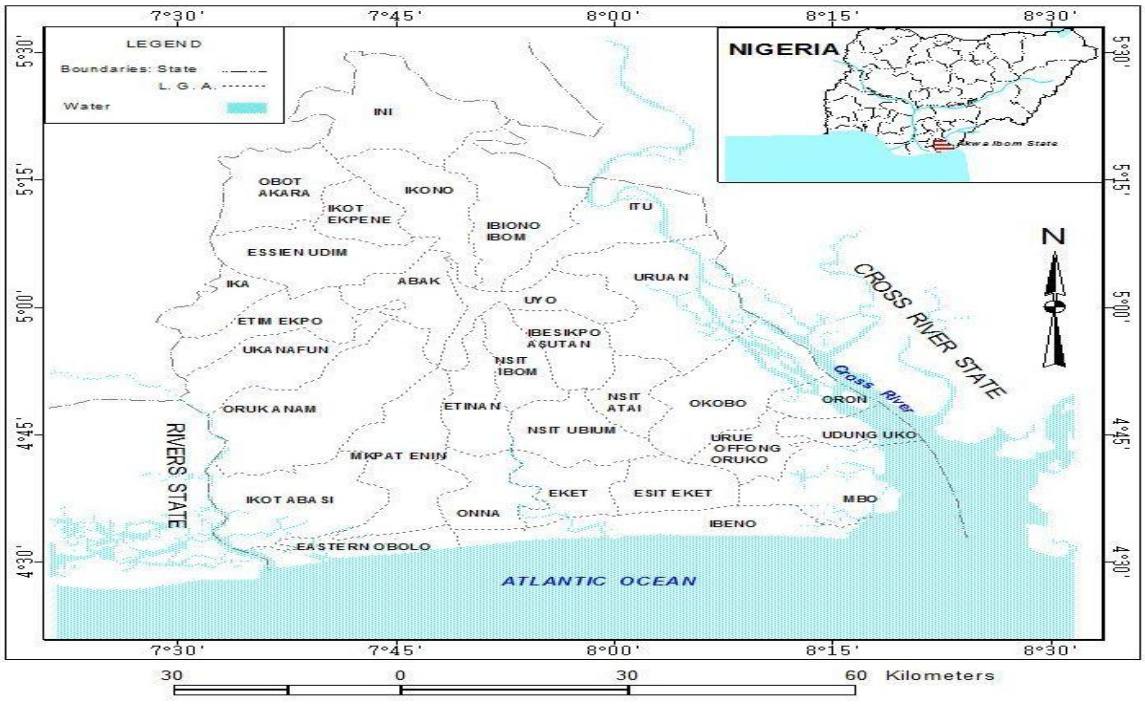

Fig. 1. Map of Akwa Ibom State in the South-South Zone of Nigeria

MATERIALS AND METHODS

Research design and data collection

The data used throughout this analysis were collected as an integral part of housing conditions component of Rural Housing and Health Survey carried out by the author at the Department of Urban and Regional Planning, University of Uyo, Uyo, Nigeria in 2012. A cross-sectional survey in

Akwa Ibom State, Nigeria was based on a multi-stage probability sample of 540 households in 90 rural communities.

The selection of sample communities was facilitated by obtaining a base map of Akwa Ibom State on a scale of 1cm to 2.5km, and divided same into quadrats of 1.6km2 which was clearly and serially numbered. A total of 480 quadrats were produced. However, 90 quadrats representing 18.75% was selected using a table of random numbers. The grid map contained the names of communities in each quadrat. In Nigeria, rural communities are defined numerically by a population below 20,000 people (NPC, 2006). With this in mind, communities with population 20,000 and above were excluded. Furthermore, where a quadrat contains two or more rural communities, only one was randomly selected from such quadrat. Finally, from each community, six (6) households were systematically selected to yield a total of 540 households. An average rural community in Akwa Ibom State has sixty households [9], therefore six households representing ten percent (10%) are valid for generalization [18].

The study was a structured questionnaire designated as the Household Housing Condition Questionnaire (HHCQ) that was administered during a face-to-face interview with heads of households or a proxy respondent from a household. The questionnaire comprised sections on household demographic/ socio-economic characteristics and housing conditions. The overall response rate was 96.3%.

Demographic and socio-economic variables were age, gender, household size, marital status, crowding, as well as educational attainment, occupation, and income. Educational attainment was divided into four categories and assigned weighted scores as follows: no formal education (0), primary (1), secondary (2), and tertiary (3). The total monthly household income was measured in thousands of Naira (N) and assigned weighted scores as follows: Low (< N 18,000.00) (1), Medium (N 18,000.00 – N 50,000.00) (2) and High (N 50,000.00 and above) (3). Age was grouped into three categories as follows: > 30 years, 30 – 60 years and > 60 years. Household size was categorized into three categories (based on the national rural average of five persons per household) with weighted scores: <5 persons (1), 5 persons (2), and < 5 persons (3). Occupation had three categories with weighted scores as follows: farming (1), business (2), public service (3). Crowding was grouped into three with weighted scores as follows: > 2 persons per room (1), 2 persons per room (2) and < 2 persons per room (3). Finally, the weighted scores were combined with the respondent's frequent values to obtain the Total Modal Score (TMS) for sampled communities on socio-economic variables (income, educational attainment, occupation, household size and crowding). The TMS represents the socio-economic status of each community (Table 3).

Five separate indicators of safety/ security, indoor temperature/ ventilation, building condition, sanitation/ hygiene, and environmental quality, were used to assess housing conditions. The presence or absence of fire extinguisher, first-aid box, mosquito nets, fence walls and security dogs were the components of the safety/ security indicator. The indoor temperature/ ventilation index was captured by three items: the presence or absence of fan, ceiling, and windows on two walls for cross-ventilation. The condition of the roof (whether leaked or unleaked), wall (whether cracked or uncracked), windows (whether broken or not), ceiling (whether cracked or not) and floor (whether broken or not) were the items that measured building condition. The hygiene/ sanitation index comprised four items: the presence or absence of toilet, bathroom, potable water, and water disposal facility. The environmental quality index consisted of three items including rainwater floods, mice/ rat infestation, and proximity of building to bush. All the items were dichotomized and assigned scores such that 0 denoted a negative situation and 1 denoted a positive situation. These items were then summed to form a total score ranging from 0 to 20. Finally, a composite index of housing condition was obtained by dividing the total score by twenty (that is, the total number of items considered) to arrive at an index ranging between 0 and 1 (see Table 3). Housing index is tending towards 1 depicted an enhanced housing condition.

Statistical Analysis

The multiple correlation analysis was applied to examine and test the relationship between housing condition and the socio-economic attributes of sampled communities. Descriptive statistics, mainly on the mean, standard deviation and frequency distributions, were also applied in data analysis.

RESULTS

Socio-Economic/ Demographic Profile of Rural Households in the State

The age distribution of heads of household in Akwa Ibom State indicated a relatively ageing population with a mean age of 57 years and a standard deviation of 23 years. Up to 50% of households were headed by elderly persons aged over 60 years. Only 37% of households had younger and active persons aged between 30 and 60 years as heads (Table 1). The majorities of the households were headed by male (77%) and married persons (71%). On the average, there were six persons in a household. Regarding crowding, 64% of the households had more than two persons occupying a room. The highest educational

attainment of household heads was: Primary (39%), Secondary (25%) and Tertiary (14%). In addition, 22% of household heads had no formal education. The income situation showed that majority of the households earned below the national minimum wage of eighteen thousand Nigerian naira (N18, 000.00) monthly. Occupationally, farming households had predominance (69%) over business (19%) and public service (8%).

Housing Conditions in Rural Akwa Ibom State

In general, the study shows that rural households in Akwa Ibom State suffer marked deficiency virtually in all the five indicators of housing conditions examined.

The safety and security apparatus of the households indicated that 92% of the households lacked a fire extinguisher in their homes, 73% had no first aid box and 92% had no security dogs, while 78% lived in fenceless houses (Table 2). Regarding indoor temperature/ ventilation, 96% of the households reported non-availability of fan in their homes, 66% reported having no ceiling in their rooms while 41% lived in homes with bedrooms lacking windows on two walls.

Results for building conditions showed that 60% of the households live in houses with leaked roof, cracked walls (56%) and broken windows (54%). Also 75% of the households lived in houses with broken floor condition (see Plate A).

For hygiene/ sanitation index, result revealed that 49% of the households had no toilet at all, 48% had no bathroom within the house while 78% had no access to water supply for domestic use. Additionally, 60% of households reported absence of waste collection and disposal facility. Finally, the environmental quality index showed that 50% of households suffer from rain flood/ stagnant water (Plate B), 76% lived in bushy surroundings (Plate C) while 91% experienced mice/ rat infestation.

Plate A: Building with Cracked Walls and Floors they are commonplace in rural Akwa Ibom State

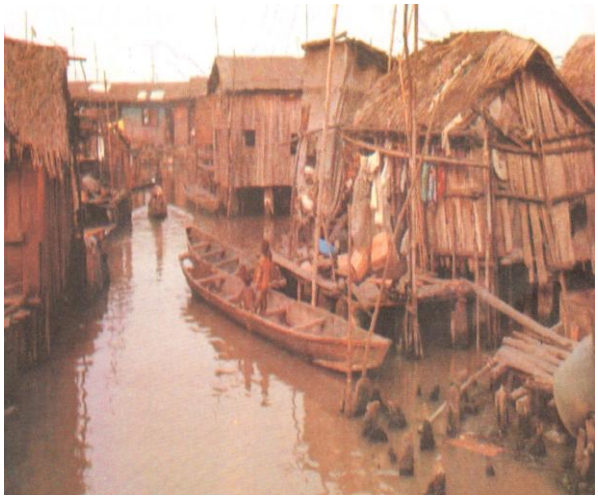

Plate B: Rain Water Floods There are common features in the coastal **parts of Akwa Ibom State**

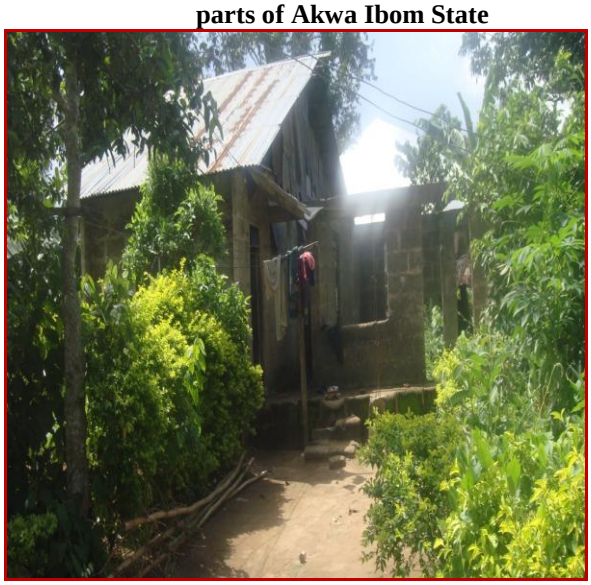

Plate C: Bushy Housing Environment

The Housing Conditions and Socio-Economic Status of Sample Communities

This aspect of the study highlights spatial perspectives of housing conditions and the socio-economic status of sampled communities. The Index of Housing Conditions indicates the status of housing conditions for each community. The index scores ranged from zero (0) to one (1) such that an index score tending towards one (1) represents an enhanced housing situation (Table 3).

Table 3 also includes the Total Modal Scores (TMS) on the socio-economic variables (income, educational attainment, occupation, household size and crowding). The Total Modal Score (TMS) for educational attainment ranges from 0 (minimum score) to 18 (maximum score); but for other variables such as income, occupation, household size and crowding, the Total Modal Score (TMS) ranges from 6 (minimum score) to 18 (maximum score). Essentially, therefore, the Total Modal Score (TMS) indicates the socio-economic status of each sampled community (Table 3).

Table 1: Household Demographic and Socio-economic characteristics in rural Akwa Ibom State, Nigeria (n= 520)

Independent Variables	n	Percent
Sample population	**520**	**100**
Age (years)		
<30	70	13
30 – 60	190	37
>60	260	50
Mean Age (Standard Deviation)	57(23)	50
Marital Status		
Single	30	5
Married	370	71
Widowed	110	21
Divorced/Separated	10	2
Occupation		
Farming	360	69
Business	100	19
Public Service	60	12
Total Monthly Income (₦)		
Low (<18,000)	417	80
Medium (18,000 – 50,000)	60	12
High (>50,000)	43	8
Highest Educational Attainment		
No Formal Education	115	22
Primary	205	39
Secondary	130	25
Tertiary	70	14
Household Size Index		
>5 Persons	50	10
5 Persons	100	19
<5 Persons	370	71
Mean (Standard Deviation)	6(5.1)	
Crowding Index		
<2 Persons per room	70	13
2 Persons per room	120	23
>2 Persons per room	330	64

Source: Author's Survey, 2011

Table 2: Frequency Distribution of the Housing Conditions indicators in rural Akwa Ibom State, Nigeria (n = 520)

Indicators of Housing Conditions	No. of Households Giving Negative Response	Percent
Safety/Security Index		
Absence of Fire Extinguisher	478	92
Absence of First Aid Box	380	73
Absence of Mosquito Net	100	19
Absence of Security Dogs	477	92
Absence of Fence Wall	409	78
Indoor Temperature/Ventilation		
Absence of Fan	499	96
Absence of Ceiling in all Rooms	344	66
Absence of Double Windows per Room	215	41
Building Condition Index		
Leaked Roof	314	60
Cracked Wall	294	56
Broken Windows	284	54
Cracks in Ceiling	244	47
Broken Floor	391	75
Hygiene/Sanitation Index		
Absence of Toilet	258	49
Absence of Bathroom (within)	254	48
Lack of Access to Water Supply	406	78
Absence of Waste Disposal Facility	313	60
Quality of Residential Environment		
Rainwater Floods	270	52
Mic/Rat Infestation	473	91
Bushy Surrounding	396	76

Source: Author's Survey, 2012

Table 3: Index of Housing condition and Total Modal Scores (TMS) on Socio-Economic Variables for Sampled Communities

S/N	Name of Community	In-come (X1)	Educational Attainment (X2)	Occupa-tion (X3)	House-hold size (X4)	Crow-ding (X5)	Housing Conditions (Y)
1	Amadeka	7	6	6	6	6	.31
2	Etebi	7	4	6	6	6	.27
3	Ntak Inyang	9	7	7	6	6	.38
4	Nditia	7	3	6	6	6	.22
5	Ikot Ebidang	7	4	6	6	6	.24
6	Ikot Ebiere	7	5	6	7	7	.34
7	Ikot Edor	7	5	6	6	7	.33
8	Aqua Obio Effiat	7	5	6	6	9	.34
9	Ebughu	7	4	6	6	6	.29
10	Etisung Ebughu	11	8	9	7	11	.58
11	Etak Isip (Etok)	9	5	7	6	6	.29
12	Eyo Nsek	7	6	6	6	7	.29
13	Okosi	7	4	6	6	6	.25
14	Ikot Akan	11	8	10	10	10	.59
15	Ikot Okpok	7	6	6	7	7	.28
16	Ikot Oyoho	7	5	6	6	6	.27
17	Asong	9	10	11	10	12	.58
18	Ikot Ekpene Udo	9	4	7	6	6	.23
19	Ukat Aran	7	3	6	6	6	.20
20	Oti Oro	10	3	7	6	6	.48
21	Oki Uso	9	5	6	6	6	.28
22	Ikot Eka Idem	7	6	9	7	7	.32
23	Uta Ewa	7	2	6	6	6	.19
24	Esit Urua	7	4	6	6	6	.28
25	Akpa Utong	7	4	6	6	6	.27
26	Udenge	6	5	7	6	6	.25
27	Atabrikang	7	4	6	7	6	.25
28	Idua Afaha Eduok	6	6	9	10	9	.28
29	Opukalama	7	3	6	9	6	.23
30	Ikot Eko Ibon	9	9	12	12	13	.44
31	Ikot Ikara	18	16	16	16	17	.80
32	Ikot Obio Akan	16	13	13	16	16	.73
33	Ikot Ebak	18	14	16	17	16	.78
34	Ndiya	13	11	12	12	13	.57
35	Ndukpo Ise	18	17	16	18	18	.80
36	Ebighi Anwa	16	10	13	13	13	.57
37	Amamong	17	14	16	18	16	.76
38	Ekpene Ukpa	17	14	16	17	16	.75
39	Iko Obio Odong	16	15	13	17	17	.77
40	Esuk Inwang Uruan	13	13	11	16	16	.68
41	Odu	13	14	10	13	16	.72
42	Mbiakong Uruan	18	15	16	17	17	.76
43	Akani Obio Uruan	13	12	11	16	13	.66
44	Ndon Ebom	11	11	10	10	13	.64
45	Ikot Esute	16	13	13	11	16	.66
46	Ikot Akpan Udo	11	12	10	10	9	.60
47	Ikot Esenam	17	15	16	16	17	.75
48	Ikot Akpa Essien	13	11	12	11	10	.51
49	Afia Nsit	16	12	13	13	11	.68
50	Ikot Ima	17	14	16	16	17	.75
51	Adadia	17	16	16	16	17	.75
52	Ikot Itie Udung	16	12	13	13	11	.67
53	Mbiokporo	18	17	17	17	18	.81
54	Ikot Akata	17	14	16	16	17	.72
55	Ikot Umiang	17	15	16	16	18	.78
56	Edebom	16	13	13	16	16	.70
57	Ikot Akpabong	13	12	12	11	12	.67
58	Ikot Nya	16	13	13	16	16	.73
59	Ifa Atai	16	13	13	16	13	.73
60	Atabong	13	12	12	12	16	.64
61	Ntak Ibesit	11	9	9	9	11	.44
62	Obiokpa	11	10	9	9	11	.44
63	Itung	11	10	10	10	13	.47
64	Ikot Ama	13	13	12	13	16	.65
65	Ikot Ineme	11	12	11	11	13	.54
66	Utu Nsekhe	11	10	10	10	10	.50
67	Afaha Itiat	13	11	13	11	12	.58
68	Ididep Usuk	11	9	9	9	9	.47
69	Ikot Esiet	11	10	10	9	11	.57
70	Nkara Obio	13	10	11	13	12	.58
71	Uduk	11	8	9	9	10	.46

72	Ibiakpan	11	9	10	10	13	.52
73	Ikot Afa Osung	11	9	10	10	13	.54
74	Itie Ikpe	11	8	9	9	12	.49
75	Ikot Offiong	11	9	10	10	12	.53
76	Ikot Udo	11	9	9	9	11	.51
77	Ikot Akpantem	11	8	8	9	11	.48
78	Ikot Antuen	11	7	8	9	10	.48
79	Mbak	10	9	8	10	9	.50
80	Ikot Ide	13	11	12	12	13	.64
81	Nto Idang	11	10	10	11	12	.55
82	Nto Etuk	13	11	12	12	11	.63
83	Afaha Obo	10	9	9	9	7	.48
84	Ikot Inyang Abia	11	11	10	10	9	.55
85	Ikot Inyang Udo	13	12	11	10	9	.58
86	Ikot Akai	13	12	11	11	10	.58
87	Iba Oku	11	9	9	9	7	.46
88	Ikot Anyang	10	10	9	10	9	.53
89	Ikpe Ikot Nkon	11	11	10	11	9	.55
90	Urua Abasi	11	10	10	10	9	.52

Source: Field Work by Author, 2011

Using a cut-off point of 0.60 for housing conditions and 12 for socio-economic variables, dichotomous indicators were created such that the housing index of 0.60 and above indicated a relatively good housing condition and index scores below 0.60 indicated poor housing condition. For the socio-economic variables, a Total Modal Scores (TMS) of 12 and above indicated a high status and scores below 12 showed low status. Viewed within these parameters, data in Table 3 shows that 30 communities (33.3%) had relatively good housing conditions while 60 (66.7%) had poor housing status. The poorest communities regarding housing conditions were Uta Ewa (0.91), Ukat Aran (0.20), Nditia (0.22), Ikot Ekpene Udo and Oti Oro (0.23), Ikot Ebidang (.24) and Okosi (0.25).

Regarding communities' socio-economic status, 55 communities (61.1%) had a low income status while 35 (38.9%) had a high income status. Occupational status showed that 60 (66.7%) were low while 30 (33.3%) were high. Educational statuses in 62 communities (68.9%) were low and high in 28 (31.1%). Household size indicated a poor status in 61 communities (67.8%) while 29 (32.2%) had a good status. Finally, crowding indicated a good status in 40 communities (44.4%) as against the 50 (55.6%) with poor crowding status.

The relationship between the Socio-Economic Characteristics of Households and Housing Conditions was investigated by inter-relating the socio-economic variables of income (X1), educational attainment (X2), occupation (X3), household size (X4) and crowding (X5) as independent variables with housing conditions (Y). This aspect of the study tested the relationship between each socio-economic variable and housing condition and the result is presented in Table 4.

The results indicated high correlation co-efficient for income and housing conditions (0.75); educational attainment and housing conditions (0.70); occupation and housing conditions (0.83); household size and housing conditions (0.79); and crowding and housing conditions (0.91). However, the entire zero-order correlation co-efficient was significant ($P<0.05$) in every case. This shows that there is a significant relationship between all the socio-economic variables and housing conditions.

Table 4: Inter correlation matrix for set of socio-economic variables and housing conditions

	Y	X1	X2	X3	X4	X5
Housing Conditions (Y)	-	0.002	0.000	0.001	0.003	0.000
Income (X1)	0.752		0.000	0.001	0.000	0.002
Education (X2)	0.701	0.471	-	0.000	0.001	0.002
Occupation (X3)	0.822	0.510	0.611	-	0.000	0.000
Household Size (X4)	0.799	0.420	0.340	0.551	-	0.000
Crowding (X5)	0.913	0.299	0.537	0.199	0.360	-

Source: Author's Analysis (SPSS Output), 2012

DISCUSSION

Akwa Ibom State is one of Nigeria's Niger-Delta states that have gained international recognition in recent times owed largely to two reasons: one, her enormous oil deposits and two, a renaissance of infrastructural development witnessed in different parts of the State [19, 20].

Like other African rural communities, rural Akwa Ibom State has retained some of the traditional African values such as male-headed, relatively large households, over-crowding homes, elderly population, dwindling income and low educational attainment. Rural Akwa Ibom State is considered poor by Nigerian standards. The mean monthly households' income in the study area was approximately US$100 (that is Fifteen Thousand Naira) in 2012 compared with the national minimum wage of US$120 (that is, Eighteen thousand Naira) since 2010. Poverty in rural Akwa Ibom State is pervasive but paradoxical, considering the huge amount of the proceeds accruing to it from the oil derivation fund of the Federal Republic of Nigeria. Similar studies have also reported widespread poverty among Nigerians living in rural areas [19, 21-23].

Housing conditions in rural Akwa Ibom State are similar to those reported in a number of studies in other parts of Nigeria and African countries such as Kenya [4, 24], Imo State [25] and Ghana [26].

Housing conditions in this study was assessed through direct observation and by asking respondents to indicate the state of their housing on twenty key items classified into five major indicators of housing conditions namely: safety/ security indicator; indoor temperature/ ventilation indicator, building condition indicator; hygiene/ sanitation indicator, and environmental quality indicator. The result indicates that rural Akwa Ibom State as a region suffers gross inadequacy in housing conditions. The safety and security condition of the dwelling leaves nothing to be desired. With nearly all the household reporting absence of fire extinguishers, the houses are therefore vulnerable to utter destruction in case of fire outbreak. This finding is similar to observations made in other studies where basic housing facility such as security apparatus was found to be non-existent in many households [27, 28]. Worse still, the Fire Service Department in most Nigerian states is urban based and have no sphere of influence in rural areas. However, it has also been recommended that adequate housing should include facilities that could ensure safety and security in the home [2]. Such items as first aid boxes, security dogs and fence walls are grossly lacking in most households in rural Nigeria. Most households rely on makeshift fences and crude methods of fighting fire incidences [8, 21]

Majority of households under the study reported negative conditions in terms of indoor temperature and ventilation indices. The presence of fan can augment for natural ventilation; but most households lacked fans, ceilings and windows on two walls which are necessary for maintaining acceptable room temperature and adequate ventilation. With the typical tropical climate of the State, households are bound to face severe discomfort in terms of indoor temperature. This finding is similar to that made in Akure, where a total lack of ventilation was observed in almost 100% of sampled housing units [29].

The building condition with reference to the roof condition, the state of the walls, windows, ceiling and floors depicted a dereliction largely due to the age of the buildings and lack of regular maintenance. 60% of households suffer roof leakages, cracked walls and broken floors with an increased risk of pneumonia due to mould and damp development as reported in similar studies [30-32]. The absence of toilets encourages unsanitary behavior and passage of excrement in unauthorized places such as nearby bushes, tracks and footpaths. Most households depended on communal bathrooms in the absence of private bath places.

By far, the most serious housing difficulty among rural households is the absence of potable water and inadequate supply of water as reported in similar studies [33-35]. Potable water refers to safe drinking water. This is not provided in rural areas. However, households reported not having enough supplies from available sources such as streams and rivers due to distance, nature of terrain and the seasonality of some streams. The minimum daily water requirement per person is 30 liters by Nigerian standards. Results of this study showed that 78% of households fell below the minimum requirement for water access. Inadequate water supply sounds ironical in an area with enormous endowment of water resources. However, impact of regional water schemes and the World Bank-assisted water projects is yet to be felt by many rural dwellers in Nigeria [8].

This study also found out that 60% of households lacked waste collection and disposal facilities. Essentially, majority of the households rely on community dumpsites near the compound while some dispose directly into nearby bushes or river [3, 28-31].

In the same vein, the quality of the residential environment as reported by households is threatened by rainwater floods (Plate B), bushy surroundings (Plate C) and mice/ rat infestation (91%). Floods and stagnant water provide a breeding ground for mosquitoes whose attack only serves to increase the malaria burden for rural households. Mice/ rat infestation (76%) acts as a disease vector and attract attacks from other predators such as snakes – a situation inimical to the health of occupants. Other studies have also reported similar findings [35-37].

The result of correlational analysis between the set of households socio-economic variables and housing conditions (Table 3) indicated that the entire zero-order correlation co-efficient was found significant ($P<0.05$) in all cases. This shows that there is significant relationship between each variable and housing condition. Correlation between two variables signifies the extent to which they share an underlying component. Hence, the high correlation between paired variables selected from the set of socio-economic variables and housing conditions is readily seen to indicate the existence of a common characteristic among them all. This common property that underlies the six variables (income, educational attainment, and occupation, household size, crowding and housing conditions) is most likely the "status of rural empowerment, rural planning and development" in the State. For example, the high correlation between educational attainment and housing conditions (0.70), income and housing condition (0.75), and occupation and housing conditions (0.82) are indications of the effects that social empowerment, planning and development could

make the socio-economic and housing landscape of the rural population. Studies share similar sentiments regarding housing and socio-economic status of citizens [33].

CONCLUSION

This study is one of the few studies designed to generate firsthand knowledge on rural housing conditions in Nigeria using objective measures. Findings have shown that majority of rural households are languishing under housing conditions that are "grossly inadequate", implying that they lack facilities and services necessary to guarantee safety, comfort, hygiene, sanitation, structural stability and good environmental quality. Both individually and collectively, the household socio-economic variables of income, education, occupation, household size and crowding are highly related to the housing conditions of the people. This finding is critical to rural housing policy, rural population empowerment, rural environmental health and socio-economic transformation of the rural backlands. The far reaching implication of this result is that government of emerging societies like Nigeria can come to grips with the deplorable conditions of rural housing by consciously planning the rural environment and upgrading the human development indices of the rural people. This study therefore re-echoes the calls for massive rural development drives among third world nations.

Specifically, efforts should be geared towards enhancing the educational and financial status of rural dwellers through a rejuvenated adult education programme, provision of soft loans and cottage industries to diversity the rural economy and boost income generation. The study therefore urges government and other stakeholders to re-enact and implement plans for massive rural empowerment and development while extending ongoing housing intervention programmes and regulatory framework to the rural areas.

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ETHICAL ISSUES

Ethical issues have been completely observed by the author.

COMPETING INTERESTS

The author declares no competing interests.

AUTHOR'S CONTRIBUTION

The author participated in all aspects of the study – drafting, revising and approving of the manuscript.

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