

# Middle-income Housing in Nigeria: Determining Important Functional Requirements for Mass Housing Design

Chinwe U. Okpoechi

Department of Architecture, Federal Polytechnic Nekede, Owerri, Nigeria

---

**Abstract** This study addresses the problem of housing provision among the middle-income population in Nigeria. Owerri a state capital in South-eastern Nigeria was chosen as the study area. The specific aim of the study was to determine the functional housing requirements that are of primary importance to middle-income mass housing residents in Nigeria. The information so gathered would provide sound empirical basis for the design of more efficient housing schemes in future. A survey of 344 households in five (5) middle-income estates was conducted. Respondents were required to assess housing characteristics based on availability, and how they rated on a ten-point scale of excellence. The housing characteristics were developed from extensive review of related literature. Results of the study showed that design and quality of the housing unit, design and quality of estate infrastructure and maintenance of estate infrastructure and services were important requirements for good housing design among the middle-income group. Application of these results will ensure that the housing design process is holistic, incorporating all aspects of the housing system. This is expected to eventually result in better planned neighbourhoods, with the attendant social and economic benefits to the country as a whole.

**Keywords** Middle-income, Housing, Nigeria

---

## 1. Introduction

Mass housing provision in Nigeria has been bedevilled by several challenges over the years. These challenges have been quantitative as well as qualitative [1]. Quantitative challenges manifest in housing deficits, which have persisted since independence. Housing deficit in Nigeria was estimated at 18 million units in 2008 [2]. This is expected to remain on the ascendancy, as provision of new housing units, has not been commensurate with natural population growth estimated at 3.2% per annum [3], nor with the unabated spate of urbanisation in the country.

Quality of mass housing when provided is another issue of concern in public provision of housing in Nigeria. Mass housing schemes in Nigeria have been described as poor in terms of design, quality, and desired functions [4][5]. The recurring poor quality of mass housing schemes have been attributed to absence of a clear knowledge of the characteristics, needs, and preferences of the target consumers [6]. These often lead to development of housing schemes that are not context specific, and therefore unable to give satisfaction to residents.

Residents' satisfaction with their housing has been widely used as an indicator of housing quality [7][8]. A critical aspect of housing quality is the design quality of the housing, as it has been known to change the value of residential layouts [9]. Housing design in this context is a holistic process, involving both the design of the individual units, and the design of housing layouts. For there to be sustained improvements in mass housing delivery in Nigeria, the individual housing units must not be designed in isolation of the overall housing layout. The design process in this case would have to holistically address the concept of housing as a system, which includes a protected place for dwelling, a safe place for social expression, and an avenue for communal interaction [10][11][12]. To achieve this, the mean functional housing design needs must be ascertained for each group for which the housing scheme is targeted.

The focus of this study is on middle-income housing. The study seeks to address the issue of housing adequacy as it relates to the mean functional requirements for the planning and development of good quality housing designs for middle-income groups in Nigeria. This is important in a developing economy like Nigeria, as good quality housing can improve social well-being, quality of life, and sense of pride in communities [9]. The multiplier effects of these can be seen in health, security, and quality of the urban environment, among others.

---

\* Corresponding author:

chinweokpoechi@yahoo.com (Chinwe U. Okpoechi)

Published online at <http://journal.sapub.org/arch>

Copyright © 2014 Scientific & Academic Publishing. All Rights Reserved

## 2. The Concept of Housing and Housing Design

Housing as a concept is a composite of the overall physical and social components that make up the housing system [13]. The South African Government Information [14] sees housing as both a product and a process, by describing it as a variety of processes through which habitable, stable and sustainable public and private residential environments are created for viable households and communities. This recognises that the environment within which a house is situated is as important as the house itself in adequate housing provision.

Housing design is a systematic articulation of the functional requirements of housing, to suit the preferences of housing consumers. Design quality of housing is critical in housing development, and is fundamental to how housing layouts work [9]. This is shown for example, in the role good road networks play in ensuring pedestrian safety, and in the way properly maintained public spaces promote safety and aesthetics, among others. Implications of these include improvements in both social and economic well-being of housing consumers.

Housing design can be assessed based on these criteria proposed by Messrs A & P Smithson in Ganju et al [15]. They are:

### (A) Design of the housing unit

1. Availability of required spaces for the family's activities.
2. The quality of the house as a private place for family expression.
3. The role of the house in symbolizing identity and pride.
4. Ease of maintaining the house.
5. The role of the house as a climate modifier, including its ability to keep out the rain, and let in the beneficial effects of the sun and wind, while also warding off its adverse effects.
6. Availability of spaces around the house for group interaction. This relates to the spaces around the house which can support group activities.

### (B) Estate design and Infrastructure

1. Design and quality of vehicular and pedestrian circulation
2. Availability and location of communal facilities

### (C) Estate services

1. Management of waste, and quality of water supply.
2. Security
3. Estate maintenance services

### (D) Cost

This checks the balance between the design decisions and the overall cost of the building. The question to be asked here is, 'do the design decisions made allow the housing to remain affordable within the intended resident's carrying capacity'?

## 3. The Middle-income Group in Nigeria

In absolute terms, the middle class (middle-income

category) as defined by the African Development Bank [16], is a group of individuals or households with annual income exceeding \$3,900 (₦627,900) in purchasing power parity. The middle class is also defined by the Bank in relative terms, as individuals and households that fall between the 20<sup>th</sup> and 80<sup>th</sup> percentile of the consumption distribution. Three sub-categories of the middle-class in Africa were identified by the African Development Bank [16] as:

1. *The floating class* – this group has per capita consumption levels of between \$2 and \$4 per day. This category is precariously close to the poor, and can fall back into poverty easily.

2. *The lower-middle class* – this category has per capita consumption levels of \$4 to \$10 per day.

3. *The upper-middle class* – this category has per capita consumption rates of \$10 to \$20 dollars per day.

Nigeria's middle class in 2010, including the floating class was put at 22.8% of the total population by the African Development Bank.

The International Monetary Fund (IMF) identified Nigeria as one of the most striking examples of a country with a growing middle class, with its GDP increasing five-fold from £29bn (₦7.975tr) to £158bn (₦43.45tr) between 2000 and 2011 [17]. Additionally, projections by the African Development Bank in 2011 suggest that by 2030, countries like Nigeria, Ethiopia and South Africa, are expected to provide the largest number of middle income in Africa. It thus becomes important that for there to be a continued rise in the middle class in Nigeria, policies that bolster the incomes of those already in the middle class would have to be introduced. Housing is one such policy, as it has the capacity to accelerate the reduction of poverty, and improve the living conditions of the people.

The distinguishing characteristics of the middle class as identified in the survey by Renaissance capital [18] include better education than the poor, reduced likelihood of deriving income from subsistence farming or manual labour, increased likelihood of keeping salaried jobs or owning small businesses, and increased demand for adequate housing, including efficient supply and distribution of basic utilities and services. As stated in the AfDB [16] report, fostering the growth of the middle class should be of prime importance to policy makers, as the state of the middle class is a valid development indicator, associated with faster poverty reduction. Housing policies that target the well-being of the middle income can be a sure way of further growing the Nigerian economy.

## 4. Mass Housing in Nigeria

Mass housing describes housing provided on a large scale and in multiple units wholly by government or in collaboration with the private sector for purposes of public acquisition either on owner-occupier or rental basis [19]. The purpose of mass housing is to provide decent housing at reasonably reduced costs, to households unable to afford the

heavy investment of acquiring land and building houses at prevailing market rates.

In Nigeria, housing deficit as at 2007 stood at between 12 million to 14 million units [20] by 2008, had risen to 18 million units [2]. With an annual population growth rate of 3.2% [3] and rapid urbanisation, the housing deficit is expected to remain on the ascendancy. This is further compounded by the challenges faced by government and its private sector partners in providing adequate housing, which include inadequate knowledge of the nature and scope of the country's housing problems, and a narrow concept of the housing need [21]. Studies by several authors have shown that in spite of optimistic housing policies by the government since the 1960s, results have remained largely unimpressive, as housing provision has remained far short of policy projections [22][23][24].

It has become critical to address the past and present failures in housing provision in Nigeria, as public provision of housing through government assisted mass housing remains the only option for a vast majority of Nigerians to gain access to adequate housing [25][21]. The huge housing supply deficit in Nigeria, estimated at over 15 million in 2008 is an opportunity for Nigeria to improve on both quantity and content of new housing.

## 5. Research Methods

This study is focused on determining important functional requirements for middle-income mass housing in Nigeria. Owerri was used as the study area. Existing housing characteristics within the study area were established. Also, respondents' satisfaction levels with their present housing were rated on a ten-point numerical rating scale, which was eventually collapsed into a five-point scale during data analysis. These data were to help in determining the effects of housing characteristics on housing satisfaction among middle-income mass housing residents in Nigeria, and the functional requirements of housing which were most important to them.

Housing characteristics were studied under four distinct groupings namely

1. Indoor facilities in housing units
2. Outdoor facilities in housing units
3. Quality of facilities in housing units
4. Quality of estate facilities and services.

344 housing units in five middle-income housing estates in Owerri were studied. Only housing estates built according to prototype designs were included in the survey. Data collection was through a structured questionnaire. The information elicited from the questionnaire included the physical characteristics of the housing, and the levels of satisfaction housing residents derive from their housing. Each housing unit was represented by one respondent, who was required to be the head of the household, and a legal adult as at the time of the survey. The research instrument was tested for content validity and reliability. Reliability test

was conducted on thirty responses using the Cronbach's alpha. The test yielded a co-efficient of 0.88, showing 88% reliability. Data analysis was done using ordered logistic regression model to determine the housing characteristics which significantly affected housing satisfaction.

## 6. Results and Discussion

Two dominant house types were observed from the study. These are the 3-bedroom house types which accounted for 51% of all houses surveyed, and the 4-bedroom house types which made up 26.6%. 2-bedroom and 5-bedroom house types were also observed, although in much smaller frequencies. 40.7% (127) of the housing units had two toilets, while 46.8% of them had two bathrooms. Proportion of availability and non-availability of carport/garage in the houses was 47% to 53% respectively. In almost all the houses surveyed, there were no available spaces that could serve as library or study, or laundry/utility areas. However, a significant majority of the houses (84.3%) had access to outdoor parking for vehicles, which space could easily be converted to outdoor entertainment area if the need arose.

Verandahs/sit-outs/porches were available in 83.3% of the houses. Storage spaces were available in less than 79% of the houses. This meant that about 21% of all the houses surveyed did not have any spaces dedicated to storage. All the houses had living rooms, with 70.5% of them having one living room, and 29.5% with two living rooms. On the other hand, only 83% of the houses had dining rooms. Dining rooms were absent mostly in the 2-bedroom house types.

Respondents rated their housing units on a ten point numerical scale, with ten being the most favourable rating, and one the least favourable. The attributes describing the housing units were divided into two broad categories namely the functional space requirements, and the quality of facilities in the housing units. Functional housing requirements were assessed based on spaciousness, lighting, and ventilation. Ventilation had the most favourable rating with 89% (306) of the respondents scoring it 6 points and above. Out of this number, one-third scored the maximum 10 points. Cumulatively, respondents rated all three aspects of functional space requirements very favourably, with a score of 6 points and above by 82% of the respondents.

Quality of facilities in the housing units were assessed based on visual quality, construction quality, quality of finishing, quality of maintenance, and durability. Quality of maintenance received the least favourable rating, with ratings of 9 and 10 (very good) by only 24.7% of respondents. The most favourable rating was for visual quality of the housing units, with ratings of 9 and 10 maximum points by 35% of the population. Cumulatively, 32.7% of the respondents rated the quality of their housing facilities 9 points and above, meaning they were very satisfied with the quality of their housing. 39.5% on the other hand rated them 6 points and below, which suggests average and below average ratings.

**Table 1.** Respondents' rating of quality of facilities in their houses

Housing Unit Attributes		Rating scores frequency										Total
		10	9	8	7	6	5	4	3	2	1	
Functional space requirements	Spaciousness	66	59	37	52	58	41	12	15	4	0	344
	Lighting	57	42	77	54	44	24	13	13	0	25	344
	Ventilation	92	51	96	58	9	12	17	9	0	0	344
	<b>TOTAL</b>	<b>215</b>	<b>152</b>	<b>210</b>	<b>164</b>	<b>111</b>	<b>77</b>	<b>42</b>	<b>37</b>	<b>4</b>	<b>25</b>	<b>1,032</b>
	<b>%</b>	<b>20.3%</b>	<b>14.7%</b>	<b>20.3%</b>	<b>15.9%</b>	<b>10.8%</b>	<b>7.5%</b>	<b>4.1%</b>	<b>3.6%</b>	<b>0.4%</b>	<b>2.4%</b>	<b>100%</b>
Quality of facilities in the housing unit	Visual quality	73	46	65	65	33	30	11	12	9	0	344
	Construction quality	50	75	59	33	21	55	12	11	16	12	344
	Quality of finishing	62	50	44	33	33	48	37	12	9	16	344
	Quality of maintenance	48	37	42	44	36	58	28	18	17	16	344
	Durability	58	65	49	41	36	33	22	21	15	4	344
	<b>TOTAL</b>	<b>291</b>	<b>273</b>	<b>259</b>	<b>216</b>	<b>159</b>	<b>224</b>	<b>110</b>	<b>74</b>	<b>66</b>	<b>48</b>	<b>1,720</b>
	<b>%</b>	<b>16.9%</b>	<b>15.9%</b>	<b>15.1%</b>	<b>12.6%</b>	<b>9.2%</b>	<b>13%</b>	<b>6.4%</b>	<b>4.3%</b>	<b>3.8%</b>	<b>2.8%</b>	<b>100%</b>

Source – Author's fieldwork (June 2012)

**Table 2.** Quality of estate facilities and services

Housing Neighbourhood Attributes		Rating scores frequency										Total
		10	9	8	7	6	5	4	3	2	1	
Estate physical facilities	Network of access roads	140	56	53	29	33	17	8	0	4	4	344
	Quality of access roads	33	65	77	62	39	21	20	8	3	16	344
	Pedestrian circulation	28	40	68	62	53	29	17	16	0	31	344
	Existence of communal areas	4	15	36	40	27	40	27	32	29	94	344
	Quality of communal areas	4	4	55	52	13	39	60	13	26	78	344
	Location of Estate relative to other facilities	34	60	78	66	53	8	14	12	7	12	344
	<b>TOTAL</b>	<b>243</b>	<b>240</b>	<b>367</b>	<b>311</b>	<b>218</b>	<b>154</b>	<b>146</b>	<b>81</b>	<b>69</b>	<b>235</b>	<b>2,064</b>
	<b>%</b>	<b>11.8%</b>	<b>11.6%</b>	<b>17.8%</b>	<b>15.1%</b>	<b>10.6%</b>	<b>7.5%</b>	<b>7.1%</b>	<b>3.9%</b>	<b>3.2%</b>	<b>11.4%</b>	<b>100%</b>
Estate services	Refuse disposal	12	3	26	46	33	44	43	43	26	68	344
	Neatness of estate	36	42	94	47	47	36	22	12	8	0	344
	Quality of streetscape	36	33	57	70	47	17	53	15	8	8	344
	Security	16	36	61	46	39	48	36	23	23	16	344
	<b>TOTAL</b>	<b>100</b>	<b>114</b>	<b>238</b>	<b>209</b>	<b>166</b>	<b>145</b>	<b>154</b>	<b>93</b>	<b>65</b>	<b>92</b>	<b>1,376</b>
	<b>%</b>	<b>7.3%</b>	<b>8.3%</b>	<b>17.2%</b>	<b>15.2%</b>	<b>12.1%</b>	<b>10.5%</b>	<b>11.2%</b>	<b>6.8%</b>	<b>4.7%</b>	<b>6.7%</b>	<b>100%</b>

Source – Author's fieldwork (June 2012)

Estate facilities and services were divided into two groups for assessment. These are the physical facilities in the estate, and the estate services. The physical facilities are network of access roads, quality of access roads, effectiveness of pedestrian circulation, existence of communal areas, and location of estate relative to other facilities. The results of the survey show that network of access roads had the most favourable rating, with 90% of respondents scoring it 6 to 10 points. However, the roads were rated to be of average to poor quality by the respondents, showing that the roads were poorly maintained. The least favourable ratings were for communal activity areas, and quality of communal activity areas. These were rated 5 points and below by 64% and 63% of the respondents respectively.

Assessment of estate services was based on refuse disposal, neatness of estate, streetscape, and security.

Refuse disposal had the least favourable rating, with about 66% of the population rating it 5 points and below. This is followed by security which had below average ratings (1 to 5 points) of 42%. For the other attributes, responses were more favourable, as 64% of respondents had ratings of 6 to 10 points for neatness of estate, and 77% for quality of streetscape. Cumulatively, 52% of respondents were either satisfied or very satisfied (7 to 10 points) with the quality of estate facilities and services, while 48% were fairly satisfied, dissatisfied, or very dissatisfied (1 to 6 points).

Analyses of data using ordered logistic regression to determine the effects of housing characteristics on housing satisfaction showed that out of the four variables analysed, only three were found to be statistically significant in determining housing satisfaction among middle-income mass housing residents in Owerri. These are indoor Facilities in housing units, quality of facilities in housing units, and Quality of estate facilities and Services.

Out of the variables which had any significance in residents' satisfaction with their housing, the analyses showed that satisfaction with the housing among residents would increase if improvements were made in the quality of estate facilities and services. The analyses further showed that any significant increases in the other variables such as Indoor facilities in housing units and Quality of facilities in the housing units, beyond what was presently obtainable, would lead to housing dissatisfaction instead of satisfaction among this income group.

## 7. Conclusions and Recommendations

This study was aimed at determining important functional housing requirements for middle-income mass housing design in Nigeria. The findings of this study show that indoor space provision, functional quality of the individual housing units, and character of estate infrastructure and services are all important factors for consideration in the development of good middle-income mass housing. It follows therefore that housing designs for these category of persons must focus on appropriate indoor space provision, by striking a balance

between size, number, quality, and affordability. Additionally, housing development for the middle-income must go beyond the housing unit to include good quality neighbourhoods if the schemes must be successful. This is in consonance with the opinion espoused by Diogu (2002) that middle-income families place high premium on the general hygienic and ecological conditions of their residential environment, with preference for neighbourhoods with proper infrastructure, services and security.

The following recommendations are made from the conclusion of this study:

1. Indoor spaces for middle-income mass housing must be provided in appropriate quantities and sizes. Appropriate provision of these will be based on the social and economic characteristics of the intended consumers.
2. Housing layouts should be designed to have necessary infrastructure for effective social interactions within and beyond the housing estates. Adequate physical infrastructure will enhance the value of the housing scheme, while also providing a sense of dignity to the residents.
3. Every middle-income housing estate in Nigeria must incorporate within it, articulated estate services that are charged with cleanliness, refuse disposal, and security in the estate. Again this can help foster a greater sense of community among the residents and can positively impact overall economic and social development.

---

## REFERENCES

- [1] Ibem, E. O., Anosike, M. N., Azuh, D. E., 2011, Challenges in public housing provision in the post-independence era in Nigeria, *International Journal of Human Sciences*, 8(2), 421-443.
- [2] Onwuemenyi, O., 2008 "Nigerian Housing sector", *Punch*, 29<sup>th</sup> January, *Punch Newspapers Nigeria*.
- [3] NPC, 2006, *National Population Census of Nigeria*, Federal Republic of Nigeria.
- [4] Olotuah, A. O., 1997, "The house: accessibility and development – a critical evaluation of the Nigerian situation". *Proceedings of national Symposia on Housing in Nigeria*, Obafemi Awolowo University Ile-Ife, 312 – 317.
- [5] Agbola, T., and Olatura, C. O., "Private sector driven housing delivery in Nigeria: Issues, constraints, challenges and prospects", A lead paper presented at the 2<sup>nd</sup> annual workshop on private sector driven housing delivery in Nigeria, University of Lagos, 30<sup>th</sup> June – 3<sup>rd</sup> July 2003.
- [6] Diogu, J. O., 1997, Socio-demographic factors of urban housing design: A survey of the low income, *Social Studies Quarterly*, 1(1) 43 – 49.
- [7] Adriaanse, C. C. M., 2007, Measuring residential satisfaction: A residential environmental satisfaction scale RESS., *Journal of Housing and the Built Environment*, 22, 287-304.
- [8] Kellekci, O. L., and Berköz, L., 2006, Mass housing: User satisfaction in housing in housing and its environment in

- Istanbul, Turkey, *European Journal of Housing Policy*, 6(1), 77-99.
- [9] Commission for Architecture and the Built Environment, 2010, *Improving the design of new housing, what role for standards?*, CABE London [online]. Available: <http://www.designcouncil.org.uk/documents/documents/publications/CABE/improving-the-design-of-new-housing.pdf>.
- [10] Moloughney, B., 2004, *Housing and Population health – The state of current research knowledge*, Canadian Institute for Health Information, Ontario.
- [11] Eke, F., “Social and Rental housing policies in Nigeria” a paper presented at the triennial conference of the International Union of Tenants, Birmingham, 5<sup>th</sup> – 8<sup>th</sup> August 2004.
- [12] Ibagere, O. P., “The dividends of democracy – How far with housing for all”, A paper presented at the Delta state government’s seminar on the National Housing Fund, 26<sup>th</sup> to 27<sup>th</sup> June 2002.
- [13] Francescato, G., Weidemann, S., Anderson, J. R., 1987, *Residential satisfaction: Its uses and limitations in housing research in Housing and Neighbourhoods: Theoretical and empirical contributions* Vliet, W. V., Chlodin, H., Michelson, W., and Popenoe, D., Eds. Westport Connecticut: Greenwood press
- [14] South African Government Information, 1994, *A New Housing Policy and Strategy for South Africa*, [Online]. Available: <http://www.info.gov.za/whitepapers/1994/housing.htm>.
- [15] Ganju, A., Gupta, V., Khosla, R., 2006, *Design criteria for mass housing* [Online]. Available: <http://www.architecturez.net/+subject-listing/000044.shtml>.
- [16] African Development Bank, “The middle of the pyramid: Dynamics of the middle class in Africa”, Market Brief April 20, 2011. [Online]. Available: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications.pdf>.
- [17] Smith, D., and Lamble, L., “Africa’s burgeoning middle class brings hope to continent” *The Guardian* Sunday 25<sup>th</sup> December 2011. [Online]. Available: <http://www.guardian.co.uk/world/2011/dec/25/africas-middle-class-hope-to-continent>
- [18] Renaissance Capital, *A survey of the Nigerian middle class, Thematic research* 26 September 2011 [Online]. Available: <http://www.scribd.com/doc/74255806/survey-Nigerian-middle-class-260911-2>.
- [19] Ibem, E. O., and Amole, O. O., 2010, *Evaluation of public housing programmes in Nigeria: A theoretical and conceptual approach*, *The Built Environment Review*, 3, 88-116.
- [20] Akeju, A. A., “Challenges of providing affordable housing in Nigeria” a paper presented at the 2<sup>nd</sup> Emerging Urban Africa International Conference on Housing Finance in Nigeria held at Shehu Yar’adua centre Abuja October 17-19, 2007.
- [21] Ayedun, C. A., and Oluwatobi, A. O., 2011, *Issues and challenges militating against the sustainability of affordable housing provision in Nigeria*, *Business Management Dynamics*, 1, 1-8.
- [22] Diogu J. O., 2002, *Housing the poor in Nigeria: The integrated project approach*, *AARCHES Journal*, 2(1), 40-44.
- [23] Ukoha, O. M., Beamish, J. O., 1996, *Predictors of housing satisfaction in Abuja, Nigeria*. *Housing and Society*, 23(3), 26-46.
- [24] Jiboye, A. D., 2009, *Evaluating tenants satisfaction with public housing in Lagos, Nigeria*, *Town Planning and Architecture*, 33(4), 239-247.
- [25] Onyike, J. A., 2007, *Addressing the urban housing problems of Nigeria in the 21<sup>st</sup> century*, [online]. Available: <http://www.docs.docstoc.com/pdf/1755875/af27022a-0960-43d0-8cbb-37df1504c0b2.pdf>.