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Full Length Research Paper

An assessment of the interrelationships among housing quality variable sets in Calabar metropolis

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One of the most serious problems of urban housing provision in Nigeria, and in particular Calabar metropolis, is the issue of poor housing quality. The slum housing conditions in most houses of the low income socio-economic group in this area is dehumanising. This study therefore provides insight into the quality of housing in Calabar. The study used a combination of questionnaires, interview schedules, check- lists and focused group discussions as instruments of collecting data as well as the principal component analysis as a major statistical tool to account for most of the variance in the set of variables used. The study established the social, economic and demographic profile of urban residents in Calabar, as well as the pattern of housing characteristics across the metropolis. The study reviews the policy implications and recommends policy guidelines for future development of qualitative housing in Calabar metropolis.

Key words: Liveability, neighbourhood, urban, environment, housing quality, Calabar.

INTRODUCTION

The diversity of buildings, their great historical and cultural value, the uniqueness of the spatial aspect, the richness of architectural forms and details, and the trees often found there, all have a substantial influence on the quality of housing as perceived by the residents. The qualities of spatial aspect and layout, often supplemented by the specific manner in which they are used, make these areas interesting and pleasant, as well as places of attraction for many citizens of the town, and visitors from afar. The age structure of the population undergoes changes that will influence housing requirements.

According to United Nations (1997), the adult population in the 20 to 60 year age group will also increase and they play important role in the founding of new households and in the demand for quality housing. As pointed by Nwabueze and Oyekanmi (1992), housing is important as it provides shelter against insecurity to life and property that animals and dangerous or unfriendly fellow human beings can constitute.

However, these roles expected of housing in the urban environment, and national economy contrast sharply with the present housing conditions in Calabar metropolis. As the movement of population to urban areas accelerates, the social costs of haphazard growth are certain to rise (Bichi, 2008). This is so, not only because changes connected with this phenomenon are remarkably rapid, but also because migrants are often persons of childbearing age, so that migration also has an indirect impact on birth rates which will in turn require additional housing (Goodchild and Cole, 2001).

The most visible problem third world city faces is the need to provide decent, sanitary, attractive housing for its growing population. The correlation between housing problems and third world cities is very strong. “The topic of urban centres in Africa, Asia and Latin America conjures up immediate images of agglomerations of make-shift shacks, bulging with families, unpaved and puddle paths, people cooking, doing laundry etc., out-of-doors, and everywhere salvage and garbage” (United Nations,1998).

Slums are ubiquitous features of the urban landscape and although definitions have varied over time and space, it has been generally accepted that the basic characteristics of slums, such as low economic status, overcrowding, poor housing condition, and poor sanitation and health have almost universal applicability with variations primarily a matter of degree.

The process of slum formation include: Rural - urban

migration, changes in urban land use patterns, local zones of residence, variation in rental values, proximity to workplace, housing shortages and maintenance problems, as well as “Slum Clearance” policies in certain urban areas.

The issue of livability has become very pressing of late, especially with the increasing environmental deterioration in the large, metropolitan centres. It involves not only living conditions but also ease of circulation in the city.

Both in the rapidly growing industrial centres and the stagnating traditional centres, living conditions have been worsening over the years. In the former, there is a tremendous pressure of population on limited facilities and this is manifested in the growth of squatter settlements, overcrowded habitation, breakdown of waste disposal arrangements, inadequate water and power supply and generally poor environmental sanitation.

Matznetter (2002) argued that massive immigration has resulted in a high rate of disrepair and dilapidation. In the latter, the reverse is the case. Massive emigration has meant excess capacity in housing, resulting in a high rate of disrepair and dilapidation. However, it is only in the larger metropolitan centres that circulation is becoming a serious problem.

The low levels of livability of many Nigerian cities attest to the poor quality of their management (Ezewayi,2008). Management in this connection comprises two elements: the administration of city activities, and the ability to anticipate future changes in their scope and magnitude. For any Nigerian city, it is clear that the conception of urban management functions had hardly gone beyond routine administration of the city (Osemwota, 1981). The consequence of this shortcoming is today obvious everywhere.

Faced with the rate and magnitude of change, especially in our metropolitan areas, the overwhelming impression everywhere is as if these centres are not being managed at all. Indeed, the deplorable conditions in most of our cities underline the fact that we are still to develop appropriate institutional and legislative machinery for managing them efficiently (Ogunkunle and Adesola, 2011).

The fact that most of the countries of the Third World are just on the threshold of their industrial take-off, and the patent deduction based on the previous unfolding of events in the Western World that urbanization and industrialization are inseparable partners, lead readily to the viewpoint that continuing rapid urbanization is, so far, inevitable in the Third World (United Nations 1998a, 1998b). As of now, the cities have been growing both through natural increase and through a steady rural-to-urban migration. The cause of the phenomenon has been described as the push factors in the rural areas and the pull factors in the urban centres. In short, the rural areas are beset by propulsive forces which send the youths, in particular, to the cities which have the magnetic factors that engulf the rural areas in their irresistible field.

This study on housing quality considers the health burden arising not only within the home but also in the area around the home. It is difficult to separate out the health effects of poor quality housing from other important influences, especially the quality of health care and emergency services, the income level (which below a certain point has a crucial influence on nutritional levels) and the level of education.

Poor quality indoor environment brings high levels of environmental risk. Despite the many different forms that poor housing quality takes, from one room rented in tenements or illegal settlements to houses or shacks built on illegally occupied or subdivided land (Joachim and Olachi, 2010). Almost all share three characteristics which contribute to poor environmental health: inadequate provision for water and sanitation; high levels of indoor air pollution; and overcrowding which increase the transmission of airborne infections and increases the risk of accidents (Oyekanmi, 1992).

Nwachukwu, et al (2010) argued that environmental conditions have deteriorated as a result of expanding urbanization and industry, concentration of the population in large built-up areas; and the density of communications and transport, have all had negative repercussions on housing conditions-not only in dilapidated areas, but also in new housing estates.

The choice between the various forms of housing depends on local conditions, culture and traditions. Each country has to be able to choose those types of dwelling and those forms of housing which it considers best suited to its economic needs and to local, social and cultural patterns (Sule, 1980, 1983). Nevertheless, it is recognized today that between the extreme solutions of the detached one-family house and the large block of flats there are many intermediate housing forms and groups of great architectural variety: small blocks of flats; clusters of detached houses; houses one above the other, in rows or terraced, etc. The various forms of housing must be considered as complementary in as much as they meet the various needs of the occupants.

As pointed out by Taylor (2000), adequate housing for urban population is one of the indices of a high quality environment; indeed of civilization itself. Unfortunately, the task of building houses in the urban centres of less developed countries has lagged behind population growth.

Contributing on the impact of overcrowding on housing, Osemmota (1981) stated that overcrowding in our urban centres leads to housing slums. According to him, in rural areas people do not experience this environmental ill. Slum housing begins to develop in urban centres once people who have migrated from rural areas start to crowd in few available houses.

Also, contributing to the characteristics of slums, Rowlands and Gurney (2000) referred to slums as dwellings, which are not decent, safe and hygienic. They are likely to be dilapidated, overcrowded, and filthy. This

is true of some parts of Calabar Municipality where a majority of the buildings are dilapidated with age andpoor usage due particularly to overcrowding.

METHODOLOGY

In assessing residential houses for this study, the author used a checklist of specific items to evaluate every sampled dwelling unit. Some of these items included: types, size, and number of windows and doors available in each house as well as height of each building. The orientation of each house to the direction of the prevailing wind was also noted. The type of building materials used, the shape of the building and electric cooling facilities were also considered in determining the thermal conditions of the houses.The checklist was used because it afforded the author direct access to assess the household neighbourhood environment and the physical conditions that could impact on climate. Samples of photographs were taken of modern and traditional houses in the planned areas and the slum areas to compare climate variability in them.

Furthermore, a combination of structured and unstructured questionnaires developed and pre-coded by the author was pre-tested in the metropolis. This pre-test was aimed at ensuring the reliability of the instrument. A random sampling of 375 heads of households in Calabar metropolis was used. This was based on the enumeration areas (EAs) in each Local Government Area demarcated by the National Population Commission in 2006.

The questionnaires were administered to only heads of households. A response rate of about 97% of questionnaires filled and returned was recorded. Field Assistants who assisted in the fieldwork were given a three-day training course. Throughout the survey, continuous quality control procedures (cross-checking the completeness of responses, ensuring non- interference/influence on respondents, on-spot-check by researcher to reconfirm responses) were maintained to ensure the validity and completeness of data collected. Approximately ten per cent of all interviews were field - checked by trained supervisors.

The survey and qualitative data used in this study was designed and collected among three income groups within the Calabar metropolis. The three groups are:

a. The low income but high population density zones namely: Duke Town, Efut Town, Mbukpa, IkotIshie, and Henshaw Town;
b. The middle income but moderate population density zones namely: Akim Qua Town, Cobham Town, Essien Town, IkotAnsa, and Anatigha;
c. The high income but low population density zones namely: Federal Housing Estate, State Housing Estate, IkotOmin, IkotEffanga and Big Qua Town.

The major technique used in this study is the principal component analysis (PCA). It is used to determine the minimum number of independent dimensions which account for most of the variance in the set of variables namely: the number of windows, doors, size of density of rooms. The basis for using PCA in this study apart from its data reduction capability is that the technique generated factor scores which were used as new variables (orientation of the windows to the prevailing wind, the season of the year, etc.) in the multiple criteria grouping technique. This has been effectively used in many studies (Goddad, 1970; Oyeleye, 1978; Hemmasi, 1980, Gupta, 2001).

RESULTS AND DISCUSSION

For the purpose of this exercise, the magnitude of the correlation coefficients is divided into three. Values in the range of 0.00 to ±0.49 are regarded as low, those in the range of ±0.50 to ±0.70 are intermediate, and those in the range ±0.70 to ±1 are regarded as high. These limits are set in order that the upper figures in each category give a coefficient of determination of 0.25; 0.49 and over 0.50, respectively which correspond to 25, 50 and over 50% of the variance explained (Table 1).

Two approaches were adopted in this study: the first is to examine the zero-order correlation matrices of the housing quality, the socio-economic and demographic variables for low and high-income localities (Table 1 and 2). The second approach was to examine the direction and degree of association between the variables. This was done by examining the absolute values and the sign (+ or -) of the correlation coefficients.

Another way of assessing the importance of the variables included in the analysis was to look at the average number of inter-correlation among the subsets. The average number of inter-correlations range from 0.00 among the variables measuring type of house, availability of utilities and services in housing units to 0.91** (where correlation is significant at the 0.01 level) among those indexing household sharing facilities and housing size underlying the importance of housing structure and size.

Therefore in order of importance, variables indexing housing structure and size, were more important than those measuring housing conditions, proximity to neighbourhood facilities and utilities in household in that order.

Three variable pairs displaying strong positive relationship are variable 15, (percent of households sharing kitchen) and variable 16 (per cent of household sharing toilet); variable 15, (per cent of household sharing kitchen) and variable 17, (per cent household sharing bathroom), and variable 18, (per cent of house with cement block, prefabricated concrete or brick wall), and variable 19 (per cent of houses with cement floor).

The correlation coefficients are 0.58, 0.53, and 0.91, respectively for the low income localities. Similarly, the same variables (15, 16, 17) had 0.69**, 0.66** and 0.89** correlation coefficients respectively for the high income localities. This implies the near absence of significant difference between household sharing housing facilities in the two categories of locality [**correlation is significant at the 0.01 level (2 tailed)].

The correlation coefficient between variable 12 (Average number of habitable rooms occupied); and variable 19, (Per cent of houses with cement screed/wooden titles/vinyl/rubber tiles/terrazzo/marble floor) for the low income localities of –0.02 is in the low range. The inverse relationship is probably due to the fact that the number of bedrooms in a house has nothing to do with the quality of construction materials for the floor. The two variables may therefore be used separately as they may be influenced by different sets of factors. The rest of the variables depicting physical size and building structure carry low levels of correlation coefficients implying that they are measuring

Table 1. Intercorrelation matrices – high income (above the diagonal) and low income localities.

	NPL	THH	EDU	MI	FO	PCH	NAP	ASC	VLR	AVH	TH	NHR	SW	SP	HSK	HST	HSB	WAH	FAH	RAH
NPL		-0.01	0.07	-0.08	-0.11	0.06	0.05	-0.06	-0.11	-0.17	0.15	0.31**	-0.07	-0.06	-0.11	0.19	0.20*	-0.25**	0.07	0.03
THH	-0.22*		0.14	-0.02	- 0.21*	0.16	-0.08	-0.28**	-0.03	-0.19*	0.04	0.16	-0.02	-0.12	0.21*	0.23*	0.21*	-0.02	-0.13	-0.11
EDU	-0.05	0.08		0.39**	-0.12	-0.12	-0.03	-0.25**	0.05	0.01	0.02	0.18	-0.00	-0.25**	-0.11	-0.16	-0.14	-0.23*	-0.12	-0.36**
MI	-0.01	0.02	0.35**		-0.02	-0.07	-0.01	0.09	0.15	0.16	0.08	0.18	0.04	0.04	-0.08	-0.27**	-0.17	-0.15	-0.16	-0.07
FO	-0.04	-0.09	-0.17	-0.15		-0.02	0.16	0.02	0.26**	0.13	-0.08	0.09	-0.24**	0.31**	-0.12	-0.24*	-0.21*	0.11	0.15	0.16
PCH	0.11	0.09	-0.08	0.07	0.14		-0.04	-0.05	-0.20*	-0.18*	0.10	-0.20	-0.06	-0.08	-0.12	0.10	0.13	-0.01	0.09	0.19
NAP	-0.11	-0.17	0.01	-0.02	0.16	0.14		0.27**	0.13	0.29**	-0.01	-0.00	-0.15	0.06	-0.18	0.24**	-0.27**	-0.03	0.13	0.06
ASC	-0.23*	0.01	-0.08	0.03	0.16	0.04	0.21*		0.21*	0.33**	-0.24**	-0.07	-0.21*	0.19*	-0.19*	-0.25**	-0.24**	0.14	0.07	0.22*
VLR	-0.11	--0.22*	-0.11	0.01	0.24*	0.24*	0.26**	0.24**		0.43**	-0.14	0.06	-0.05	0.05	-0.05	-0.25**	-0.27**	-0.08	0.08	0.11
AVH	-0.20*	-0.12	0.04	0.14	0.27**	-0.08	0.39**	0.32*	0.49**		-0.24**	0.06	0.11	0.09	-0.09	-0.26**	-0.27**	-0.06	0.02	0.12
TH	0.00	0.19*	0.02	-0.29**	-0.21*	0.06	-0.25**	-0.21*	-0.12	-0.27**		0.12	0.06	0.03	0.06	0.08	0.16	0.02	-0.06	-0.09
NHR	0.04	0.11	0.13	0.26*	0.13	-0.14	0.04	0.02	-0.09	0.09	-0.05		-0.07	-0.03	-0.02	0.06	0.10	-0.15	-0.09	-0.13
SW	-0.01	0.01	0.00	-0.11	-0.15	-0.23*	-0.01	-0.22*	-0.20*	-0.05	0.00	0.05		-0.03	0.14	0.09	0.07	0.00	-0.09	-0.03
SP	-0.05	-0.09	-0.31**	-0.11	0.07	-0.05	-0.49	-0.06	-0.17*	-0.08	0.01	-0.07	-0.09		-0.15	-0.11	-0.05	0.25**	0.09	0.07
HSK	0.08	0.13	0.08	0.12	-0.15	-0.08	-0.25	-0.22	-0.14	-0.16	0.09	0.17	-0.02	-0.18		0.69**	0.66**	0.16	-0.04	-0.04
HST	0.05	0.13	-0.06	-0.03	-0.23*	-0.04	-0.27**	-0.23*	0.02	-0.19*	0.17	0.15	0.13	-0.22*	0.58**		0.89**	0.01	-0.12	0.06
HSB	0.11	0.11	-0.03	0.04	-0.29**	-0.06	-0.21*	-0.26**	0.06	-0.14	0.14	0.18	0.07	-0.16	0.53**	0.91**		-0.01	-0.22*	0.06
WAH	-0.12	-0.03	-0.21*	-0.26*	0.19	-0.13	-0.01	-0.02	-0.19*	-0.18	0.08	0.07	0.14	0.10	-0.03	0.01	-0.09		0.07	0.04
FAH	-0.06	-0.05	-0.29**	-0.35**	0.28**	-0.08	-0.07	0.02	-0.19*	0.17	-0.02	-0.02	0.06	0.25**	0.02	-0.06	-0.24*	0.54**		0.05
RAH	-0.03	-0.12	0.09	0.22*	-0.08	-0.02	0.20*	0.23*	0.21*	0.16	-0.25**	0.03	-0.18	-0.19*	-0.12	-0.07	0.01	-0.17	-0.24*	

Source: Field survey November/December, 2010.

Table 2. Variable codes used in the study.

Variable code	Interpretation	Variable code	Interpretation
NPL	Total number of people living in household	TH	Type of house
THH	Type of household	NHR	Number of habitable room in the house
EDU	Educational attainment	SW	Source of water
MI	Monthly income	SP	Source of power
FO	Form of occupancy	HSK	Number of household sharing kitchen
PCH	Purpose of compound/house	HST	Number of household sharing toilet
NAP	Neighbourhood/Area as a place to live	HSB	Number of household sharing bathroom
ASC	Availability of safe areas for children to play	WAH	Walls of apartment/house
VLR	View from living room	FAH	Floor of apartment/house
AVH	Adequacy of ventilation in the house	RAH	Type of roofing for the house.

different aspects of housing conditions.

The low degree of correlation between variable 12, (per cent number of habitable room available to the household) and variable 20, (per cent of houses with thatch/grass/ wooden plant roof) of -0.13 may be due probably to the preponderance of old core buildings containing many large families housed in 3 to 5 bedroom dwelling units. In most cases, these buildings have poor quality roofing materials hence the low degree of negative relationship. Similarly, the negative linear relation between variable 20 (per cent of house with thatch/grass/wooden plank roof in low income locality (-0.24**) and variable 19 (per cent of houses with mud floor) is probably due to the fact that both variables index almost the same poor quality construction materials implying that one could be substituted for the other without loss of information.

On the other hand, the strong positive relationship between variable 16 (Average number of household sharing toilet) and variable 10 (Proportion of houses with adequate ventilation) of 0.49** can be explained on the grounds that the term ventilation, as used in the study, refers to free flow of air within indoor space of habitable rooms.

The level of intercorrelations among the environmental

neighbourhood quality show low values as there is no single correlation coefficient falling within either the high or the intermediate range. The implication of this is that all the variables may be measuring different aspects of housing conditions and are therefore likely to be explained by different sets of explanatory variables. However, variable 9, (view from living room of the house) and variable10, (adequacy of ventilation in the house) correlates positively with 0.43**, though lower than the expected average. This explains in part the fact that a house with both variables is often a high quality type.

Conclusion

The analysis in the foregoing has shown the inter-relationships among housing quality variables with respect to the socio-economic profile of urban residents, housing characteristics/housing conditions, and neigh-bourhood characteristics within the metropolis. These three issues are essential to effective policy formulation and implementation. That the problems of housing appear to have increased over the years is not indicative of an absence of policy, but as is observed, it indicates the ineffectiveness of the implementation of existing policies.

The principal purpose of this section of the paper is to present action-relevant findings, and to make specific policy recommendations. This is because the results of this study offer the emergence of effective policies on housing quality through political processes. Furthermore, this paper is targeted at identifying and evaluating the range of options available, and examining a coherent strategy to improve housing quality in the metropolis.

The implication of this kind of study is about charting new trends in the approach to urban spatial structure of housing. In other words, this involves the formulation of policy on improvements of housing quality in the metropolis. As for theoretical implications one can postulate that past approaches to urban form do not adequately describe the Calabar situation.

Consequently, a new theoretical approach that will fit Calabar and possibly other cities in the developing countries is clearly needed. This means that the new approach shall combine ideas from the behavioural/urban ecology theories, history and culture of the area.

The socio-economic and environmental neighbourhood approaches might help in explaining part of the reasons for the spatial pattern of housing quality across the metropolis. For example, while the sector theory and the concentric zone model, may help explain why IkotOmin, IkotEffanga, and IkotIshie on the outer fringes of the city have better residences and are inhabited by people of high socio-economic background (except new migrants), it does not explain why Akim Qua Town nearer to the city centre is also of high status as theory based on studies of Western cities would indicate. This is where history and culture will come in to sharpen the focus and should be given prominence in the consideration of the forces that shape the city structure. Apart from history, culture also merits a very strong consideration. For example, permanent residence in a particular locality, even with poor housing condition, may be due to family ties or kinship.

In view of the foregoing, one can conclude that in the development of an approach to improve urban housing quality, salient aspects of former approaches should be considered. It is suggested that urban sub-area divisions are better described by factors which for planning purposes could be socio-economic or demographic. Yet a much fuller method is the description of urban sub-areas by the combined factor scores. The first two major components namely: the indigenous core housing and new core housing of the principal components were used.

The usefulness of the description of urban sub-areas by the first two major components that determine the particular urban area could be manifold. Firstly, it is dynamic and changes with the city structure and development. Secondly, it represents the state of the city at the particular time in question on the societal development scale. Thirdly, it represents a useful indicator of the level of services, goods and public facilities that could be allocated to individual localities within the metropolis.

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