TRADITIONAL HOUSING POTENTIALS IN ADDRESSING CLIMATIC HAZARDS IN NIGERIA: A CASE OF BIDA, NIGER STATE, NIGERIA

BY

ALIYU M KAWU & SALIHU I SHAIBU
Department of Urban and Regional Planning
Federal University of Technology, Minna 920003, Nigeria
+2348068015046, geokaws@yahoo.com & +2348054949286, shaibusi@googlemail.com

ABSTRACT
This paper explores the socio-cultural variables that informed housing design and architecture in a tropical country like Nigeria. Due to economic and especially population pressures; many attributes of local architecture and planning has been relegated to the background with serious consequences to life and living in urban areas. The issue of climate change have also brought further unfortunate dimension that in most cases worsen the already bad situation. Through physical and socio-economic surveys that include physical assessment and measurement of traditional housing designs coupled with interviews and opinion surveys of members of the traditional builder's guild; the study was able to generate data that formed the basis for field findings and recommendations. Hence, this paper is of the opinion that if an adaptation of the traditional settlement planning and architecture standards were done in line with the dictates of the 21ST century weather and climate conditions, many of the present and future or predicted natural and man-made catastrophes can be minimized or averted altogether.
KEYWORDS: architecture / climate / planning / tradition / weather

1.0 INTRODUCTION

Housing constitutes one of the basic needs of mankind. It promises protection against the hazards of weather and also the needed privacy for the individual occupants. Housing also constitutes one of the most universal forms of material culture, being found in all except nomadic societies. Housing also represents an important element in all capital formation and the largest single component in the total building effort of any nation. In fact and from a sociological point of view, housing has a major part to play in ensuring continuity of community life (Sills 1975; 516).

Gilbert and Ward (1978) went further to say that a society's main economic and social characteristics are clearly depicted in the form of its housing. Rich nations contain large number of well built dwelling while in poor nations it is the number of flimsy dwellings

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which is most apparent. Unequal societies are revealed by their wide diversity of housing form. Housing clearly reflects the economic and demographic structure of a society- its level of development, distribution of its income, the rate of population growth and the pace of urban expansion. Similarly, variations in the quality of accommodation reveal much about a society's social priorities, institutions, power system and form of government. Land ownership and tenure system alongside housing finance are major issues at the fore of housing studies, UN-Habitat (2003). Issues pertaining to adoption and adherence to building codes especially the long established traditional codes as it relate to weather and climate, and consequently the wellbeing and health security of occupants of these building structures are often overlooked.

1.1 RESEARCH ISSUE

Analysis of housing have brought fourth the issue of culture in housing or in a broader term; socio-economic and technological determinants of housing. Since culture can be said to be the total way of life of a people; to a large extent, housing or house type can be and is been influenced by culture and the traditions of the people. Other important influence could be climate which influences the material orientation and the structural design of buildings. All these variables have been taken into cognisance by founders of traditional cities and hence the emergence of traditional planning and architecture. This is a field which although employed oral tradition in knowledge and skills acquisition; have successfully tackled the multidimensional issues of land tenure, weather and climate, ecological, and landform characteristics found in human settlements. But in urban setting culture and traditions have little influence in housing types as most people build according to modern taste defined mainly by modern architecture and engineering.

However, these innovations were adopted from distant regions with quite dissimilar physical, human and socio-economic characteristics. The widespread adoption of these modern architecture and especially building materials and design with little consideration to our physical and especially traditional set up, coupled with weak or absence of development control department, have resulted in a chaotic situation that have regrettably led many to belief that traditional areas and or settlements altogether lack planning.

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2.1 REVIEW ON CULTURAL INFLUENCE ON HOUSING

Housing includes all that is within the dwelling and all that surrounds the dwelling. It is the creation of a special environment in which people live and grow. Housing affects the way people feel and act just as values and personality affects people's housing choices, (Kicklighter and Kicklighter, 1986). "Culture on the other hand refers to all ideas, beliefs, values, knowledge and technical capabilities that are shared and are bases of action by an individual or community. It is also transmitted from generations to generations and is usually subjected to continual change, Simmons (1997). While in Nigeria's pluralistic society, culture is defined as the totality of a people's way of life. It includes their values, beliefs, aspirations and mode of behaviour which is learned and also passed on within the group. It also has a material aspect, namely the group's material products and possessions such as settlement patterns, architecture, arts and crafts and technology (NEST, 1991).

It can thus be deduced that culture is the totality of man's behaviour which culminates into their norms and values of the society in questions including their housing types and forms. Thus, sociological factors, through necessity must be considered within the frame work of the existing culture or society. Hence housing must be engineered and constructed within the accepted concept of the social group to meet the group's needs. Hence, for some people, a house is merely a place to sleep and get ready for the next day. For others it is a bustling centre of activity. Some use their houses as a peaceful retreat, while others use it mainly for social gathering. However the house is used, it should be designed to complement the lifestyle of those who live in it, and the present challenges of climate change, Kicklighter and Kicklighter (1986).

In the African traditional societies houses are built according to the demands of the whole households and may accommodate the whole members of the extended family. In these societies, housing is one of the fundamental needs of a man. A decent place of aboard is needed for every adult especially for married men of the society. According to Ibrahim (1990), it is a common practice among the Hausa-Fulani's for the compound head to provide accommodation for his adult son when he is married. In this respect the compound head will find an appropriate space within the main house and build at least two rooms for the married son. Alternatively, he will secure a new house for the son else where within the town. But

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when the son is in the position to marry in a second wife, he is expected to make such provisions by himself as he must be economically viable to sustain himself by now.

In analyzing housing in Hausa land, Kaltho (1982) posit that in view of the requirements of both segregation of domestic life and participation in the economic, cultural and religious life of the community set out by the new religion (Islam) the Hausa-Fulani city characteristically comprises of a tripartite system public, semi-public and private spaces, varying in degree of accessibility and enclosure. Accordingly, a typical Hausa-Fulani compound consist of tall buildings and compound walls (that has a moderating influence on climate) with a limited number and small size windows at height above the line of vision of passers-by and compartments of progressive privacy and remoteness inwards to ensure seclusion and privacy. Often the compound (and the 'Sashe' - housing cluster) had a single entrance but a second entrance may be used exclusively by the women folks. The main gate of the house leads into a passage with a sharp turn and covered so that it is not possible to see into the court from the outside. At the residential sector or Unguwa, housing cluster and compound levels, the Islamic religious requirements of segregation of domestic life and participation in community activities and economic-cultural requirement of occupational control and trade together spelt out needs of domestic privacy, communal sense of belonging and occupational association. These needs have resulted in the planning principle of balanced social homogeneity versus heterogeneity whereby in the urban organization at those levels, equilibrium was to be maintained between strictly divided public and private life, Kaltho (1982: 16, 19-20 & 22-23).

2.2 HOUSING ADAPTATION TO CULTURES AND THE ENVIRONMENT

Both modernization and urbanization are bringing in rapid and radical changes in housing designs, needs and planning. This is due to the changing status of the family members that are reflected in the basic units of the household. The urban wife is increasingly employed outside the home and the development of substitutes for household tasks is proceeding rapidly alongside industrialization. The care of children will probably be increasingly shared between the family and the social and educational agencies, and there may even be an increase in the use of boarding schools, Sills (1972, P. 518).

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In Nupe culture a house is more than just a dwelling. Technically the house is a compound of a number of houses, enclosed by a common wall and sharing a common gateway or entrance hut, called Katamba. The Nupe reckon relationship in 'houses' saying for example that people belong or do not belong to the same house, that is are or are not related. The term Katamba is frequently used synonymously with 'house' in enumerating the kingship group of a village the Nupe will tell you that the village members so many 'Katamba'. Unlike the Igbo or Yoruba and more like the Hausa-Fulani, the Nupe house consists of a number of huts, mostly round, built of clay and thatched with grass, which are surrounded by a high wall. The wall opens upon the path or open space. In front of the house is the Katamba a gateway or entrance-hall of the compound. Inside the house are smaller partitions and a number of smaller Katamba, all invisible from behind the compound wall (Nadel, 1961:38).

Through communal cooperation, main socio-cultural and economic activities in Nupe land are done together by social and or family groupings. In the village, upkeep and building of houses is mainly a question of co-operative labour, involving little or no money outlay, smaller house repairs, such as rebuilding of huts or the compound wall are reckoned to occur every ten to twelve years.

In response to environmental factors in building design and construction is a universal factor. For example; traditional housing in the Pacific, without exception appears to be responsive to the climate of the area in an inherently scientific way. Here the builders have apparently not only created climatically responsive structures, but they have developed cyclone – proof shelters, prefabrication techniques, modular design, earth quake shelters and buildings designed for easy reconstruction. The bush house has an earth floor with mats while the beach house has split-timber flooring laid with the rounded or back side up, leaving gaps between the boards. The rounded floor is not only pleasant to walk on with bare feet but it also encourages sand and dirt to fall through and allow air to be drawn into the house from the coolest under-floor zone. The flexibility of the floor system is comfortable on the body and avoids problem associated with rigid concrete floors, Murison and Lea (1979:78).

3.0 FIELD FINDINGS

3.1 Modern/Present Trends: This modern time comes with the influence of widespread use of motorized technology, high population growth and subsequent rapid urbanization,

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cultural factors seems to have less influence on housing and housing type. Thus houses are planned and built to satisfy some immediate and subsequent human needs that principally include biological, social, cultural, psychological, political and economic needs. The extent any or all of these are observed depends on the economic strength of the house owner and; in this place, communal efforts does little or no influence at all. Unlike in the pre-historic times, today the important thing about housing especially in urban areas is not what it is but what it does in people's lives. In other words, that dwellers satisfaction is more important than and it does not necessarily relate to the imposition of standards, Tuner (1976).

The relegation of anything rural is arguably to many people the perfect picture of urbanized society. As Mabogunje (2005) puts it that the population of urban areas 'tend to be heterogenous and socially diversified such that kinship relationship tends to be of minimal importance. Interaction and interpersonal relations are virtually contractual in nature with the maintenance of law and order being rather formal and impersonal'. Hence, even though many of these urban areas were once rural in both origin and activities; the modern building or housing stock in these places at present is no much different from the conventionally architect designed and engineer built structures.

At the urban ecological space and economic sphere, cultural trends tend to give way for modern tastes. However, these modern trends are neither guided by traditional standards that were inherent in these places nor do they adhere to regulations guiding their uses even those practiced in their places of origin. A situation that usually arises is one in which indigenous standards and conventions are easily relegated and those upheld are neither fully adopted nor uplifted at all; they are merely adoptions of foreign motifs without the needed modifications necessary for a successful acclimatization.

3.2 Housing Dimensions in Traditional Settlements: for effective analysis of these contraventions and non-adherence to local or traditional speculations, it is paramount to highlight some of these traditional housing and planning specifications that founders of traditional settlements have founded and adopted, and which have enhance their living in these areas since time immemorial.

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Statistical analysis of building dimensions in traditional settlements (summarized in Table 1 below) have shown that 'there is significant difference between the formal dimensions of these components used in modern development control and their respective dimensions in the traditional areas'. Furthermore, and especially using Coefficient of Determination which is a 'correlation between two variables for all possible pairs of variables'; and which 'describes the amount of variation in the dependent variable that can be explained by its association with the independent variables', it was realized that 'the amount of variation between these values reach over 30%' (Gregory, 1973; Harry and Steven, 1995; Ukoje, 2004; Kawu, 2005).

Table 1: Dimensions of Traditional Building Components

Component	Ave. (m/m^2)	Min. (m/m^2)	General observations
Building height	4.8	3.0	Over 85% of the buildings (rooms particularly) are between 4 – 6 metres tall
Indoor open space	10.9	4.0	Not existing in modern buildings
Parlour	15.3	5.0	Many houses have multiple parlours
Outdoor open space	185.5	40.0	Fast disappearing in modern/urban areas
Width of walls	0.5	0.3	Solid materials without hollows

After Kawu (2005) & Field Survey August, 2008

4.0 GENERAL OBSERVATION AND DISCUSSION OF FINDINGS

The fact that traditional settlements are witnessing continuous intrusion and subsequent adoption of innovations in housing, architecture and planning is not a new thing to many. What could be unknown to both professional and non-professionals alike is however the realization that these new entrant into traditional settlements are neither conforming to the long established inherent standards in these areas and many modern structures are not built to appropriate regulations. But, more importantly; is the realization that traditional building standards and planning regulations have long foreseen climatic uncertainties including a drastic change and have already adopted adequate specifications to appropriately deal with them.

Ordinary observation is likely to simply dismiss the figures in table 1 above as mere measurements. But they are more than just that. For example; height of a room provides the much needed shield from the scotching heat of the sun. The open space enhances air circulation within the various parts of the house besides serving as a common place for relaxation; and an avenue to express unity between the various households and the entire community in the case of external open spaces.

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The materials and especially the thickness of the walls are other important elements here. Fortified with these characteristics, the wall becomes an effective air conditioner; appropriately regulating internal temperatures of the room or parlour according to the seasons. All these very important characteristics are left-out by the modern bricks of merely 6-inch width, with the result that one can hardly stay in any 'modern' structure without artificial heating or cooling devices.

5.0 SUMMARY AND CONCLUSION

In the provision of housing, cultural and socio-economic factors do play a decisive role in the design, building and even maintenance. Some culture lay much emphasis on security of property and especially the seclusion of the womenfolk, while others would be weary about privacy or both. All-in-all demands on housing are not universal. The Bedouin (Fulani cattle rearers in our own case here) who is nomadic, carefree, uncontrolled, unregulated, self determined, autonomous, could not cope socially or psychologically in a controlled, restricted, overcrowded apartment housing situation. A villager accustomed to living "wall to wall" with his family and friends would not have the same adjustment problem as the Bedouin in an apartment or row house type of housing development.

All these peculiar socio-cultural preferences are shredded away in urban environments. What is however observed is the allegiance to the dictates of the exigencies of economic power and the practices of 'modernization' freely expressed in the wholesale and unalloyed adoption of foreign specifications without the slightest attempt for appropriate modification needed in a secured environment and style of living that ensures continuity and sustenance.

6.0 RECOMMENDATIONS

The need to adjust towards long established standards in housing construction and planning generally is daily highlighted by the apparent shortcomings of adopted innovations. Climate change phenomenon has also made these points much clearer to all concerned about comfort in human settlements.

At this juncture, it has become apparent for specialists in the built environment, development control agencies and the government particularly, to realize that there is a need for readjustment of standards in regard to housing at least to confront the inevitable issues of

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climate change. The present trend of 3m as the required height for buildings appears to be too low and was never in any case the practice in this part of the world.

The way and manner people would react to this when adopted; elements and structure needed for its guidance, identification of adherence and contraventions; are however other areas to be explored. But, we cannot talk of adequate security of life and property in this present time when all human socio-economic activities are continuously directed by the dictates of climate change. The earlier this is adequately addressed, either in urban or rural settlement; the better for our security in the present and those who would take over from us in the future.

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