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AN ALTERNATIVE APPROACH TO LOW-COST HOUSING CONSTRUCTION, DESIGN AND PLANNING

by

KAY ONWUKWE

Dip., College of Science and Technology, 1978

B.S., B. Arch., Kansas State University, 1983

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Approved by:

Keith H Christensen

Assoc. Professor.

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INTRODUCTION

There is acute housing shortage in Nigeria. The problem is worsened by the continuous rural-urban influx of citizens for economic reasons.

This dwelling deficit has gotten the attention of both the federal and state governments. Acknowledging this as social dilemma, the governments instituted different programmes and policies. The programmes ranged from establishing Housing Corporations/Authorities to enacting Rent Control Boards. The Housing Authorities were charged with the responsibility of constructing houses. The Federal Mortgage Bank of Nigeria was charged to provide low interest loans to potential home owners.

Despite all of these efforts, the housing supply continues to fall short of demand. Where available, the cost is exorbitant. The goal of this paper then is to study ways and means housing could be supplied in the country as affordable cost. The study is to be done through comparative analysis and evaluative research. The areas of study are as follows:

Chapter 1 will discuss existing housing conditions.

Chapter 2 will discuss, describe, and evaluate housing policies and programmes.

Chapter 3 will describe the different types of housing markets and the construction industry.

Chapter 4 evaluates alternative methodologies.

Chapters 5 and 6 discuss material analysis and suitability for adobe and other construction methodologies.

Chapter 7 describes the considerations to be given attention in house design.

Chapter 8 discusses the criteria and guidelines for physical and environmental planning.

From this study, conclusions and recommendations are made. These recommendations are intended to make housing in Nigeria affordable.

CHAPTER 1

EXISTING HOUSING SITUATIONS

Urban Housing Needs and Demands

The provision of adequate social amenities has continuously been a major problem confronting many developing countries. Among them, urban housing has presented a tremendous task to the governments. In Nigeria, for instance, this case was highlighted when the Federal Government noted that housing,

> is essentially an urban problem. Rapid urban growth associated with accelerated tempo of socio-economic development has seriously aggravated the shortage of dwelling units in Nigeria resulting in overcrowding, high rent, slum and squatter settlements which are visible features of the urban scene throughout the country (Third National Development Plan, 1975-80).

The acute shortage of adequate and affordable housing in the urban cneters has caught the attention of each successive administration in the country. This shortage has been aggravated by the mass exodus of citizens from the rural areas to the cities. The teeming urban population and "higher" standard of living has drastically worsened the existing housing stock both quantitatively and qualitatively. As would be expected, the high demand for living quarters resulted in overcrowding and high rents. Cities such as Lagos has an average 3.8 persons/room, and Enugu with about 3.0 persons/room (Table 1). While urban population in most of the cities experience growth rates of 5 per cent per annum on the average, the urban housing stock grows at a negligible 2 percent per annum in most of the cities (Okpala, 1978).

With this opportunity provided, private estate developers have largely contributed to this widespread inflation. Developers are able to rent their houses as high as 30 per cent of tenants' income. According to Wahab (1974), Nigeria needs about 200,000 dwelling units annually to cope with the demand for accommodation.

Social and Economic Conditions

The residential land use pattern of the cities reflects the socio-economic characteristics of the urban dwellers. Four distinct residential growth zones could be classified, viz, the core region or the Central Business District (CBD), the newer urban zone, and the city fringe. At times, in some cities, Government Reserved Areas (GRA) are identified.

The Core Region/CBD

This is usually the heartland of the city and the site for the majority of the city's commercial and administrative activity. As the oldest and centre of the city, the houses are usually old. Most of them even show signs of wear and tear, especially those that have received little or no maintenance. The typical design of the houses is a variation of the traditional u-shaped open courtyard or compound houses--- referred to as Brazilian style (figure 1). Typically, these have corridors running down the length of the houses with rooms spinning off the corridors. Facilities such as the kitchen and bathroom are communually used. These houses reflect the commercial zones they are located in because storefronts are dominant features. In essence, these

houses perform dual functions, i.e. both for residential and commerical uses. The occupancy ratio is high and the dominant tenants are low wage owners. Although it is not surprising to find middle and upper dwellers in these areas also, many cities have embarked upon programmes of upgrading the toilet system but there still exists a lot of houses that are served by the pail-system. For example, Izeogy noted (1977) that in Port-Harcourt "about 85.4 per cent of the households are served by the pail-system, 11.5 per cent has water closet system, while 3.1 per cent had no toilet facilities at all."

Newer Urban Zone

This is simply an extension of the central business district. Such extensions are usually prompted by the desire for proximity to the commercial centre. Usually, this area shows evidence of new houses and infrastructure. The houses exhibit different architectural character from the traditional u-shaped courtyard to the bungalows and duplexes. It is not uncommon to find some two storey buildings too (figure 2). Because of its newness, there is evidence of some planning features from the road layout to the house facilities. Most of the houses are equipped with water closets, private kitchens, private "modern" baths or showers.

The residents of this region are generally considered middle and high income earners, mostly professionals such as lawyers, doctors, architects, and teachers, etc. Again, this zone is not exclusive to this class of people as low income people inhabit this zone too. The occupancy ratio is relatively lower than in the core region, about 2.4 persons per room.

One notable feature of these houses is the inclusion of car ports or garages. While this area is strictly residential in character, commercial activities also occur in the residences. Many of the residents even convert their garages into commercial stores. In terms of functionality, these houses are functionally the same as those of the core region—both for residential and petty commercial activities. Provisions are also provided in some of the houses for private gardening in the backyards.

City Fringe

At the outskirts of the city, depending on the pattern of growth, this area is likely to develop into a high residential area or slum. The closer it is to the city the more likely it will be a slum, conversely, the more liklihood of high density residential area developing.

If the latter develops, the type of houses are mostly the compact bungalow types. All the facilities are self-contained within the house. The kitchen, toilet, baths and others are all within the house. Car ports and garages are common features also. These houses are well landscaped with manicured green lawns and generous backyards. This area has the advantage of being provided with functional public utilities, such as regular water supply, electricity, water closets, and good motorable roads.

As would be expected, these residents are people on the higher end of the economic scale. The occupancy ratio is low relative to the others.

If slum develops, all the facilities enjoyed in the above area will not exist here. Instead, the slum will be made up of run-down structures, make-shift structures, congested roads, and lack of functional infrastructures. It will have a high occupancy ratio.

It is very common for both of these sub-zones to grow into adjacent villages. When this occurs, the so called high residential area would blend with people of other socio-economic background.

Government Residential Areas (GRA)

The government has always been in the habit of providing residential quarters for their senior staff. Just as the high residential area of the city fringe, the GRA is endowed with all functional utilities and services. Aesthetically and otherwise, GRA houses are exactly identical to the high residential area (low density) of the city fringe, except that the GRA is more homogenous. This is attributed to the holistic approach to the physical planning. Unlike the city fringe, the GRA does not experience sporadic growth.

Environmental and Health Conditions

The inadequacy of and the unaffordability of dwelling units, and the continuous urban population explosion, has resulted in "primary urban environmental health factors such as slum housing, inadequate water supply, inadequate disposal of refuse and faces" (Hunponu-Wusu, 1977).

Hunponu-Wusu (1977) divided the environmental health issues in Nigeria into primary and secondary environmental problems. The primary health problem is associated with residential conditions such as inade-

quate water supply, inadequate disposal of feeces and refuse. The secondary environmental problems are not directly linked to housing conditions but does impact on it. This problem is road traffic, and the impact of industries on the ecosystem.

Sewage Disposal

Efforts are being made to upgrade the sewage system by requiring water closets in all new buildings and the gradual inclusion of water closets in the older houses. but there still exists the traditional "salga' and the pail or bucket latrine. The wastes are usually buried at city's dump site or simply dumped into lagoons or rivers. The lack of central sewage treatment plants requires that buildings with water closets have septic tanks. As complimentary and noteworthy as it is to convert to water closet system, it does possess its own setbacks. One of these being the infrequent supply of water to flush the feeces creates potential health hazards. And this condition is worsened where the toilet is within the building. The other setback is the danger the septic tanks present to children. It has been recorded on numerous occasions of children falling into them. Also, septic tanks are noted to be breeding grounds for mice and rats.

Refuse Disposal

The disposal of refuse in most Nigerian cities will at best be described as bad, if in existence. The cities provide public refuse dumps at the corner of every neighborhood block. Residential refuse is expected to be dumped in these receptacles that are subsequently picked

up by the city's garbage collection agency. Instances have been noted where the city does not make the rounds. This results, in places like Calabar and Lagos, where large refuse heaps are overflowing and blocking the roads, thus adding to the problem of traffic congestion and the attendant health hazards.

Drainage

Open trenches and concrete gutters are primarily the water drainage systems available in the cities. Because of the concrete pavements and asphalt road surface volume of runoff water is enormous, and occasional flooding occurs. Also, this runoff water carries with it the uncollected disposed garbage. The contents are discharged into rivers and lagoons.

Urbanization and Residential Pattern--Land Use

The physical layout of modern or new towns has been a transplanting of the western grid-iron plan to a different geo-cultural setting. This plan has little relationship to or respect for the different lifestyle of the city. The city plan has evolved not from within but from outside, and neglect the individual family, neighborhood and the village fabric.

The concentric zone theory stipulates that land cost is higher at the city's centre and progressively declines outward. And the center of the city becomes both the commercial and transportation hub. The major determinant of city structure hinges then primarily on the industrial growth. This approach to city planning has continuously been removing land that was once community property to individual ownership. With the weakening of the traditional form of land ownership, and with the

inception of the "practice of individual land ownership ... alienation started." As a result of this, land acquisition no longer meets the needs of the community; but is based on capital ability of the potential buyers, land now has an economic value placed on it, and "the price of land varies with the distance from the city centre, the type of use, the availability of social facilities, and the associations related to it" (Sada, 1972). Spatial distribution of residential land use had to and continues to follow the economic dictates of the land.

Another aspect of the new town planning is the subtle but nonetheless present differentiation of the residents by socio-economic class. This socio-economic stratification could be translated into residential classification as high-grade, medium-grade, and low-grade residential zones. These zones correspond acccordingly to the provision and availability of social facilities and infrastructures.

High-Grade Residential Zone

This is primarily a low housing density area. The total acreage of land occupied by this residential type is inversely proportional to the number of residents. A study conducted by Sada (1972) found that the low density housing carried only 9 percent of the population of Lagos, and covered an area 33 per cent of the residential land available. This residential zone is markedly different from the others because of a high percentage of functional amentities such as portable water, electricity, water closet, good roads and storm drainage. Also noticeable is the appreciable landscaping. The cost of housing in this area screens out a great percentage of potential landlords limiting choices which Sada

(1972) sees as working against the "basic assumptions in traditional land-development model."

Medium-Grade Residential Zone

This is an area of higher density housing than the high-grade residential zone. Housing density could range from twelve to sixteen units per acre and the average occupancy ratio is about three. In most cases, amenities are always provided after residential structures are already in place. But on the average, this zone is of better quality than the low-grade zone.

Low-Grade Residential Zone

This zone could occur at any location in the city, either at the core or at the city fringe. Those at the city's core are properties that have declined in physical quality. And the closeness to the centre of the city provides an advantageous location for low income people. Although the quality of the houses have depreciated, the properties occupy high land values. The inner city in Lagos, for example, enjoy the advantage of being planned, but this is masked because of population congestion, crowding, traffic "go-slow" and the construction of un-authorized structures. Once workable amenities now suffer from over usage, lack of maintenance and the need for up-grading.

The low-grade residential zone at the outskirts of the city lacks all amenities. It is not planned and the growth is chaotic. The conditions at this area are such that they are called slums or shanty towns.

Both the low-grade residential zones characteristically have the highest population and housing density. A significant feature of the residential growth pattern of most Nigerian cities is that the above residential classifications are not finely defined. None of these zones are totally homogenous and exclusive to a particular socio-economic class. Some of the reasons for this range from cultural bondage to economic independence. In essence, the residential pattern could be said to develop into overlapping sectors (figure 3). According to Sada (1972), "except for isolated density spots, the popualtion density reduces with distance from the central districts in the city, rises at the boundary, and falls off again from the boundary."

The lack of amenities at the outskirts has contributed to restrictions or to slow down the exodus of the wealthy to the suburbs or the city fringe. Another factor is security. Isolated living in the suburbs does not provide the security and psychological attachment to family groups. The extended family network and tribal affiliations definitely plays a determining role in residential location within the city. Therefore, it is not uncommon to find in one neighborhood residents sharing common socio-cultural characteristics, yet be economically different. The growth pattern than could not be described as concentric, but instead as multiple nuclei (see figure 3).

TABLE I
URBAN HOUSING CONDITIONS IN SELECTED NIGERIAN TOWNS

TOWN	% of Households occupying one room	Average No. of persons per room	% of Houses with tap water	% of Houses with flush Toilet	% of Houses with electricity
Lagos	72.5	3.8	71.7	43.5	93.2
Port Harcourt	51.5	2.4	75.0	18.0	81.4
Benin	48.0	2.2	24.9	4.0	59.3
Warri	59.9	2.6	62.4	10.9	89.7
Kaduna	63.9	2.1	40.3	14.1	53.3
Kano	69.1	2.4	26.1	1.8	69.1
Ilorin	23.9	1.6	30.7	10.3	28.4
Ibadan	47.3	2.1	33.4	25.2	56.1

Source, *Third National Development Plan*, 1975—80, Federal Ministry of Economic Develop
Lagos

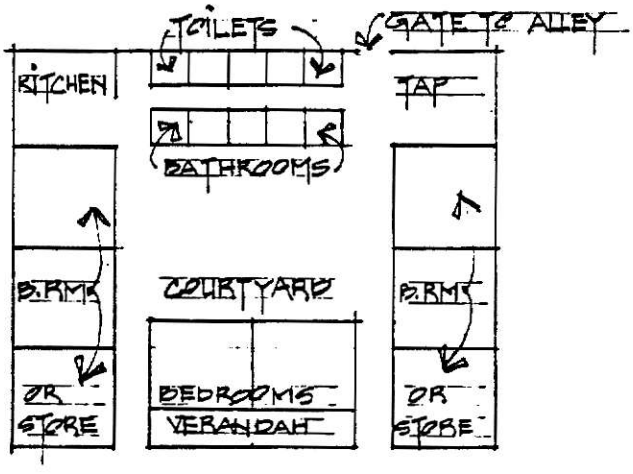

Fig. 1: Typical variation of the traditional u-shaped house plan.