

Original Research Article

Laterite building material and sustainable housing production in Nigeria

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Abstract

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Public Housing provision in Nigeria has not yielded much. This arises because of high cost of provision due to utilization of conventional building materials and the disregard for Alternative Avenue of housing provision which make sustainable housing development a mirage in the country. However, it is believed that if importation of expensive construction materials could be substantially reduced using locally available alternatives such as Laterite that are based on appropriate construction technology, such a measure can reduce cost of construction, increase housing stock and also increase foreign reserve of the economy of the country. It is against this background that the paper makes a case for the incorporation of the building material into Housing policies in Nigeria. It therefore, assesses the willingness of people to utilize the material for housing construction using Ogbomosho as a case study. Multistage random sampling was used in selecting 216 respondents from the two local government areas in the town while the questionnaire forms the basic instrument for data collection. The data collected were analyzed using Frequency counts, Percentage and Chi-square. The paper found out that the knowledge of people concerning the material is high and that people are willing to utilize the material. However, the limiting factors of utilization are non-incorporation in the National Housing Policy by the government, Gender, Level of Education and Society status as these are all significant at 0.05 level of significance. The paper concludes based on the findings above that in order to achieve sustainable housing provision in Nigeria, the material should be incorporated into housing policies and programs which should not be at the exclusive preserve of Federal Government and at the exclusion of State and Local governments.

Keywords: Public housing provision, Conventional building material, Laterite, incorporation, Sustainable housing provision

INTRODUCTION

Housing is one of the fundamental needs of human beings which comes after food and before clothing in other of priority (Arayela, 2005). A lot of human activity revolves around housing that it contributes 3 to 8 percent of the Gross Domestic Product (GDP) in many African countries and usually above 8 percent in many

industrialized countries (Aina, 1990); more significantly, housing is the dominant component of the construction industry. However, in the last 20th century in Nigeria, housing production has been extremely low. These results largely from financial constraints, lack of political will on the part of various national governments and

Table 1. Wards selected at Ogbomoso North Local Government.

Name of ward	Population	Number of questionnaire
1. Sabo/Taraa	7,760	18
2. Osupa	10,082	18
3. Okelerin	10,148	18
4. IsaleAfon	7,782	18
5. Aguodo/Masifa	10,103	18
6. Jagun	12,384	18
Total	58,289	108

Source: Author s field survey (2013).

Table 2. Wards selected at Ogbomoso South Local Government.

Name of ward	Population	Number of questionnaire
1. Lagbedu	12,435	18
2. Arowomole	10,538	18
3. Alapata	11,042	18
4. Isoko/Ola	10,868	18
5. Akata	10,293	18
6. Ijeru 1	10,402	18
Total	65,578	108

Source: Author"s field survey (2013).

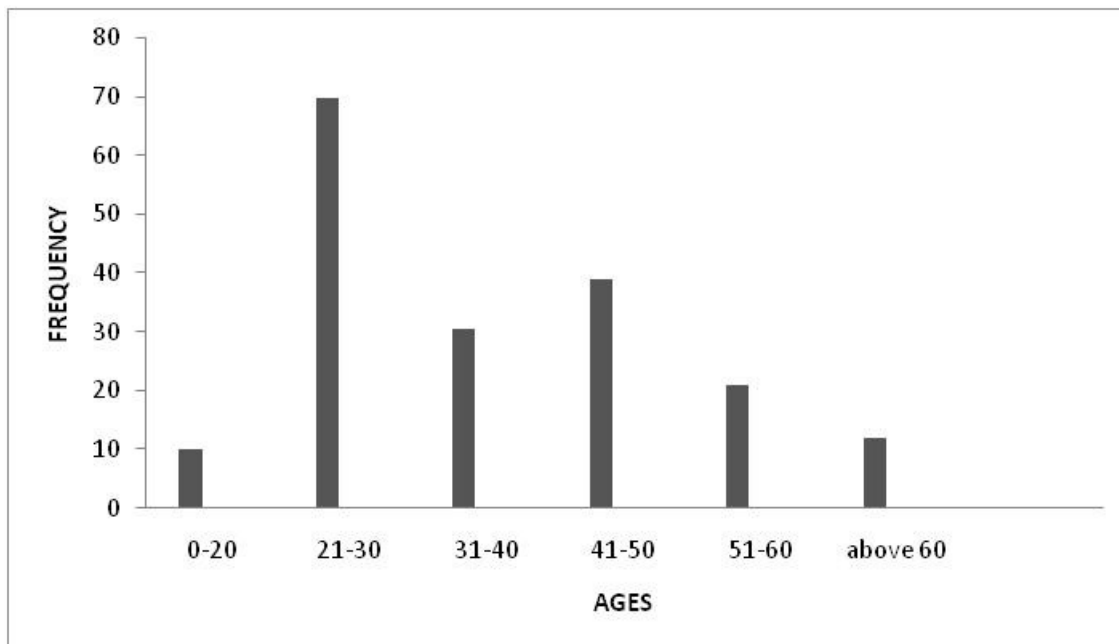
inability to fashion out an effective housing policy (Arayela, 2005). Coupled with this fact is the unprecedented rate of growth of cities that is being experienced throughout the nation, for example, in the cities such as Lagos, Abuja, Kaduna, Kano and Ibadan inclusive, the population of city dwellers has more than tripled. In order to solve the problem however, several measures were put in place such as the Structural Adjustment Program (SAP) of 1986 and National Housing Policy of 1991 which were meant to be policy package ostensibly to restructure and diversify economic base and reduce dominance of the focus has always been on unproductive investments (Odunjo, 2006; Arayela, 2005 and Dosumu, 2002). The policies were not able to make remarkable impact on the growth and development of housing sector. Regrettably, housing problems which result from urbanization are still unsolved up till today due to the fact that focus has always been on the formal industry sector promoting only the use of conventional building materials and according to Dosumu (2002), the focus on this sector alone will always lead to high cost of building materials and consequently make housing unaffordable to the generality of the people. In fact, Onibokun and Ogbuozobe (1985) supported this when they opined as follows: "The higher the cost of building materials, the higher the cost of housing construction; the fewer the number of people who can afford the desired houses, the slower the rate of housing supply. The fewer the supply, the more competitive the housing market becomes and the greater the problems of housing especially to the lower income sector of the population".

According to Onibokun (1985), the factors that affect the cost of housing include the cost of land, construction cost, cost of housing finance and administrative and management costs. In order to reduce the cost of housing, efforts should be made to reduce cost in all these areas. Construction cost can be reduced through the use of Laterite, an indigenous building material (Dosumu, 2002; Arayela, 2005; Odunjo, 2006; Wahab, 1992). The advantages of the material are many and it had been used in the construction of numerous buildings throughout the world in pre-historic times. Laterite house is appropriate for a variety of climates and is suited for passive solar heating and cooling. Therefore, the embracement will go a long way in bringing down the cost of housing.

It is against this background therefore, that the paper assesses the willingness of people to utilize laterite, a local building material for Housing construction in Nigeria. The paper uses Ogbomoso city, one of the largest city in the country as a case study and at the end, it highlights the hindrances to the utilization of the materials and make suggestions towards solving the problem.

METHODOLOGY

Data collected were majorly primary data which was collected through questionnaire administration. The questionnaires were administered in order to obtain information on the knowledge and attitude of people to utilize the materials well as the reasons why the material



Source. Author's field survey (2013)

Figure 1. Age distribution of respondents.

is not being utilized by people.

However, Ogbomosho Township consists of two Local Government areas; Ogbomosho North and South Local Governments and each local Government area consists of ten wards. The sampling technique used was multistage random sampling. The first stage involved random sampling of twelve wards where questionnaires were administered. Thus, six wards were selected from each of the two local government areas as shown in Tables 1 and 2.

However, the wards are almost homogenous with respect to spatial extent and population size. Thus, eighteen questionnaires were administered in each of the selected wards as shown in Tables 1 and 2. In selecting the respondents in each ward, the major streets were identified and every 5th house alternately on each side of the road was chosen for questionnaire administration. Data collected were analyzed through Frequency counts, Percentage and Chi-square.

FINDINGS AND DISCUSSIONS

Out of the respondents, 147 (69.61%) are males while 60 (28.8%) are females. This is as a result of the fact that men are associated with house provision than women and therefore, are the head of the family. Thus, this set has the tendency of being directly affected by housing cost which makes them to be more interested in housing than their female counterparts. However, the age of the respondents shows that 70 (32.86%) of the respondents

are between 21-40 years of age and 21 (9.86%) are between 51-60 years. Only 12 (5.63%) have ages that are over 60 years of age. Figure 1 shows the age distribution.

The implication of this finding is that majority of the respondents are adults who are matured and are capable of being mentally aware of changes in the society and the effect such changes could have on the economy as well as lives of people. Also, majority of the respondents (96.70%) have one form of formal education or the other while only 3.3% are not educated. This shows that the respondents are generally educated; thus the inference could be drawn that since the respondents attain a certain level of education, they would know the implication of the usage of the building material and the relationship with housing. However, 184 (86.38%) of the respondents has knowledge of the material while 29 (23.61%) are not aware of Laterite and the effect it could have on the cost of housing. Out of the 184 respondents that have knowledge of Laterites, 53.26% are ready to utilize based on quality and 9.78% due to the fact that it is cost effective. Only 19.02% of the respondents will utilize based on availability while the level of income will make 13.59% to use the material for housing construction. Only 4.35% will utilize based on recommendation by the researcher (Table 3).

Also, analysis shows that this set of people would have been utilizing the material, but that non-incorporation into the National Housing Policy by the government after the first set of brick houses were produced on the capability of local building materials,

Table 3. Willingness of Utilization

Criteria for Utilization	Frequency	Percentage
1. High quality	98	53.26
2. Cost effectiveness	18	9.78
3. Availability	35	19.02
4. Level of income	25	13.89
5. Recommendation	8	4.35
Total	184	100.00

Source: Author's field survey (2013)

Table 4. Chi-square test of relationship between variables and willingness to utilization of laterite.

Variables	X ² Cal	X ² Tab	d ^f	Remark
Non- incorporation	6.28	5.01	1	S*
Gender	4.98	3.26	1	S*
Level of education	5.34	3.55	1	S*
Society status	5.04	4.32	1	S*

Source: Author's field survey (2013).

S*-significant at P≤0.05

d^f –degree of freedom

gender, level of education as well as society status are the limitations to utilization as shown in Table 4.

The implication of this is that non – incorporation into the National Housing Policy by the Government after the first set of Brick house were produced, gender, level of education and society status affect the utilization of laterite for housing construction as each of this is significantly related to the utilization of the material.

CONCLUSION

- This paper has shown that housing problems being experienced by people in Nigeria could be reduced drastically with the use of local building materials such as laterite that is durable, culturally accepted, economical and not risky to human health. It could also be used to achieve sustainable housing for all in terms of quality and quantity.

- Therefore, in order to increase housing stock in Nigeria and create a more conducive living and working environment as well as developing an appropriate housing construction technology, there is the need to incorporate local building materials into the formulation and implementation of housing policies and program which should not be at the exclusive preserve of federal government at the exclusion of governments at local government level.

- There is a need now, to reach out and effectively involve the people and governments at grassroots levels in the formulation of housing policies. The Federal

government has been directly involved in the construction of buildings for all categories in the past and even presently. This has led to several other problems including expensive contractual procedures as is being experienced in Abuja. It is now necessary that housing must be considered as a personal service and as such, the primary responsibility of housing should not be left with the people themselves who, however, should be assisted in some ways in order to realize their aspirations for self- actualization of owning individual houses.

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