

THE INFLUENCE OF TERMITES ON THE DEPLETION OF HOUSING STOCK IN BIDA

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Abstract

Housing development has been a matter of priority and concern to all levels of government in Nigeria and indeed the world over. Its provision is considered as one of the primary assignments of government to promote health, economic and social well being of the people in the nation. This intention precipitated the Declaration of Housing for all in the 2000” as a slogan of adequate housing for everybody in the world by that year. There are abundant policies and strategies for increasing the stock of housing but the impact remain insignificant because of the rate of depletion of Housing Stock by ecological or environmental hazards. This range from erosion to the activities of termites on buildings in Nigeria. This paper reviews these natural hazards on buildings so as to create more awareness on its role in the rate of depletion of housing stock leading to shortage of accommodation in both rural and urban areas of the country. It then suggested a more affordable localized system of prevention of termites attack from the local material available in the area in question. The idea to use this local material culminated from the traditional use of the material by the respondents during the field interview.

Introduction

Housing is an important factor in human development. The provision of housing is always falling short of the demand for it. This development is attributable to a number of factors ranging from depletion of existing stock to the inadequate availability of housing fund and policies. The provision of housing is an important growth index and its availability at affordable price to the people is equally very important (Onibokun, 1976; Abiodun, 1974).

There are noticeable efforts of the Federal and State Government in the provision of housing but the inadequate policy regarding housing especially in the rural areas has further increased the migration rate into urban centres in Nigeria. This may be as a result of low economic result of housing especially in rural areas. The devastating effect is the existence of non-virile population in the rural areas and consequent low participation of the people in agriculture leading to low productivity of food.

The quick rundown of the housing especially in the cities is largely brought about by rapid urbanization resulting in overcrowding and run down of facilities and infrastructure in most rural and urban areas of Nigeria. (Onorkerhoraye, 1985 in Koleola, 1998). The inadequate attention of governments has increased the problems of rural dwellers. Though the magnitude has reduced over the years because of activities of the Directorate of Food Road and Rural Infrastructure (DFRRI). Though sporadic in nature, it has ameliorated the infrastructure problems of the rural areas.

The rate of housing development is very low in the rural area and to worsen the matter, the rate of depletion is alarming due to the ecological problem in some of these areas. Prominent among the ecological problems is the incessant attack of termites on the houses and crops in the rural area. The attack is not limited to the rural areas of Niger State alone but it is a common phenomenon in the entire middle belt of Nigeria. The crux of this paper is to examine the rate of run of houses caused by termites.

Area of Study

BIDA, the study area is the headquarters of Bida Local Government area of Niger State. Bida is divided into a number of wards for election purpose and this seems to be the administrative network of the historic town. There are eleven wards in Bida for this purpose of classification. The data for this study were collected from Umaru Majigi Ward, which was selected for observation.

The modality for the selection was basically on the cursory assessment during the reconnaissance survey of depleted buildings.

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Methodology

In order to obtain the correct assessment of the number of depleted buildings and related such depletion to termite attack or not. The total of 1,726 houses were sampled and the residents were interviewed to obtain relevant information of their buildings. Such information includes, age of the building, types of material and the facilities available in all the buildings.

The result of survey was presented in table and graphs to bring the point to conception. Based on the results of survey the buildings were classified according to age and their conditions.

A Survey of Known Activities of Termites on Buildings

The problems of termites are various in human development and these range from devastation of crops and to other forms of farm development (Malaka, 1972; Sands, 1971). The most crucial to us now is the influence on human habitations and this has constantly created the problem of reducing the stock of housing at a faster rate (Malaka, 1985). It is evident however, that due to the incessant attack of termites on timber structure of the building; it has been noted that metal frames were used instead of the appropriate timber frames common in tropical regions (Adeniyi, 1974) The resultant effect of this is that there is constant destruction of the flush doors and other forms developed from timber, and the rest members were badly affected by their loss of strength and stability. This situation is as a result of high fluctuations of temperature in such areas as the Northern part of the country where this study is carried out. Considering this high temperature fluctuations and the rate of expansion of these metal frames during heat period and contraction during the cold period, the metal frames are made obsolete in a matter of one or two years of use in such areas. Observations have shown that timber has a lot of heat resistance and if properly nurtured; does not expand appreciably to allow the obsolete character of these building members. (Adeniyi, 1985). Then from the foregoing a realistic study has to take place in order to identify the problems associated with the use of timber as appropriate building material for doors and window frame and indeed as a walling material for low cost buildings. This may be an alternative to concrete walls thus shifting emphasis from cement as a walling material. There is a research going on by the author of this paper on the effects of termites on maintenance of buildings.

A Survey of Other Activities of Termites

Important contribution to research on the biology, economic significance, ecology and control of termites in West Africa were made by Sand (1962) and Harris (1962, 1971) and indeed by Malaka (1972, 1973, 1974, 1985). It has been seen that termites were involved in the damage caused to the isolated ornamental shade providing trees at Obafemi Awolowo University Campus, Ife and the termites were classified as "Amitemes evuncifer, macroterms subhyalinus, M. Bellicosus, Pseudacanthotermes militaris, schedorhinotermes, lamanianus, microceterotemes, of scotibialis, Procutitermes Sp: Coptotermes and cubitermes fungi faber. And around the academic buildings and the residential areas of the campus are large lawns where isolated ornamental trees provide shade, Over 60% are oil palm (*Elaeis guineensis*) also present are *Bambusa Vulgaris*, *Anthocletistia djalensis*, *Cola nitida*, *Chlorophora excelsa*, *Celtis Zenkeri*, *Albizia ferruginea*, *Albizia glaberrima*, *Hanna klanieama*, *Movius mesozygia*, *Maesopsis emini*, *Rauvolfia vomitoria* and some flowering shrubs. There was evidence of 70% attack on all these species. (Malaka, 1985). The same situation prevailed in the campus of University of Lagos where a study was carried out. It is expected that there should be no termite attack because of the swamps but the result revealed that termite is with galleria around the walls, which were made of wood especially at Elkanemi Hall. (Malaka, 1973).

According to Sands (1962) there are three main termites families than is present in West Africa *Kolotermitidae*, *Rhinotermitidae*, and *Termitidae*, and they caused considerable losses to the farm products. The termites that have a devastating effect on building in Nigeria are *Amitermes Evmncifer*, *Odontotermes Panperans*, *Coptotermes intermedins*, and their effects destroyed buildings (Harris, 1971).

According to Harris and Hore (1971 in Malaka, 1973) there are a number of woods that are resistant to termite attacks and they are used for commercial timbers. They are - *Azelia Africans*, *A. Bipindensis*, *A. Pachyloba*, *Chlorophora excelsa*, *Cylicodiscus gambunensis*, *Daniellia orgea*, *Diospyros SPP*.

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Distemomantulus benthamianus, *Elythrotrichopteryx guineese*, *Lophia alata*, *mimusops djare*, *pterocarus soyanxii*, *Sarcocephalus diderrichii*, *Tripolochiton Scleroxylon*, *Terminalia Ivoreusis*, *Piptadeniastrum Africanum*, which suggests that timber made from them have certain degree of further studies. Harris (1971 in Malaka, 1973) however, observed that a timber, which may be termite resistant, might be vulnerable to fungal decay on account of being employed in damp situation. Consequently, the construction of a damp proof course is unavoidable in case of any use of the system.

There are reports that termites have caused considerable damage to man-made fabrics (Polythene and PVC), metal foils and insulation of electric cable as well as transmission lines (Howse, 1970; Clagg, 1965 in Malaka 1973). Termites in some cases are sources of food for some people (Hick in, 1971; Harris, 1991).

Termite Effects on Buildings Depletion

The drastic effect of termites on man’s activities including buildings has been enunciated in the earlier part of this study. In order to access the influence of termites on the depletion of building which is the object of this paper, it has been necessary to study Bida, witch is the headquarters of Bida Local Government in Niger State. This paper assumed that the result is a reflection of the situation in Niger State and indeed of the happenings in the Northern part of the country.

The observable trend as recorded in the field observation is that over the past fifteen years emphasis has shifted from the use of certain building materials to the other especially the metal frame. It is also observed that during this period the attack on the housing unit is at lowest level of between 32.22% and a cumulative of between 6.89 and 11.12% of the total number of affected housing unit.

Conversely, the rate of affecting housing unit is more with those of timber frame despite the adequacy of treatment of such wood before use as revealed during the survey. This increase is more predominant with those above twenty years (20 and above). They have as high as 88.62% of the sampled houses in this range. There could have been a reduction in this rate of depletion as some of the buildings used metal frame and they constitute about 12.68% of the sampled buildings in this range. This situation is expected to result in increased renovation carried out on the houses since termites attacked the houses seriously.

Table 1: Ana ysis of Building by Material for Door and Windows Framein BIDA

Age (Yrs)	No. of Buildings	Metal Frame	%	Timber	%
0-5	561	301	53.65	260	46.35
6-10	365	257	70.41	108	29.50
11-15	162	26	16.04	136	83.95
16-20	102	9	8.82	91	91.18
21 and above	536	68	12.68	168	87.31
	1,726	661	38.42	1,063	61.58

Source: Field Survey, 2002.

From Table 1 above there is evidence of decline in the use of timber for a period of about ten years as there is a sudden drop from 83.95% to 29.59. But the situation picked up again for the past five years to 46.34% that shows some problems with metal frame as appropriately enumerated at the beginning of this paper. The situation is corroborated from the responses of owner-occupier of some of the buildings sampled.

It is clear from the Table 2 below that the older the buildings the more they are affected by termites. The situation is worse with those between the ages of twenty-one (21) and above and renders some of the buildings inhabitable at the end of the invasion.

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Table 2: Termite Infested Buildings by Age in BIDA.

Age (Yrs)	No. of Buildings	Invasion of Termites	%	Cumulative of Total	%
0-5	561	192	34.22	11.12	
6 - 10	365	119	32.60	6.89	
11 - 15	162	136	83.95	7.88	
16 -20	102	91	89.22	5.27	
21 and Above	536	475	88.62	27.52	
	1,726	1,013	58.68	58.68	

Source: Field Survey, 2002.

The reduction in the number of accommodation available as shown in the above table is quite significant and should attract a proper policy formulation in terms of material or treatment recommendable for timber in this region and this will ameliorate the rate of depletion of housing unit as

Table 3: Composition of Inhabitable Housing Unit among Termite Invaded Housing Units in

Age (Yrs)	No. of Buildings	Invasion of Termites	Cumulative of Total	%
0-5	561	192	5	2.60
6 - 10	365	119	12	10.08
11 - 15	162	136	16	11.76
16 -20	102	91	19	20.88
21 and Above	536	475	23	4.84
	1,726	1,013	75	7.40

evident from this study.

BIDA.

From the above, the rate of reduction of accommodation resulting from termite attack is 7.40%. This is quite high and needs adequate attention.

Summary of Findings

The summary of findings as observable from this study are then listed as:

- 1) Termites constitute a problem to constructed buildings in Bida.
- 2) Termite contributes 7.40% of the rate of accommodation depletion in Bida.
- 3) That the effect of termites is more pronounced with the timber component of the building structure.

Source: Field Survey, 2002.

- 4) That this situation has increased the rate of maintenance of the buildings in Bida.
- 5) That the older a building is, the more it becomes susceptible to termite destruction.

Recommendations

From the above conclusion the following recommendations are suggested for implementation:

1. It is within this premise that adequate maintenance policies are to be evolved on the existing stock of buildings to avoid astronomical depletion. These policies will serve as guidelines to the three tiers of government in Nigeria for increased stock of housing.
2. There should be a shift of emphasis on prevention of termite attack rather than using material that are inappropriate in the name of termite prevention.
3. There should be proper study of the available building materials for further improvement to eliminate termite attack on them.
4. The traditional available methods should be researched into so that they can be further developed in commercial quantity for the use of the urban poor.

Conclusion

From the data presented in this study it is clear that termite is one of the sources of housing depletion in Bida. The rate of 7.40% depletion of the sampled buildings is alarming and can further exacerbate housing problem in Nigeria. It is from the above framework that a realistic research will have to be conducted to arrive at a sustainable method of termite prevention on buildings in addition to the existing methods in use. It is obvious from the study that termites increase the rate of housing maintenance in this part of Nigeria.

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