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BAMBOO RESOURCE IN IBADAN AND ENVIRONS: UTILIZATIONS, OPPORTUNITIES AND CHALLENGES

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ABSTRACT

This paper reports the mode of harvest, treatment, current uses, cost and constraints to production of furniture and allied product from bamboo as well as the marketing potentials of such products in Ibadan, Oyo state, Nigeria and Environs. About 264 respondents comprising farmers, allied furniture makers, marketers and consumers, construction workers, researchers and forestry employees were selected from the eleven LGAs in Ibadan, Oyo State, Nigeria and Environs. Data collected was subjected to descriptive statistical analysis. Bamboo was found in homestead farms and forests. It is free for public use and traditional harvesting techniques still applied in the study area. *Bambusa vulgaris*, Schrad was found to by respondents to be the most prominent *specie*. They were also observed by respondents to be relevant in round and un-treated form for making local beds (18.2%), construction purpose (48.2%), as firewood (28.4%), stacking stand and others (5.2%). Large market opportunities exist for bamboo furniture and related products provided the impediment to its use viz: lack of technological knowhow, equipment and enlightenment can be removed. This study established that bamboo resources in Ibadan and environ if properly harness can expand job opportunities and provide livelihood to large segments of rural/semi-urban populations in the study area.

Keywords: Bamboo Utilization, Ibadan and Environ, Bamboo furniture

INTRODUCTION

Forestry contributes significantly to every nation's economy, industrial and social developments as well as ecological balance. Forest timber resource has being the main contributor of these roles until about three decades ago. The socio-economic and environmental changes had impacted negatively on timber availability and income generated from it. This situation appears to have stimulated interest in non-timber forest products (NTFPs) as observed by Redhead (1971), Chandrasekharan, (2009) and FAO (1990). There are numerous NTFPs housed by different forest reserves depending on geographical location of the host country. Among different NTFPs that have enjoyed different patronage are bamboo and rattan. The former appears to be gaining more patronage due to its ready availability, figure 1, fast growing nature, ability to naturally regenerate, flexibility of use, accessibility and ease of harvesting (CBTC, 2008).

The privileges had placed bamboo in the position of most probable NTFP capable of supplying the much needed complementary raw material to many countries ever growing industrial sector. It is been reported to suitable for the production of furniture, paper, farm tools, implements, ethnic handicrafts as well as for construction activities. About 4000 commercial products are said to be currently made from bamboo or its products for day-to-day uses (FAO, 1990; Onilude, 2006 and CBTC, 2008). The extensive and various applications of bamboo and its bye-products

must have been facilitated by technology advancement. Economically, bamboo seems to be fairing well as income generating resource. Its potential as a fantastic income generating resource may be judged by the report that the world market income from bamboo as at 2005 was valued as US $ 10 billion. The value was expected to even rise up to about US $ 20 billion by 2015. China alone was reported to have shared up to 50% of the total world market income for bamboo in 2005 (CBTC, 2008).

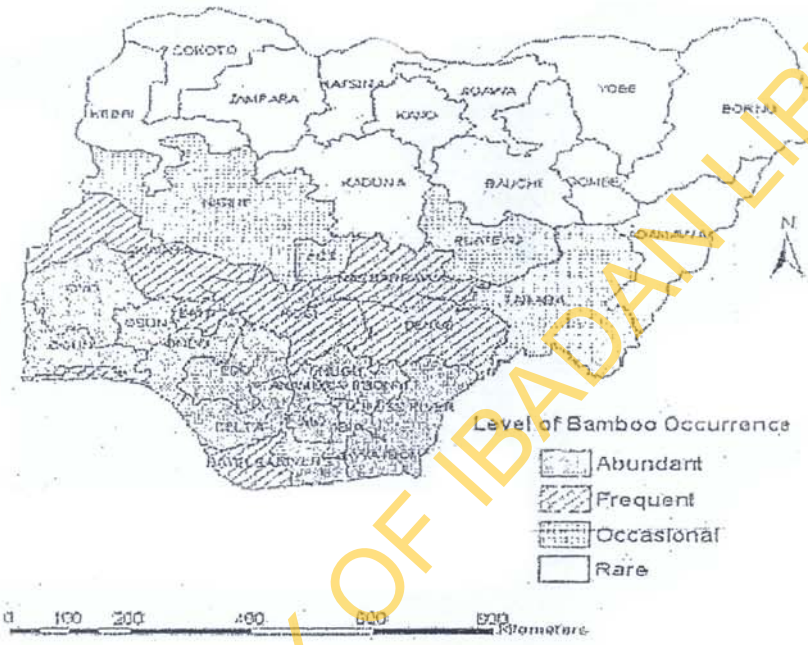

Fig 1: Nigerian Map Indicating Level of Bamboo Occurrence (Source: FAO and INBAR, 2005)

There are no evidences to show that many countries have realized or processed the capacity to unlock the bamboo potentials as timbers still remain the major source of attraction to forest exploiters in Nigeria. The over-dependency is exacerbating intensive and progressive depletion of the timber either for direct consumption or as raw-material for industrial sector. The shortage of timber raw material has been identified as a great bane to the development and sustenance of old and emerging wood-based industries in Nigeria (FAO (2005); Onilude, 2006). Despite the existence of numerous NTFPs in Nigerian forests as confirmed by Redhead (1971), Olufemi (2003); FAO, (1990) ; the old and emerging industrial sectors in Nigeria which main raw material input can be sourced from NTFPs are still groaning for raw material shortage and some have been forced to close down due to the shortage. The unlocking of potentials of the abundant NTFPs, especially the bamboo resource is yet to commence in Nigeria. Researchers in China and other countries of the world where potentials of bamboo are been unlocked have played significant role in capacity development and sustainable use of bamboo. This is the reason why the story of bamboo utilization status in Nigeria has to be shared with the world to kick start ways of developing its sustainable exploitation for varying end uses.

Importance of Ibadan to Development of Bamboo Utilization in Nigeria

Ibadan is located in south-western Nigeria, 128 km inland northeast of Lagos and 530 km southwest of Abuja, the federal capital, and is a prominent transit point between the coastal region and the areas to the north. Ibadan is in the forest zone close to the boundary between the forest and the savanna. It has a tropical wet and dry climate, with a lengthy wet season and relatively constant temperatures throughout the course of the year. Ibadan has eleven Local Governments with five in the city and six councils in the less city. The total land area of the eleven Local Governments of the Ibadan metropolitan area is 3.123km^2 out of which about 15% falls in Urban Ibadan while the remaining 85% is in rural Ibadan. There are two Universities, one Polytechnic and three research institutes in Ibadan (Areola, O. 1994).

The geographical location and economic potential of Ibadan has been drawing labour, capital and investment towards it for many decades, such that large markets now exist for development of various range of goods for different income earners. Ibadan therefore has great role to play in developing sustainable use of bamboo due to its continual swelling population [about 2.6 Million as at 2006 (NPC, 2006)], location advantage, labour, market, research manpower and bamboo resource abundance.

MATERIALS AND METHODS

Reconnaissance survey method was used in collecting bamboo utilization inventory and related information. The survey instruments include structured questionnaire, on-spot assessment and oral interview. Two levels of stratification were involved: Ibadan and environ was first stratified alongside Local Government Areas (LGAs). The LGAs were in turn stratified into urban (five LGAs constituting Ibadan Metropolis) and semi-urban/rural area (six LGAs constituting Ibadan Environs) as shown in Figure 1. Infrastructural facilities and predominant job activities were used to stratify the later set of LGAs to semi-urban and rural areas. Major information collected includes name(s) of the available bamboo species, habitat, abundance and ownership pattern; mode of harvest, treatment, utilization and cost information. The constraints to development of modern form of utilization for furniture products and its market potentials were documented. Respondents numbering 264 were randomly drawn from among farmers, Allied furniture makers, marketers and consumers, construction workers, institute based researchers and the state ministry of forestry employee based in the eleven LGAs in Ibadan. At each population strata, 88 respondents were involved and the data collected was subjected to descriptive statistical analysis using tables, percentages, and charts.

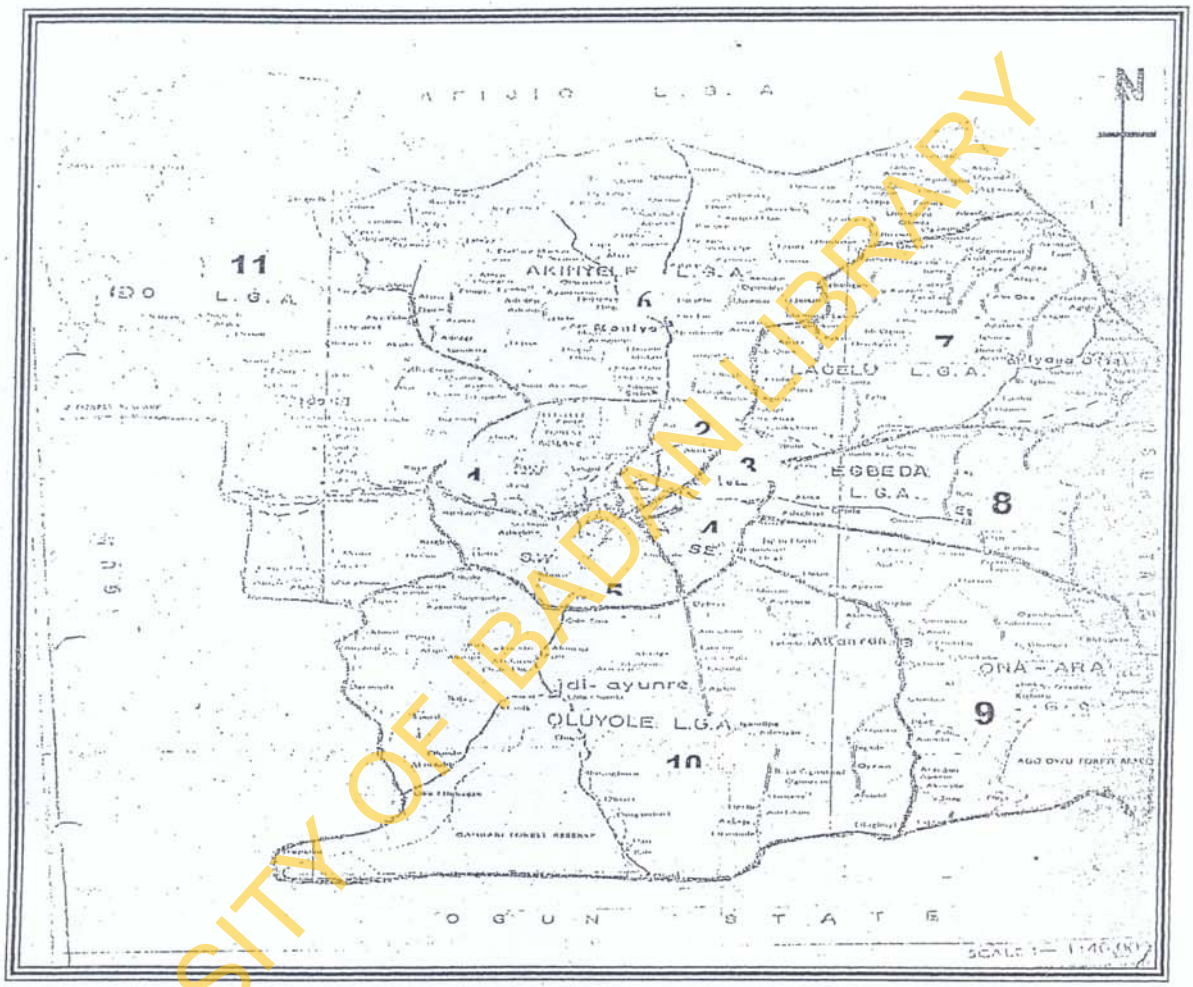

Figure 2: Modified Map of Ibadan and Environs
Source: Oyo State Map Depot, State Secretariat, Ibadan
Legend
1-5 = Urban LGAs
6-11 = Semi-urban/rural LGA

RESULTS AND DISCUSSION

Characteristics and Current Mode of Utilizing Bamboo Resource in Ibadan and Environs

Demographic characteristics of the respondents interviewed are presented in Table 1. All the respondents are aware of the existence of bamboo despite their varying locations within Ibadan and environs. Investigation revealed that bamboo is conspicuously abundant, grows naturally rather than cultivated and is free for public harvest throughout Ibadan and its environs. It exists mostly in

Table 1: Distribution of Respondents (n= 264)

S/N	Description of Respondents	Urban	Semi-urban	Rural	%Respondents
1	Farmer	5	15	24	16.8
2	Allied furniture makers	20	24	20	24.2
3	Furniture marketers	20	20	6	17.4
4	Furniture Consumers	18	15	15	18.2
5	Construction workers	20	12	18	18.9
6	Ministry of forestry employees	3	2	5	3.8
7	Institute based Researchers	2	-	-	0.8
	Total	88	88	88	

homestead farms and forests in the study area. The finding on bamboo abundance in Ibadan and environ lend credence to the summary presented in Figure 1 by FAO and INBAR (2005). The free access of bamboo to public coupled with its even distribution in the area may constitute a great potential in its consideration as NTFP from which alternative raw material can be produced to augment wood raw material supply to industry. Five bamboo species had been reported as prevalent in Nigeria (Omobowale and Ogedengbe, 2008). The gross features of bamboo samples collected across the study location were compared with the information provided by some studies on bamboo in Nigeria (Omobowale and Ogedengbe, 2008) to establish the prevailing bamboo species in the area. This study confirms the presence and prominence of only *Bambusa vulgaris*, Schrad in the area under study. This result may be buttressed by earlier observation that *Bambusa vulgaris* Schrad was the only prominent bamboo in Southwestern part of Nigeria. And that *Bambusa vulgaris* Schrad has a distinct characteristic that makes it ideal as raw material for a number of high-value industrial products (Onilude, 2006). The potential of the *Bambusa vulgaris* in the area may have to be harnessed for subsistence and commercial uses.

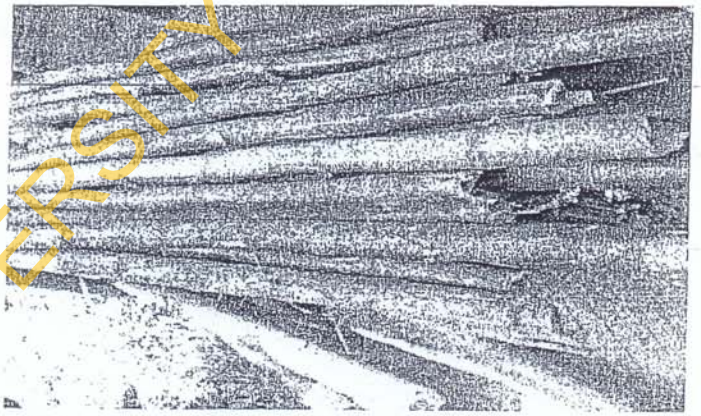

Plate 1: Sample of *Bambusa vulgaris* Schrad

This will be one way of enhancing economic gain, that is, by providing a means of livelihood for large segments of rural/semi-urban populations via bamboo subsistence use and the industrial sector through its commercial use.

There is evidence to show that bamboo resource is grossly under-utilized in Ibadan and environ. The abundance bamboo resource seems to be regarded as an *orphan resource* that should largely be

ignored and/or given minor status by the land owner/ holder, community, local, state and federal agencies. As at now, the bamboo attract no commercial value and there is no bamboo by product in any market in Ibadan and environ. The closest commercial use of bamboo in the study area is when it is demanded by builders or engineers for use as support in form work during construction as shown in Plate 1 as attested to by about 48.2% (n =127) of the total respondents interviewed. Even for this form of bamboo need, the user tends to pay for the labour of harvesting and or transportation to place of use rather than pricing the bamboo itself. About 75 respondents (28.4%) located mainly in rural areas where they have daily contact with bamboo was of opinion that the greatest use of bamboo is for energy supply in form of firewood. More than half (52.3%) of them was sceptical on the ability of bamboo as a replacement or supplement in production of furniture and other household items for in their opinion bamboo have no comparable characteristics to make it suitable for the purpose.

Plate 2: The Dominant form of Bamboo Utilization in Ibadan and Environ

However this opinion was more likely to be informed by lack of knowledge on modern use of bamboo due to low level of education since about 90.6% (n=33) of the people were either primary school dropouts or certificate holders. Contrarily to their opinion, bamboo generally and *Bambusa vulgaris* Schrad in particular, are ecologically, economically and socially important plants with a wide spectrum of industrial and domestic applications (Sekar *et al*, 1998)

From among the respondents (n=88) drawn from the urban areas, about 26.1% are aware of the values derived from bamboo through modern uses. They were however pessimistic on the possibility of deriving the same value from bamboo resources in the area in view of the present value attached generally to all NTFPs in Nigeria. This underestimates the need for the stakeholder to seek for development of capacity in un-locking the potential inherent in bamboo resources distributed across Nigeria. A proactive response to harnessing the opportunity for growing attitude of sustainable use of the abundant bamboo resource in Nigerian will almost certainly erase the erroneous mind-set of Nigerian population on the potential of bamboo. Investigation revealed that the only form of bamboo utilization for furniture production happened at few village huts where bamboo was used to improvised local beds by about 18.2% (n= 48) (Plate 2). This practice is

exclusively to rural dwellers that merely used bamboo in round and crude form for the purpose. Other form of utilization in the area includes as stacking stand, antenna pole, material for farm shed and other non-commercial but sundry uses (5.2%).

Mode of Harvest, Technology and Treatment of Bamboo in Ibadan

Essentially in Ibadan and environ bamboo harvest is yet to be mechanized. It is exploited using crude/tradition method and the main tool for harvest is cutlass. The processes involved in the traditional mode of bamboo harvest referred to are presented in Figure 2:

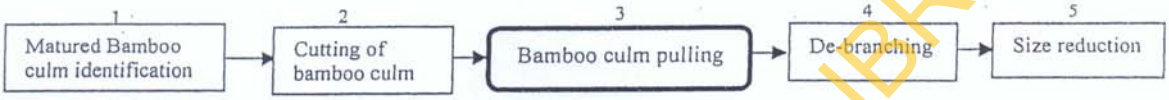

Figure 3: A typical traditional process of harvesting bamboo

The most problematic of the processes is the one identified as '3' in Figure 3. Bamboo harvest in the area have possibility of exposing exploiters in non uniform manner to few hazards like improper technique or repetitive-use injury related to pulling, carrying, cutting, lifting, loading, sustaining cuts, mechanical hazards, animal attack and fatigue. However in the area, bamboo harvesters are absolve from several complementary hazards associated with other NTFPs harvest - animal bites and stings (external vector, systemic poisons), Plant contact (external vector, topical poisons), Ingestion (internal vector, systemic poisons), excessive heat, cold effects, altercation, animal attack, difficult terrain, fatigue, loss of orientation, working at heights, working in remote locations, working on or crossing waterways, due largely to difficult terrain of the habitat of these other NTFPs. It is thus suffix to conclude that of numerous NTFPs in the area bamboo harvest is less hazardous.

For commercial harvest, the risk associated with bamboo harvest can be mitigated by direct training for the work tasks, on proper biomechanical technique, work organization and continual worker awareness with respect to work task and surroundings (INBAR, 1995). Harvesting is mostly carried out directly by the bamboo consumer with permission from land owner. Only when large quantity is needed as applied in its use for constructional purpose that a separate labour is incurred in harvesting. The bamboo size is dictated by its uses and it is not in the practice to treat bamboo in the area before use.

Modernizing Bamboo Utilization in Ibadan: Constraints and Market Potentials

The major constraints to modernizing bamboo utilization in Ibadan stem from the value associated with bamboo resource by the dwellers, lack of awareness and possibility of producing high-value products of commercial purpose from it and technical knowhow. Facilities may be a secondary constraint when focus is beyond subsistence use of bamboo to produce means of livelihood for the teeming rural/semi-urban populations. Seasoning and preservation are important needs in bamboo utilization but bamboo from the area is prone attack by powder post beetles. Plate 3 shows a completely infested bamboo samples collected and stored (un-treated) for trial production of furniture at the author's laboratory for about 8 months. This significant losses and damage to bamboo raw material before use posses a great challenge to its use for modern purpose in Ibadan.

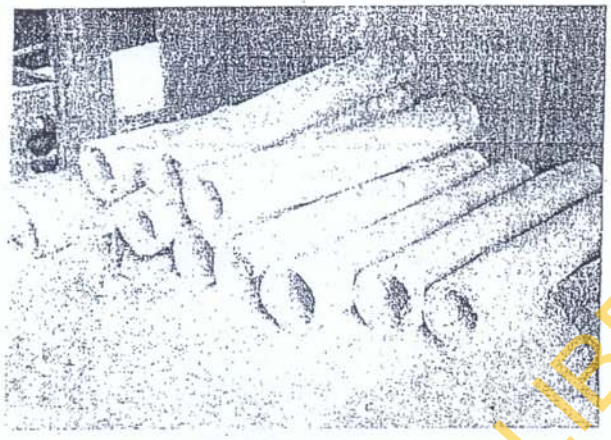

Plate 3: Powder Post Beetle Infested Bamboo in Author's Labouratory

These challenges can be circumvented by developing localized and appropriate methods of seasoning as well as eco-friendly, cost effective preservatives suited to an efficient bamboo treatment techniques in the area. This can be effectively achieved by learning other nations/ peoples experience through train the trainers approach (FAO. 1990).

Large market opportunities exist for vast bamboo products in the area especially if systematic marketing approach is given to the products. Apart from the direct market income that can be generated from bamboo resource in the study area, indirect income can be generated from expanded job opportunities it will provide for largely un-employed populations in Ibadan. The job opportunities are expected to result from varying processes involved making modern products from bamboo at both cottage and industrial level. Development of rural-based bamboo-using enterprises will immediately increase the market opportunity.

CONCLUSIONS

This study confirmed the abundance of bamboo resource in Ibadan and environ while also establishing its free access to public exploiters, existence in homestead and forests. Only *Bambusa vulgaris* Schrad is prominent in the area and it is largely still been under-utilized. The major form of utilization is in untreated round form as support in form work during construction, firewood, local bed and yam stake, shed construction in farm, antenna pole and improvised bridge amongst other sundry uses. It is high time that effort is made to harness the full potential of bamboo resource in Ibadan and environ particularly for economic and employment reasons. There is need to improve our practices for bamboo harvest, seasoning, preservation and conversion if bamboo utilization in the study area is to be up-graded to modern form. The main constraint in modernizing bamboo utilization in Ibadan is partly attributed to lack of awareness on the possibility of producing high-value products of commercial important from it and the low capacity level occasioned by absence of technical knowhow. There are large market opportunities for vast bamboo products in the area especially if systematic marketing approach is practiced.

RECOMMENDATIONS

The following recommendations were made

- Owing to the presence of bamboo resource, its abundance, free access and ability to provide employment opportunities and income for teeming population in the area, a concerted effort must be garnered to develop bamboo utilization in the Ibadan and environ for it to contribute its quota to the area's development.
- Appropriate scientific method for harvesting and processing bamboo has to be developed.
- Individual researcher should endeavour to attend training, conferences and workshops that can expose and increase their capacity with a view to share same in workshops, seminars and publications in Nigeria.
- Relevant government agencies are expected to have a rethink about the developmental priorities for numerous NTFPs available in Nigeria and as well develop new technologies and products which are environmental-friendly and sustainable from them. They should be at the fore-front of initiating approaches that will lead to new understanding and innovations for development of innovative and relevant technologies and sharing of existing knowledge for improved production and sustainable utilization of NTFPs and particularly bamboo in Nigeria.
- Inventory of bamboo resource in Nigeria, high value products, technologies, production houses and research and development institutions should be prepared and the information made available on the web for the use of relevant people/bodies.

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