



BAMBOO UTILIZATION AS A MEANS OF POVERTY ALEVIATION IN GBOKO LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA.



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Abstract

This paper was designed to ascertain bamboo utilization and its contribution to livelihoods of people and to identify the various problems facing its utilization in Gboko Local Government area of Benue, Nigeria. Simple random sampling method was adopted to select fifteen (15) respondents from each of the selected wards. Also multi stage random sampling was adopted in the division of Gboko into two constituencies (Gboko-east and Gboko-west). The second stage involved random selection of four wards each from Gboko-east and Gboko-west constituencies, making a total of eight (8) wards. The third stage was random distribution of fifteen (15) questionnaires in each of the wards selected, bringing a total of one hundred and twenty (120) questionnaires for the research work. Data collected include socio-economic characteristics or respondents, sources of bamboo species, income from bamboo products, uses of bamboo, bamboo markets etc and all the questionnaires distributed were retrieved. Descriptive statistic such as tables, frequency, percentage, bar chart and pie chart were used to analyze data. The result from the study showed that, out of one hundred and twenty respondents, 60.8% (73) were males and 39.2% (47) were females. In terms of household size 18.3% (22) were between 1-3 house hold sizes, 39.2% (47) were between 4-6, 15.8%. The result from the research showed that, bamboo has contributed immensely to the livelihoods of respondents, thereby increasing their standard of living in so many ways such as fodder for animals, building construction, medicine for cough and asthma, furniture making, income generation, as well as fuel wood. Therefore, the study recommended that, the wise use of bamboo should be encouraged to avoid extinction of bamboo from the forest, since most of the respondents obtained bamboo from the wild. It is recommended that the State Department of forestry should include Bamboo as one of the plantation species due to its high demand in the area. Also government should establish bamboo research institute to enhance production of genetically superior bamboo species.

Keywords:

Bamboo, Contribution, income, livelihoods, Utilization.

Introduction

During the last century, forests were mainly assessed in terms of the commercial value of timber and rarely were other forest components considered to be of major economic importance (Kigomo, 2007). In the 1900s, when vast areas of tropical forests were denuded of timber for local use and exportation, bamboos and other Non-Timber Forest Products were usually discarded or destroyed during logging operations. In the 21st century, however, there is a growing consensus that Non-Timber Forest Products are not only crucial to ecosystems, but also invaluable to the livelihoods of communities. Non-Timber Forest Products are known to generate substantial foreign exchange and are increasingly being regarded as valuable commodities around the world. Hence our perception and evaluation of Non-Timber Forest Products is changing due to alarming rates of deforestation and decreased timber yields (Kigomo, 2007).

Bamboo originated from Southeast Asia, where it is a natural component of the forest ecosystem (Dannenmann *et al.*, 2007). Bamboo (*Bambusa vulgaris*), is a perennial, giant, woody grass belonging to the sub-family of bambusoideae, and family Poaceae (Abdul Latif *et al.*, 1993). Bamboo is the fastest growing wood like substance on the planet (Abdul.Latif 1993). A culm can reach its full maturity in a matter of two to three months which make it one of the fastest growing, highest yielding renewable natural resources (Lessard and Chouinard, 1980). Moreover, bamboo reaches maturity and can be harvested after four to six years of growth, compare to the 30-60 years for wood species.

Abdul Latif *et al.*, (1993).reported that bamboo is widely distributed in the south and middle belt regions of Nigeria. According to the report, distribution of bamboo is related to ecological conditions with the rainforest areas having the most abundant. Bamboo is found in abundance in all the States of Southern Nigeria except Lagos and Bayelsa where the distribution is considered relatively low.

The earth is well endowed with biodiversity and varieties of ecosystems to sustain all lives therein if properly managed. However, ignorance of the potentials of many species is a great limitation to species utilization. Utilization of species, therefore, depends on indigenous knowledge. It was on this basis that some species are over utilized while other potentially more useful species are neglected and allowed to waste, for example, breadfruit (*Treculia africana*) commonly consumed as a delicacy by the people of Eastern Nigeria is allowed to waste in Guyaka community of Quaanpan Local Government Area of Plateau State, where it is not utilized in any form. It is also based on the same fact that rat (*Rattus rattus*), consumed as a delicacy by the Tiv people of Benue State, and is disregarded in other parts of Nigeria. The importance of species could be related to their roles in nutrient addition to the soil, tourism, food, building and provision of raw material. Experience from Asian countries have shown that bamboo may prove beneficial as a valuable and sustainable natural resource (Dannenmann *et al.*, 2007). This study was therefore, designed to assess the bamboo utilization and its contribution to the livelihoods of people in Gboko local Government area of Benue state.

Materials and Methods

The Study Area

The study was carried out in Gboko Local Government Area of Benue State, located between latitude 7°19' & 7°30' North of the equator & longitude 9°0' & 9°10' east of Greenwich. Gboko Local Government has a total land mass of 34,059 Kilometers square (13,150 square miles) with a total population of 361,325 (National Population Census, 2006). The local Government is a fast growing town in the Benue State. It is the traditional capital of the Tiv people and it has the official residence of the Tor-Tiv, who is the paramount ruler (King) of the Tiv people that spreads across Benue, Taraba, Nassarawa Enugu and Plateau State. The traditional set up of Gboko Local Government comprises of five major kindreds, namely; Mbayion, Mbatyerev, Ipav, Yandev and Mbatierev respectively.

Vegetation and Climate.

Gboko Local Government Area is a Guinea Savanna region and the climate is divided into two, wet and dry seasons. The

wet season normally starts from April to October while the dry season starts from November to March. The annual rain fall in the area is less than 1500mm. Temperature are generally very high (32-35°C) as from February to April. The vegetation of the study area is a Guinea savanna comprising of trees with moderate heights (13-17m) and many tall grasses. The topography of the area is undulating and flat. The people are predominantly farmers which involved in production of arable crops like Tomatoes, Cassava, Yam and Maize

Sampling Procedure and Sample Size

Gboko Local Government has seventeen (17) Council wards. A multi-stage random sampling stage was adopted. The first involved the division of Gboko Local Government Area into two Constituencies (Gboko East and Gboko West). The second involved random selection of four (4) wards each from Gboko east and Gboko West constituencies making a total of eight (8) wards. The third stage involved random distribution of 15 copies of questionnaire to each of the wards selected, bringing a total of 120 questionnaire for the research work randomly distributed to respondents such as bamboo farmers, civil servants and traders respectively.

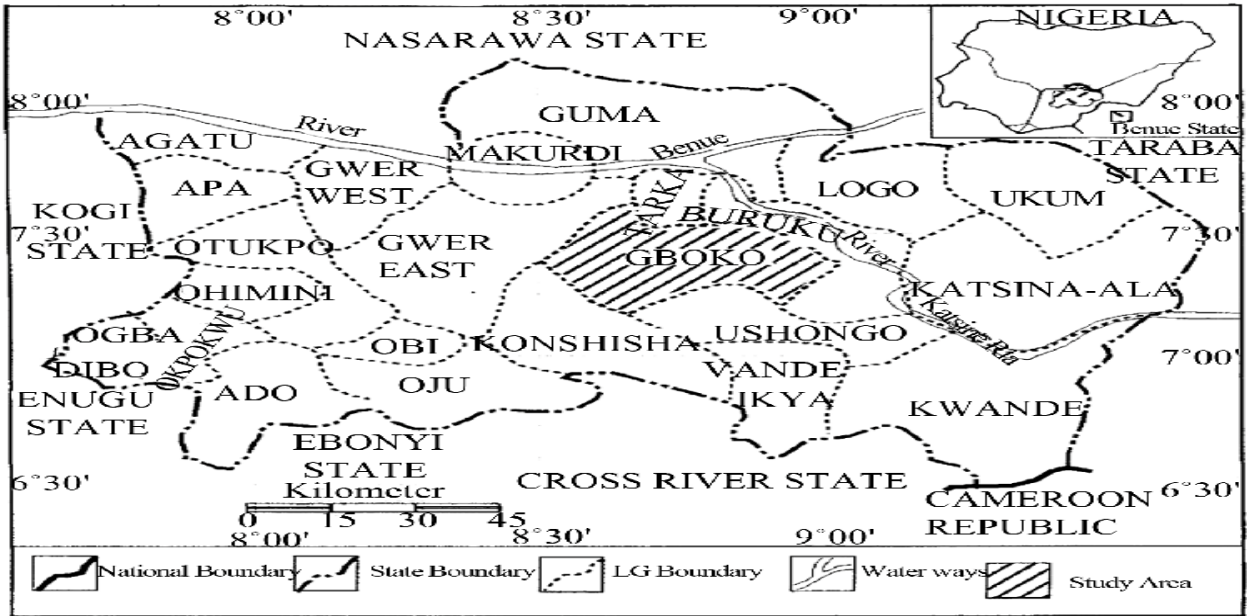


FIGURE 1: Administrative Map of Benue State Showing Gboko Local Government Area

Data Collection

One hundred and twenty (120) semi structured questionnaires which contains both ended and close ended question were administered to obtain data for the research. Personal interviews and field visits were also used to collect information on Bamboo availability, uses, markets and problems facing bamboo utilization in the study area.

Data Analysis

The data were analyzed using Descriptive statistics such as, frequency, tables, bar chart and pie chart respectively.

Results and Discussion

One hundred and twenty (120) questionnaires were randomly distributed and all were returned. Table 1 shows that, 55.8 % (67) are married while 44.2 % (53) are singles which shows that marital status has no effect on bamboo utilization of respondents. Both married and unmarried were actively involved in bamboo utilization.

Table 1: Distribution by marital status of respondents in the Study Area.

Marital status	Frequency	Percentage %
Marr	67	55.8
Singl	53	44.2
Total	120	100

Source: Field survey, (2019)

Educational Level of Respondents in the Study Area

Figure 2 indicates that, 26.67% (32) of respondents acquired first school living certificate, 12.50% (15) has no formal education, 7.50% (9) of respondents attended college of education, 6.67% (8) has a bachelor's Degree in various fields, 11.67% (14) of respondents has Higher National Diploma, 19.17% (23) of respondents has acquired Ordinary National Diploma, while 15.83% (19) of respondents from the result has O' Level (WAEC, NABTEB, NECO etc.). This is an indication that, the use of bamboo in different areas of the country particularly in Gboko is not really dependent on qualification of individuals since its utilization is traditionally made in most cases.

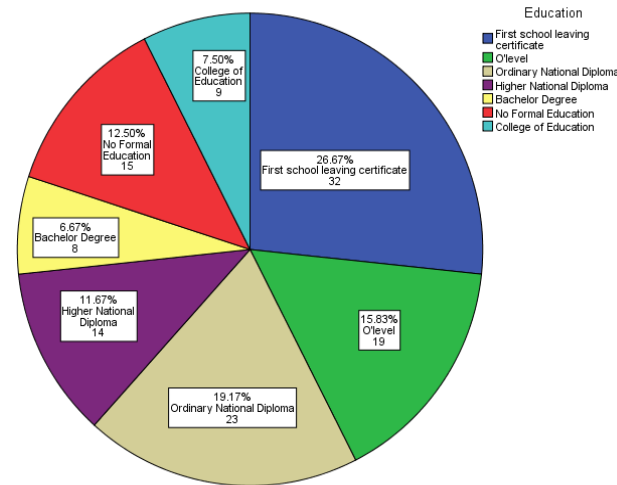


Figure 2: Distribution According To Educational Level of Respondents

Source: Field work, 2019.

Occupation of Respondents in the Study Area

Table 2, presents the occupation of respondents using bamboo, the result shows that 31.7% (38) of bamboo users are famers, 12.5% (15) of respondents are traders, 36.7% (44) are civil servants, this shows that government workers that earn monthly income also utilize bamboo products irrespective of their income per month, 18.3% (22) of respondents are students, 0.8% (1) is a herbalist, which shows that bamboo utilization is so important to both the local and the working class people in the study area, thereby, putting pressure on the products both from the market and forest.

Table 2: Distribution on Occupation of Respondents in the Study Area.

Occupation	Frequency	Percentage %
Farming	38	31.7
Trading	15	12.5
Civil servants	44	36.7
Students	22	18.3
Herbalist	1	0.8
Total	120	100

Source: Field work, 2019.

Uses of Bamboo in the Study Area.

From the table 3, there is clear indication that, 16.7% (20) of respondents use bamboo product in their homes for medicinal purpose, 24.2% (29) of respondents use bamboo product in their homes for fencing purposes, 21.7% (26) of respondents use bamboo product for staking, 5.8% (7) of respondents use it as building material, 3.3% (4) of respondents use bamboo product for fire wood purposes, 2.5% (3) of respondents use bamboo product as fodder for domestic animals. The results show that the respondents use bamboo product in their various homes for different purposes. This agrees with the statement by Chihongo *et al.* (2000) who said, that key bamboo uses of Bamboo include construction, hand crafts, residential fencing, farm props for banana plantation, furniture and other minor cottage industrial products like basket and toothpicks. This is also in line with Chihongo *et al.* (2000) who confirmed the use of bamboo for medicinal purpose, that the banslochan is a popular medicine which is a silicon secretion found in culms of bamboo specie, it occurs in fragments or mass (2cm) thick and it is used as a cooling tonic in asthma and cough.

Table 3: Use of bamboo in various homes in the Study Area.

Purpose	Frequency	Percentage %
Medicine	20	16.7
Fencing	29	24.2
Staking	26	21.7
Building	7	5.8
Firewood	4	3.3
Fodder	3	2.5
No response	31	25.8
Total	120	100

Source: Field work, 2019.

The most important/beneficial uses of bamboo to some respondents, 6.84% (8) is as fire wood. 5.14% (6) said bamboo for fodder is more beneficial to them, 22.22% (26) of respondents preferred using bamboo for Furniture making, 23.08% (27) preferred bamboo for staking, 19.66% (23) of respondents said the use of bamboo for medicinal purpose is more preferable to them than other uses. This shows that the use of bamboo for staking and furniture making is higher as compared to other uses. This is in line with Chintuck (1993) who discussed about the use of bamboo for furniture making, that the present day industry uses one of the numerous species of bamboo (*Bambusa vulgaris*) for more modern products such as basket, vases, penholders, wall plagues, tables, lamp holders, all of which have decorative utility value, also Chintuck (1993) stated that for the farmers in the Yam cultivating areas to have a

good yield of their produce, there is high demand for Bamboo product for staking. The use of bamboo for different purposes will affect the future utilization of bamboo product, since no proper care in terms of research and plantation has taken to improve the specie for future purposes.

Yearly Income generation from Bamboo in the Study Area.

From table 4, 33.3% of respondents said bamboo utilization has contributed to their livelihood on yearly basis by generating 10000-30000 Naira every year, 37.5 % (45) generate 40000-60000 Naira every year, 16.7 % (20) generate 70000-90000 Naira yearly, 12.5 % (15) generate up to 100000-120000 Naira every year which contribute to their livelihood. This is in line with the work of Dannenmann *et al.*, (2007), which stated that in Ibadan, a pole of bamboo between 6-8 meters is sold at between 150-200 Naira which can be estimated to be 54,750 and 73,000 Naira per year.

Table 4: Contribution of bamboo to income generation per year in the Study Area.

Income per year (Naira)	Frequency	Percentage %
10000-30000	40	33.3
40000-60000	45	37.5
70000-90000	20	16.7
100000-120000	15	12.5
Total	120	100

Source: Field work, 2019.

Table 4 shows that, 25.75% (26) of respondents said, bamboo has contributed to their livelihood through income of 50-100 naira per bamboo stand on daily basis, 25.95% (33) said, it has contributed to their livelihood through income by making up to 150-200 naira from bamboo stand every day , 45.0% (54) said it has contributed to them through utilization. The result shows that most of the respondents benefited from Bamboo through income generation, that is, marketing of bamboo plants and the products through local trade. This is in line with kigomo (2007) who stated that, the use of Bamboo makes a significant contribution to rural income and employment. Also with Scurlock *et al.* (2000) stated that commercial Bamboo utilization has been reported to be 20 million tons per annum. The work also agrees with Scurlock *et al.* who stated that, the total revenue from Bamboo and its products in 1980s stood at \$4.5 billion and also with the work of Dannenmann *et al.* (2007) who said that in Ibadan Nigeria, a pole of bamboo between 6-8 meters is sold at between 150 and 200 Naira.

Sources of Bamboo in the Study Area.

From figure 3, 60.83% ; (73) of respondents source for bamboo products from the forest, 39.17% ; (47) of respondents source for bamboo products from the market .This has so many implication to forest by causing environmental degradation to forest areas there by exposing the forest environment to anthropogenic activities, making bamboo product very scarce. This is in line with Shanmughavel and Francis, (1996) said, in China, bamboo occupies a total land mass of 33,000km², 2.3% of the country's total forest area. This shows that most of the

respondents obtain their bamboo from the forest since bamboo is a specie that grow in the world (Dannenmann *et al.* 2007).

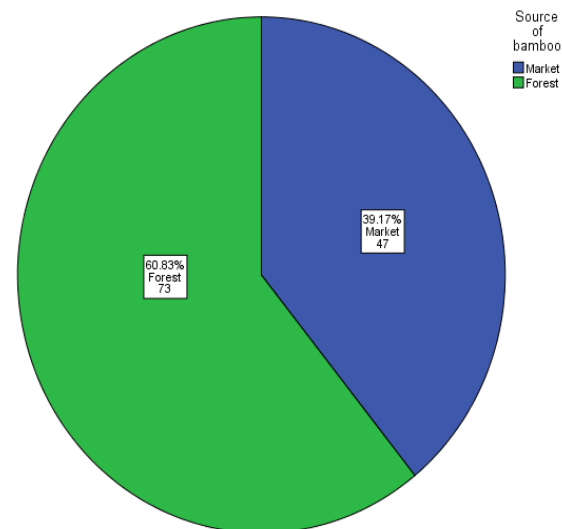


Figure 3 Sources of Bamboo products

Source: Field work, 2019.

Durability of Bamboo in the Study Area.

Table 5 indicates that, 94.2% (113) of respondents agreed that bamboo is a durable tree species, 5.8 % (7) of respondents said it is not a durable tree species. This in line with Dannenmann *et al.* (2007), who said that hardness is the major factor in durability of bamboo.

Table 5: Durability of Bamboo in the Study Area

Durability	Frequency	Percentage %
Yes	113	94.2
No	7	5.8
Total	120	100

Source: Field work, 2019.

Availability of Bamboo Markets in the Study Area

Table 6 shows that, 22.5% (27) of respondents agreed that, there is standard market for bamboo products in the study area, while 77.5% (93) of respondents said, there is no standard market availability for Bamboo products in their area. No availability of standard market for bamboo product is one of the challenges faced by bamboo users in the area. Since land is scarce and bamboo harvesting from the wild is labor intensive, most people prefer buying bamboo from the market

Table 6: Availability of Bamboo Markets in the Study Area

Standard Market availability	Frequency	Percentage %
Yes	27	22.5
No	93	77.5
Total	120	100

Source: Field work, 2019.

Availability of Bamboo Plantation in the Study Area

Table 7 shows that,45.0% (54) of respondents said, there is bamboo plantation in their area,55.0% (66) of respondents said, there is no bamboo plantation in their area and this can be considered as one of the major problems faced by bamboo users because all the bamboos are harvested from the wild which does not give the desired -size diameter for production of variety of products needed, and this call for government attention to establish more bamboo plantation to enable the supply of genetically improved bamboo species.

Table 7: Availability of Bamboo Plantation in the Study Area.

Bamboo plantation	Frequency	Percentage %
Yes	54	45.0
No	66	55.0
Total	120	100

Source: Field work, 2019.

The result has revealed that Bamboo products are important to the lives of people in Gboko local government area and all the geographical regions of the country, as it is used for construction purpose, medicinal purpose, staking, furniture making as well as other minor cottage industry products like basket, and toothpicks, chair, table, bamboo mat etc. which is in agreement with the work of *Chihongo et al (2000)* and *Ferally (1984)* who acknowledged the use of bamboo in urban and rural areas. Bamboo are plants of global interest because of their distinctive life form, their ecological importance and the wide range of uses and values to human ,and it can be used in humid tropics for house building. In agreement with to *Kigomo (2007)*, the finding also revealed that the use of bamboo makes a significant contribution to the rural income and employment opportunities and also bamboo matures in 3 to 5 years, which means its growth is more rapid than any other plants on the planet.

Kigomo (2007), also acknowledged the use of bamboo for medicinal purpose, saying that banslochan is a popular medicine which is a silicon secretion found in bamboo culms which occur in fragment or mass (2cm thick), and it can be used as a cooling tonic in asthma and cough.

Conclusion and Recommendations.

This research revealed that bamboo products play a vital role in the livelihoods of people in different areas such as construction, furniture making, staking, craft making and residential fencing, fiber for pulp and paper making, medicine, income generation, employment opportunity and fodder for livestock.

The research showed that bamboo for construction are locally available but not everyone in the construction industry are exposed to its numerous uses and advantages which is found out from the study is that, it is a sustainable and durable material meeting the strength requirements in construction and it is relatively inexpensive.

This research work showed that bamboo are utilized world-wide for different purposes, therefore, sustainable utilization and adequate care must be taken to prevent the species from extinction. The following recommendations are therefore made based on the findings of this research study.

- (1) The wide use of bamboo resources should be encouraged to enhance continuous support to livelihoods of respondents.
- (2) Government should establish bamboo research institute to enable adequate research and enhance the production of genetically superior bamboo species.
- (3) Department of Forestry in Benue and other states of Nigeria should include bamboo species in their plantations / research as it is considered to play a vital role in the livelihood of rural and urban dwellers in the area of craft, medicine, income generation, fiber for pulp and paper manufacturing.

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