



ISSN 2635-3296

Journal of Forest Science Environment.  
Volume 6 (2021): 131 – 136

**Impacts of Tree Species on the Livelihood of  
Internally Displaced Person's in Jere Local  
Government Area, Borno State**

**Gupa M.A • Umar S.I • Zira B.D • Garba M •  
Sa'idiu M • Dantani A • Abubakar A.**



© Forestry and Wildlife Department, University of  
Maiduguri, Nigeria  
Website: [www.jfseunimaid.com.ng](http://www.jfseunimaid.com.ng)



## IMPACTS OF TREE SPECIES ON THE LIVELIHOOD OF INTERNALLY DISPLACED PERSON'S IN JERE LOCAL GOVERNMENT AREA, BORNO STATE

GUPA M.A.<sup>a\*</sup> • UMAR S.I.<sup>a</sup> • ZIRA B.D<sup>a</sup> • GARBA M.<sup>a</sup> • SA'IDU M<sup>b</sup> • DANTANI A<sup>c</sup> • ABUBAKAR A.<sup>c</sup>

<sup>a</sup> Department of Forestry and Wildlife, University of Maiduguri, P.M.B 1069, Borno State.

<sup>b</sup> Department of Forestry Technology, College of Agriculture, Hussaini Adamu Federal Polytechnic Kazaure, Jigawa State.

<sup>c</sup> Department of Forestry and Wildlife Management, Bayaro University Kano, P.M.B. 3011, Kano State.

\*Corresponding Author Email: [mkala@unimaid.edu.ng](mailto:mkala@unimaid.edu.ng)

**ABSTRACT:** The research assessed the influence of tree species and its impact to the livelihood of internally displaced persons in Jere local government of Borno State. The study area has twelve (12) districts and four out of the total were selected for the case study. A total of thirty (30) respondents were selected randomly from each district which stood up at one hundred and twenty (120) structured questionnaire for the data collection. The data obtained were analyzed using descriptive statistics consisting of frequency and percentage table as well as a pie chart. The result showed that 59.17% of the respondents were female, 58.33% of the respondent were within the age class of 30-40 years, 72.5% are married, and 53.33% of the respondents are engaged in trading. The status of tree species in the area indicate that 49.17% of the trees is Azadirachta indica, 59.17% of the trees serve as windbreak for the livelihood of internally displaced persons in the area, 22.5% of the respondent use the tree species for firewood, 39.17% of the respondent used the leaves of the plant most and 27.5 use the stem most, 23.33% use the leaves for medicine and 26.67% of the respondent use it for firewood, 86.67% of the respondents are not aware of afforestation program, Syzygium cumini is suggested by most of the respondents followed by Moringa oleifera with 20.83%, Phoenix dactylifera with 19.17%, Balanite aegyptica, Khaya senegalensis with 14.17 each, Faidherbia albida with 1.7%, Azadirachta indica with 4.17% and Acacia nilotica with 3.33%. It was conspicuous from the research that tree species contributes immensely to the livelihood of internally displaced persons and recommended strategy support by forestry sector should be embarked upon by policy makers.

### 1. INTRODUCTION

Globally, the number of conflicts is increasing which is the main cause of much of the recent deterioration of the

global food security situation. This situation is exacerbated by climate related shocks. Since 2009, a combination of man-made and natural disasters has disrupted livelihoods, threatened food security and

forcibly displaced millions of people in northeast Nigeria. The conflict, in northeast Nigeria, takes on a central role in the ongoing food crisis by severely curtailing the ability of populations to access land and other natural resources such as wood fuel (FAO, 2018). The Conflict in northeast Nigeria has had devastating effects on food security and livelihoods. Millions of people have been driven away from their homes and access to agricultural lands and assets have been hampered, creating massive humanitarian needs in the area. The conflict has spilled over to neighboring countries, more specifically Cameroon, Chad and Niger. Due to the ongoing conflict, the three states of Adamawa, Borno and Yobe in the northeast Region of Nigeria are facing massive displacement of people, significant human, social and economic losses and food insecurity. The International Organization for Migration (IOM) Displacement Tracking Matrix (DTM) Round 25 (IOM, 2018) indicates that 2,026,602 people are internally displaced in northeast Nigeria, of which 1,475,605 or 71.5 percent are located in Borno State. Host communities are also affected with poor access to the needed resources for their own food production, facing high levels of poverty and malnutrition. The Cadre Harmonisé (CH) analysis of food and nutrition insecurity (CILSS, FAO & NPFS, 2018) indicates that the main food, nutrition and livelihood indicators remain alarming. In Borno State, an estimated 835 772 people are currently in the three critical food insecurity categories (CH Phase 3-5), with an expected increase to around 1.38 million people during the coming lean season (June and August 2019). The context of conflict is further compounded by climate variability that negatively impacts the production systems, resulting in poor crop yields and livestock productivity with direct negative impact on people's livelihoods and food security. Drought is the main natural disaster in the region. It affects more than 50 percent of the population that directly depends on crop and livestock production for their livelihood sustenance, hampering irrigated agriculture and reducing water for livestock production. In addition, a significant proportion of land in Borno State is degraded as the result of inappropriate soil management practices, deforestation and over-exploitation of rangelands that has led to a progressive and severe loss of the original vegetation cover.

Forest provide products for different uses at households and industrial levels (Appiah, 2009). These products are grouped into timber and non-timber forest products (NTFPs). Although timber products are highly valued worldwide, the NTFPs which play an important role in sustaining livelihoods of communities living around forest areas, but have been given minimum attention. Although NTFPs may not be the most important income generating products for local people living close to the forests, they contribute significantly to household

income, food security, and household healthcare as well as, provision of multiple social and cultural values (Ojea *et al.* 2016; Endamana *et al.* 2016). In spite of these roles, a major challenge persists in the accurate evaluation of NTFPs as a revenue component for the livelihoods of indigenous people (Ngalim, 2011).

About thousands of people are displaced due to conflict every year globally, United Nations High Commissioner for Refugees (UNHCR, 2010). People were forced to flee from their homes in search of protection, some are able to found refuge with families and friends, but are crowded into camps where they became victims of further violence, mental stress and disease, International Displacement Monitoring Centre (IDMC, 2012). Nigeria faces multiple crisis, with a protracted conflict in Borno, Adamawa and Yobe (BAY) states, which has spread to neighboring Cameroon, Chad and Niger, inter communal clashes in the northwest that have led to over 40,000 people crossing the border with Niger for safety. The largest increase in these instances was in the Middle East and North Africa where 2.5 million people forced to flee their homes (UNHCR, 2010). According to Global risk index information (2020), Nigeria today is amongst the overall countries with the highest overall projected conflict risk index and increased risk in socio-economic vulnerability, inequality, and food security among which the study area is included. The main objectives of this research is to assess the influence of tree species and its impact to the livelihood of Internally Displaced Persons in Jere Local Government area of Borno State. While the specific objectives is to; describe the socioeconomic characteristics of the respondent, describe the influence of tree species to livelihood improvement of the internally displaced persons, identify the tree species present in the area and know the contribution of tree species to livelihood of internally displaced persons. The research focuses on the influence of tree species on the livelihood of refugees, which provide the basic knowledge on the benefits of the trees around the internally displaced person's camps and in Jere Local Government Area. In view of this, the research will help in planning future policies in restoring tree lost through tree planting by the government, extension agents and Non-governmental organization (NGO).

## 2. MATERIALS AND METHOD

### 2.1. The study area

Borno State, in the northeast region of Nigeria has an estimated area of 57,799 km<sup>2</sup> and consists of 27 Local Government Areas (LGAs), with a population of 4,171,104 people according to the most recent census of 2006 (National Population Commission, 2006). The capital is Maiduguri, which is located within the

Maiduguri Metropolitan Council (MMC) Local Government Area (LGA).

Jere Local Government Area is the study area which is one of the 27 Local Government of Borno state affected by the insurgency. It shares boundaries with Mafa to the north, Maiduguri and Konduga and to the southeast. The headquarters is at Khaddamari and located between latitudes  $11^{\circ} 40$  and  $12^{\circ} 05$  N; longitudes  $13^{\circ} 50$  and  $12^{\circ} 20$  E occupying a total landmass  $169\text{km}^2$  and a population of 211,204 people with an annual growth rate 2.8% (NPC 2008).

### *2.1.1. Climate*

The climate of the area is characterized by dry and hot for most part of the year with minimum temperature ranging from  $15-20^{\circ}\text{C}$  and maximum range of  $37-45^{\circ}\text{C}$ . The annual rainfall ranges from 500mm to 700mm characterized by high variability and intensity per annum.

### *2.1.2. Vegetation*

Generally, the topography is low land, plain and the soil is mostly sandy with short grasses and thorny shrubs as the basic vegetation characteristics.

## 2.2. Sampling Size and Procedure

A reconnaissance survey was conducted in the study area to enable the researcher to get a better insight of the study communities. This step was to help the researcher to establish contacts with some key personalities within the communities and select field assistants to help in collecting field data. A total of 120 questionnaires was administered to the respondent in the study area, this is carried out in order to obtain as much information as required from the respondents. A total of four (4) districts were selected out of the 12 district purposely because of the IDPs present in the area. The selected districts include Mairi, Mashamari, Muna and Maimusari. In each of the district selected, 30 people were selected randomly to fill up the questionnaire to avoid bias during the research.

## 2.3. Data Collection

Primary data and secondary information was used for the study, one hundred and twenty (120) structured questionnaire were administered, retrieved and analyzed, while the later were obtained from relevant literature, text books, journals, internet e.t.c.

## 2.4. Data Analysis.

The data obtained from the research were analyzed using descriptive statistics, the statistical tools used were frequency, percentage to present the result of the objectives achieved.

## 3. RESULTS AND DISCUSSIONS

### 3.1. Socio-economic characteristics of the respondents

The socioeconomic characteristics of the respondent related to the influence of tree species on the livelihood of internally displaced persons in the area. Depicted in table 1 showed that majority (59.17%) of the respondent were female while the minority (40.83%) were male this is contrary to the survey of wood fuel supply and energy demand assessment by (FAO, UNHCR and WFP 2013-2018) which shows that out of 8937 respondents, 5045(56.45%) were females and 3892(43.55%) were male in the research. The table also indicated that majority of the age group (58.33%) of the respondents were within the age group of 30-40 years followed by (25.83%) which fell within the age group of 41-50 years. About (9.17%) and (6.67%) of the respondent were within the age of 51-60 and 61 and above respectively. This shows that most of the respondent were within their active age group which is in line with the research conducted by (FAO, 2016) that revealed the overall analysis of age ratios shows that most people belong to the age group of 30-39 years because they are energetic and able to withstand the hardship condition. The result further revealed that majority (72.5%) of the respondents were married while (15.83%) were single and 6.67% and 5% of the respondent were separated and widow respectively. The result also revealed that majority (87.5%) did not attend school at all, (5.83%) attended primary school and only (6.67%) attended secondary school. By implication most of them had non-formal education and may not likely adopt new innovations. The result also showed that the majority (53.33%) of the respondent are traders followed by (40%) of them were farmers and (1.67%) and (5%) of them are hunters and civil servant as their occupation respectively. As majority were traders, this implies that they can enroll in tree product business which may help them sustain their livelihood through buying and selling, and because they are small traders they may use the tree shade since not all can afford to rent a shop.

Table 1: Socio-economic characteristics of the respondents

Variable	Frequencies	Percentage (%)
<b>Sex</b>		
Male	49	40.83
Female	71	59.17
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Age</b>		
30-40 years	70	58.33
41-50 years	31	25.83
51-60 years	11	9.17
60 and above	8	6.67
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Marital status</b>		
Married	87	72.5
Single	19	15.83
Separated	8	6.67
Widow	6	5
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Educational status</b>		
Primary school	7	5.83
Secondary school	8	6.67
Tertiary institution	0	0
Others	105	87.5
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Occupation</b>		
Farming	48	40
Trading	64	53.33
Hunting	2	1.67
Civil servant	6	5
<b>Total</b>	<b>120</b>	<b>100</b>

Source: Field survey, 2021

### 3.2. Contribution of trees to livelihood of internally displaced persons

Table 2 below shows that there is presence of trees in all the areas where the respondents are living, the tree species present in the area includes: *Azadirachta indica*, *Khaya senegalensis*, *Syzygium cumini*, *Faidherbia albida*, *Moringa oleifera* *Balanite aegyptica* and some *Acacia spp.* The majority (59.17%) benefit from the trees as windbreak followed by (27.5%) that benefited from other services provided by the trees such as provision of shade, about (10%) and (3.3%) of the respondent benefited from the trees by increasing soil fertility and reducing erosion respectively. This is affirmed with the work of (Lemenih 2011; Sutcliffe et al. 2012) that says forests provide numerous environmental services, including soil fertility enhancement and stabilization, soil moisture retention, water flow regulation, carbon sequestration and biodiversity conservation, as well as cultural services. The table also shows that the majority (27.5%) of the respondents used the tree for firewood followed by (21.66%) that uses it for consumption, (19.17%) for

shade, (16.67%) for medicine, (9.17%) as feed for animals and (8.33%) and (2.5%) used it for other uses and source of income respectively. This is in line with (Jimoh et al., 2013) who reported that previous workers have observed that rural households in Nigeria derived up to 80% of their incomes from the sales of NTFPs. The table further reveals that the majority (39.17%) of the respondent uses the leaves followed by (27.5%) who uses the stem followed by (26.67%) used the fruits and (3.3%) each use the roots and bark respectively. The table also shows their reason for selecting the part of the tree most for those who used the leaves for animal feed (6%), leaves and fruit for consumption (28%), stem for firewood (32%), the tree itself as shade (16%), leaves for medicine (28%), and those who gain cash income from the sales of the tree products (10%). This is agreeable with (Banerjee and Madhurima, 2013) who expressly reported that, forest products such as edible fruit, flowers, tubers, roots and leaves are consumed as food and medicine, others such as timber are used for construction and fencing, fodder are harvested and fed to livestock while some directly graze their livestock in the forest, firewood are used for cooking or sold in the market to generate income.

Table 2: Contribution of trees to livelihood of internally displaced persons

Variable	Freq.	%
<b>Do you have tree species in your area?</b>		
Yes	120	100
No	0	0
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Which tree species are present in the area?</b>		
<i>Azadirachta indica</i>	59	49.17
<i>Syzygium cumini</i>	28	23.33
<i>Balanite aegyptica</i>	22	18.33
<i>Moringa oleifera</i>	11	9.17
<b>Total</b>	<b>120</b>	<b>100</b>
<b>How did the tree contribute to your livelihood in the area</b>		
Addition of soil fertility	12	10
Reduce erosion	4	3.33
Wind break	71	59.17
Others	33	27.5
<b>Total</b>	<b>120</b>	<b>100</b>
<b>What do you use with the tree for your livelihood</b>		
Food	26	21.66
Feed for animals	11	9.17
Medicine	20	16.67
Source of income	3	2.5
Shade	23	19.17
Firewood	27	22.5
Others	10	8.33

<b>Total</b>	<b>120</b>	<b>100</b>	<i>Moringa oleifera</i>	25	20.83
<b>Which part of the tree plant do you use most</b>			<i>Syzygium cumini</i>	27	22.5
Leaves	47	39.17	<i>Phoenix dactylifera</i>	23	19.1
Stem	33	27.5	<i>Balanite aegyptica</i>	17	14.17
Fruit	32	26.67	<i>Khaya senegalensis</i>	17	14.17
Root	4	3.33	<i>Faidhabia albida</i>	2	1.67
Bark	4	3.33	<i>Azadirachta indica</i>	5	4.17
<b>Total</b>	<b>120</b>	<b>100</b>	<i>Acacia spp</i>	4	3.33
			Total	120	100
<b>Why do you use the above most</b>			Respondents interest of tree nurturing		
For animal feed	6	5	Yes	120	100
For consumption purpose	28	23.33	No	0	0
For firewood	32	26.66	Total	120	100
Provision of shade	16	13.34			
Medicinal uses	28	23.33			
Cash income	10	8.34			
<b>Total</b>	<b>120</b>	<b>100</b>			

Source; Field survey, 2021

### 3.3. Perception of internally displaced persons on afforestation programs

Table 3 below denote the perception of internally displaced persons on afforestation programs, the response obtained from the questionnaire retrieved shows that majority (86.67%) of the respondents are not aware of afforestation program, and only (13.33%) were aware of such program. It is also shown that the respondents are ready to participate in afforestation program when the need arises for future sustainable use of forest resources. The suggested tree species for future sustainable use by the respondent include *Moringa oleifera*, *Syzygium cumini*, *Phoenix dactylifera*, *Balanite aegyptica*, *Faidhabia albida*, *Khaya senegalensis*, *Azadirachta indica* and *Acacia nilotica* because they can be sustainable for future use. The respondents are also ready to nurture the trees until it is matured enough to be used by the people in their community and in the future in general.

Table 3: Perception of internally displaced persons on afforestation programs

Variables	Freq.	%
Are you aware of afforestation program		
Yes	16	13.33
No	104	86.67
Total	120	100
If yes/no can you participate in tree planting by the afforestation programs		
Yes	120	100
No	0	0
Total	120	100
Tree species for sustainable use		

Tree species contribute widely to the livelihood of internally displaced persons through provision of fruits and leaves as source of food, medicine as well as livestock feed. It also contributes through the use of the trees as source of firewood and provision of shade, majority of the respondents are influence by the presence of trees on their land as wind break. The respondent suggested on planting of *Moringa oleifera*, *Syzygium cumini*, *Phoenix dactylifera*, *Balanite aegyptica*, *Faidhabia albida*, *Khaya senegalensis*, *Azadirachta indica*, and *Acacia nilotica* as the trees that are sustainable for future use. The influence of tree species and its impact to livelihood of internally displaced persons is distinctly notices. Therefore, there is need to create awareness on tree planting in the area and support programs from the forestry sector through provision of seedlings to the respondents which will further benefit them as suggested by the respondents and in the view of the forestry sector as a guide. Also afforestation training should be provided to the internally displaced persons.

## REFERENCES

- Arjunan, M., Puyravaud, J.-Ph. and Davidar, P. (2005). The Impact of Resource Collection by Local Communities on the Dry Forests of the Kalakad-Mundanthurai Tiger Reserve, India. *Tropical Ecology* 46: 135-143.
- Appiah D.O. (2009). Personifying Sustainable Rural Livelihoods in Forest Fringe Communities in Ghana: a Historic Rhetoric? *Journal of Food Agriculture* 7(3&4):873-877.
- Banerjee A. and Madhurima, C. (2013). Forest Degradation and Livelihood of Local Communities in India: A Human Rights Approach. *Journal of Horticulture and Forestry*. 5(8): 122- 129.

- Bekele M. (2011). Forest Plantations and Woodlots in Ethiopia. Nairobi, Kenya: African Forest Forum.
- CILSS, FAO & NPFS. (2018). Cadre Harmonisé for Identification of Risk Areas and Vulnerable Populations in Nigeria. Rome: Food and Agriculture Organization of the United Nations.
- Endamana D., Angu K.A., Akwah G.N., Shepherd G., and Ntumwel B.C. (2016) Contribution of Non-timber Forest Products to Cash and Non-Cash Income of Remote Forest Communities in Central Africa. *International Forestry Review* 18(3):280–295.
- FAO. (2012) State of the World's Forests (2012). FAO, Rome, <http://www.fao.org/3/a-i3010e.pdf>. Accessed July 2015.
- FAO. (2016). Guidance Note: Meeting Fuel and Energy Needs in Protracted Crises.
- FAO. (2018). Increasing Livelihood Sustainability through Improved Energy Access. Rome: FAO.
- International Displacement Monitoring Centre (IDMC, 2012). The State of Internally Displaced Persons.
- International Organization for Migration (2018). DTM Nigeria Round 24 Dataset of Baseline Assessments. Displacement Tracking Matrix. Maiduguri, Borno State, Nigeria: International Organization for Migration.
- Jimoh S.O., Amusa T.O. and Azeez I.O. (2013). Population Distribution and Threats to Sustainable Management of Selected Non-timber Forest Products in Tropical Lowland Rainforests of Southwestern Nigeria. *Journal of Forest Resources* 24(1):75-82.
- Lemenih M. and Kassa H. (2011). Opportunities and Challenges for Sustainable Production and Marketing of Gums and Resins in Ethiopia. Bogor, Indonesia: Center for International Forestry Research.
- National Population Commission (2006). Population by Local Area and Sex. Abuja: National Population Commission.
- National Population Commission (2008). "Population and Housing Census of the Federal Republic of Nigeria". Priority Tables 1.
- Ngalim O.Y. (2011). Revenue Components and Conflicts in the Use of Natural Resources in the Peripheral Zone Northeast of Korup National Park. Unpublished Master's Thesis, Department of Forestry, The University of Dschang, Cameroon, p 93.
- Ojea E., Loureiro M.L., Alló M. and Barrio M. (2016) Ecosystem Services and REDD: Estimating the Benefits of Non-carbon Services in Worldwide Forests. *World Development* 78:246–261.
- Pimentel D., McNair M., Buck L., Pimentel M. and Kamil J. (1997). The Value of Forests to World Food Security'. *Human Ecology* 25(1):91-120.
- Risk Index (2020). Available Online at <https://drmkc.jrc.ec.europa.eu/inform-index>.
- Shackleton C. and Shackleton S. (2004). The Importance of Non-timber Forest Products in Rural Livelihood Security and as Safety Nets: A Review of Evidence from South Africa. *South African Journal of Science* 100(11-12):658-664.
- Shackleton C.M., Shackleton S.E., Buiten E. and Bird N. (2007). The Importance of Dry Woodlands and Forests in Rural Livelihoods and Poverty Alleviation in South Africa. *Forest Pol Econ* 9(5):558–577.
- State Emergency Management Agency (SEMA, 2016). Report on the State of Internally Displaced Persons.
- Sutcliffe J.P., Wood A. and Meaton J. (2012). Competitive Forests – Making Forests Sustainable in South-west Ethiopia. *International Journal of Sustainable Development & World Ecology*. 19: 471–81.
- United Nations High Commissioner for Refugees (UNHCR, 2010). Convention and Protocol Relating to State of Internally Displaced Persons.
- World Resources (2005). The Wealth of the Poor – Managing Ecosystems to Fight Poverty. World Resources Institute (WRI) in collaboration with United Nations Development Program and World Bank, 2005. Washington, DC: WRI.