Ecomusicology, African Organology and Deforestation in Nigeria: Construction of Wooden Musical Instruments in Perspective

Olusola Samuel AKINTUNDE
Department of Music,
Alex Ekwueme Federal University, Ndufu-Alike,
Ebonyi State, Nigeria.
Email: akintunde.samuel@funai.edu.ng

Abstract
Musical instruments are a vital aspect of music-making, although some songs can be performed without instrumental accompaniment. In traditional African music, performances typically involve the use of musical instruments. These instruments are often constructed from materials that are available in the local environment such as calabash, iron, wood, and so on. This paper investigated the impact of the construction of wooden musical instruments on deforestation and vice-versa. It adopted a qualitative research design as its methodology for analysis. Data were collected through interviews and participant's observation. This paper highlighted how the cutting down of trees in constructing musical instruments has contributed to the menace of deforestation in Nigeria. The study also revealed how deforestation is affecting the construction of local indigenous wooden instruments in Nigeria as some of the trees needed for this construction are going into extinction. The study submits that there is need for attitudinal change towards deforestation by artisans involved in constructing wooden musical instruments. It also advocates for strict adherence to government policy on deforestation. It recommends the adoption of technologically driven musical innovations to reduce the rate at which trees are cut down.
Keywords: Ecomusicology, organology, deforestation, musical instruments.

Introduction

In Africa, music making is a natural phenomenon. The life of an African is woven around music. The birth of a child is heralded with music. Children in African homes are serenaded with music to placate or lull them to sleep. These children grow up to join their peers and elderly ones in making music in the community. Esimone, (2014) submits that:

> music is an integral part of all activities. It is a basic life skill as it is with walking or talking. It has to do with man's emotion, mood, feelings, attitudes and opinions of life hence it is a powerful incentive to the intellectual, emotional, social and spiritual development of family and children (p. 67).

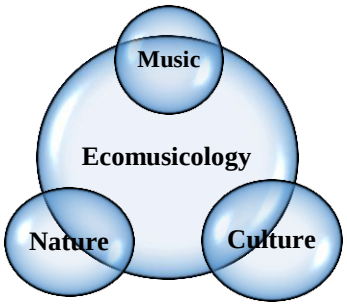
At death, music is adopted to instruct the dead on how to act in the land beyond and to console the living. All these happen in an ecosystem - a community.

Music making in African communities is carried out using musical instruments. Only on rare occasions are performances done without musical instruments such as acapella. The occasion, in particular may be while performing dirges in a funeral rite. The voices used in these performances are natural gifts, however, the musical instruments are constructed or fabricated with local materials obtainable within the forest of the communities. Humans, through their creativity and explorations over the years, have designed and produced different musical instruments. This study focuses on investigating how sourcing for raw materials to produce wooden musical instruments is stealthily impacting negatively on Nigeria forests and ways of ameliorating the problems. The study will educate the local musical instrument makers on the need to embrace technological innovations. The following research questions are formulated to guide the course of this study: To what extent has the construction of local wooden musical instruments contributed to deforestation in Nigeria? Are there alternatives to the use of wood in the construction of musical instruments in order to protect our environment? The primary data for this study was gathered through interviews.

Ecomusicology

Ecomusicology is a field of study that examines the interrelationship between music, nature and culture. Challe (2015) describes ecomusicology as "the critical study of music and the environment and considers the interconnections between music, nature and culture.... "(p. 12). Allen and Dawe (2016) in Olusegun (2019) see ecomusicology as "the triangularity of culture, environment and human beings" (p. 73). In continuation, Olusegun (2019) expatiating on the description of Taylor and Hurley (2011) aver that "ecomusicology is the intersection of music and environment and it provides new opportunities and challenges to music creators, new sonic experiences to audiences and new objects of study as well as prompting revised perspectives on earlier works" (p. 73). The continued existence of humans on earth cannot be achieved without constant interaction with nature. Music making is significantly influenced by culture. In brief, ecomusicology focuses on the reciprocal relationship between nature, culture, and human musical activity. This area of study critically assesses the positive and negative impact of this interrelationship.

Figure 1:



Branches of ecomusicology include: Acoustic ecology, Bioacoustics, Soundscapes and noise pollution, Production, Distribution and Consumption of music and the unsustainable practices associated with them.

African Organology

As noted earlier, humans are inherently musical beings, deriving enjoyment and creative expression through the use of various body parts to produce artistic or musical sounds. Over the course of human development, people began to explore their environment by creating sound-producing objects to serve as substitutes for body parts. These objects now referred to as musical instruments are used for producing a variety of musical sounds. The process and science of this construction of musical instruments is termed organology including its usage and classification (Onwuka & Oguoma 2013:198). The availability of these musical instruments differs from culture to culture. This is primarily based on the flora and fauna of each geographical area. While some ethnic groups have more of membranophone instruments, some have more of wooden instruments. The materials used in constructing these African musical instruments include: wood from trees, animal skin, cowries and beads, and metallic materials. Hornboste and Sachs (1914) later classified these musical instruments into Aerophone, Chordophone, Membranophone and Idiophone. For the purpose of this study, these musical instruments can be classified further based on the materials used in their construction. There are two basic categories of wooden musical instruments:

1. Complete wooden instrument – These are musical instruments whose majority of the components used in their construction are wooden materials. Examples include: *Ngedegwu* (a xylophone made of wooden planks laid on banana trunk resonator), Pentatonic and Diatonic Xylophone, *Oja* (a speech-surrogate flute), *Ekwe* (Wooden Gong), *Ikoro* (Slit Drum), *Okpokoro* (Woodblock) etc.

Plate 1



Pentatonic Xylophone
Source: Researcher

Plate 2



Diatonic Xylophone
Source: Researcher

Plate 3



A Slit Drum
Source: Researcher

Plate 4



***Oja* (Speech-Surrogate flute)**
Source: Internet

Plate 5



***Okpokoro* (Woodblock)**
Source: Internet

2. Semi-wooden instruments - These are musical instruments that are partly wooden. Other materials, such as animal skin, are used in the construction. Examples include all kinds of drums- Talking drum, *Bata* (Double-headed hourglass drum), *Igba* (Single-headed cylinder-shaped drum), and so on.

plate 6



Single Membrane Drum
Source: Researcher

Plate 7



Triple Membrane Drum
Source: Researcher

Plate 8



3 in 1 Membrane Drum
Source: Researcher

Musical instrument making is one of the most overlooked and underrated industry in Nigeria. Ofuani (2017) corroborates this when he wrote that:

> the Nigerian Musical Instrument Production Industry (NMIPI) is one of the prospective industries that have hitherto received no recognition and support as far as its developmental aids are concerned. It is obvious that no one has recognized or put-up reason(s) why it should be part of any developmental programs (p. 49).

It is obvious that the artisan musical instrument makers are carrying out activities of musical instrument making without any checks, regulation or recognition.

Deforestation

Deforestation according to Ejiaga (2019) is 'a process whereby trees are felled for residential, industrial or commercial purposes, but without replanting to replace the ones felled' (P. 267).

Encyclopedia Britannica described it 'as the clearing or thinning of forests by humans' (https://www.britannica.com/science/deforestation). Deforestation has negative consequences for both humans and non-humans. Its exposes the environment to violent storms and leads to erosion of the soil. These result in the destruction of property, crops and animals. The removal of tree canopy affects rainfall in the area, as the reduced leaf surface area limits water transpiration, which in turn affects the relative humidity of the atmosphere. Climate change and global warming has become a global issue on which several global summits have been held. Different policies were churned out to tackle the problems, however the problem persists. It is important to note that deforestation is one of the causative factors to global warming and climate change. Apart from this, the problem of deforestation has over the years led to the extinction of some species of trees in our forests. Periodical assessment reports from the United Nations (UN) and The Food and Agricultural Organization (FAO) places Nigeria as having the world's highest deforestation rate. (Leadership Newspaper editorial, June 2023). There has been insufficient public enlightenment concerning this environmental hazard and this has contributed to citizens indifferent attitude towards addressing it.

Theory of Continuity and Change

This study is based on the theory of continuity and change propounded and first used by Herskovits and Bascom (1975). The central argument of the theory, within the context of this study, is that the traditions of our people should be preserved, but with necessary improvements that incorporate technological advancements to enhance the quality of the final product, particularly in the construction of musical instruments, while also giving serious attention to environmental protection. Human activities, with cultural practices inclusive are expected to evolve. Embracing technology and modernization is inevitable. If changes could be accepted in the mode of dressing, food, health etc., then it should be accepted and appreciated in other aspects of life in totality. Notwithstanding the desire to protect the integrity of culture, custom and traditional heritage some changes and improvements should be accepted especially when they are inevitable.

Methodology

Considering the qualitative nature of this study, primary data were collected using scheduled interviews and participant observation. Secondary data were collected using books, journal articles, and so on. In the course of this study, ten people were randomly selected and interviewed across five states in Nigeria namely Enugu, Anambra, Oyo, Ogun and Ebonyi. The interviewees comprised five musical instrument makers who are directly involved in the felling of trees and the construction of musical instruments. Each maker represents one of the states that constitute the research area. Three master musical instrument players were also selected based on their expertise in handling various traditional musical instruments and their years of professional experience. Only those with a minimum of ten years' experience as master players were considered. In addition, frequency of performance was used as a further criterion for their selection. Two musical instrument sellers were included in the study, selected on the basis of their experience within the sales and supply chain of musical instruments.

Presentation and Discussion of Findings

Environmental Impact of the Construction of Wooden Instruments on Deforestation in Nigeria

The term 'environment' means many things to different people. However, for the purpose of this study, environment refers to the natural environment which encompasses both the biophysical and socio-economic elements that form our surroundings (Ejiaga, 2019). It

includes not only air, water, plants, land, and animals, but also other natural and human-modified features that together constitute the entirety of our surroundings. The Nigerian environment is faced with many problems of degradation arising from the impacts of human activities such as construction of roads, houses, drainages, mining activities as well as natural disasters such as earthquakes, volcanoes, tornadoes, cyclones and tsunamis. Environmental degradation is the deterioration of the environment through human activities resulting in the depletion of resources, contamination of air, water, and soil, the destruction of the ecosystem and the extinction of flora and fauna.

In order to exert some responses from the interviewees, the following questions were posed to them:
1. What are the species of wood used in constructing musical instruments?
2. How do you source for trees to get wood for the construction of musical instruments?
3. How many wooden musical instruments have you constructed in the last six months?
4. Are the species of trees used in construction still available in their numbers?
5. Do you replant whenever you cut down a tree for your construction?
6. Are you aware of the environmental hazards associated with felling of trees?
7. Are you aware of the government policy on tree felling and the attendant conditions attached to it?
8. What do you give back to the environment after taking from it as a source of your livelihood?
9. Do you think alternative materials should be used in the construction of musical instruments?
10. Will you be willing to accept other alternatives to enjoying sounds of indigenous musical instruments rather than the actual instrument?

Species of Tree used in Constructing Musical Instruments

During the interview session, the local musical instrument makers named the following trees as preference in constructing musical instruments: Gmelina, Mahogany, Eurycoma, Pterocarusun and Chlorophora excels. It is important to note that due to the acoustical considerations of musical instruments, some species of trees are exclusively used for the construction of some musical instruments, most especially, the musical instruments classified under complete wooden musical instruments. For the semi-wooden musical instruments, other species of trees can be used as long as its durability is ascertained after seasoning to avoid losing its carved shape and aesthetic.

Sources of wood

The interviewees all submitted that they source for the right trees for the construction of musical instruments from forests around them. The trees are felled directly by the instrument makers or someone they employ to do that. On few occasions, they go to the sawmill to check for the desired species.

Quantifying Construction in the last six months.

In order to ascertain the number of trees felled and the amount of wood processed into different musical instruments, the interviewees collectively indicated that they had constructed:
25 Xylophones
34 Slit drums (ekwe)
56 Oja
78 Okpokoro

69 Membrane drums.
It should be noted that the higher percentage of local musical instrument makers do not have any formal education, hence it is difficult to get a metrical value of the quantity of wood they have used in the process of constructing these musical instruments. Most of the respondents acquired their skills in musical instrument construction through family inheritance or structured apprenticeship training. This is a typical mode of traditional education among Africans.

Availability of Preferred Tree.
One of the constraints the musical instrument makers are facing at the moment is the unavailability of the desired trees used in the construction. This makes them to go to other states in search of the trees. This places extra cost on the construction process. However, the bigger issue here is that some of these tree species are going into extinction.

Replanting Felled Trees.
When the interviewees were asked if they replant trees whenever they cut down any, they looked a little bemused. Mr. Nwabufo submits that trees grow on their own, no one plant trees".

Environmental Hazards.
The interviewees were prodded further to assess their awareness on the environmental hazards associated with tree felling. Their responses show that they are aware of the environmental implication of tree felling. However, they are of the opinion that, that is for trees around where houses are built. They show some knowledge of how trees can protect buildings and environment but believe that trees in the forests are not considered among those directly responsible for the protection of the environment, hence they could be cut at will.

Awareness of Government Policy on Tree Felling
Only forty percent of the interviewees indicate that they are aware of government policy on tree felling. Others are unaware. In addition, the forty percent that are aware rationalised the policy to only commercial timber dealers, that is, those that sell wood at sawmills. It is amusing to note that local musical instrument makers year in, year out construct musical instruments in their numbers, make a living from it but do not see themselves in the commercial category of those making a livelihood from wood like those at the sawmills.
In 2011, the Federal Government of Nigeria gazetted a bill on National Environmental Desertification Control and Drought Mitigation Regulations. The focus of that bill is to control desertification in Nigeria. Specifically, part II of section 7, subsection 3 states that "A person shall not be allowed to fell trees in a farm or a range land except done for agricultural production in which case logging will be permitted" (p.7). The bill also states that, if permission is granted to fell a tree, the person "... shall bear the responsibility and duty of replanting fourfold the number of trees felled and ensuring survival of the planted trees."

Giving Back to Nature.
Having proven that they do not replant the trees after felling any, the interviewees were asked what they give back to nature after taking from it by felling trees. They unanimously said that that they are giving back musical instruments. Their belief is that with the musical instruments they construct and the music they (the instruments) help to produce, everyone is made happy, no matter the challenges in the environment or society.

Alternative Materials

The responses of the interviewees to the interview questions show that they have a strong cultural attachment to their musical instruments. Their submissions center on the underlying metaphysical role the musical instrument play. They believe the sound of these musical instruments in their original state invokes indescribable feelings among the listeners. The use of other technologically driven materials for the construction may render the instrument mere art work. Trees are beneficial to human environment. It reduces noise pollution, enhances biodiversity (provides food & shelter), combat climate change, purifies the air, controls erosion and provide natural cooling effects (http://www.google.com/amp/s/www.lasepa.gov.ng/the-benefits-of-tree-planting/amp/).
These benefits are reasons why the Federal Government in the National Environmental Desertification Control and Drought Mitigation act (2011) intuitively gave the states and local governments the role to "establish yearly afforestation targets of not less than 10 kilometres of shelterbelt and 5 hectares of woodlot" (p. 6). Considering that, it takes between 10 to 40 years before a tree can grow to maturity, reckless felling of trees is contributing to deforestation which could lead to desertification. It becomes worse when the trees are not replanted.

In addition, if different wooden musical instruments are produced yearly- for instance, an artisan musical instrument maker makes 4 xylophones, 10 Oja, 10 different types of drums in a year, more than 15 trees will be felled to achieve this. These felled trees, if replanted will not grow to maturity and be useful to the same instrument maker until after 10 or 20 years. Note that, the musical instrument maker, do it as a vocation, so he will construct more than the figure cited above.

This situation requires urgent attention in order to safeguard the climate. Unlike the animal skin used in the production of membranophone instruments, animals are capable of reproduction and generally regenerate at a faster rate than trees.

Conclusion

While dancing to the melodious and rhythmic sound produced from our wooden musical instruments, it is important to reflect on how endangered our environment has become due to tree felling during their construction. This should help us make an intentional decision to take proactive steps in protecting our environment through reforestation.

Recommendations

1. There should be aggressive awareness campaign for local musical instrument makers on the implication of tree felling and the importance of replanting felled trees.
2. Local musical instrument makers should be informed on the need to use other materials like plastic in constructing musical instruments. This will make the musical instruments look more refined. Also, it will reduce the rate at which trees are felled, thus, protecting the environment. After all, most western musical instruments were not made with the materials they are made of at the moment. Some of these materials are more durable than wood.
3. The use of synthesizer and other computer aided softwares in programming the sounds of African musical instruments will be innovative and reduce stress on transporting musical instruments during performances. Imagine having all the needed sounds for an event programmed on a flash drive. This will reduce overdependence on trees to produce musical instruments.

References

Anonymous, (n. d.). The Benefits of Tree Planting. http://www.google.com/amp/s/www.lasepa.gov.ng/the-benefits-of-tree-planting/amp/. Accessed on 3rd March 2024.

Baines, A. & Wachsmann, K. (1961). Classifications of Musical Instruments: Translated from Original German by Anthony Baines and Klaus P. Wachmann. *The Galpin society journal. 14, 3-29.*

Chille, T. (2015). *Ecomusicology: Back to the Roots of Sound/Music and Environmental Sustainability*. New York: CUNY Academic Works

Ejiaga, R. C. (2019). *Nigerian Environmental Problems*. In A. D. Akoh (Ed.) Nigeria People and Culture. Ebonyi: Unique Printing and Computer Services.

Encyclopedia Britannica, (n. d). Deforestation. https://www.britannica.com/science/deforestation. Accessed on 2nd March, 2024.

Esimone, C. C. (2014). The Role of Music in Family and Childhood Development. *Awka Journal of Research In Music And The Arts (AJRMA). 10, 65-73.*

Federal Republic of Nigeria (2011). *National Environmental (Desertification Control and Drought Mitigation) Regulations.* Abuja: The Federal Government Printer.

Leadership Newspaper Editorial, (June 2023). Nigeria: The scare of deforestation. http//:www.leadership.ng/Nigeria-the-scare-of-deforestation-2/

Ofuani, S. (2017). The Nigerian Musical Instrument Production Industry. *UNIZIK Journal of Arts and Humanities (UJAH). 17 (3), 48-65.*

Olusegun, T. (2019). Ecomusicology, Indigenous Knowledge and Environmental Degradation in Ibadan, Nigeria. *Journal of International Library of African Music. 72-90.*

Onwuka, U. A & Oguoma, P. U. (2013).Relationship Between Traditional Musical Instruments and Song Texts. *Awka Journal of Research in Music and the Arts (AJRMA).9, 198-205.*