

# Nigerianness in Terms of Natural Heritage and Policies on the Environment

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## ABSTRACT

National identity is often defined in terms of distinctive language, culture, and traditions. Elements in the environment should equally be used in this definition. Identifying and expressing ‘Nigerianness’ in terms of her unique natural heritage is a very important vital element in the sustainable use and development of the nation’s biodiversity. Nigeria is endowed with many endemic plants and animals due to the nation’s diverse ecosystems. The value of these unique species to global biodiversity requires special attention for their sustainability. Some vertebrates endemic to Nigeria were considered in this work in view of the various stages of the nation’s policy on environment. The aim is to accentuate the urgent need of closing the gap between policy makers and the local communities in making sustainable use of these important components of the environment. The Nigerian Policy on Environment was formed in 1988 and has gone through several levels of improvements in its implementation over the years. Nigeria is a signatory to several global policies on the environment, such as the Sustainable Development Goals (SDG) and Convention on Biodiversity. This level of commitment gives a globally accepted platform for the nation’s policies on the environment. The paper concludes by proposing the integration of the knowledge of the local community of the natural heritage into the nation’s educational policy, while laying more emphasis on awareness campaigns as provided in the National Policy on Environment. With this holistic approach of documenting Nigeria’s natural heritage by Nigerians, the nation will be reaping great benefits of conserving her unique natural heritage, which in turn will be added value to the world’s benefits from biodiversity.

**Keywords:** Biodiversity, Development goals, Ecotourism, Endemic species, Vertebrate Conservation

## INTRODUCTION

Nigeria is endowed with vast natural resources. Described as explorable and exploitable naturally occurring materials, natural resources are classified into two groups: renewable and non-renewable resources. Non-renewable resources are materials that cannot be replaced or can only be replaced after an extremely long period of time. This includes fossil fuels (such as petroleum, coal, and natural gas) and mineral deposits (such as gold ore, iron ore, limestone). The renewable natural resources are material that can be replaced over time by natural processes i.e., plants, animals and other living organisms; they also include inexhaustible materials such as the solar energy. The variety of living organisms constitutes the nation’s biodiversity. Biodiversity explains the different forms of existence of biological organizations, which are often subdivided into different levels as genes, species and ecosystems (De Vere, 2008)

So much has been documented on Nigeria’s non-renewable resources – especially on exploration, management, and sustainable use of resources in the oil and gas sector. These documentations include the effects of the oil and gas industry on socio-political, economic, environmental and legal issues in the nation (Echefu and Akpofure, 1999; Ewubare and Kakain, (2017); Anyogu and Nyekwere 2020; and Nwachukwu (2024)). However, the renewable natural resources – especially the biodiversity – have gained less attention. It seems

many of the policies on the environment concentrate on the oil and gas sector, while biodiversity issues are mentioned only in passing. Despite this show of interest, it appears that the average Nigerian is yet to gain adequate knowledge of the implication and responsibilities of these international policies.

It is noteworthy that Nigeria has shown interest in identifying her natural heritage by signing several international treaties on the protection of the environment. One of such treaties is the Convention on Biodiversity (CBD). This places a demand on the nation to submit regular national biodiversity reports as well as the National Biodiversity Action plan to the Convention. The nation's first report to the Convention revealed that approximately 70% of the people of Nigeria depend on biodiversity resources for their livelihood (CBD, 2001). These biodiversity resources include endemic organisms. The endemic species are considered unique enough to define 'Nigerianness' as they give the nation an important place in the community of nations in terms of global biodiversity conservation.

Human societies have their set of perceptions, information and behaviours that guide their use of biodiversity resources. This underlies the concept of indigenous knowledge. This is knowledge created and sustained by the community members as a means of meeting their needs for food, shelter and health. Indigenous knowledge is usually specific to local ecological conditions. As such, there is a note of 'Nigerianness' in how the different Nigerian communities define, use and manage the environment. Carroll (2009) observed that incorporating indigenous knowledge into conservation and development activities is an important mechanism for ensuring the most efficient and productive use of natural resources in the short term without jeopardizing the long-term capacity of nature to continue producing these resources. Mongella (1998) expressed a similar view in advocating for the involvement of the 'ordinary' people in the international discourse on the environment. This is based on the fact that these 'ordinary' people interact more with the environment on a daily basis.

A dangerous gap exists between the formulation and implementation of Nigeria's national policies on environment. This is because the Nigerians' view of the environment is often neglected as a key source of policy-relevant information.

**Focus** – this paper spotlit some Nigerian endemic vertebrates to advocate for a more inclusive approach to the formulation and implementation of policies on the environment. It is expected that this approach will make the policies on the environment more Nigerian with a view of greater success in the sustainable use and conservation of the nation's natural heritage.

### **Nigeria's Natural Heritage**

Nigeria's biodiversity is unique, having several ubiquitous species and many endemic species. The first National Biodiversity report to the Convention of Biodiversity revealed that there are 7,895 plant species, 20,000 species of insects, 1,000 species each of fishes and birds, 123 species of reptiles and 247 species of mammals in the nation (CBD, 2001). The vegetation in the nation is bounded by the mangrove on the coastline in the south and the Sahel vegetation in the North. Subsequent reports as well as the National Biodiversity Action Plan (NBSAP) of 2015 reflect the changes to these resources and the national efforts being made on the sustainable use of the nation's natural heritage (CBD, 2015 and NBSAP, 2015)

The international community has identified the significance of biodiversity to the continual existence of humanity. This has led to the establishment of intergovernmental and non- governmental agencies whose aims are to document and preserve the world's biodiversity. The International Union for the Conservation of Nature (IUCN), in identifying and assessing the diversity of ecosystem services, aim to increase awareness and understanding of the benefits that ecosystems can provide as well as their contributions to the well-being of local, national and global communities.

The Nigerian endemic species of plants and animals are very significant to the world's biodiversity. These species are found only within Nigeria's geographical boundary. The ultimate survival of these unique species depends solely on the actions taken in Nigeria. Table 1 shows examples of Nigerian endemic vertebrates.

The vertebrate group is chosen purposively because of their conspicuous nature. There are also invertebrates, vascular and non-vascular plants; as well as microorganisms endemic to the Nigerian environment.

TABLE 1: Examples of Endemic Vertebrates in Nigeria

Category	English Name	Scientific Name	Source / Reference
Fishes	Biafra Panchax	<i>Epiplatys biafranus</i>	Collier <i>et al.</i> , 2009
	African characin	<i>Neolebias powelli</i>	Olaosebikan&Lalèyè 2010
	Misty ctenopoma	<i>Ctenopoma nebulosum</i>	Norris and Teugels, 1990
Amphibians	Claroteid catfish	<i>Notoglanidium akiri</i>	Olaosebikan&Lalèyè 2010a / IUCN
	Idanre Toad	<i>Sclerophrys perreti</i>	Onadeko <i>et al.</i> , 2014
Reptiles	Danko Puddle Frog	<i>Phrynobatrachus danko</i>	Blackburn, 2010
	Ondo forest gecko	<i>Cnemaspis petrodroma</i>	Chirio and Luiselli, 2013 / IUCN
Birds	West African worm lizard	<i>Baikia africana</i>	Chirio 2013
	Ibadan Malimbe	<i>Malimbus ibadanensis</i>	Birdlife International, 2024 / IUCN
	Anambra waxbill	<i>Estrilda poliopareia</i>	Birdlife International, 2024 / IUCN
Mammals	Jos plateau indigobird	<i>Vidua maryae</i>	Birdlife International, 2024 / IUCN
	Niger delta Red Colobus	<i>Piliocolobus epieni</i>	Oates and Struhsaker, 2016
	Cross River Gorilla	<i>Gorilla gorilla diehli</i>	Berglet. <i>al.</i> 2016
	Sclater’s guenon (monkey)	<i>Cercopithecus sclateri</i>	Baker <i>et. al.</i> 2019
	Fox’s shaggy rat	<i>Dasymys foxi</i>	Kennerly and Taylor, 2017

These vertebrates have common English names that associates them with the Nigerian environment. They make significant contributions to defining Nigeria’s unique natural heritage. These endemic species as well as the other organisms that provides and share environmental balance with the human populace require close and holistic management plans. The Nigerian endemic species demands closer attention than they have received. A national policy on the environment that focuses on these organisms will definitely attract more significant respect for ‘Nigerianness’ in the international community.

**Traditional Methods Of Managing Natural Resources**

There are African traditional religions and socio-cultural practices that play some roles in the management of natural resources in Nigeria. Rim-Rukeh *et al.* (2013) reported some communities in Delta State. While recognizing that such methods are not widely practised in the country anymore, it is necessary to integrate traditional methods with scientific methods to achieve the needed goal of sustainable management. Modern methods involving the members of the communities still requires more deliberate efforts for success (Idowu and Morenikeji, 2015).

**Nigeria’s Policies On Environment**

There have been multiple efforts to document Nigeria’s biodiversity since the 1900s. The British administrators established forest and game reserves to protect unique organisms and their habitats. Some of these reserves have been elevated to the status of national parks as the nation makes efforts in continuing the good ideas established by the British.

Many scientists, including Elewon and Akankali (2014) and Agbazue *et. al.*, 2017 identified various stages in the development of Nigeria’s National Policies on Environment. The recognized stages are as follows:

- a. 1963 – 1988 – This was the period of the establishment of various forests and game reserves with the regulations that guide them – including the Wildlife law of 1963. This stage also include the nation’s participation in the first United Nations (UN) conference on the Human Environment in Stockholm in 1972 (Ogunba, 2016). Despite this length of time of this stage, wildlife laws and management strategies still pose challenges in recent times (Adewumi *et. al.*, 2018).
- b. 1988 – 2010 –Hazardous wastes were dumped in Koko, which led to the establishment of the Federal Environmental Protection Agency (FEPA). The government passed the Federal Environmental Protection Agency (FEPA) Act to protect her environmental resources. Since then, several feats have been achieved in policy formulation by the nation. Notable among them are the National Policy on the Environment in 1989

to achieve sustainable development, the emergence of the Federal Ministry of Environment (FMEnv) in 1999 which took over FEPA's functions, the Harmful Waste Act 1988, the Water Resources Act 1993, the National Environmental Protection Regulation 1991, the Environmental Impact Assessment (EIA) Act 1992, the National Park Service Act 1999, and the emergence of the National Environmental Standards and Regulations Enforcement Agency (NESREA) Act 2007 to replace FEPA (Echefu and Akpofure, 1999; Ogunba, 2016).

This occurred simultaneously with the nation joining with 152 nations of the world at the Earth Summit to sign the Convention on Biodiversity Protocol between 1992 and 1993.

- c. 2010– This is the current stage of the nation's environmental policy. The National Environmental Standards Regulation Agency (NESREA) has the responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources, environmental technology, and matters of enforcement of environmental standards, regulations, policies, and guidelines. The NESREA regulations are not only focused on waste discharge and emissions, but on all environmental resources which house our natural heritage; such focuses include conservation, protection, mitigation and control (FEPA, 1999; Ladan, 2012; Ogunba, 2016). The NESREA Act allows each State and Local Government in the country to set up its own agency for the protection and improvement of the environment within the State.

The nation also signed the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biodiversity in 2012. This protocol requires the understanding of the local community's perception of the components of the environment and their uses.

Nigeria has been faced with numerous environmental problems resulting in a decreased (in terms of quantity) and inferior (in terms of quality) natural heritage such as loss of biodiversity, drought, polluted environments, and loss of forests (Nabeguet. *al.*, 2017). Ladan (2012) identified and grouped these problems in four categories: industrialization; desertification; floods and erosions; and forest, wildlife and other natural resources. These issues have been the result of carelessness on the part of individual and governmental developers who aim for the nation's development but exploit rather than explore the resources. Attempt to solve these problems has led to the creation of national parks which are seen as a way for the nation to protect her natural and cultural heritages for both present and future generations (Ogunjinmi *et al.*, 2017). Nigeria's national parks were established by elevating existing forest and game reserves. The Kainji game reserve in Niger State was the first to be thus elevated in 1979. To date there are seven National parks in the nation, the other six are Chad Basin National Park (Borno and Yobe States), Okomu National Park (established in Edo State in 1999), Old Oyo National Park (Oyo and Kwara States); Cross River National Park (Cross River State), GashakaGumti National Park(Taraba State), and Kamuku National Park(Kaduna State, established in 1999)

These parks are being managed by the Nigeria National Park Service (NNPS). While appreciating these policies and efforts, there is still much more that is necessary if the nation is to be defined by her unique natural heritage. For instance, so many people living close to National Parks have the view that the authorities are denying them what naturally belongs to them. As a result, there are many problems on these parks, such as poaching, which makes things extremely difficult– both for the wildlife and for wildlife officers under threat from the poachers.

### **Citizen Science In Nigeria's National Policies On The Environment**

Learned policy makers are doing much to ensure the sustainable use and development of our natural heritage. There is however, a need for more holistic approach, in view of new and emerging trends (Olarinoye & Orecho, 2015). Local communities have to play major roles as custodians, managers, determinants of the continued existence of Nigeria's natural heritage (Sobrevila, 2008;Abdullahi *et al.*, 2013)

Public participation in scientific research is defined as Citizen Science. It is a concept that identifies members of communities adjacent to natural resources as stake holders in the overall management of the environment. Also referred to as community science, crowd – sourced science, civic science and volunteer monitoring, citizen science is research collaboration between scientists and volunteers in the collection and documentation of scientific data.

Citizen Science has been used in many projects in nations of the north (Northern hemisphere of the world – Europe and America). In the University of Florida for example, Citizen Science was used in Oyster restoration, rainfall modelling, and the School of Ants Project (UF, 2017). The concept is being used and developed in many nations. Doyle *et al.* (2019) analyzed the use of Online Citizen Science in Teaching and Learning. In documenting environmental issues, Tweddle *et al.* (2012) identified three types of Citizen Science projects:

- a) Contributory projects – the project is designed entirely by the scientists, the volunteers participate primarily in data collection
- b) Collaborative projects – the project is also designed entirely by the scientists but the volunteers are involved more than one stage of the project, they help inform how questions are addressed and also help communicate the findings to other members of the community
- c) Co – created projects – the project is designed collaboratively. At least some volunteers are involved in most or all the steps of the project

Citizen Science can increase scientific knowledge, raise people’s awareness of their environment, and allow like –minded people to share enthusiasm and knowledge.

Citizen Science has been employed in some biodiversity projects in Africa, including Nigeria. However, these projects are sponsored and largely carried out by foreigners. Examples of projects in which Citizen Science has been employed include the Zebra Population Dynamics in Kenya by the Earthwatch Institute (Chandler, *et al.*, 2012) and the conservation of primates in Cross River State, Nigeria by the Centre for Education Research and Conservation of Primates and Nature (CERCOPAN, 2012). Citizen Science is now being used in building local capacity for the conservation of birds in Ibadan area, in Nigeria. Awoyemi and Bown (2019) reported that the Ibadan Bird Club (IBC) which was started in 2014 by the Nigerian Conservation Foundation, re-launched in 2016 as an activity of the A. G. Leventis funded Ornithological Monitoring Project is now yielding expected results. It is hoped that the success story of this Bird Club will be significant enough to challenge the Nigerian government to include Citizen Science in documenting and monitoring Nigeria’s biodiversity. The nation can then adapt the pattern of the European Commission in developing an inventory of Citizen Science projects relevant for Environmental Policies and assess how these projects contribute to the Sustainable Development Goals (SDGs) set by the United Nations General Assembly (BIS, 2018).

### **Conservation And Ecotourism**

The management of environmental and natural resources is at an unsustainable peak, especially in developing countries like Nigeria, which is a concern. Human activities in the region put pressure on the environment; and this results in reduced biodiversity i.e., threatened and endangered flora and fauna (Ogunjinmi *et al.*, 2009 and Mohammed *et al.* (2013). The importance of biodiversity ranges from direct uses like food and medicine, to indirect uses like pollination and nutrient cycles (i.e. Carbon, Nitrogen and water cycles). Two major concerns about biodiversity often overlooked according to Vold and Buffett (2008) are loss of economic opportunities, and unforeseen future losses.

Nigeria ranks among the top countries that can boast of high biodiversity (Obasogie and Ogunjemite, 2014). Conservation of biodiversity is so important so that future generations can also benefit from our natural resources. It has been noted that some species endemic to Nigeria alone are facing extinction (Idowu and Morenikeji, 2015). The loss of these unique species will erode our expression and identity of ‘Nigerianness.’ conservation cannot be overlooked. Unfortunately, conservation in a nation like Nigeria is challenging due to the high cost involved. Ecotourism, however, is an activity that has the potential to raise conservation funds among other benefits.

Ecotourism is a branch of tourism, which is acclaimed as one of the fastest growing industries globally (Wood, 2002) with an average annual growth rate of 30% (Adetola and Adediran, 2014) and about 10% GDP globally (Sander, 2010). Ecotourism involves visits to usually undisturbed natural environments to appreciate the environment, the species richness, and possible cultural heritage of such areas. Ecotourism involves the visit of ecotourists, who are individuals with a passion for the environment, give low ecological footprints, and model environmental sustainability within their spheres. Ecotourism thus has a potential of income generation for host

communities, promote their culture, and improve environmental sustainability (Stronza and Pegas, 2008; Horton, 2009; Adedoyin *et al.*, 2011)

Ecotourism is a great way to identify and express ‘Nigerianness.’ With ecotourism, the nation’s natural heritage will be developed for sustainable use. This will lead to a global identification and promotion of ‘Nigerianness’ in terms of her unique natural heritage. Developing ecotourism with a background of Citizen Science will ensure minimal environmental degradation, while the host communities and the nation as a whole will enjoy the benefits.

To truly achieve sustainable development, the three key pillars (economic development, social development, and environmental protection) must be well included in the developmental project. Ecotourism is therefore not left out and must at every point meet these criteria to remain distinct and separate from regular tourism as it is being practiced today. Ecotourism must include a learning atmosphere before, during and after visits by ecotourists, such that the natural heritage is better appreciated, and the experience results in direct and indirect conservation by all (Sander, 2010). When education is incorporated in ecotourism, environmental sustainability is communicated to all parties involved. The local community is endowed with great knowledge of their natural heritage, and their role in first appreciating their unique heritage and then educating the world has great benefits for the nation.

## CONCLUSION

The role of the host communities of Nigeria’s natural heritage is very important in formulating and implementing policies on conservation of natural resources. The members of these communities are very knowledgeable about these resources. They are even defined by these resources whether they choose to be or not.

As such, the nation’s environmental policies should be reviewed with the instruments of Citizens Science, to remove the non-‘Nigerianness’ in these policies. This way, the local communities will willingly participate in conservation and ecotourism programmes, whose benefits will be enjoyed by the local, national, and international communities.

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