



## **NATURAL RESOURCES MANAGEMENT AND SUSTAINABLE DEVELOPMENT IN NIGERIA: A FOCUS ON SELECTED OIL AND GAS STATES**

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**Abstract:** The central theme of this paper is to see if there is relationship between natural resources management and sustainable development. This investigation was conducted in Nigeria using four States of Nigeria Oil rich Niger Delta; Bayelsa, Edo, Anambra, and Delta. The sub objectives were to see whether there is significant relationship between legislation and protection practices and between transparency and social equity both regarded as hypothesis 1 and 2. The sampled population was limited to 96 senior and knowledge officers of the Ministries of Environment of the four selected oil rich states. Arising from hypothesis, the variables in the study were measured using IBM SPSS. The results revealed that there is significant and positive correlation between natural resources management and sustainable development. In the first test of hypothesis for instance; the Pearson's  $r$  of .033 and correlation of .841 indicated that there is substantial relationship between legislation and protection practices of natural resources in the states of investigation. For the second test of hypothesis, with Pearson's  $r$  .021 and correlation of .907, the test validated the hypothesis indicating that transparency is crucial for ensuring accountable governance and equitable benefit. Limitations related to this study was in the area of funding to enable higher population of sample size and measuring technique. These findings will empower people to understand how twinly correlated is the relationship between natural resources management and sustainable development. Such degree of correlations indicated dare need for concerted efforts to ensure that policies are formulated to address sustainability of natural resources in order to guarantee our common good.

**Keywords:** Legislation, Protective Practices, Transparency, Social Equity, Nigeria

### **INTRODUCTION**

Natural resources play a fundamental role in the socio-economic development of all nations and provide the foundation for various industries, livelihoods, and economic growth (World Bank, 2021). Providentially, Nigeria is a country in Sub-Sahara Africa endowed with a lot of natural resources in the form of oil, gas, coal, fossil, minerals, and forests which are located in many parts of the country (Falade & Babatunde, 2018). However, the management of natural resources in Nigeria has been a

complex effort, as it requires balancing the exploitation of these resources for economic gain with the need to preserve and protect the environment for future generations. Nigeria faces the challenge of managing these resources effectively while ensuring sustainable development (Ogbonna et al., 2019).

Consequently, the unsustainable exploitation of these resources has led to environmental degradation, social conflicts, and economic disparity. This means that the effective management and sustainable utilisation of natural

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resources are crucial for Nigeria's long-term sustainable development. They are perhaps central to human and environmental well-being. Obviously, we cannot live without the clean air we breathe, the plants we eat, or the water we drink. We need natural resources to put roofs over our heads and heat our homes. We need them to survive and thrive (Bansard & Schroder, 2021). The concept of natural resources management refers to the responsible and equitable governance of natural resources, ensuring their sustainable use and conservation for the benefit of present and future generations (Bansard & Schroder, 2021). In Nigeria, this includes managing the extraction of oil and gas, protecting biodiversity and ecosystems, promoting sustainable agriculture, and ensuring water and land resources are used sustainably. Sustainable development, on the other hand, calls for an integrated approach to development that reconciles economic, social, and environmental concerns. It aims to meet the needs of the present generation without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). Central to sustainable development, is efficient and effective natural resource management which encapsulates economic, social, and environmental components and requires societies to pursue growth paths that generate optimal flow of income built on the twin principles of justice and equity (Ejumudo, 2015). The need for effective natural resources management and sustainable development in Nigeria is apt due to various challenges the country faces. One of the primary concerns is the exploitation of oil and gas reserves, which has led to environmental pollution, soil degradation, and loss of biodiversity (Adeyemo et al., 2020). Additionally, deforestation due to illegal logging, farming practices, and urbanisation poses a significant threat to the country's forests and wildlife (Ogunyemi et al., 2019). Furthermore, inadequate sanitation, water scarcity, and inadequate waste management infrastructure contribute to environmental pollution and public health concerns (Nubi, Nubi, Laura, & Oyediran, 2019). In Nigeria, significant confidence is placed on such resources as oil, gas, minerals, and forests but without much consideration for sustainability and sustainable

development. This approach resulted in the exploitation and degradation of these resources, leading to environmental destruction and economic inequalities. Nigerian government has implemented various policies and initiatives to promote responsible resource management at different levels of government including invoking regulations on oil and gas exploration, increased efforts to combat deforestation, and the expansion of renewable energy sources. Regrettably, despite these steps, Nigeria still faces dangers in terms of natural resource sustainability. The pertinent questions that arise are, have legislations for the protection of natural resources been enforced? Or is there a lack of transparency in ensuring social equity from those to enforce the legislation? This paper hopes to answer these questions for purposes of sustainable development.

This paper explores the natural resources management and sustainable development in Nigeria, using Anambra, Delta, Bayelsa, and Edo States as samples. Anambra's natural gas reserves present opportunities for responsible extraction and utilisation, underlining the need for efficient governance and environmentally sound practices. On the other hand, Delta, Bayelsa, and Edo situated in the Niger Delta region are significant players in Nigeria's oil and gas sector. By examining these states, we can gain insights into the broader national context and identify strategies to address the complex interplay between natural resources management and sustainable development in Nigeria.

#### **Research Objectives**

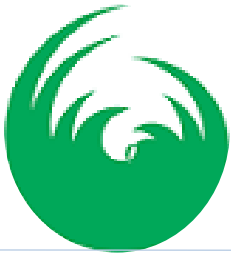
The broad objective of this paper is to examine the relationship between natural resources management and sustainable development in Nigeria. In specific terms, the paper investigated the following;

- 1) The relationship between government legislation and protective practices in the selected States.
- 2) The relationship between transparency and social equity in the selected States.

#### **Research Questions**

- 1) What is the relationship between government legislation and protective practices in the selected States?
- 2) What is the relationship between transparency and social equity in the selected States?

#### **Research Hypotheses**



Ho<sub>1</sub>: There is a significant relationship between legislation and protection practices.

Ho<sub>2</sub>: There is a significant relationship between transparency and social equity.

## **REVIEW OF RELEVANT LITERATURE**

### **Concept of Natural Resources.**

The concept of natural resources refers to living and non-living elements of the earth system, including plants, fish, and fungi, but also water, soil, and minerals (Bansard and Schroder, 2021). They require management in ways like conservation, sustainable extraction, and the promotion of renewable alternatives. This principle underscores the importance of ensuring future generations have equal or improved access to resources. Additionally, the concept of natural resources recognises the interconnectedness needed to strike a balance between environmental protection, development, and sustainable livelihood (United Nations Meetings and Coverage and Press Release, 2022). Natural Resources refer to the materials, substances, or features found in the natural environment that have inherent value and are utilised by humans for various purposes. They can be categorised into two broad types; biotic and abiotic resources (Ali & Kamraju, 2023). They are also called renewable (biotic) and non-renewable (abiotic). Renewable resources are those that can be replenished or replaced over time through natural processes. They include sunlight, wind, water, forests, wildlife, crops, and fish populations. Renewable resources are resources that can be replenished naturally over time (Banton, 2023). As a result, it is sustainable despite its consumption by humankind. For example, the Sun's energy can also be harnessed to cook food in specially designed solar ovens (Ashok, 2024). There are also non-renewable resources including fossil fuels such as coal, oil, and natural gas, as well as minerals like copper, iron, and gold.

### **Concept of Sustainability.**

The concept of Sustainability originates with the belief that for any government to be boastful of being able to cater and meet the needs of its citizens, it must as a matter of

necessity be able to maintain their welfare first, ensure the continuation of it and maintain the stability of the surrounding ecosystem. In Mensah and Castro, (2004), “sustainable” means “able to maintain”. The term sustainability is broad, ambiguous, and all-encompassing. Sustainability is used to talk about everything that goes into making a decision, such as the social, economic, and environmental effects and it is driven by a culture within an organization that is conducive to achieving sustainability with underlying common assumptions, attitudes, and beliefs regarding the resolution of sustainability issues (Mostafizur, Sazali, & Ahmad, 2022). It is the solution for improving human welfare without necessarily making the Eco-System malfunction or citizens' welfare counter-balanced. It involves taking from the society, allocating among the society's stakeholders, and finally restoring to the society. Modern companies are paying special attention to the social aspects of sustainable development as a result of the pressure from stakeholders ranging from environmental to societal issues (Yawar & Seuring, 2017).

### **Protection Practices for Sustainable Development.**

The Nigerian Minerals and Mining Act of 2007 meant to regulate the exploration and exploitation of minerals in the country falls under a protective mechanism, as well as the Forestry Act of 2005 that governs the management of forests and wildlife. Part of protective practices in natural resources management include demarcating areas through restrictions and barriers to ensure exclusive rights to natural resources, establishing monitoring and enforcement task forces, as well as championing sustainable culture through lectures and awareness campaigns. The government has put in place laws, policies, and regulations to govern the extraction, utilisation, and conservation of natural resources. The very justification for protective practices is to guide against unequal distribution of burdens and benefits, profits, and power generated from resource exploitation (Schellens, 2023). Populations may be unfairly granted or denied access to the land itself, or to the revenues that accrue from investments in land and related resources (UNDG – ECHA Guidance Note, 2013). In recent years, the government has



also implemented host community engagement clusters and consultation processes as part of its protection of social and environmental resources and their development for the sake of sustainability (Farook, Hao, Liu, Xia, & Hao, 2020).

### **Social Equity in Sustainable Development.**

Closely related to transparency is Social Equity. Social equity as it concerns sustainable development is a crucial issue in Nigeria. Social equity as a factor in sustainable development is in turn dependent on the distribution of benefits accruing from natural resources amongst citizens and also on how much involvement the citizens have in decision-making concerning natural resources. By definition, social equity is concerned with justice. On a societal level, equity is concerned with the just distribution of resources in society (Lewis, Mackenzie & Kaminsky, 2021). For instance, the communities in the Niger Delta are subject to a threefold reality, which is characterised by a pattern of slow violence, slow observation, and epistemic injustice (Karmakar, 2023). There is evidence that the destruction of the ecosystem has led to poverty in the region. Increasing soil sterility and diminishing agricultural output have forced farmers to move or seek illicit sources of living. In a related discussion, Otekenari, (2023) noticed in the Niger Delta a clear case of degradation of traditional fishing grounds that has worsened hunger and poverty in their fishing communities. The direct consequence of oil pollution is that it has led to multidimensional and protracted conflicts in oil-bearing communities (Babatunde, 2020).

### **Legislations on Natural Resources in Nigeria.**

Legislation on natural resources in Nigeria has been a significant concern due to the nation's vast array of valuable resources and the need for sustainable management. Nigeria is endowed with various mineral resources, like gold, iron ore, coal, bitumen, baryte, lead–zinc, limestone, copper, lithium, and many other minerals and metals (Olade, 2019) in Azubuike, Nakanwagi & Pinto (2022). However, the extraction, utilisation, and conservation of these resources have presented various challenges, including environmental degradation,

biodiversity loss, and conflicts between stakeholders. This has led the National Environmental Standards and Regulations Enforcement Agency (NESREA) to promogate an Act in 2007, to provide responsible apparatus for enforcing environmental regulations, including those related to natural resource protection.

### **Transparency in Natural Resources Management.**

Transparency and accountability when they go together form crucial determinants of sustainable development. Hence, Boldbaatar, Kunzb & Werkerd, (2019) revealed this fact when they wrote that transparency and accountability initiatives have emerged as a potential solution to combat corruption and increase public benefits from the extractive sector in resource-abundant countries. The lack of transparency, however, undermines the ability of governments to use revenues from the extractive sector to stabilise their economies against commodity price volatility (Huety, 2012). This calls for adequate mechanisms in place to enhance transparency, accountability and prevent corruption. Generally, transparency is a fundamental requirement for the reliability and integrity of public institutions to promote public trust and public support (Jashari & Pepaj, 2018). It also helps to ensure that the decision-maker is not hidden from a decision made and that the decision made can easily be verified both in terms of the rules and avoidance of fraud. In the SDGs, these terms are mostly used to access resources, services, and inclusion. In Nigeria, the lack of transparency in the extractive industries, such as oil, gas, and mining, has had significant implications. The Nigerian Extractive Industries Transparency Initiative (NEITI) was established to promote transparency and accountability in the extractive industries.

### **Theoretical Framework**

This paper is anchored upon a classical resources management theory called ecological economy. The ecological theory as a natural resources management framework was formulated by Herman Daly, an American ecological economist in 1990. Ecological economy is an interdisciplinary framework that incorporates the principles of integrative ecological principles and economic theory to shape decision-making templates in



natural resources management. This framework recognises the interconnectivity of the ecosystems, the societies, and the various stakeholders to promote human and environmental well-being. This is relevant to the present study since it ensures the sustainability of the ecosystem and balances same with societal needs and welfare.

### **Empirical Review.**

In 2006, Odukoya in his research work on "Oil and Sustainable Development in Nigeria: A Case Study of the Niger Delta", examined the implications of oil 'exploitation' for the possibility of sustainable development in Nigeria. The paper also elucidated the contradictory tendencies of wealth and poverty in Nigeria despite its massive oil resources. The paper explores the challenges and opportunities of sustainable development in Nigeria, with a particular focus on the oil and gas industry. It discusses issues such as environmental degradation, community development, and the role of government policies. Odukoya established that certain institutions of government have many roles to play in ensuring the sustainable development of Nigeria through the sufficient natural resources that the country owns.

In a related matter, Adegoke (2017) conducted a study titled. "Corruption and Sustainable Development in Nigeria", analysed a range of secondary data collected from daily newspapers, the internet, journals, Government publications, and library materials literature published over the past fifteen years, the kernel of the paper rests on the fact that corrupt practices among the political leadership class have resulted in undermining the growth and stability of the nation's economy which has resulted in resource dislocation, environmental degradation, and unsustainable development goals in Nigeria.

A study conducted by Falade and Babatunde (2018) on "Natural Resource Management Framework for Sustainable Development in Nigeria" recognised the values of policies for gaining maximum economic benefits from natural resources both in the short and long term. They adopted the Policy Matrix Framework for natural resource management. The paper suggests that Nigeria should view natural resources as critical assets and design specific strategies for their development in such a manner

that they do not work against one another, paying special attention to their environmental implications.

Khan, Liu, and Hassan (2023), conducted research on "Natural resources and sustainable development: Evaluating the role of remittances and energy resources efficiency. In the paper they examined a very crucial question; whether natural resources are a curse or blessings for sustainable development in the South Asian economies. Four emerging economies (Sri Lanka, Pakistan, India. and Bangladesh) from 1990 to 2020 were subjected to empirical studies, and through panel data diagnostic tests anchoring on cross-section dependence and the slope coefficient heterogeneity, it was established that natural resources positively affect sustainable development

Siloko (2024), in her article on " Human security, sustainable livelihoods, and development: the case of the Niger Delta region in Nigeria", examines the complex connections between human security and livelihoods in the development in the Niger Delta of Nigeria. By adopting semi-structured interviews she investigated the lived experiences of community members and their challenges in bridging generational crises in the context of environmental degradation. Her finding reveals that an innovative approach to considering both environmental and social factors in the region is essential for the overall well-being of people in the region.

Also in a recent study, using the article titled; "Analyzing Nigeria's Journey Towards Sustainable Development Goals: A Comprehensive Review From Inception to Present", Owebia, et al., (2024), critically examines Nigeria's journey towards Sustainable Development Goals (SDGs) since her inception. The review found that there have been significant challenges in effectively managing natural resources in Nigeria, leading to environmental degradation and threats to sustainable development.

### **Research**

### **Methodology**

This research design was anchored on a non-experimental survey using a structured questionnaire to obtain data from 94 respondents (in each Ministry of Environment of the selected four states) on their views of resources



management, legal frameworks, transparency, and equity dimension of resources management in the study areas. Copies of questionnaire were administered using both randomization and judgmental sampling at the researcher’s discretion. Knowing fully well that the area of interest

requires a pure understanding of the subject matter, only top management and knowledge officers in each of the States were administered the questionnaire in the order shown in table 1.

Table 1: Questionnaire Distribution

S/N	Unit of Analysis	No
1.	Ministry of Environment, Bayelsa State	20
2	Ministry of Environment, Edo State	25
3	Ministry of Environment, Delta State	25
4	Ministry of Environment, Anambra State	24

**Testing of Hypothesis**

The verification of hypotheses for this study was done with the aid of IBM SPSS. The two hypotheses were tested using Pearson's Product Moment in which 'r' statistics was

used to determine or specify relations between various variables of study.

Ho<sub>1</sub>: there is a significant relationship between legislation and protection practices.

**Table 2: Relationship between Legislation and Protection Practices**

		Legislation	Protection Practices
Legislation	Pearson Correlation	1	.841**
	Sig. (2 – tailed)		.033
Protection Practices	N	96	96
	Pearson Correlation	.841	1
Protection Practices	Sig. (2- tailed)	.033	
	N	96	96

Sources: SPSS Version 27 output

With Pearson's *r* and correlation indicating .841 for Ho<sub>1</sub>, the implication is that the hypothesis is validated proving that there is a strong relationship between legislation and protection practices.

Ho<sub>2</sub>: There is a strong relationship between transparency and social equity.

**Table 3: Relationship between transparency and social equity.**

		Legislation	Protection Practices
Transparency	Pearson Correlation	1	.907**
	Sig. (2 – tailed)		.021
Social Equity	N	96	96
	Pearson Correlation	.907	1
Social Equity	Sig. (2- tailed)	.021	
	N	94	96

Sources: SPSS Version 27 output

With Pearson's *r* and correlation indicating .907 for Ho<sub>2</sub>, the implication is that the hypothesis is validated proving

that transparency does have a strong influence on social equity.



### Discussions of Findings

From the results obtained, it was revealed that there is a strong relationship between legislation and protection practices of natural resources in the states of investigation. This is very crucial for creating a regulatory framework that will guide responsible resource management. Through effective legislation, governments can foster a culture of sustainable development, protect ecosystems and biodiversity, and promote the well-being of present and future generations.

The findings of hypothesis two show that transparency has a strong influence on social equity. This implies that transparency is crucial for ensuring accountable governance, equitable benefit, respect of the rights and aspirations of all individuals and communities. These findings are similar to the findings by studies conducted by Odukoya (2006), Khan, Liu, & Hassan (2023), and Siloko (2024).

### Conclusion and Recommendation

Based on the findings, the study concludes that sustainable development of Nigeria depends on effective and efficient management of natural resources in the country.

It is therefore recommended that:

1. Appropriate legislations need to be enacted on the protection of natural resources in Nigeria. Enacting strong laws will help sustain natural resources thereby guaranteeing sustainable development.
2. It is also recommended that policy formulators, policy execution, and decision-makers should be transparent on all value chains regarding natural resources.

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