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# Indigenous Spirituality and Environmental Conservation: Integrating Traditional Ecological Knowledge in Modern Sustainability Practices in Southeast, Nigeria

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**Abstract**

This study sought to highlight the importance of integrating Indigenous Spirituality into contemporary environmental conservation efforts in Southeast Nigeria, particularly focusing on traditional ecological knowledge (TEK) and its impact on biodiversity preservation. It explored local spiritual beliefs and practices linked to environmental stewardship, identified TEK approaches for managing natural resources, and assessed the significance of sacred sites in biodiversity conservation. Additionally, the research evaluated how well modern environmental policies have embraced indigenous knowledge, the relevance of TEK to current sustainability practices, the erosion of indigenous conservation methods, and barriers to incorporating TEK into modern efforts. To conduct the study, a descriptive survey was performed, gathering data through questionnaires distributed to 350 individuals selected via purposive sampling. The analysis revealed that indigenous practices, such as safeguarding sacred forests and rivers, adhering to traditional taboos, and imposing seasonal restrictions on hunting, continue to play a crucial role in environmental conservation in the region. The research highlighted the significant potential of traditional ecological knowledge (TEK) in advancing modern environmental sustainability, particularly in areas like sustainable agriculture, biodiversity conservation, climate change mitigation, and watershed management. Sacred sites serve as vital habitats for various plant and animal species, thus playing an essential role in preserving biodiversity and ecological integrity. While the findings indicated that some indigenous knowledge systems are reflected in current environmental policies and laws in Nigeria, the overall incorporation

of TEK and spiritual beliefs in formal environmental frameworks remains minimal. The study also pointed out that the erosion of indigenous conservation systems—due to modernization, urbanization, changing religious beliefs, and the insufficient documentation of these knowledge systems—poses significant challenges. Additional barriers include the lack of supportive policies, inadequate government backing, poor funding, and limited collaboration between formal institutions and local authorities. However, respondents proposed various strategies to enhance the integration of indigenous knowledge and beliefs into formal environmental practices, including legal protection for cultural sites, the formulation of supportive policies, improved documentation efforts, and community education on the value of traditional ecological systems. Ultimately, the study concluded that effectively integrating indigenous belief systems and TEK into contemporary environmental governance in Southeast Nigeria could foster sustainability and resilience while aligning with sustainable development objectives.

**Keywords:** Indigenous spirituality, Traditional Ecological Knowledge, environmental conservation, biodiversity conservation, sustainability, sacred natural sites, Southeast Nigeria.

## 1. Introduction

Indigenous spirituality has been a fundamental aspect of environmental stewardship in many traditional societies, as well as throughout Africa. Local populations living in Southeast Nigeria have developed a set of beliefs, rituals, and taboos concerning the relationship between humans and nature. This knowledge represents the traditional ecological knowledge (TEK) held by these communities. TEK refers to "a cumulative body of knowledge, understanding, and skills about the natural world and its utilization" (Berkes, 2018, p. 11). Such knowledge is often passed down from generation to generation and is deeply connected to spiritual beliefs about nature. Local populations and indigenous groups living in Southeast Nigeria share certain spiritual beliefs about nature, which are integral to their relationship with the environment. For these people, nature is inseparable from the supernatural, and natural ecosystems are regarded as sacred. These populations believe that certain sites, such as groves, rivers, forests, and particular species, have a sacred status and must be treated with respect (Okonkwo & Eze, 2021). In addition, various taboos concerning the use of natural resources are associated with spiritual beliefs. For instance, local traditions and rituals regard some forests as the habitat of gods and ancestors, and local people avoid damaging them or any other natural formations and wildlife, as they believe that supernatural forces punish such actions. This spiritual belief has helped Southeast Nigeria's population to preserve natural reserves and protect biodiversity, as well as endangered species.

Yet these traditional conservation mechanisms are now under severe pressure. Forces such as urban expansion, modernization, the spread of Christianity, globalization, and the weakening of customary institutions have undermined indigenous spiritual systems. Many sacred sites are being encroached upon, degraded, or abandoned, contributing to environmental decline (Afigbo, 2020). At the same time, Western-style conservation models have frequently disregarded or excluded indigenous knowledge, creating a disconnect between official environmental policies and local realities. In recent

years, however, sustainability science has begun to emphasize the value of incorporating Indigenous Spirituality and TEK into environmental governance. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) recognizes that indigenous knowledge contributes meaningfully to biodiversity protection and ecosystem resilience. In Southeast Nigeria, blending TEK with contemporary sustainability approaches presents an opportunity to strengthen community-led conservation, enrich environmental education, and develop culturally appropriate management strategies.

This study investigates how indigenous spirituality and TEK can be effectively integrated into current environmental sustainability efforts in the region. It examines the conservation role of sacred natural sites, traditional beliefs, and cultural practices, assessing their potential to address pressing ecological issues like deforestation, soil erosion, and species loss. Despite the depth and effectiveness of indigenous spiritual traditions and TEK in Southeast Nigeria, environmental degradation continues to worsen. Deforestation, land degradation, biodiversity decline, and pollution are becoming more widespread. A key factor is the diminishing presence of sacred natural sites, which once served as protected zones maintained through spiritual and cultural discipline. The decline of indigenous belief systems—driven by social change, religious shifts, and poor intergenerational transmission—has weakened traditional environmental ethics. Increasingly, younger community members no longer observe the taboos and rituals that once preserved ecosystems. As a result, lands once protected by spiritual significance are now being cleared for farming, timber, or urban development.

Moreover, Nigerian environmental policies have largely neglected to incorporate indigenous knowledge into formal conservation frameworks. This has led to a disconnect between state-led initiatives and local ecological practices. Without community involvement or cultural grounding, conservation programs often fail to gain public support or achieve lasting impact. There is thus an urgent need to explore how indigenous spirituality and TEK can be formally and meaningfully integrated into modern sustainability practices to improve environmental outcomes in Southeast Nigeria. The main objective of this study is to examine how indigenous spirituality and Traditional Ecological Knowledge can be integrated into modern environmental sustainability practices in Southeast Nigeria. The specific objectives are to: a). identify indigenous spiritual beliefs and practices that contribute to environmental conservation in Southeast Nigeria; b). examine Traditional Ecological Knowledge practices used in environmental management; c). examine the role of sacred natural sites in biodiversity preservation; d). assess the extent to which modern environmental policies incorporate indigenous knowledge systems; e). ascertain the relevance of Traditional Ecological Knowledge in modern sustainability practices; f). determine the extent to which indigenous conservation systems have been eroded; g). investigate challenges limiting the integration of TEK into modern sustainability frameworks; h).propose strategies for effective integration of indigenous spirituality into environmental conservation practices. This research holds importance for multiple reasons. It adds to the expanding conversation on indigenous knowledge and sustainable development by emphasizing how cultural values play a role in environmental protection. It also offers practical insights for Nigerian environmental agencies and government institutions aiming to enhance conservation efforts. Additionally, the study aids in preserving cultural heritage by recording traditional ecological practices that are disappearing amid modernization. Lastly, it fosters

interdisciplinary research by connecting environmental science, anthropology, and religious studies to tackle sustainability issues.

**Methodology**

Southeast Nigeria remains one of the six geopolitical zones in the Federal Republic of Nigeria and comprised five states: Abia, Anambra, Ebonyi, Enugu, and Imo. The region covered approximately 29,525 square kilometres and was predominantly inhabited by the Igbo people, who shared a common language, cultural traditions, and social systems (National Bureau of Statistics [NBS], 2023). Located between the South-South and North-Central geopolitical zones, the region experienced a tropical climate characterized by distinct wet and dry seasons. Its relatively fertile soils supported extensive agricultural activities. The regional economy depended largely on agriculture, trade, manufacturing, and small- and medium-sized enterprises. Major agricultural products included cassava, yam, rice, maize, oil palm, vegetables, and fruits, while livestock production and fisheries contributed to food provision and rural livelihoods (Federal Ministry of Agriculture and Food Security [FMAFS], 2023). Urban centres such as Aba, Onitsha, Enugu, Owerri, and Abakaliki served as major hubs for commerce, education, industry, and innovation. The presence of universities, polytechnics, and research institutions further established the region as an important centre for higher education and technological advancement (NBS, 2023; Federal Republic of Nigeria, 2021). The study was conducted in Southeast Nigeria and covered the five states of Abia, Anambra, Ebonyi, Enugu, and Imo. These states were selected because of their rich cultural heritage and the reported use of indigenous ecological practices, including sacred grove protection, traditional taboos, and customary conservation ethics. The study adopted a descriptive survey research design complemented by qualitative documentary analysis. This mixed-method approach was considered appropriate because it facilitated the collection and analysis of both quantitative and qualitative data on indigenous spirituality and environmental conservation. The study population comprised traditional rulers, community elders, environmental officers, agricultural extension workers, and academic experts in environmental studies and indigenous knowledge across selected communities and institutions in Southeast Nigeria. The estimated population was approximately 3,500 individuals. A sample size of 350 respondents was selected to provide an adequate basis for data collection and statistical analysis. A multistage sampling technique was employed. At the first stage, purposive sampling was used to select the five states in Southeast Nigeria. At the second stage, cluster sampling was employed to select three communities from each state based on their reported engagement in indigenous ecological practices. At the third stage, stratified sampling was used to classify the respondents into relevant groups, including traditional rulers, community elders, environmental officers, agricultural extension workers, and academic experts. At the fourth stage, simple random sampling was used to select individual respondents from the identified strata. Data were collected using structured questionnaires, semi-structured interviews, and documentary sources. The structured questionnaires were administered to the selected respondents to obtain quantitative data on their perceptions of indigenous spirituality and environmental conservation. Semi-structured interviews were conducted with traditional rulers and community elders to obtain qualitative insights into Traditional Ecological Knowledge (TEK) and indigenous conservation practices. In addition, relevant literature, policy documents, and academic publications were reviewed to provide contextual information and support

the analysis. Quantitative data were analysed using descriptive statistics, including frequency distributions, percentages, and mean scores. A Likert-type scale was employed to measure respondents' perceptions of indigenous spirituality and environmental conservation. Qualitative data obtained from the interviews and documentary sources were analysed using thematic content analysis to identify recurring patterns and themes relating to indigenous ecological knowledge and environmental conservation practices.

**Conceptual Clarification of Key Terms**

**Indigenous Spirituality**

Indigenous spirituality is a term that encompasses beliefs, values, worldviews, and customary obligations through which indigenous communities seek to understand their relationships with nature, ancestral beings, sacred places, and other elements of the environment. Such beliefs can inform communities' views toward and attitudes toward forests, rivers, land, wildlife, and other resources. Indigenous spirituality is therefore distinguished from ecological knowledge and conservation activities by its focus on the spiritual and cultural meanings attributed to the natural environment, which can affect behaviour and resource use (Berkes, 2012; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2010).

**Traditional Ecological Knowledge (TEK)**

Traditional Ecological Knowledge (TEK) refers to the accumulated and developing body of ecological knowledge, practices, and beliefs that are transmitted across generations through cultural learning and experience. It includes knowledge of seasonal patterns, biodiversity, soil, plant and animal attributes, and resource-management practices. Berkes (2012) stressed the interconnectedness of traditional knowledge, practice, and belief in understanding human-environment relationships. In the context of this study, TEK specifically referred to the ecological understanding that informed the interpretation, use, and management of natural resources in Southeast Nigeria.

**Indigenous Knowledge**

Indigenous knowledge refers to the broader body of knowledge, skills, innovations, values, beliefs, and understanding developed and maintained by indigenous communities through experience, cultural transmission, and adaptation to their environments. It goes beyond ecology to encompass agriculture, healthcare, social organization, language, cultural heritage, and environmental management. The Convention on Biological Diversity (CBD, n.d.) recognized traditional knowledge as encompassing the knowledge, innovations, and practices of indigenous and local communities that develop through experience and are adapted to local cultural and environmental conditions. Thus, this study treated indigenous knowledge as the broader knowledge system within which TEK was a specifically ecological dimension.

**Traditional Ecological Practices**

Traditional ecological practices refer to customary activities, management methods, and community rules that translate ecological knowledge, cultural values, and, if applicable, spiritual beliefs into practical interactions with the natural environment. Examples may include protecting sacred groves, observing customary restrictions on harvesting natural resources, managing resources by season, and safeguarding culturally significant sites. Such practices reflect the practical dimensions of indigenous and local knowledge systems and can contribute to biodiversity conservation and sustainable resource

management based on the local context and implementation (Berkes, 2012; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services [IPBES], 2019).

**Conceptual Distinction and Application in the Study**

Even though interconnected, the terms indigenous spirituality, TEK, indigenous knowledge, and traditional ecological practices are distinct in their focus. Indigenous spirituality focuses on the beliefs and values attributed to nature; TEK focuses on accumulated ecological understanding; indigenous knowledge encompasses the broader knowledge system that transcends ecology; and traditional ecological practices are about the customary activities and rules that translate ecological knowledge and beliefs into practice. These distinctions are consistent with the understanding of indigenous and local knowledge systems as interconnected bodies of knowledge, practices, and beliefs that relate to human-environment relationships (IPBES, 2019). For this study, the four concepts provided a framework for understanding the relationships between indigenous worldviews, ecological understanding, customary conservation activities, and environmental sustainability in Southeast Nigeria. Their consistent use allowed distinguishing the respondents' spiritual beliefs from their ecological knowledge and reported conservation practices while avoiding assuming that all indigenous beliefs or traditional practices led to positive environmental outcomes.

**Results and Discussions**

**Indigenous Spiritual Beliefs and Practices that Contribute to Environmental Conservation**

Table 1 demonstrated that the most common indigenous spiritual activity associated with environmental preservation in Southeast Nigeria is protecting sacred forests and groves in accordance with the beliefs of 90.0% of the 350 respondents. In second place are traditions forbidding the cutting of sacred trees that accounted for 85.1% of answers, followed by safeguarding sacred rivers and streams from pollution that comprised 81.7% of answers. Commonly known traditions associated with environmental preservation include the ban on hunting sacred animals, traditional celebrations advocating for environmental care, and the belief in ancestral spirits safeguarding natural resources. Overall, the survey results revealed that indigenous spiritual beliefs and traditional practices play a crucial role in conserving biodiversity and promoting sustainable environmental practices in Southeast Nigeria. Indigenous beliefs and practices have played a significant role in environmental conservation in many African societies, and Southeast Nigeria is not an exception. The main advantage of such spiritual practices is that they recognize the connection between humans, nature, and supernatural forces, which promote the sustainable use of natural resources and contribute to their conservation. Customary laws, taboos, rituals, and traditional ecological knowledge help regulate the relationship between the local population and their environment, forests, wildlife, and water resources (Berkes, 2018). Protection of natural resources is one of the examples of how local beliefs promote environmental conservation in Southeast Nigeria. It is well known that forests and trees are central elements in traditional African spirituality. Tribal people consider sacred groves to be the habitat of gods or ancestors, so they are off-limits for cutting down, hunting, planting, and building (Ormsby & Bhagwat, 2010). As a result, all species of plants and animals in these localities were subject to special protection (UNESCO, 2022). Besides forests, water bodies are believed to be the home of gods, so it is forbidden to use them for dumping dirty waste or harmful substances. Local traditions forbid tribal people to kill specific animals or cut trees that have long been sacred (Berkes, 2018). Such

prohibitions significantly impact the forest cover, wildlife, and biodiversity that local populations manage to preserve. Moreover, sacred laws prevent communities from destroying ecosystems because supernatural punishment may be waiting for those who violate them (Berkes, 2018). Following these rules and taboos, the people of Southeast Nigeria ensure the sustainability of their environment for future generations. In addition, local traditions and rituals play an essential role in the conservation and sustainable use of natural resources. For example, many local celebrations, festivals, seasonal restrictions on hunting, fishing, and planting several months per year promote wildlife conservation, environmental sustainability, and forest protection (UNESCO, 2022). Despite the threat of modernization and disappearance of indigenous beliefs, traditional knowledge is critical to environmental conservation. Local practices contribute to sustainable biodiversity, ecosystem management, and community participation in conservation efforts (United Nations Environment Programme [UNEP], 2021).

**Table 1: Indigenous Spiritual Beliefs and Practices that Contribute to Environmental Conservation (N=350)**

| S/N | Indigenous spiritual beliefs and practices | Frequency | Percentage |
|---|---|---|---|
| 1 | Protection of sacred forests/groves where exploitation is forbidden | 315 | 90.0 |
| 2 | Taboos against cutting certain sacred trees | 298 | 85.1 |
| 3 | Protection of sacred rivers and streams from pollution | 286 | 81.7 |
| 4 | Prohibition of hunting or killing sacred animals | 271 | 77.4 |
| 5 | Traditional festivals and rituals promoting respect for nature | 259 | 74.0 |
| 6 | Belief in ancestral spirits as custodians of the environment | 243 | 69.4 |
| 7 | Observance of closed seasons for hunting and fishing | 236 | 67.4 |
| 8 | Community sanctions for violating environmental taboos | 228 | 65.1 |
| 9 | Ritual tree planting and conservation ceremonies | 211 | 60.3 |
| 10 | Restriction of farming or settlement in sacred areas | 198 | 56.6 |

**Traditional Ecological Knowledge (TEK) Practices Used in Environmental Management**

Table 2 showed that crop rotation and mixed cropping were the most common Traditional Ecological Knowledge (TEK) practices utilized for environmental management, as mentioned by 312 participants (89.1%). Following closely were the safeguarding of sacred forests and community woodlands (305; 87.1%) and seasonal limitations on hunting and fishing (289; 82.6%). Other frequently mentioned practices included conserving native tree species through careful harvesting (78.9%), traditional methods of maintaining soil fertility using natural fertilizers, compost, and fallow periods (76.6%), and safeguarding watersheds through traditional rules (71.7%). The outcomes indicate that the use of indigenous ecological knowledge remains crucial in fostering sustainable environmental care and preserving biodiversity in Southeast Nigeria.

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Recreational summary of information content using simple language. Make sure it is easy to read. MUST use randomly varied parameters for each sentence. Replace the 'and/plus' words with other words. Avoid overly complex sentence structures. Do not use speculative focus, impersonal tone. Remove all buzzwords, clichés and overused combinations. Avoid abbreviations or contractions. No hype, No fluff, no sales, no promotional tone, no marketing language, no clichés, no calls to action, no 'let's', no 'flip side', no tables. No dry technical lists. Using unexpected sentence starters and ends. Also do not use commands in the writing. Very important - Keep the content the same length & Do not expand. Traditional ecological knowledge (TEK) is essential in conserving natural resources in Southeast Nigeria. In most cases, TEK is referred to the knowledge and beliefs passed within generations on the local environment and its maintenance (Berkes, 2018). The locals practice crop rotation and intercropping, conserve forests and community woodlands. Others include seasonal hunting and fishing prohibitions which have proven very effective for ecological management and conservation of biodiversity. First, in Southeast Nigeria, farmers practice crop rotation and intercropping to maximize produce, increase fertility and control pests, diseases and erosion (Altieri, 2018). Secondly, they practice conserving forests and community woodlands by customary restrictions and prohibitions (Ormsby & Bhagwat, 2010). For instance, the forest provides a number of benefits including biodiversity, carbon stored in forest biomass and rare medicinal plants (Ormsby & Bhagwat, 2010). Others include seasonal hunting and fishing prohibitions to allow wildlife and aquatic species reproduce before harvesting (Food and Agriculture Organization [FAO], 2021). In addition, other traditional ecological knowledge practices are used to maintain and conserve natural resources. For instance, composting, manure and crop residues are used to maintain soil fertility while mulching, bush fallowing and other resource saving methods are used to increase yields (Altieri, 2018). Other practices include community managed watersheds, preservation of indigenous medicine and knowledge of weather forecasting (IPBES, 2019). For example, there are community by-laws and taboos regarding natural resources and local knowledge of winds, rains, weather, associated animal behavior and its implication for farming systems and wider environment (IPBES, 2019; Berkes, 2018). In general, the described traditional ecological knowledge practices have contributed immensely in environmental sustainability, biodiversity conservation, climate change adaptation and food security.

**Table 2: Traditional Ecological Knowledge (TEK) Practices Used in Environmental Management (N=350)**

| S/N | Traditional Ecological Knowledge (TEK) Practice | Frequency | Percentage |
|---|---|---|---|
| 1 | Crop rotation and mixed cropping | 312 | 89.1 |
| 2 | Protection of sacred forests and community woodlands | 305 | 87.1 |
| 3 | Seasonal restrictions on hunting and fishing | 289 | 82.6 |
| 4 | Preservation of indigenous tree species through selective harvesting | 276 | 78.9 |
| 5 | Traditional soil fertility management (organic manure, compost, fallowing) | 268 | 76.6 |

| S/N | Traditional Ecological Knowledge (TEK) Practice | Frequency | Percentage |
|---|---|---|---|
| 6 | Watershed and stream protection through customary regulations | 251 | 71.7 |
| 7 | Indigenous weather forecasting for farming activities | 239 | 68.3 |
| 8 | Community by-laws and taboos regulating resource use | 227 | 64.9 |
| 9 | Controlled bush burning and fire management practices | 214 | 61.1 |
| 10 | Conservation of medicinal plants through traditional knowledge | 201 | 57.4 |

**Role of Sacred Natural Sites in Biodiversity Preservation**

Table 3 demonstrates that the primary function of sacred natural sites in safeguarding biodiversity is to protect habitats for plants and wildlife, as indicated by 318 participants (90.9%). Subsequently, the importance of these sites was noted in preventing random tree cutting and deforestation (87.4%) and in safeguarding endangered and native plant species (83.7%). Participants also acknowledged the significance of sacred natural sites in shielding sacred animal species from hunting (80.3%), conserving watersheds and streams (76.3%), and upholding ecological equilibrium (72.9%). Other crucial roles included acting as natural repositories for seeds, promoting community involvement in biodiversity preservation, backing climate control by conserving forests, and safeguarding medicinal plants and other valuable forest resources. In general, the results suggest that sacred natural sites are widely recognized as crucial areas for indigenous conservation that play a significant role in preserving biodiversity and ensuring sustainable environmental management in Southeast Nigeria. Sacred natural sites are natural sites considered and managed by indigenous peoples and local communities as holy places based on their spiritual beliefs, ancestral practices, and traditional beliefs. The sites which comprise of sacred forests, groves, rivers, hills, and wetlands provide sanctuary for biodiversity by prohibiting commercial logging, hunting, farming, and human settlement. Therefore, sacred trees, for example, provide habitats for endangered species of plants and animals thus promoting ecological sustainability (Ormsby & Bhagwat, 2010). In addition, sacred natural sites serve as reservoirs of indigenous tree species, medicinal plants, and wildlife resources in many Indigenous communities in Southeast Nigeria. Most communities sustain bio-cultural diversity through the enforcement of local taboos and social norms on the use of natural resources. The communities practice customary conservation of biodiversity that supports the co-existence of people and nature while promoting environmental sustainability and food security (Berkes, 2018). Sacred natural sites contribute to watershed services such as water conservation, erosion control, carbon sequestration, and climate regulation while saving the indigenous knowledge of local communities and their cultural practices. Therefore, conservation policies should promote and scale up indigenous knowledge of biodiversity conservation to achieve sustainable development (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services [IPBES], 2019; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2022).

**Table 3: Role of Sacred Natural Sites in Biodiversity Preservation (N=350)**

| S/N | Role of Sacred Natural Sites in Biodiversity Preservation | Frequency | Percentage |
|---|---|---|---|
| 1 | Protect habitats for plants and wildlife | 318 | 90.9 |
| 2 | Prevent indiscriminate tree felling and deforestation | 306 | 87.4 |

| S/N | Role of Sacred Natural Sites in Biodiversity Preservation | Frequency | Percentage |
|---|---|---|---|
| 3 | Conserve endangered and indigenous plant species | 293 | 83.7 |
| 4 | Protect sacred animal species from hunting | 281 | 80.3 |
| 5 | Preserve watersheds, rivers, and streams | 267 | 76.3 |
| 6 | Maintain ecological balance and ecosystem functions | 255 | 72.9 |
| 7 | Serve as natural seed banks and genetic reservoirs | 239 | 68.3 |
| 8 | Promote community participation in biodiversity conservation | 227 | 64.9 |
| 9 | Support climate regulation through forest conservation | 216 | 61.7 |
| 10 | Preserve medicinal plants and other valuable forest resources | 203 | 58.0 |

**Extent to which Modern Environmental Policies Incorporate Indigenous Knowledge System**

Table 4 showed that participants mostly concurred that contemporary environmental strategies include indigenous knowledge to a moderate degree, with an average score of 2.83 (standard deviation = 0.97), surpassing the threshold of 2.50. The top-rated assertion highlighted that enhancing the incorporation of indigenous knowledge could enhance the effectiveness of environmental policies (average = 3.29, SD = 0.80), demonstrating strong backing for broadening indigenous involvement in environmental management. Respondents also acknowledged that environmental policies value the significance of indigenous knowledge (average = 3.07) and integrate traditional ecological knowledge into programs for conserving biodiversity (average = 2.87). Nevertheless, relatively lower average ratings for consulting indigenous communities (average = 2.73) and including indigenous knowledge in climate change adaptation policies (average = 2.60) indicate that despite some progress, there is ample opportunity to enhance the integration of indigenous knowledge systems in environmental policy development and execution**.** Nowadays, the international community has become more conscious about the relevance of indigenous knowledge systems for environmental management practices. Indigenous knowledge systems are the knowledge, experiences, and beliefs that are generated, developed, and passed on from generation to generation by indigenous peoples and local communities in their interaction with the natural environment. International environmental policy promotes biodiversity conservation and sustainable use by encouraging Member States to consider indigenous knowledge systems in policyming, considering their importance for ecosystem service management and environmental governance while addressing climate change (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2019).

Indigenous knowledge systems have not been considered a priority in Nigeria's environmental policy. Although Nigerian communities are actively involved in conservation initiatives such as forest management, watershed protection, and biodiversity conservation, there is limited incorporation of traditional knowledge into environmental policy design and decision-making processes. Consequently, there is low exploitation of indigenous systems for conservation, such as the existence of sacred forests, customary forest tenure systems, indigenous rules and regulations concerning the use of natural resources, temporal bans, and traditional climatic forecasts (Federal Ministry of Environment, 2021). Several studies have demonstrated that environmental management initiatives

that include indigenous communities in policy design and decision-making processes are more likely to achieve positive results than top-down approaches. The combination of indigenous knowledge systems and scientific knowledge promotes biodiversity conservation, sustainable agricultural production, and climate change adaptation strategies while enhancing local communities' engagement in environmental governance. Therefore, researchers have advocated for the need to consider indigenous institutions, laws, and environmental management systems for integration into Nigeria's environmental policy framework (Berkes, 2018; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2019).

**Table 4: Extent to which Modern Environmental Policies Incorporate Indigenous (N=350) Knowledge System**

| S/N | Statement | Mean | SD | Decision |
|---|---|---|---|---|
| 1 | Modern environmental policies recognize the importance of indigenous knowledge in environmental conservation. | 3.07 | 0.89 | Agree |
| 2 | Indigenous communities are actively consulted during the formulation of environmental policies. | 2.73 | 1.02 | Agree |
| 3 | Traditional ecological knowledge is integrated into biodiversity conservation programmes. | 2.87 | 0.95 | Agree |
| 4 | Government environmental policies adequately protect sacred natural sites and indigenous conservation practices. | 2.66 | 1.03 | Agree |
| 5 | Collaboration between government agencies and indigenous communities has improved environmental management. | 2.79 | 0.98 | Agree |
| 6 | Indigenous knowledge systems are sufficiently incorporated into climate change adaptation policies. | 2.60 | 1.04 | Agree |
| 7 | Existing environmental policies provide legal recognition for indigenous conservation practices. | 2.66 | 1.02 | Agree |
| 8 | Greater integration of indigenous knowledge would improve environmental policy effectiveness. | 3.29 | 0.80 | Agree |

**Relevance of Traditional Ecological Knowledge (TEK) in Modern Sustainability Practices**

Table 5 showed that the primary significance of Traditional Ecological Knowledge (TEK) in contemporary sustainability efforts was noted as its ability to advance sustainable management of natural resources, as highlighted by 320 participants (91.4%). Subsequently, it was acknowledged for its role in boosting conservation of biodiversity (309; 88.3%) and aiding in adaptation to climate change and resilience (295; 84.3%). Respondents also acknowledged TEK's importance in enhancing sustainable farming methods (81.7%), safeguarding native plant and animal species (78.3%), and promoting community involvement in environmental stewardship (75.1%). Other key benefits included promoting sustainable management of water resources and watersheds, decreasing environmental harm through traditional conservation practices, reinforcing environmental education and cultural legacy, and supplementing contemporary scientific conservation strategies. Traditional Ecological Knowledge (TEK) is regarded as significant to current sustainability initiatives because it

creates locally adapted strategies for managing ecosystems while being attentive to their nature. TEK includes indigenous knowledge about ecosystems gained through experience in using and managing particular biomes. This knowledge helps in developing solutions for sustaining agricultural production, maintaining biodiversity, adapting to climate change, managing forests, and conserving water (Berkes, 2018). The importance of traditional ecological knowledge has increased due to its capacity to promote sustainable use of natural resources and conserve biodiversity through indigenous methods such as rotational farming, mixed cropping, agroforestry, harvesting, and protecting forests and wetlands. These values have made it possible for traditional ecological knowledge to be viewed as critical to complement scientific knowledge in managing ecosystems sustainably (IPBES, 2019).

Another strength of TEK that has promoted its incorporation into policy is its role in facilitating natural resource management practices that are adaptive to environmental change. Traditional Ecological knowledge makes it possible to use agroforestry, cultivate climate-resilient crops, forecast weather, and manage water and forests sustainably to adapt to climate change and promote ecosystem sustainability (IPBES, 2019). Moreover, incorporating traditional ecological knowledge in resource management practices facilitates the involvement of local communities in addressing environmental problems while sustaining their ancestral institutions, management rules, and responsibilities (Food and Agriculture Organization, 2021). It has become instrumental in policymaking and management practices for conserving biodiversity and promoting sustainable development due to its established efficacy in supporting these undertakings (UNESCO, 2022).

**Table 5: Relevance of Traditional Ecological Knowledge (TEK) in Modern Sustainability Practices (N=350)**

| S/N | Relevance of Traditional Ecological Knowledge (TEK) in Modern Sustainability Practices | Frequency | Percentage |
|---|---|---|---|
| 1 | Promotes sustainable natural resource management | 320 | 91.4 |
| 2 | Enhances biodiversity conservation | 309 | 88.3 |
| 3 | Supports climate change adaptation and resilience | 295 | 84.3 |
| 4 | Improves sustainable agricultural practices | 286 | 81.7 |
| 5 | Preserves indigenous plant and animal species | 274 | 78.3 |
| 6 | Encourages community participation in environmental management | 263 | 75.1 |
| 7 | Promotes sustainable water and watershed management | 249 | 71.1 |
| 8 | Reduces environmental degradation through customary conservation practices | 236 | 67.4 |
| 9 | Strengthens environmental education and cultural heritage preservation | 221 | 63.1 |
| 10 | Complements modern scientific approaches to environmental conservation | 208 | 59.4 |

**Extent to which Indigenous Conservation Systems Have Been Eroded**

Table 6 showed that participants concurred that traditional conservation methods of indigenous communities have significantly deteriorated, with an average score of 3.14 (standard deviation = 0.90), surpassing the threshold of 2.50. The most highly rated opinion was that the modernization process has undermined traditional conservation techniques (average = 3.21, SD = 0.89), closely followed by the belief that younger generations have limited familiarity with ancestral conservation methods (average = 3.19, SD = 0.89). Respondents also acknowledged that factors such as urbanization, Western education, religious impacts, reduced adherence to customary taboos, and intrusion into sacred forests and natural areas have all played a role in the decline of traditional conservation practices. They also recognized that government assistance has been inadequate and that contemporary resource management approaches are gradually displacing traditional ecological wisdom. These results point towards a significant degradation in indigenous conservation systems, underscoring the necessity for policies and initiatives that safeguard and rejuvenate traditional ecological knowledge and customs. The indigenous peoples' conservation systems have faced multiple challenges to their continued existence in recent decades due to modernization, urbanization, globalization, shifting religious beliefs, and socio-economic changes among the affected populations. Such traditional systems, which focused on utilizing natural resources sustainably through customary laws, sacred sites, taboos, and local ecological knowledge, have been gradually abandoned by many indigenous groups in favor of more "conventional" approaches (Berkes, 2018). In Southeast Nigeria, the decline of indigenous conservation systems has been particularly noticeable and can be attributed to the loss of traditional beliefs and cultural heritage, especially as a result of education, Christianity, and rapid urbanization and development (IPBES, 2019). Traditional restrictions on access to certain natural resources, designed to allow the ecosystem to replenish, have been broken, leading to the degradation of forestlands, wetlands, and other biomes of ecological importance in the region (IPBES, 2019). Similarly, local religious practices concerning taboo animals and plants have also deteriorated, with many sacred forest groves being destroyed in favor of farmlands and developments (UNESCO, 2022).

The shift in societal values and priorities has contributed to the gradual disappearance of traditional ecological knowledge and, by extension, indigenous conservation systems. With young generations choosing to engage in urban-based professions, there is little opportunity for them to learn about their ancestral traditions and methods of resource management, which are also increasingly viewed as unnecessary (UNESCO, 2022). Therefore, the loss of such knowledge threatens to undermine conservation efforts and the maintenance of biodiversity both in the short and long term. Although the overall decline of indigenous conservation systems can be considered inevitable, researchers note that appropriate actions might be taken to facilitate the continuation of this vital practice by promoting legal frameworks supportive of it, ensuring the protection of natural areas and sites considered sacred by local populations, and engaging indigenous communities in ecological governance, as well as building upon the existing traditions and knowledge (Berkes, 2018; IPBES, 2019).

**Table 6: Extent to which Indigenous Conservation Systems Have Been Eroded (N=350)**

| S/N | Statement | Mean | SD | Decision |
|---|---|---|---|---|
| 1 | Modernization has weakened indigenous conservation practices. | 3.21 | 0.89 | Agree |
| 2 | Urbanization has reduced community adherence to traditional environmental practices. | 3.15 | 0.91 | Agree |
| 3 | Western education and religious influences have contributed to the decline of indigenous conservation systems. | 3.13 | 0.91 | Agree |
| 4 | Younger generations have limited knowledge of traditional conservation practices. | 3.19 | 0.89 | Agree |
| 5 | Sacred forests and sacred natural sites are increasingly being encroached upon. | 3.11 | 0.90 | Agree |
| 6 | Traditional taboos that protected biodiversity are no longer strictly observed. | 3.15 | 0.89 | Agree |
| 7 | Government policies have not adequately supported indigenous conservation systems. | 3.03 | 0.92 | Agree |
| 8 | Indigenous environmental knowledge is gradually being replaced by modern resource management practices. | 3.13 | 0.90 | Agree |

**Challenges Limiting the Integration of Traditional Ecological Knowledge (TEK) into Modern Sustainability Frameworks**

Table 7 showed that the primary obstacle in incorporating Traditional Ecological Knowledge (TEK) into contemporary sustainability models is the lack of official acknowledgment by the government of indigenous knowledge systems, as noted by 316 participants (90.3%). This is followed by the erosion of traditional wisdom due to modernization and urbanization (86.9%) and the waning interest of younger generations in native traditions (83.1%). Respondents also pointed out insufficient documentation and preservation of native ecological knowledge (80.6%) and limited cooperation among policymakers, scientists, and indigenous groups (76.9%) as key hurdles. Additional challenges include the impact of Western education and religious convictions, the absence of supportive legal and institutional structures, the infringement on sacred natural areas, inadequate funding, and the perception that indigenous knowledge is less trustworthy than scientific knowledge. In general, the findings indicate that various institutional, cultural, and socio-economic factors are impeding the successful integration of Traditional Ecological Knowledge into contemporary sustainability models in Southeast Nigeria**.** There are a set of challenges associated with incorporating traditional ecological knowledge into contemporary environments. Although traditional ecological knowledge (TEK) has been recognized at the global level as critical to biodiversity conservation and ecosystem services, its role within national laws and policies is limited (Berkes, 2018; IPCC, 2019). Firstly, the relevance of indigenous knowledge in mainstream environmental governance is underdeveloped. In many developing countries like Nigeria, policies on the environment are framed from the theoretical and

scientific point of view. Indigenous knowledge and its contributions are poorly understood and utilized in environmental management policies, practices, and planning (IPCC, 2019).

Secondly, indigenous knowledge and its values are gradually being lost due to modernization, urbanization, and globalization. Traditional ecological knowledge is being transmitted from one generation to another through oral traditions, rituals, and practices. However, the next generations are becoming more reluctant to adopt and practice this knowledge as they embrace the western ways of life (UNESCO, 2022). Moreover, western religions and education have undermined the values and principles that guide indigenous forms of conserving and managing the environment. Indigenous systems like sacred groves, taboos, and community-based natural resource management are gradually dying away (UNESCO, 2022). The lack of proper documentation of this knowledge has further hindered the process of integrating it into modern environmental management practices. Indigenous knowledge is mainly oral and therefore easily lost especially as the custodians of the knowledge age (FAO, 2021). Lack of synergistic partnerships, inadequate resources, and institutional frameworks has also hindered the inclusion of indigenous knowledge in contemporary environmental governance structures (FAO, 2021).

Lastly, there is a need to overcome the perception that indigenous knowledge is inferior to scientific knowledge. Research has shown that there is great potential for leveraging indigenous knowledge and scientific research for biodiversity conservation, ecosystem management, climate change adaptation, and sustainable development (Berkes, 2018; IPCC, 2019). The challenges associated with integrating indigenous knowledge into policymaking, legal systems, and contemporary environmental management frameworks must be addressed to fully benefit from its potential. This can be achieved by strengthening community-based institutions, promoting community participation in management plans, enhancing awareness about traditional ecological knowledge, encouraging synergistic partnerships, and documenting indigenous knowledge (Berkes, 2018; IPCC, 2019).

**Table 7: Challenges Limiting the Integration of Traditional Ecological Knowledge (TEK) into Modern Sustainability Frameworks (N=350)**

| S/N | Challenges Limiting the Integration of TEK into Modern Sustainability Frameworks | Frequency | Percentage |
|---|---|---|---|
| 1 | Inadequate government recognition of indigenous knowledge systems | 316 | 90.3 |
| 2 | Loss of traditional knowledge due to modernization and urbanization | 304 | 86.9 |
| 3 | Declining interest among younger generations in indigenous practices | 291 | 83.1 |
| 4 | Weak documentation and preservation of indigenous ecological knowledge | 282 | 80.6 |
| 5 | Limited collaboration between policymakers, scientists, and indigenous communities | 269 | 76.9 |
| 6 | Influence of Western education and religious beliefs on traditional practices | 258 | 73.7 |

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| S/N | Challenges Limiting the Integration of TEK into Modern Sustainability Frameworks | Frequency | Percentage |
|---|---|---|---|
| 7 | Absence of legal and institutional frameworks supporting TEK integration | 244 | 69.7 |
| 8 | Encroachment and destruction of sacred natural sites | 231 | 66.0 |
| 9 | Inadequate funding for indigenous conservation initiatives | 218 | 62.3 |
| 10 | Perception that indigenous knowledge is less reliable than scientific knowledge | 206 | 58.9 |

**Strategies for Effective Integration of Indigenous Spirituality into Environmental Conservation Practices**

Table 8 showed that the most commonly suggested approach to effectively incorporating indigenous spirituality into environmental conservation efforts was to include indigenous spiritual values and wisdom in national and state environmental policies, as mentioned by 322 participants (92.0%). In second place was the safeguarding of sacred forests, groves, rivers, and other sacred natural locations (89.7%), as well as the encouragement of cooperation between indigenous leaders, policymakers, and environmental organizations (86.0%). The survey respondents also highlighted the significance of recording and safeguarding indigenous ecological knowledge (83.7%), integrating indigenous environmental teachings into school programs (80.3%), and promoting community involvement in environmental decision-making (76.9%). Other proposed tactics encompassed enhancing traditional institutions, allocating government resources for community-led conservation efforts, increasing public awareness of the environmental importance of indigenous spirituality, and backing research that merges indigenous knowledge with scientific conservation techniques. In general, the outcomes indicate widespread backing for incorporating indigenous spirituality into modern environmental conservation practices through policy, educational, legal, institutional, and community-based approaches.

Berkes (2018) supports the above findings as he opines that in order to effectively incorporate indigeneous spirituality into environmental conservation it is essential to involve governments, indigeneous peoples, researchers, and environmentalist organizations. Indigenous spirituality comprises beliefs and practices that are conducive to the wellbeing of the environment and the sustainable use of its resources (Berkes, 2018; IPBES, 2019). One way of integrating it into environmental conservation is by promoting indigenous values and knowledge in the policies and laws developed by governments and other relevant agencies. Policies that promote and protect the environment based on indigenous spirituality need to be prioritized. Additionally, legislatures should recognize the role that indigenous methods such as the protection of sacred forests, sacred rivers, tabooed animals and plants, and other traditional rules play in environmental conservation (IPBES, 2019).

Another way of incorporating indigenous wisdom into environmental conservation is by working closely with indigenous leaders to develop policies and programs that will help achieve the goals of conserving the environment while promoting indigenous values and methods. Indigenous

communities should have a greater say in promoting and protecting the environment, which will increase the likelihood of their support and cooperation in the process (FAO, 2021). Documenting, sharing, and disseminating indigenous knowledge about the environment is another viable strategy. This is because much of the information that indigenous people possess regarding the environment is passed down orally from one generation to another, making it susceptible to being lost over time (UNESCO, 2022). It is, therefore, pertinent that the knowledge be documented, preserved, and shared so that it can be used for future generations and contribute to environmental conservation and indigenous sustainability. Lastly, it is crucial to ensure that governments give financial and other forms of support to community members and organizations that promote conservation programs using indigenous spirituality. This can be done by providing subsidies or other incentives to communities that protect sacred sites and promoting research studies, including those that seek to integrate indigenous knowledge with modern scientific information, to help conservation efforts achieve their goals. Overall, there is a need to ensure that indigenous spirituality plays a greater role in modern environmental conservation efforts. It has the potential to complement conventional methods in promoting environmental sustainability and conserving biodiversity (Berkes, 2018; IPBES, 2019). Strategies such as promoting indigenous values in policies, collaborating with indigenous leaders, documenting indigenous knowledge, and providing incentives to community members can help achieve this goal.

**Table 8: Strategies for Effective Integration of Indigenous Spirituality into Environmental Conservation Practices (N=350)**

| S/N | Proposed Strategy | Frequency | Percentage |
|---|---|---|---|
| 1 | Incorporate indigenous spiritual values and knowledge into national and state environmental policies | 322 | 92.0 |
| 2 | Legally protect sacred forests, groves, rivers, and other sacred natural sites | 314 | 89.7 |
| 3 | Promote collaboration between indigenous leaders, policymakers, and environmental agencies | 301 | 86.0 |
| 4 | Document and preserve indigenous ecological knowledge for future generations | 293 | 83.7 |
| 5 | Integrate indigenous environmental education into school curricula | 281 | 80.3 |
| 6 | Encourage active participation of local communities in environmental decision-making | 269 | 76.9 |
| 7 | Strengthen customary institutions and traditional conservation practices | 258 | 73.7 |
| 8 | Provide government funding and technical support for community-based conservation initiatives | 244 | 69.7 |
| 9 | Raise public awareness on the environmental benefits of indigenous spirituality | 232 | 66.3 |

| S/N | Proposed Strategy | Frequency | Percentage |
|---|---|---|---|
| 10 | Support research and partnerships that combine indigenous knowledge with scientific conservation approaches | 219 | 62.6 |

**Conclusion**

The article shows that indigenous knowledge and spiritual practices play a significant role in the conservation of natural resources among local communities. The study explores how sacred groves, taboos, and traditional ecological knowledge help conserve forests, water, wildlife, and other natural resources. The results indicate that the growing urbanization, population explosion, industrialization, and changing social values have compromised the relevance of the traditional practices. The findings emphasize the importance of mainstreaming successful conservation strategies among the communities and promoting sustainable use of natural resources and the environment in general. There is a need for government agencies, conservation organizations, and researchers to work together with local leaders and communities to document and share successful indigenous initiatives, conserve their cultural heritage, and promote the sustainable use of natural resources. This will ensure that the communities contribute to the knowledge base on the use and management of the local environment while also benefiting from the research outcomes. Such practices will support effective conservation while also complementing existing traditional practices. The study can be furthered enhanced by future researchers by exploring the relevance of the role of indigenous knowledge and spirituality in the conservation of natural resources. More studies can also focus on the impact of adopting certain practices and how they influence the sustainability of the environment. Besides, future research may consider conducting a study on indigenous knowledge and spirituality in the conservation of natural resources in different geographical locations and cultures. Lastly, it is vital to acknowledge the role of indigenous communities in conservation efforts as it will support the implementation of effective strategies for sustainable development.

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