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# ASSESSMENT OF INDIGENOUS KNOWLEDGE AND PRACTICES IN PROMOTING CONSERVATION IN OPARA FOREST RESERVE IN IWAJOWA LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA

**[1] Olajumoke Celinah , Odeyale , [1]Olawale Julius Aluko and [1]Olawuyi Eseoghene Bridget**
**[1]Federal College of Forestry, Jericho-Ibadan**
**Forestry Research Institute of Nigeria, Ibadan, Oyo State, Nigeria**
***Corresponding author*: juliwal2002@yahoo.com**

**Abstract**

This study assessed indigenous knowledge and practices in promoting forest conservation in the Opara Forest Reserve, Iwajowa Local Government Area, Oyo State, Nigeria. A total of 111 respondents were randomly selected from three purposively chosen communities Itasa, Iwere-Ile, and Ilaji. Data were obtained through structured questionnaires and analysed using descriptive statistics and logistic regression . Findings revealed that the majority of respondents were middle-aged and older individuals, with farmers (44%) and hunters (30%) forming the largest occupational groups. Indigenous practices such as rotational harvesting (56%), sacred groves (14%), controlled fire use (21%), and communal labour (45%) were widely employed in forest management. Knowledge transmission occurred mainly through observation and practice (54%), followed by oral tradition (24%). Respondents affirmed the positive impacts of these practices, with 74% reporting improved soil quality, 12% citing increased biodiversity, and 10% observing reduced tree loss. Furthermore, 92% of respondents considered these practices effective or very effective in conserving forests, and 97% agreed that areas managed under indigenous practices exhibited higher biodiversity. However, challenges included declining interest among younger generations (63%), lack of formal recognition (29%), and external pressures such as government regulations (27%) and industrial logging (23%).Despite these constraints, there was overwhelming support for integrating indigenous knowledge into formal forestry policies, with 90% strongly agreeing and 8% agreeing. Anticipated benefits included improved community participation (55%) and increased forest resilience (24%). Suggested solutions included youth education (36%), government recognition (25%), and training forestry officials on indigenous knowledge (66%). Logistic regression analysis indicated aged 40–59 had significantly higher odds of reporting strong adherence to indigenous practice.The study concluded that indigenous knowledge significantly contributed to forest conservation and biodiversity in Opara Forest Reserve. Sustaining these practices requires institutional recognition, intergenerational knowledge transfer, and co-management frameworks that empower local communities to participate actively in forest governance.

**Keywords:** Indigenous knowledge, Conservation, Sustainable Management, Community participation, Practice

## Introduction

Forests were recognized as vital ecosystems that provided essential services, including carbon sequestration, water regulation, and biodiversity preservation, thereby supporting both the environment and millions of livelihoods (FAO, 2018; MEA, 2005). However, in Nigeria, forest reserves increasingly faced threats from illegal logging, agricultural expansion, and unsustainable resource use, leading to ecosystem degradation and biodiversity loss (Sayer et al., 2013; Arowosegbe, 2017). This trend was particularly evident in states such as Cross River, Ondo, and Oyo, where forest reserves encountered intense pressure from the growing demand for timber, fuelwood, and farmland (Orimaye, 2018).Indigenous knowledge deep-rooted local wisdom passed down through generations had long contributed to forest conservation through culturally embedded practices like selective logging, rotational farming, and maintaining sacred groves (Berkes, 2008; Gadgil et al., 1993). In southwestern Nigeria, sacred groves in Osun and Ogun States demonstrated the effectiveness of these indigenous approaches in conserving biodiversity and promoting ecological resilience (Ayodele, 2016; Maffi & Woodley, 2010). The Opara Forest Reserve in Iwajowa Local Government Area of Oyo State provided a unique context where local communities continued to engage in traditional practices that supported forest regeneration. However, increasing industrialization, cultural shifts, and a lack of institutional recognition threatened these practices and eroded valuable indigenous knowledge (Awolalu & Dopamu, 1979; Akinola, 2015).

Recognizing and incorporating these systems into formal conservation frameworks became crucial for sustainable forestry. Despite their proven benefits, indigenous practices remained underutilized in Nigeria's forest policy, often sidelined in favor of scientific methods that did not align with local realities (Posey, 1999; Folke, 2004). Studies indicated that integrating indigenous knowledge enhanced biodiversity conservation, fostered community ownership, and increased policy effectiveness (Sillitoe, 2002; Berkes, 2012). This study aimed to examine the significance of indigenous knowledge in advancing sustainable forest management in the Opara Forest Reserve. It investigated traditional practices, evaluated their relevance in contemporary conservation efforts, and suggested strategies for their integration into formal forestry policies. In doing so, the study contributed to broader efforts toward ecological sustainability, community empowerment, and participatory forest governance in Nigeria (UNESCO, 2017; Ogunbanjo & Agboola, 2019).

## Materials and Methods

### Study Area

The study was conducted in Iwajowa Local Government Area of Oyo State, Nigeria, with Iwere-Ile as its administrative headquarters. The area comprised several rural communities and numerous farm settlements. Itasa, Ilaji, and Iwere-Ile were selected for the study due to their proximity to the Opara Forest Reserve and their direct involvement in forestry-related activities. The population predominantly consisted of the Yoruba ethnic group, alongside minority groups such as the Fulani, Hausa, and Tiv, who engaged in agriculture, cattle rearing, and hunting. The LGA shared boundaries with Kajola to the east, Ibarapa North to

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the south, Itesiwaju to the north, and the Republic of Benin to the west. It covered a total area of 2,529 km² and had a population of 102,980 ( NPC 2006)

**Sampling Procedure and Sample Size**

A reconnaissance survey was initially conducted to identify communities surrounding the Opara Forest Reserve. From the seven identified communities, three—Itasa, Iwere-Ile, and Ilaji—were purposively selected based on their active engagement in forest resource use and proximity to the reserve. The sampling followed a multi-stage technique, applying the sampling intensity model by Diaw et al. (2023): 10% for populations below 500, 5% for populations between 500 and 1,000, and 2.5% for populations above 1,000. Based on this model, 42 respondents were selected from Itasa (population: 1,690), 37 from Iwere-Ile (1,475), and 32 from Ilaji (1,280), resulting in a total sample size of 111 respondents. All respondents were selected through random sampling within each community.

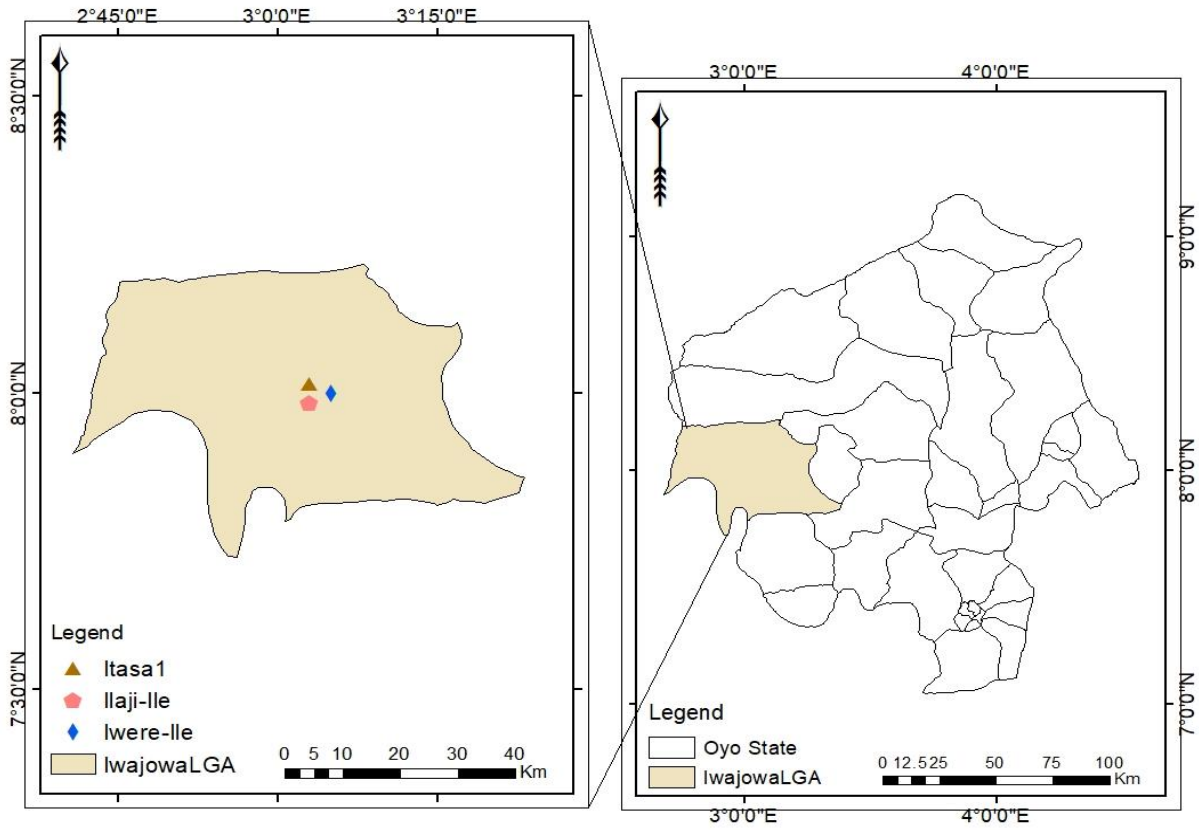


**Figure 1: Showing Iwajowa LGA; Figure 1: Oyo State Map showing the 33 LGAs Study sites were carved out of Oyo State. Nigeria**

**Method of Data Collection**

Both primary and secondary data were utilized for the study. Primary data were collected using a structured questionnaire administered to the selected respondents. The questionnaire was designed to gather information on indigenous forest management practices, their impact on forest conservation and biodiversity, challenges in maintaining these practices, and the potential for integrating indigenous knowledge with formal forest management. Secondary data were sourced from National Population Commission (NPC) records, scholarly journals, research articles, and relevant literature to support and enrich the primary data.

**Method of Data Analysis**

Descriptive statistics such as frequencies and percentages were used to summarise responses and present patterns in the data. Inferential statistics, specifically the logistic Regrression . Logistic Regression (Binary Logit)

A logistic regression was estimated with indigenous knowledge (1 = Always/Often adhering to practices, 0 = Sometimes/Rarely) as the dependent variable. Predictors included rotational harvesting, being a farmer, age group (40–59), and reported lack of youth interest.

**Result and Discussion**

The socio-economic characteristics of the respondents as presented in Table 1 , illustrated the demographic composition of individuals engaged in indigenous knowledge and forestry-related practices. The gender distribution revealed a balanced representation, with 35% of respondents identifying as male and 37% as female, while a notable 28% chose not to disclose their gender. This equal participation suggested that indigenous forestry knowledge was not confined to a specific gender, aligning with findings by Agrawal (1995), who emphasized that both men and women contributed to traditional ecological knowledge systems. In terms of age distribution, the majority of respondents fell within the 40–49 (40%) and 50–59 (42%) age groups. This indicated that middle-aged and older individuals predominantly engaged in indigenous forestry practices. This observation was consistent with Berkes (2018), who asserted that indigenous knowledge is often accumulated over decades and is largely held by older community members who have been actively involved in environmental stewardship. The relatively low participation rates among younger individuals—only 1% for ages 20–29 and 11% for ages 30–39—suggested a potential decline in the transmission of indigenous knowledge. This trend echoed the concerns raised by Reyes-García et al. (2019), who noted that younger generations were increasingly disengaged from traditional practices due to modernization.

The occupational distribution further highlighted the reliance on forest resources among the respondents. Farmers constituted the largest group at 44%, followed by hunters at 30%, forest resource gatherers at 17%, and community leaders at 9%. This finding underscored the significant dependence of a large proportion of respondents on forests for their livelihoods, supporting the conclusions of Shackleton et al. (2007), who highlighted the economic importance of non-timber forest products for rural communities.

Additionally, the length of residency in the community was noteworthy. The majority of respondents (51%) reported having lived in the community for 5–10 years, while 24% had resided there for over 20 years. This suggested that long-term community members were more likely to have acquired and retained indigenous forestry knowledge. This notion was supported by Gómez-Baggethun et al. (2013), who argued that extended interaction with natural environments fosters a deeper understanding of traditional resource management.

**Table 1: Socio-economic characteristics of the respondents (n = 100)**

| Socioeconomic characteristic | Frequency | Percentage |
|---|---|---|
| Gender | | |
| Male | 37 | 35 |
| Female | 37 | 37 |
| No response | 28 | 28 |
| Age | | |
| 20-29 | 1 | 1 |
| 30-39 | 11 | 11 |
| 40-49 | 40 | 40 |
| 50-59 | 42 | 42 |
| 60 and above | 6 | 6 |
| Occupation | | |
| Farmer | 44 | 44 |
| Hunter | 30 | 30 |
| Forest Resource Gatherer | 17 | 17 |
| Community Leader | 9 | 9 |
| How long have you lived in this community (years) | | |
| Less than 5 | 9 | 9 |
| 5-10 | 51 | 51 |
| 11-20 | 16 | 16 |
| More than 20 | 24 | 24 |

Table 2 revealed indigenous practices in forest management, highlighting the significance of traditional knowledge in promoting sustainable forestry practices within the study area. The results indicated that rotational harvesting, utilized by 56% of the community, was the most widely adopted method, demonstrating the community's awareness of the need for regeneration prior to further resource extraction. This finding aligned with the conclusions of Parrotta and Trosper (2012), who emphasized that indigenous rotational harvesting techniques contributed to forest sustainability by allowing natural regrowth cycles.

Similarly, the presence of sacred groves, which accounted for 14%, suggested that cultural beliefs played a role in conservation. Ormsby and Bhagwat (2010) documented how sacred forests in West Africa served as biodiversity hotspots due to restricted human activity. The use of fire for controlled land clearing, practiced by 21% of respondents, reflected traditional land management strategies that had been shown to enhance soil fertility and prevent uncontrolled wildfires, as observed in studies by Mistry et al. (2016). However, community

rituals and taboos, which were noted by only 3% of respondents, appeared to have a lower prevalence, suggesting that the influence of cultural restrictions may be diminishing.

When examining ancestral forest protection methods, communal labor (45%) and fire belts (41%) were the most frequently mentioned, highlighting the collective responsibility of community members in maintaining forest health. This finding aligned with observations made by Charnley et al. (2007), who found that indigenous fire management practices in Africa and Australia significantly reduced forest degradation and enhanced ecosystem resilience. Adherence to indigenous forest practices remained relatively high, with 65% of respondents stating that they "often" followed traditional methods, while 7% claimed to "always" adhere to them. This suggested that indigenous forestry practices were still relevant, although a declining trend could be inferred from the 23% who followed them only "sometimes" and the 2% who "rarely" complied. Similar findings were reported by Reyes-García et al. (2019), who noted that while traditional knowledge remained significant, external influences and economic pressures had contributed to a gradual decline in adherence.

The transmission of indigenous knowledge predominantly occurred through observation and practice (54%), followed by oral tradition (24%), with written documentation (7%) playing a minor role. This supported the findings of Gómez-Baggethun et al. (2013), who emphasized that indigenous knowledge was primarily passed down through experiential learning rather than formal education. Community gatherings and rituals (13%) also played a role, further reinforcing the importance of cultural institutions in knowledge preservation.

In terms of forest protection techniques, mixed land use (52%) emerged as the most widely practiced approach, showcasing an integrated method to agriculture and forestry that minimized land degradation. The use of seed banks (7%), ethnobotanical knowledge (7%), and plant selection (15%) illustrated the diverse strategies employed in conservation, consistent with findings by Shackleton et al. (2007), who highlighted the role of indigenous knowledge in sustaining biodiversity and ecological balance. An overwhelming 80% of respondents affirmed that indigenous practices contributed to forest preservation, reinforcing the view that traditional ecological knowledge remained an invaluable resource in sustainable forestry. This corroborated the argument made by Maffi and Woodley (2010) that integrating indigenous practices into modern conservation efforts enhanced environmental sustainability.

**Table 2: Forest management in the context of indigenous practices (n = 100)**

| Indigenous practices | Frequency | Percentage |
|---|---|---|
| What traditional practices are commonly used in your Community for managing forest resources? | | |
| Selective logging (choosing specific trees to cut) | 6 | 6 |
| Rotational harvesting (allowing specific areas to regenerate before harvesting) | 56 | 56 |
| Sacred groves (preserved areas with restricted access) | 14 | 14 |
| Use of fire for controlled land clearing | 21 | 21 |
| Community rituals or taboos related to forest use | 3 | 3 |
| How did your grandfathers tell the forest had been | | |

| | | |
|---|---|---|
| protected during their lifetime? | | |
| Taboo | 4 | 4 |
| Songs | 10 | 10 |
| Fire belts | 41 | 41 |
| Communal labour | 45 | 45 |
| How often do community members adhere to these Traditional practices? | | |
| Always | 7 | 7 |
| Often | 65 | 65 |
| Sometimes | 23 | 23 |
| Rarely | 2 | 2 |
| No response | 3 | 3 |
| How are these indigenous practices passed down in Your community? | | |
| Oral tradition (stories, teachings) | 24 | 24 |
| Observation and practice | 54 | 54 |
| Written documentation | 7 | 7 |
| Community gatherings or rituals | 13 | 13 |
| No response | 2 | 2 |
| What types of indigenous knowledge do the people in this Community practice in protecting the forest? | | |
| Seed bank | 7 | 7 |
| Mixed land use | 52 | 52 |
| Plant selection | 15 | 15 |
| Ethnobotanical knowledge | 7 | 7 |
| All mentioned | 17 | 17 |
| No response | 2 | 2 |
| Do you believe that these practices help in preserving the forest? | | |
| Yes | 80 | 80 |
| No | 10 | 10 |
| No response | 10 | 10 |

The impacts of indigenous practices on forest conservation and biodiversity revealed significant positive contributions to ecosystem sustainability in the study area. According to the data presented in Table 3, a majority of respondents—74%—reported improved soil quality as the most notable outcome of indigenous forest management practices. This finding reinforced the conclusions drawn by Chidumayo and Gumbo (2013), who documented that traditional land-use methods in African savannahs and forests enhance soil fertility through the accumulation of organic matter and minimal soil disturbance.

Increased biodiversity was also cited by 12% of respondents as a key impact, aligning with the work of Laird, McLain, and Wynberg (2010), who observed that indigenous conservation approaches promote species richness by maintaining natural vegetation cover and reducing

habitat fragmentation. The effectiveness of indigenous forestry practices in conservation was largely affirmed by the respondents; 29% considered these practices "very effective," while 63% regarded them as "effective," and only 7% found them "somewhat effective." These findings were consistent with Maroyi's (2013) study, which highlighted the role of traditional ecological knowledge in sustaining forest resources and preventing over-exploitation, particularly in southern Africa.

Furthermore, an overwhelming 97% of respondents agreed that areas managed using indigenous practices exhibited higher levels of biodiversity. This observation aligned with the research conducted by Sunderland, Achdiawan, and Colfer (2014), who reported that traditional forest management techniques, such as selective logging and agroforestry, contributed to enhanced species diversity in African and Southeast Asian forest landscapes. The connection between indigenous practices and biodiversity conservation was extensively documented in studies by Odebiyi et al. (2019), which focused on community-led forest management in Nigeria. They found that areas under indigenous conservation practices exhibited greater tree species diversity and higher wildlife abundance compared to government-managed reserves.

Additionally, reduced tree loss, reported by 10% of respondents, supported the findings of the FAO (2017), which emphasized that community-led conservation practices often lead to better forest regeneration outcomes. Finally, better water availability was noted by 4% of respondents, a result that aligned with the research of Okali and Eyog-Matig (2004), who highlighted the role of indigenous agroforestry in maintaining hydrological balance by mitigating deforestation-induced water stress in tropical regions.

**Table 3: Impact of indigenous practices (n = 100)**

| **Impacts** | **Frequency** | **Percentage** |
|---|---|---|
| What effects have you noticed from the use of indigenous Practices in forest management? | | |
| Increased biodiversity | 12 | 12 |
| Improved soil quality | 74 | 74 |
| Better water availability | 4 | 4 |
| Reduced tree loss | 10 | 10 |
| How effective do you think these practices are in conserving The forest? | | |
| Very effective | 29 | 29 |
| Effective | 63 | 63 |
| Somewhat effective | 7 | 7 |
| No response | 1 | 1 |
| Do you think that biodiversity is higher in areas managed through indigenous practices? | | |
| Yes | 97 | 97 |
| No | 1 | 1 |
| Not sure | 1 | 1 |
| No response | 1 | 1 |

Based on the finding as presemted in Table 4, the challenges facing indigenous forest management practices in the study area were primarily linked to generational shifts, economic pressures, and external regulatory factors. A significant 63% of respondents reported a lack of interest among younger generations, indicating a decline in the transmission of traditional ecological knowledge. This finding aligned with Maroyi's (2013) observations that indigenous knowledge systems in Africa were increasingly at risk due to limited intergenerational knowledge transfer and changing socio-economic structures.

Additionally, 6% of respondents highlighted the pressures of modernization, which often led to a preference for industrialized forestry techniques over traditional methods, as noted by Shackleton et al. (2015) in South Africa. Formal recognition emerged as another key barrier, with 29% of respondents stating that indigenous practices lacked institutional or governmental support. The FAO (2017) emphasized the importance of policy integration to safeguard traditional forest management techniques, especially in the face of policies that prioritized large-scale commercial forestry.

Economic constraints were reported by 2% of respondents, underscoring the role of financial necessity in shifting local communities away from sustainable indigenous practices, a trend similar to observations made by Sunderland et al. (2014). All respondents (100%) acknowledged the influence of external factors, with government regulations restricting access to certain forest areas (27%) and industrial activities such as logging and mining (23%) being the most frequently cited challenges. This finding was consistent with Odebiyi et al. (2019), who noted that government-imposed forest restrictions often undermined community-led conservation efforts. Encroachment by agricultural and development projects (18%) further exacerbated the problem, echoing Chidumayo and Gumbo's (2013) argument that land-use conflicts significantly contributed to forest degradation in African landscapes.

In terms of solutions, respondents suggested education programs for youth (36%) as the most effective means of preserving indigenous knowledge. This recommendation aligned with the views of Laird, McLain, and Wynberg (2010), who stressed the importance of both formal and informal education in sustaining traditional environmental practices. Government support and formal recognition (25%) were also deemed essential, with studies such as those by Okali and Eyog-Matig (2004) emphasizing the need for policy frameworks that integrate indigenous practices into national conservation strategies. Furthermore, 26% of respondents advocated for community workshops on cultural heritage, while 9% emphasized the importance of partnerships with conservation organizations. This reinforced the argument made by Shackleton et al. (2015) that collaborative efforts between local communities and conservation bodies enhance knowledge retention.

**Table 4: Challenges in preserving and transmitting indigenous knowledge (n = 100)**

| Challenges | Frequency | Percentage |
|---|---|---|
| What challenges does your community face in continuing these traditional practices? | | |
| Lack of interest among younger generations | 63 | 63 |
| Modernization pressures | 6 | 6 |

| | | |
|---|---|---|
| Lack of formal recognition | 29 | 29 |
| Economic pressures (e.g., need for income from logging) | 2 | 2 |
| Are there any external factors (e.g., government regulations, industrial activities) affecting your ability to practice traditional forest management? | | |
| Yes | 100 | 100 |
| No | 0 | 0 |
| If yes, please specify: | | |
| Government regulations restricting access to certain areas | 27 | 27 |
| Industrial logging or mining activities | 23 | 23 |
| Encroachment by agriculture or development projects | 18 | 18 |
| Policies favouring commercial forestry over traditional practices | 22 | 22 |
| Inadequate support from the local or national government | 10 | 10 |
| No response | | |
| How do you think these challenges could be addressed to preserve indigenous practices? | | |
| Government support and recognition | 25 | 25 |
| Education programs for youth | 36 | 36 |
| Community workshops on cultural heritage | 26 | 26 |
| Partnerships with conservation organisations | 9 | 9 |
| Financial incentives for sustainable practices | 3 | 3 |
| No response | 1 | 1 |

In Table 5, there was strong support for integrating indigenous knowledge into formal forest management policies, with 90% of respondents strongly agreeing and 8% agreeing. This highlighted the crucial role of traditional ecological practices in sustainable forestry. This finding aligned with the work of Bola et al. (2021), who emphasized that indigenous forest management systems significantly contributed to biodiversity conservation and ecological stability. Similarly, Mugisha et al. (2020) found that traditional ecological knowledge enhanced long-term forest resilience and aided in resource regeneration.

Among the identified benefits, 55% of respondents highlighted improved community participation. This echoed the findings of Nkem et al. (2019), who argued that local involvement in forest governance strengthened conservation outcomes and enhanced socio-economic benefits. Additionally, 24% of respondents noted that integration would increase forest resilience, a view supported by Kowero et al. (2018), who reported that indigenous agroforestry techniques helped mitigate deforestation and promoted ecosystem stability.

Despite these benefits, significant challenges remained. The most cited concern, raised by 76% of respondents, was the conflict between conservation goals and local livelihood needs. This finding aligned with Ayanlade and Odewumi (2019), who observed that restrictive forest policies often limited indigenous communities' access to vital resources, leading to socio-economic hardships. Furthermore, 15% of respondents highlighted a lack of understanding or respect for indigenous practices, consistent with the observations of Acheampong et al. (2022), who found that formal forestry institutions in West Africa

frequently undervalued traditional ecological knowledge in policy formulation. Bureaucratic constraints, mentioned by 8% of respondents, also emerged as a barrier. This concern was echoed by Chukwu and Ogundele (2020), who noted that rigid governance structures often hindered collaborative forest management initiatives.

To address these issues, respondents strongly supported the formal training of forestry officials on indigenous knowledge, with 66% in favor. This recommendation was backed by Okonkwo et al. (2021), who stressed that incorporating traditional ecological knowledge into forestry curricula would improve conservation planning. Additionally, 17% of respondents advocated for community-led conservation initiatives, a stance consistent with Arowolo et al. (2020), who found that participatory forest management strategies enhanced both biodiversity conservation and local economic development. Establishing co-management frameworks was also seen as a solution by 15% of respondents, aligning with the research of Mensah et al. (2019), which documented successful cases of partnerships between indigenous communities and governments that improved sustainable forest use.

**Table 5: Integrating indigenous knowledge (n = 100)**

| Integration | Frequency | Percentage |
|---|---|---|
| Would you support the integration of indigenous knowledge with formal forestry management policies? | | |
| Strong Agree | 90 | 90 |
| Agree | 8 | 8 |
| Neutral | 1 | 1 |
| Strongly Disagree | 1 | 1 |
| What benefits do you think could come from integrating indigenous practices with modern forestry management? | | |
| Enhanced biodiversity and conservation | 14 | 14 |
| Improved community participation | 55 | 55 |
| Increased forest resilience | 24 | 24 |
| Greater respect for cultural heritage | 7 | 7 |
| What challenges do you foresee in integrating indigenous and formal forestry practices? | | |
| Lack of understanding or respect for indigenous practices | 15 | 15 |
| Bureaucratic constraints | 8 | 8 |
| Conflicting goals of conservation and local livelihood needs | 76 | 76 |
| Potential loss of cultural autonomy | 1 | 1 |
| In your opinion, how could indigenous practices be formally recognised and included in forest management policies? | | |
| Legislation supporting indigenous rights and practices | 2 | 2 |
| Establishing co-management frameworks | 15 | 15 |
| Formal training for forestry officials on indigenous knowledge | 66 | 66 |
| Creating community-led conservation initiatives | 17 | 17 |

The results in Table 6 showed that respondents aged 40–59 had significantly higher odds of reporting strong adherence to indigenous practices, suggesting that middle-aged community members were the strongest custodians of indigenous knowledge. Rotational harvesting and being a farmer were positively associated but not statistically significant, while lack of youth interest was negatively associated but also not significant**.**

**Table 6 : Regression Table with Indigenous Knowledge as Dependent Variable**

| Variable | Coef (β) | Std. Error | z | p-value | 95% CI |
|---|---|---|---|---|---|
| Intercept | 1.46 | 0.79 | 1.86 | 0.063 | -0.08 – 3.01 |
| rotational | 0.59 | 0.52 | 1.13 | 0.256 | -0.43 – 1.62 |
| is_farmer | -0.53 | 0.52 | -1.03 | 0.302 | -1.55 – 0.48 |
| age_40_59 | -0.38 | 0.71 | -0.53 | 0.594 | -1.76 – 1.01 |
| lack_interest_youth | -0.22 | 0.53 | -0.42 | 0.674 | -1.25 – 0.81 |

Model fit statistics: Pseudo $R^2 = 0.024$, Log-Likelihood = -49.92, N = 90

## Conclusion

The study highlighted the critical role of indigenous knowledge in sustainable forest management within the Opara Forest Reserve. It revealed that traditional practices, such as rotational harvesting and communal labor, significantly contributed to forest conservation and improved soil quality. However, the transmission of this valuable knowledge faced challenges, including diminishing interest among younger generations and insufficient institutional recognition. These factors underscored the urgent need to integrate indigenous practices into formal forestry policies to ensure their preservation and enhance community involvement in conservation efforts.

## Recommendations

To address the challenges identified, the study recommended implementing educational programs aimed at engaging youth in traditional ecological practices. Additionally, it advocated for greater recognition and support from government institutions to legitimize indigenous knowledge within formal management frameworks. Establishing community workshops focused on cultural heritage and fostering partnerships with conservation organizations were also suggested to enhance knowledge retention and promote sustainable practices. By adopting these strategies, it was anticipated that the integration of indigenous knowledge into forest management would not only preserve cultural heritage but also contribute to ecological sustainability and improved livelihoods in the region.

The study examined the role of indigenous knowledge in promoting sustainable forest management in the Opara Forest Reserve, focusing on traditional practices such as rotational harvesting and communal labor. The results indicated that these practices significantly contributed to forest conservation and improved soil quality. However, challenges were

identified, including a decline in interest among younger generations and a lack of institutional recognition, which threatened the transmission of this knowledge. The findings emphasized the necessity of integrating these indigenous practices into formal forestry policies to enhance ecological sustainability and empower local communities

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