

African Multidisciplinary Journal of Development (AMJD)

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<https://amjd.kiu.ac.ug>

HARNESSING INDIGENOUS PRACTICES FOR CIRCULAR ECONOMY TRANSITION

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Abstract

The circular economy has proven to be an effective means to solve the problem of global sustainability challenges through the more efficient use of resources, waste reduction, and regenerative production. Yet, the majority of developing countries that focus on sustainability initiatives hardly ever give attention to the indigenous knowledge systems that enabled environmentally sustainable practices in the past. This paper assesses the indigenous practices that align with the circular economy in Oyo State, Nigeria, and discusses the problems of incorporating these indigenous practices into contemporary sustainability frameworks. An explanatory sequential mixed-methods design was used in the study. Quantitative data was obtained from the administration of a questionnaire to a sample of 200 respondents from the rural and urban communities of the Ibadan metropolis, and qualitative data was obtained from the key informant interviews. Data was analyzed using descriptive statistics and thematic analysis. The study found that a number of indigenous practices including the reuse of materials, traditional composting, the sharing of resources communally, and certain indigenous methods of agriculture, exemplify the principles of the circular economy. There are a number of problems that limiting the effective integration of these practices, such as policies somersault, a lack of financial resources, inadequate knowledge, and unresponsive markets. The study recommends that indigenous knowledge systems and practices be integrated into modern systems of sustainability.

Keywords: Circular Economy, Sustainable development; Indigenous Knowledge systems, Environmental sustainability, Nigeria

Introduction

The circular economy has increasingly gained attention among scholars, policymakers, and industries as a viable strategy for addressing environmental sustainability challenges. The concept promotes a shift away from the traditional linear model of production toward systems that prioritize reuse, recycling, and regeneration of resources. According to Lazarevic and Valve (2017), the circular economy has rapidly evolved into a dominant framework for sustainable production and consumption. Similarly, studies by Aurez et al. (2016), Geissdoerfer et al. (2017), and Murray et al. (2022) highlight the potential of circular economy principles to support climate mitigation, resource efficiency, and long-term economic resilience.

In a broad review of 166 papers (spanning roughly 2016 –2025), one group of authors argues that CE plays a “very important role” in enabling achievement of a range of SDGs notably those focused on clean water and sanitation, energy access, decent work, sustainable consumption/production, and life on land (Aggarwal and Manaswi, 2025). Their network-analysis identifies clusters of CE impact: one around climate change and renewable energy (aligned with SDGs such as energy access and

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climate action), another around innovation, responsible production/consumption, and supply-chain resilience (linked to industry, infrastructure, sustainable production goals), and yet another around governance, urban sustainability, and resource management. Scholars have emphasized that for circular economy initiatives to be effective in developing countries, they must be adapted to local contexts and supported by indigenous knowledge systems and cultural practices.

The United Nations Sustainable Development Goals provide a global framework for promoting environmentally responsible development. Several goals, particularly United Nations Sustainable Development Goals Goal 12 (Responsible Consumption and Production), Goal 11 (Sustainable Cities and Communities), and Goal 15 (Life on Land), align closely with principles embedded in many indigenous resource management systems. These goals emphasize efficient use of resources, environmental conservation, and sustainable livelihoods.

In Nigeria, environmental concerns such as ineffective waste management, rapid urbanization, and unsustainable consumption patterns continue to pose significant challenges. Studies in Nigeria indicate that awareness of circular economy principles among students and teachers is still emerging, highlighting the need for stronger educational integration (Gbadamosi, 2021). Similarly, the use of experiential strategies such as service learning has been shown to improve learners' understanding of resource reuse and waste reduction within the circular economy framework (Gbadamosi & Olaoluwa, 2024).

However, many indigenous communities have historically practiced forms of resource management that reflect circular economy principles (Amusana et al. (2023). Traditional practices such as communal resource sharing, reuse of materials, organic farming techniques, and local craft production demonstrate long-standing ecological knowledge that promotes sustainability.

Oyo State, located in southwestern Nigeria, provides a relevant context for examining how indigenous knowledge systems contribute to circular economic practices. The region is deeply rooted in Yoruba cultural traditions that emphasize collective responsibility, environmental stewardship, and sustainable use of resources. Practices such as intercropping, composting, and the use of locally sourced materials in traditional crafts illustrate how indigenous systems can support environmentally responsible production and consumption. Similarly, indigenous craft industries, including weaving, pottery, and blacksmithing, rely on renewable or recycled materials, embodying principles of resource efficiency and circularity. These practices not only sustain livelihoods but also preserve cultural heritage, making them relevant to contemporary sustainability debates (Okhawere, 2025).

Despite the potential contributions of these indigenous practices, modern development policies often prioritize Western sustainability models while neglecting local knowledge systems. This creates a gap between traditional ecological wisdom and contemporary circular economy initiatives. Recognizing and integrating indigenous practices into modern sustainability strategies could enhance community participation, strengthen environmental resilience, and promote inclusive economic development. This study therefore, The study is based on the Indigenous Knowledge Systems (IKS) Framework by Fikret Berkes (1999). The framework argues that indigenous communities have knowledge, practices, beliefs and institutions accumulated through long-term interaction with their environment. It highlights sustainable resource management, resilience and ecological balance, offering an appropriate lens to explain how indigenous practices can aid the transition to a circular economy.

Statement of the Problem

Despite the growing global emphasis on the circular economy as a pathway to sustainable development, many African countries, including Nigeria, continue to grapple with challenges of waste management, resource inefficiency, and environmental degradation. Nigeria is still using a linear economy model of “take, make, dispose,” which not only perpetuates poor waste management and unsustainable consumer habits, but also continues to deplete the earth’s resources. Rapid urbanization in Ibadan and the rest of Oyo State, surrounded by poor waste management, inadequate recycling, and policy neglect, is a prime example of these challenges. Most modern circular economy advocates in Nigeria are sometimes neglecting the indigenous traditions where communities were resourceful and promote circular by conserving, reusing, and sharing. The neglect of these practices due to modernisation, globalisation, and the decline of cultural practices create divides between traditional ecological practices and modern sustainable approaches (Okhawere, 2025). There is a dearth of evidence on the indigenous practices of Nigeria to meet SDGs 11, 12 and 15. Also, studies on the circular economy in Nigeria are focused on the industry and policy sides, leaving community-based practices and traditional ecological knowledge unaddressed (Adesua-Lincoln, 2025).

Therefore, this study thus explored the indigenous practices in line with circular economy of the people of Oyo State, highlighting some basic challenges in enhancing community participation, environmental sustainability, and alignment with the SDGs.

Research Questions

The following questions were raised and answered in the study:

- 1) What are the circular economy traditional practices available among the people of Oyo state?
- 2) What are the challenges or barriers in blending indigenous approaches with contemporary circular economy models?

Methods

The study used an explanatory sequential mixed-method design that initially utilises quantitative data and later integrates qualitative data. Community members, youth groups, traditional leaders, environmental officers, and artisans from rural and urban Oyo State participated. Using multistage sampling, 200 respondents aged 18 and above from the Ibadan metropolitan area were selected. Data were collected through Indigenous Knowledge Scale, and a Key Informant Interview Guide. The questionnaire tool was assessed for content validity by two experts in environmental education and sustainability studies. The instrument was also tested for reliability in a pilot study, and a coefficient of 0.78 was achieved, using Cronbach’s Alpha. Data were collected using two complementary methods. The first was the quantitative component that used structured questionnaires and the second was qualitative where the Key Informant Interviews were conducted to capture the researcher’s deeper understanding of the indigenous practices vis-a-vis the circular economy activities. Descriptive statistics were used to analyse the quantitative data such as mean and standard deviation, while qualitative responses were analysed using thematic analysis to identify recurring patterns and insights related to indigenous circular economy practices.

Results

Research Question 1: What are the circular economy traditional practices available among the people of Oyo state?

Table 2: Mean ratings on the circular economy traditional practices available among the people of Oyo State

S/N	Items	4	3	2	1	$\bar{x}$	Std
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1	I reuse containers (e.g., calabash, gourds, baskets, bottles) instead of disposing of them.	104	66	14	16	3.29	.911
2	I repair and continue to use damaged household or farm tools instead of throwing them away.	96	88	8	8	3.36	.744
3	I transform leftover materials (e.g., fabric, wood, metal) into useful items.	84	100	6	10	3.29	.754
4.	I use leftover food for livestock feeding or other household purposes.	118	62	6	14	3.42	.853
5	I adopt traditional water-saving practices (e.g., rainwater collection, controlled use).	112	64	18	6	3.41	.778
6	I engage in organic composting using traditional methods.	110	68	16	6	3.41	.765
7	I use indigenous farming techniques that maintain soil fertility and reduce chemical dependence.	112	66	22	0	3.45	.685
8	I rely on natural energy sources (e.g., firewood reuse, biomass) instead of modern wasteful alternatives	104	66	16	14	3.30	.891
9	I purchase or use locally produced traditional goods that last longer.	80	84	30	6	3.19	.798
10	I preserve food using traditional methods such as sun-drying, smoking, or fermentation.	116	68	12	4	3.48	.701
11	I wear or recycle traditional clothing and textiles instead of frequently buying new ones.	76	102	10	12	3.21	.793
12	I prefer unpackaged goods from local markets over heavily packaged products.	92	78	18	12	3.25	.855
13	I participate in sharing or borrowing traditional tools or resources within the community.	76	98	16	10	3.20	.789
14	I engage in traditional repair crafts (e.g., weaving, blacksmithing, carpentry).	92	84	16	8	3.30	.783
15	I pass down indigenous knowledge of conservation and reuse to younger generations.	98	84	10	8	3.36	.757
Weighted Average: 3.33 Threshold: 2.5							

Response scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Always

The analysis produced a weighted mean score of 3.33, which exceeds the benchmark value of 2.5 used for decision making. This result indicates that respondents generally acknowledge and engage in several traditional practices that align with circular economy principles within their communities.

Research Question 2: What are the challenges or barriers in blending indigenous approaches with contemporary circular economy models?

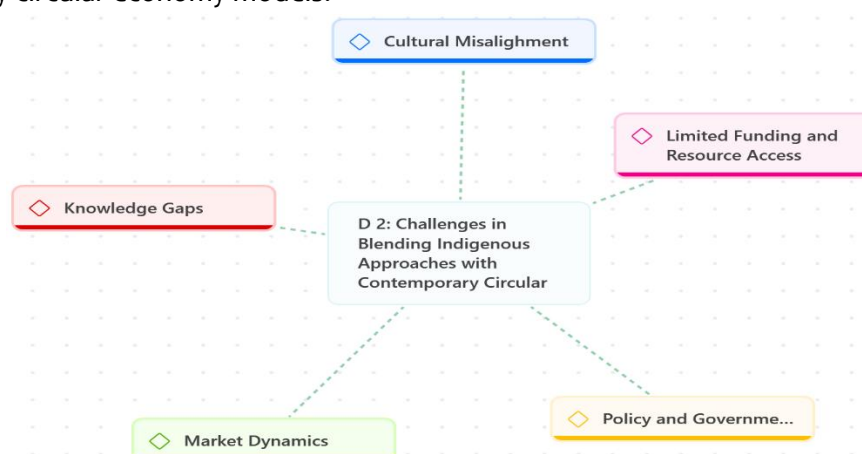


Figure 1: Challenges or barriers in blending indigenous approaches with Contemporary Circular Economy Models.

Cultural Misalignment: Indigenous worldviews emphasize reciprocity, spiritual connection to nature, and community stewardship - often clashing with Western circular economy models focused on efficiency and market logic. According to a respondent, “Indigenous worldviews often emphasize rationality and stewardship which may conflict with the technocratic and efficiency-driven ethos of contemporary models”

Interviewee 6

This is because Indigenous practices prioritize spiritual and communal well-being, while CE models often focus on material reuse and economic optimization. Another respondent was also of the view that “circular economy frameworks rarely honor indigenous relational values or intellectual property”

Interviewee 9

This misalignment can result in resistance, ineffective implementation, and erosion of indigenous cultural integrity.

Limited Funding and Resource Access: Limited funding and resource access presents a significant barrier to integrating indigenous approaches into contemporary circular economy (CE) models. At its core, this challenge reflects deep-rooted structural inequalities that have historically marginalized indigenous communities from mainstream economic and policy systems. While indigenous knowledge systems offer rich, place-based insights into sustainable resource use, their implementation within CE frameworks often requires financial investment, infrastructure, and technical support resources that are frequently out of reach.

This is confirmed in the responses of some respondents. For instance, “Indigenous communities often lack financial support, infrastructure, and technical tools to implement circular models”

Interview 16

She was supported by another respondent who mentioned that, “We have ideas, but no access to grants or equipment to scale them.”

Interviewee 12

Another respondent concluded that, she has experienced, “Exclusion from funding streams and donor priorities”

Interviewee 1

This is because many indigenous communities operate within constrained economic environments, where basic needs take precedence over long-term sustainability initiatives. This scarcity of funding means that even when communities are eager to engage with CE principles, they may lack the capital to develop recycling facilities, renewable energy systems, or local enterprises that align with both traditional practices and circular models.

Policy and Government: Other respondents were of the view that, government policies have always stood as a bottle neck in their affairs. For instance, a respondent with sadness in his face mentioned that, “Existing policies often fail to recognize or support indigenous knowledge systems, creating regulatory and institutional obstacles”

Interviewee 18

Another stated that, “Policies are typically designed without indigenous consultation, leading to poor fit and low uptake”

Interviewee 2

This policy misalignment marginalizes indigenous contributions and limits the transformative potential of CE models.

Market Dynamics: According to some respondents, market dynamics have always been a issue for them. For instance, one of the respondents mentioned that “Indigenous producers and artisans are often left out of formal CE markets”

Interviewee 1

Another added that, “Our zero-waste rituals aren’t marketable, so they’re ignored.”

Interviewee 10

Another expressed “expressed concern over commercialization and loss of cultural integrity”.

Interviewee 18

All these can distort indigenous practices and create exploitative dynamics rather than equitable partnerships.

Knowledge Gaps: Knowledge gaps represent a profound challenge in the effort to blend indigenous approaches with contemporary circular economy (CE) models. These gaps are not merely technical or informational, they are deeply rooted in historical, cultural, and epistemological divides that shape how knowledge is produced, valued, and shared.

One of the most significant aspects of this challenge is the lack of mutual understanding between indigenous communities and CE practitioners. Indigenous knowledge systems are often oral, experiential, and context-specific, passed down through generations in ways that resist codification. In contrast, contemporary CE models tend to rely on formal documentation, scientific metrics, and standardized frameworks. This divergence creates a disconnect: indigenous practices may be dismissed as anecdotal or unscientific, while CE methodologies may appear rigid or alien to indigenous communities. Without deliberate efforts to bridge these epistemological differences, valuable insights risk being overlooked or misunderstood.

A respondent stated that, “There is a lack of mutual understanding between indigenous communities and CE practitioners, leading to missed opportunities for collaboration”.

Interviewee 11

Another added that, “Formal education systems rarely teach indigenous sustainability principles, reinforcing the divide”.

Interviewee 2

These gaps hinder co-creation, innovation, and the development of hybrid models that honor both traditions.

Discussion

The findings of this study indicate that many communities in Oyo State actively engage in traditional practices that align with the principles of a circular economy. Respondents reported regular involvement in activities such as reuse of materials, composting, communal sharing of resources, and traditional methods of food preservation. These practices reflect long-standing cultural approaches to environmental management that emphasize resource conservation and waste reduction.

Such indigenous practices demonstrate that circularity is not entirely a new concept within these communities. Instead, many traditional livelihoods have historically relied on systems that promote regeneration and responsible use of resources. For example, indigenous agricultural methods such as crop rotation, organic fertilization, and mixed cropping contribute to maintaining soil fertility and supporting biodiversity. These approaches help sustain agricultural productivity while minimizing environmental harm. This is in consonance with Khumalo, Chakale, Asong, et al (2025) that indigenous agricultural methods, including crop rotation and organic fertilization, contribute to soil health and biodiversity conservation, thereby supporting both environmental sustainability and food security. This resonates with the awareness among communities in Oyo State, where traditional

farming and waste management practices continue to play a role in everyday livelihoods. The results also suggest that the presence of traditional knowledge systems plays a crucial role in sustaining environmentally friendly behaviours within communities. Cultural values that emphasize communal responsibility and respect for nature encourage individuals to adopt sustainable practices in their daily activities. Consequently, indigenous practices provide an important foundation upon which modern circular economy initiatives can be built.

However, the study also identified several barriers that hinder the effective integration of indigenous knowledge with contemporary circular economy models. These challenges include limited financial support, inadequate institutional frameworks, weak policy recognition of indigenous practices, and insufficient awareness of the potential contributions of traditional knowledge systems (Oluwadare & Gbadamosi, 2025). In many cases, sustainability initiatives introduced by governments or external organizations do not fully incorporate local perspectives, which can limit community participation and acceptance.

Another major challenge relates to differences in worldview between indigenous communities and modern policy frameworks. While indigenous practices often emphasize spiritual connections with nature, communal responsibility, and cultural continuity, many modern circular economy models prioritize economic efficiency and technological innovation. These differences may create tensions that make integration more difficult. The study is in agreement with the views of Adesua-Lincoln (2025) who found that many circular economy initiatives in Nigeria fail to resonate with local communities because they do not adequately integrate cultural values and traditional knowledge systems. This disconnect reduces community participation and undermines the effectiveness of sustainability programs.

Addressing these challenges requires a more inclusive approach to sustainability planning. Policies and programmes aimed at promoting circular economy practices should actively recognize and incorporate indigenous knowledge systems. Engaging community leaders, artisans, farmers, and traditional authorities in decision-making processes can help ensure that sustainability initiatives reflect local realities and cultural values.

Overall, the findings highlight the importance of bridging the gap between indigenous ecological knowledge and modern sustainability frameworks. By acknowledging the value of traditional practices and supporting community-driven initiatives, policymakers can develop circular economy strategies that are both culturally relevant and environmentally effective.

Conclusion

The study has shown that many indigenous practices in Oyo State incorporated the principles of circular economy such as reuse, organic agriculture, sharing of community resources, and local crafts. These practices represent valuable indigenous knowledge systems that support environmental sustainability and local economic resilience. However, the integration of indigenous approaches into contemporary circular economy frameworks remains constrained by institutional barriers, limited financial resources, and insufficient policy recognition. To address these challenges, sustainability policies should prioritize the inclusion of local knowledge systems and actively engage communities in the design and implementation of circular economy initiatives. Recognizing indigenous practices as legitimate components of circular economy strategies will not only enhance environmental sustainability but also strengthen cultural preservation and community participation in sustainable development efforts.

Policy Implications

Based on findings from the study, the study therefore recommended that:

- 1) Indigenous practices should be integrated into formal policy frameworks so that traditional methods like intercropping, composting, and communal resource sharing are recognized as legitimate circular economy strategies.
- 2) There should be educational initiative for capacity-building members of community that can close knowledge gaps and empower communities to connect their cultural practices with global sustainability efforts.
- 3) There should be market development framework through certification schemes and eco-labels that will create demand for indigenous crafts and agricultural products.
- 4) Additionally, educational programmes must be co-designed with community leaders to ensure cultural alignment and genuine participation.

Acknowledgements

The researchers' profound appreciations go to all authors cited in this work as well as those who facilitated the accomplishment of the studies. Thank you all.

Funding: The project is self-sponsored.

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