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Blue Economy and Poverty Reduction in Nigeria: A Systematic Review of Empirical Evidence

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Abstract
The blue economy presents a strategic frontier for Nigeria to achieve sustainable development and poverty alleviation by harnessing its abundant marine and aquatic resources. With over 850 km of Atlantic coastline and vast inland waterways, Nigeria is well-positioned to benefit from ocean-based economic activities. However, empirical evidence reveals that the country's blue economy remains underdeveloped, hindered by policy incoherence, infrastructural gaps, environmental degradation, and weak institutional coordination. This systematic review synthesizes empirical research to assess the blue economy's potential contributions to poverty reduction in Nigeria. The study explores five key dimensions: emerging research trends, alignment with the Sustainable Development Goals (SDGs), implementation challenges, scaling strategies, and policy implications.Findings show a predominance of research focused on traditional sectors like fisheries and maritime transport, with limited attention to high-growth areas such as marine biotechnology, offshore renewable energy, and blue carbon markets. Despite this narrow scope, localized initiatives—such as aquaculture and artisanal fisheries in states like Bayelsa and Lagos—have demonstrated measurable impacts on household incomes, food security, and employment. Comparative analysis with countries like Norway, Seychelles, and Mauritius highlights successful integration of blue economy strategies through coordinated national policies, innovative financing, and institutional capacity building.Nigeria's coastal states—Lagos, Rivers, Bayelsa, Akwa Ibom, and Cross River—possess significant marine potential but are constrained by marine pollution, illegal fishing, and fragmented governance. The study concludes that unlocking the blue economy's poverty-reducing potential in Nigeria requires a coherent national strategy, investment in marine infrastructure, empowerment of local communities, and robust data systems for evidence-based policymaking. By aligning with global best practices and national frameworks such as the Economic Recovery and Growth Plan (ERGP) and the 2022 Blue Economy Policy, Nigeria can transform its ocean economy into a pillar of inclusive growth, environmental resilience, and sustainable development.

Keywords: Blue economy, poverty reduction, Nigeria, marine resources, sustainable development, policy integration.

Introduction
The blue economy has emerged as a trans formative paradigm linking economic development with ocean-based sustainability, drawing significant global attention as a viable pathway to poverty alleviation, employment creation, food security, and environmental conservation. Defined by the World Bank (2017)

as the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystems," the blue economy extends beyond traditional maritime activities to encompass offshore renewable energy, marine biotechnology, coastal tourism, and ecosystem services. For Nigeria,a country endowed with an extensive coastline of over 850 km along the Atlantic Ocean, and rich inland waterways such as the Niger and Benue Rivers,the blue economy represents a vast but largely untapped opportunity to achieve inclusive growth and sustainable development.

Despite this strategic geographical advantage, Nigeria's engagement with the blue economy remains limited, characterized by weak empirical research, policy incoherence, and under utilization of marine resources. The country's maritime sector contributes approximately 1.5% to its Gross Domestic Product (GDP) (Nigerian Maritime Administration and Safety Agency [NIMASA], 2021), a figure that falls short of its potential when compared with nations that have successfully integrated ocean-based economies into their development strategies. Countries like Norway, Seychelles, and Mauritius exemplify best practices in leveraging the blue economy to drive national growth. Norway, through its "Ocean Strategy," has sustainably utilized marine biotechnology, aquaculture, and ocean transport, generating over NOK 90 billion annually from aquaculture alone (Norwegian Ministry of Trade, Industry and Fisheries, 2019). The Seychelles, since 2013, has integrated blue economy principles into national policy, launching the world's first sovereign blue bond to fund sustainable fisheries (World Bank, 2018). Mauritius has similarly adopted a comprehensive "Ocean Economy Road map" that supports GDP through marine tourism, seafood production, and maritime transport (United Nations Economic Commission for Africa [UNECA], 2020).

These global examples underscore the multidimensional nature of the blue economy, blending environmental sustainability, economic diversification, and social inclusion. In contrast, Nigeria's ocean economy is hindered by infrastructural deficits, marine pollution, weak governance, and the absence of a coordinated national strategy. Coastal states such as Lagos, Rivers, Bayelsa, Akwa Ibom, and Cross River possess rich marine resources and labor force potential but face challenges including illegal fishing, degradation of marine ecosystems, and fragmented institutional oversight (Ekpo & Bassey, 2021; Erondu & Anyanwu, 2022). Furthermore, responsibilities are often dispersed across various ministries, agencies, and state governments, which complicates effective planning and implementation (Nwilo & Badejo, 2022). As Nigeria strives to meet the 2030 Agenda for Sustainable Development, particularly Sustainable Development Goals (SDGs) such as Goal 1 (No Poverty), Goal 8 (Decent Work and Economic Growth), Goal 13 (Climate Action), and Goal 14 (Life Below Water), the blue economy offers a strategic avenue to achieve these targets. Empirical studies have highlighted the role of blue economy activities such as community based fisheries, eco-tourism, marine spatial planning, and renewable energy projects in lifting coastal populations out of poverty while promoting environmental stewardship (Obeta & Ozoagu, 2020; Akinbola et al., 2023). However, realizing these benefits requires investment in marine infrastructure, data-driven governance, and the empowerment of local communities through education and technological support.

This systematic review, therefore, aims to examine the empirical evidence surrounding Nigeria's blue economy, with a specific focus on its contribution to poverty reduction and sustainable development. Framed by five core research questions, the review seeks to: (1) identify key themes and trends in blue economy research in Nigeria, (2) evaluate the contributions of blue economy initiatives to the SDGs, (3) assess the challenges and opportunities for effective implementation, (4) propose strategies for scaling up initiatives, and (5) determine policy implications for sustainable development. The significance of this study lies in its potential to synthesize fragmented evidence, inform policy direction, and recommend localized

best practices inspired by global examples. By linking Nigeria's blue economy efforts with national policy frameworks such as the Economic Recovery and Growth Plan (ERGP) and the Blue Economy Policy framework initiated in 2022, this review provides a roadmap for transforming marine and aquatic resources into engines of economic inclusion, ecological resilience, and long-term national prosperity.

Literature Review

The concept of the blue economy has gained considerable attention over the past decade as a transformative development paradigm that harnesses the potential of oceans and aquatic systems for inclusive economic growth, poverty alleviation, and environmental sustainability (World Bank, 2017; Ehler & Douvere, 2009). While globally the blue economy is being advanced through integrated marine governance, innovative financing, and technology-driven solutions, its implementation in Nigeria remains nascent and uneven. This literature review synthesizes current academic discourse along five key themes: emerging research trends in Nigeria, alignment with Sustainable Development Goals (SDGs), implementation challenges and opportunities, strategies for scaling, and policy implications, while drawing insights from successful international models such as those in Norway, Seychelles, and Mauritius.

Key Themes and Trends in Blue Economy Research in Nigeria

Research on the blue economy in Nigeria is still developing, with a noticeable concentration on traditional marine sectors such as fisheries, coastal transportation, and port logistics (Ekpo & Bassey, 2021; Erondu & Anyanwu, 2022). While these areas hold considerable economic promise, there is limited exploration of high-growth potential domains like marine biotechnology, offshore renewable energy, and blue carbon markets. Nwilo and Badejo (2022) highlight the persistent gap between policy articulation and implementation, noting that marine spatial planning (MSP) and integrated coastal zone management (ICZM) remain underdeveloped. This disconnect is compounded by fragmented institutional responsibilities and weak inter-agency coordination (Obeta & Ozoagu, 2020).

Comparatively, nations such as Norway have prioritized marine research through institutions like the Institute of Marine Research (IMR), facilitating real-time ocean monitoring and science-based policy interventions (Norwegian Ministry of Trade, Industry and Fisheries, 2019). Such institutional infrastructure is largely absent in Nigeria, thereby limiting evidence-based decision-making and adaptive marine governance.

Contributions of Blue Economy Initiatives to Sustainable Development Goals in Nigeria

The blue economy is increasingly recognized for its multidimensional contribution to several SDGs, notably SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), SDG 13 (Climate Action), and SDG 14 (Life Below Water). Empirical studies underscore the sector's livelihood benefits. For instance, Akinbola et al. (2023) report that aquaculture projects in Bayelsa and Rivers States have boosted household incomes by up to 30%, thereby advancing poverty reduction (SDG 1) and employment creation (SDG 8). Similarly, Adesanya et al. (2021) show that artisanal fisheries along the Lagos coastline contribute to food security and women's empowerment through cooperative fish processing and marketing, directly impacting SDG 2 and gender equality efforts.

In contrast, global initiatives such as Seychelles' Blue Bond, supported by the World Bank, have demonstrated how innovative financing can link marine conservation with climate adaptation and livelihood outcomes (World Bank, 2018). Nigeria, however, lacks institutional mechanisms to align blue economy initiatives with measurable SDG indicators, as noted by Obeta and Ozoagu (2020), which

undermines the tracking of developmental progress.

Challenges and Opportunities for Implementing Blue Economy Activities in Nigeria

Several systemic challenges impede the realization of Nigeria's blue economy potential. Policy and regulatory fragmentation remain a critical issue, with overlapping mandates among agencies such as the Nigerian Maritime Administration and Safety Agency (NIMASA), National Inland Waterways Authority (NIWA), National Environmental Standards and Regulations Enforcement Agency (NESREA), and the Nigerian Navy (Nwilo & Badejo, 2022). Financial constraints also hinder progress, as Nigeria lacks dedicated funding frameworks for marine sector development, unlike Mauritius which has established a Blue Economy Fund (United Nations Economic Commission for Africa [UNECA], 2020).

Environmental degradation, particularly from oil pollution, plastic waste, and illegal fishing in the Niger Delta region, continues to undermine marine ecosystems (Ekpo & Bassey, 2021). Additionally, there is a significant shortage of trained marine professionals, oceanographers, and blue economy policy experts (Erondu & Anyanwu, 2022).

Nevertheless, Nigeria's geographical location along major maritime trade routes, coupled with a large and youthful population, presents untapped opportunities. Olaniyi et al. (2022) identify digital innovation and blue entrepreneurship, especially in marine logistics and port operations, as critical levers for sector transformation. The recent launch of Nigeria's Blue Economy Policy in 2022 by the Federal Ministry of Agriculture and Rural Development (FMARD, 2022) signals an emerging policy framework to attract investments and mainstream sustainability.

Strategies for Scaling Blue Economy Initiatives to Achieve SDGs

To scale blue economy initiatives, scholars advocate a holistic approach involving governance reforms, financing innovations, capacity development, technology integration, and community engagement. Marine spatial planning (MSP), a core strategy in Norway and Mauritius, is recommended as a foundational planning tool to resolve sectoral conflicts and guide resource use (Ehler & Douvere, 2009). Yet, Nigeria is yet to adopt MSP as part of its ocean governance toolkit.

Financial instruments such as blue bonds and carbon credits are also emerging as scalable tools. Vivekanandan et al. (2019) note that blending sovereign guarantees with multilateral support, as seen in Seychelles' Blue Bond model, can attract private sector financing for marine conservation and community fisheries. Omoniyi and Ojo (2021) propose the use of digital technologies such as geospatial mapping, mobile-based applications, and digital surveillance to monitor fishing activities, address illegal fishing, and improve access to markets,technological innovations that can significantly enhance the scalability of blue initiatives when adapted to local contexts.

Policy Implications of Blue Economy for Sustainable Development in Nigeria

Effective implementation of Nigeria's blue economy necessitates policy coherence, legal reforms, and institutional integration. Nwilo and Badejo (2022) recommend establishing a National Ocean Council to coordinate activities across federal, state, and local levels. Mainstreaming blue economy priorities into broader national development plans such as the Medium-Term National Development Plan (2021–2025) is essential for strategic alignment.

Moreover, ecosystem-based management approaches, as practiced in Mauritius and Norway, provide

models for balancing economic exploitation of marine spaces with ecological integrity (UNECA, 2020; Norwegian Ministry of Trade, Industry and Fisheries, 2019). Obeta and Ozoagu (2020) further emphasize the importance of targeted investments in coastal community infrastructure, education, and gender focused initiatives to ensure equitable benefits from blue economy projects.

Synthesis and Gaps in the Literature

Despite the growing academic interest, the literature on Nigeria's blue economy is limited in empirical scope and geographic coverage. Longitudinal studies assessing poverty and livelihood outcomes are scarce, and most research is concentrated in a few southern coastal states. There is limited attention to inland aquatic systems like Lake Chad and the Niger River Basin, which hold significant blue economy potential. Furthermore, comparative research analyzing transferable models from other regions remains underdeveloped. Critical gaps include the climate resilience of blue economy projects, spatial equity in access and benefits, and the gendered dimensions of marine resource use.

To advance scholarship and policy effectiveness, future research must emphasize interdisciplinary collaboration between academia, government, and the private sector. This includes strengthening national marine research institutions, developing inclusive data systems, and fostering co-created knowledge for policy-relevant insights.

Conceptual Framework: Blue Economy and Poverty Reduction in Nigeria

The *Blue Economy* refers to the sustainable use of ocean, sea, and other water resources for economic growth, improved livelihoods, and the preservation of marine ecosystems. In the Nigerian context, the Blue Economy offers a transformative pathway to poverty reduction, particularly in the coastal states of Lagos, Bayelsa, Rivers, Akwa Ibom, Ondo, Delta, and Cross River. With Nigeria's vast coastline and extensive inland waterways, the potential of the Blue Economy lies in its ability to stimulate inclusive growth, generate employment, enhance food security, and foster climate resilience among vulnerable populations.

At the core of this conceptual framework are the key sectors of the Blue Economy. **Fisheries and aquaculture** are central to achieving food and nutritional security, offering income-generating opportunities and creating employment, especially in rural coastal areas (FAO, 2020). This sector, if managed sustainably, can provide affordable protein sources to a growing population while supporting livelihoods. **Marine transport and port infrastructure** constitute another significant component, facilitating trade, logistics, and port-related employment, which are vital for national and regional economic integration (UNCTAD, 2021). Likewise, **coastal tourism and recreation** offer prospects for developing local small and medium-sized enterprises (SMEs), cultural industries, and Eco-tourism, thus diversifying income sources in coastal communities (Onyeukwu & Ozigbo, 2019).

Emerging areas such as **offshore renewable energy**, including wind and tidal energy, have the potential to promote energy access and generate green jobs, aligning with Nigeria's climate commitments under the Paris Agreement (Nigerian Ministry of Environment, 2021). Additionally, **coastal agriculture and saltwater irrigation** contribute to enhanced food production in saline prone areas, improving livelihoods and supporting adaptation to climate change. Furthermore, **marine biotechnology and ecosystem services** present opportunities for innovation in pharmaceuticals, nutraceuticals, and bio-products while ensuring ecological sustainability and resilience (Obi & Ayodele, 2020).

However, the realization of these sectoral benefits is contingent upon several **mediating factors**. Sound **policy and governance** are essential, including the formulation and enforcement of integrated maritime policies, institutional frameworks, and strategic blue economy plans (Adeleke & Salami, 2022). Effective

governance ensures equitable resource use and deters illegal, unreported, and unregulated (IUU) fishing. Adequate **infrastructure and investment** such as functional ports, fishing harbors, and Eco-tourism facilities are critical to support the growth of marine-based enterprises (National Bureau of Statistics [NBS], 2022). Simultaneously, **capacity building and skills training** tailored to the maritime and aquatic sectors are necessary to equip the labor force with relevant technical and entrepreneurial competencies.

Access to finance remains a pivotal enabler. Many blue economy actors particularly women, youth, and artisan fishers require **financial inclusion through credit facilities, insurance mechanisms, and cooperative financing models** to scale their enterprises and mitigate risks (Central Bank of Nigeria [CBN], 2020). Therefore, financial policies must be aligned to support inclusive growth and mitigate socioeconomic vulnerabilities.

The **poverty reduction outcomes** anticipated from a well-executed Blue Economy strategy are multifaceted. These include **employment creation** in diverse marine sectors, **income generation** through enhanced participation in blue value chains, and **improved food and nutritional security** by increasing access to marine-based protein sources. Additionally, the framework emphasizes **climate resilience**, whereby coastal populations are equipped with adaptive capacities to withstand environmental shocks such as coastal erosion and sea-level rise (IPCC, 2021). Lastly, the Blue Economy provides a unique platform for **gender and youth empowerment**, ensuring that historically marginalized groups actively participate in and benefit from marine and coastal economic activities.

In sum, this conceptual framework underscores the potential of the Blue Economy to serve as a strategic tool for poverty alleviation in Nigeria. Through the integration of sustainable sectoral development, enabling policies, inclusive financing, and community-driven initiatives, Nigeria can harness its aquatic resources to foster economic resilience, environmental sustainability, and human development in coastal and riverine communities.

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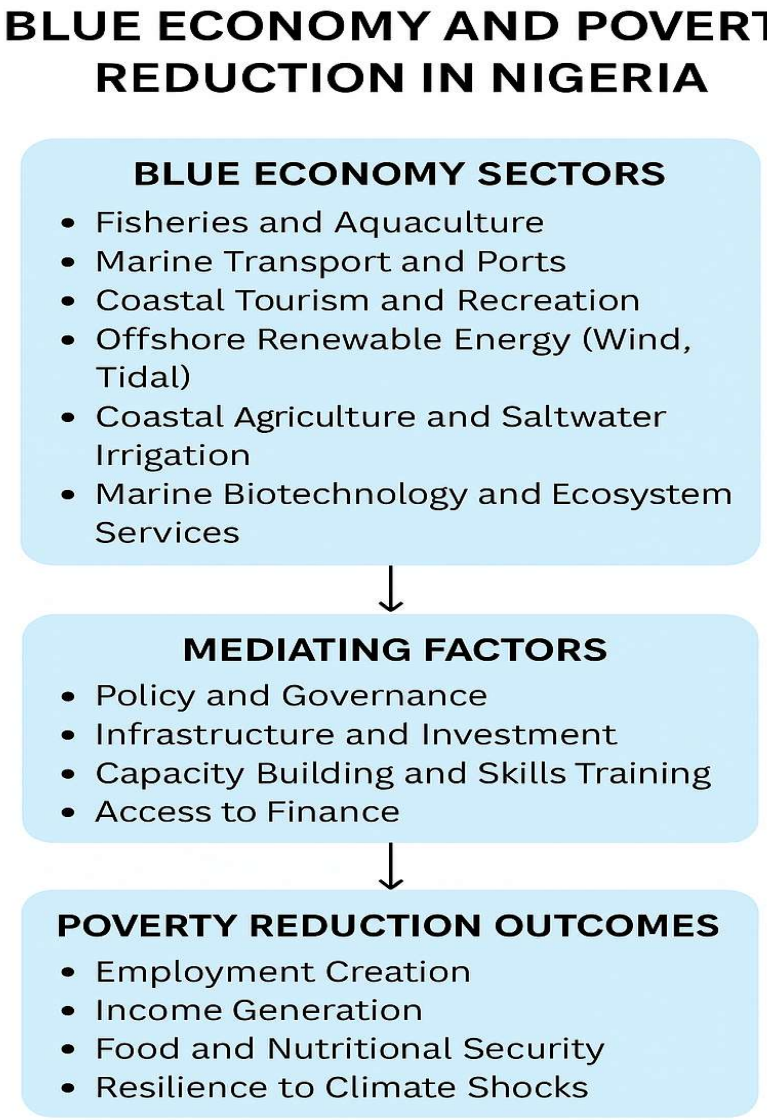

Figure 1
Blue economy and poverty reduction in Nigeria. This infographic illustrates how different sectors of the blue economy—such as fisheries, marine transport, and offshore renewable energy—interact with mediating factors like governance, infrastructure, and skills training to produce poverty reduction outcomes, including employment creation, income generation, food security, and resilience to climate shocks.
Source: Adapted from Adewale, M. O. (2025). *Blue economy and poverty reduction in Nigeria* [Infographic]. Unpublished.

Methodology

This study employed a **systematic review design** to critically evaluate and synthesize empirical literature on the intersection of the blue economy and poverty reduction in Nigeria. A systematic review is particularly suited for aggregating and evaluating bodies of research in a transparent, replicable, and methodologically rigorous manner (Moher et al., 2009). This approach facilitated a comprehensive analysis of existing qualitative, quantitative, and mixed-methods studies to identify key trends, thematic areas, challenges, and opportunities within Nigeria's blue economy landscape.

The review was guided by the **Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)** framework, which includes four sequential phases: identification, screening, eligibility, and inclusion (Page et al., 2021). These phases ensured clarity, transparency, and methodological robustness throughout the review process.

Data sources were systematically selected from major academic databases and institutional repositories, including *Scopus*, *Web of Science*, *ScienceDirect*, *Google Scholar*, *African Journals Online (AJOL)*, and relevant national repositories such as the Nigerian Maritime Administration and Safety Agency (NIMASA), Nigerian Institute for Oceanography and Marine Research (NIOMR), and Nigerian Ports Authority (NPA). A comprehensive search strategy was employed using Boolean operators (AND, OR) and truncation with search strings such as "Blue Economy" AND "Nigeria", "Marine economy" AND "poverty reduction", "Fisheries", "marine tourism", "maritime transport" AND "livelihoods", "Sustainable development" AND "coastal Nigeria", and "Blue growth" AND "Africa".

To ensure relevance and quality of sources, the study applied the following **inclusion criteria**: (a) studies published between 2010 and 2025, (b) peer-reviewed articles, policy briefs, conference papers, and institutional reports, (c) empirical research based on qualitative, quantitative, or mixed methods, and (d) a specific focus on Nigeria's blue economy and its relation to poverty reduction or sustainable development goals (SDGs). Conversely, the **exclusion criteria** filtered out theoretical or conceptual studies lacking empirical analysis, research not centered on Nigeria or the sub-Saharan African context, duplicate entries, and non English publications.

For **data extraction**, a structured Excel template was used to capture core details including author(s), year, geographic location, research design, sectoral focus (e.g., fisheries, tourism, transport), target population, key poverty related findings, and associated challenges, opportunities, and policy implications. Two independent reviewers conducted the data extraction to enhance reliability and reduce bias. Discrepancies were resolved through consensus or with the intervention of a third-party arbitrator.

The **quality appraisal** of selected studies was conducted using the **Mixed Methods Appraisal Tool (MMAT)** developed by Hong et al. (2018), which is particularly suited for evaluating diverse empirical research designs. Each study was assessed across five dimensions: the clarity of study objectives, appropriateness of methodology, contextual relevance to Nigeria's development challenges, transparency of reporting, and acknowledgment of biases or limitations. Only studies achieving a methodological rigor score of at least 60% were included in the final synthesis.

A **thematic synthesis approach** was applied to analyze and interpret the findings. Thematic analysis involved open coding of content, axial coding to group related categories, and selective coding to align themes with the review's guiding questions. The synthesis identified five major themes: (1) trends and

research focus in Nigeria's blue economy literature, (2) contributions of the blue economy to SDGs specifically Goals 1 (no poverty), 2 (zero hunger), 8 (decent work and economic growth), 13 (climate action), and 14 (life below water), (3) key challenges and institutional constraints, (4) scalability and innovation in blue economy interventions, and (5) policy and governance implications. NVivo 12 software was utilized to support qualitative coding, data management, and thematic visualization.

In terms of **ethical considerations**, this study did not require formal ethical clearance as it relied solely on publicly available and published data. Nonetheless, academic integrity was maintained through proper acknowledgment and citation of all sources, and by ensuring unbiased synthesis and representation of findings.

Despite its rigor, the study acknowledges several **methodological limitations**. These include potential **language bias** resulting from the inclusion of only English-language studies, **publication bias** due to limited access to unpublished grey literature from governmental and non-governmental organizations, and a **scarcity of longitudinal studies**, which constrains the ability to assess changes in the blue economy over time.

To uphold **methodological rigor and validity**, the study employed a transparent and replicable search strategy, involved independent reviewers for data extraction and quality evaluation, and used **triangulation** to integrate findings across various data sources,academic, institutional, and policy documents. In addition, **member-checking** was carried out through consultations with Nigerian maritime and policy experts to validate and refine the emergent themes.

Results and Discussion

The systematic review of literature on the blue economy in Nigeria reveals an expanding but fragmented research landscape, particularly over the past decade (2015–2024). While there is increasing scholarly and policy interest in sectors such as fisheries, marine transport, and oil and gas, other critical dimensions of the blue economy,such as marine biotechnology, offshore renewable energy, and coastal tourism remain significantly under researched. This imbalance underscores the need for a comprehensive and integrative approach to harness the transformative potential of the blue economy for poverty reduction and sustainable development in Nigeria.

One of the central themes identified in the review is the critical role of **fisheries and aquaculture** as livelihood anchors in Nigeria's coastal regions. Studies by Omojowo et al. (2021) and Anwana et al. (2019) report that small-scale fisheries employ over 70% of the rural labor force in states like Bayelsa, Akwa Ibom, and Cross River. Despite their importance, these sectors face challenges including overfishing, environmental degradation, and poor cold-chain infrastructure, which constrain economic growth and food security.

Another emerging theme is the **alignment between blue economy sectors and the Sustainable Development Goals (SDGs)**. Research by Okonkwo and Eboh (2022) and Adekunle (2020) illustrates that activities in fisheries, marine transport, and coastal conservation contribute to SDGs 1 (No Poverty), 2 (Zero Hunger), 8 (Decent Work and Economic Growth), 13 (Climate Action), and 14 (Life Below Water). These contributions demonstrate the blue economy's potential to serve as a multidimensional platform for sustainable development in Nigeria.

However, **gender and youth marginalization** persists as a structural barrier. Ebikeme and Okorodudu (2018) highlight that women dominate the fish marketing value chain but remain excluded from access to finance, training, and decision-making roles. Such exclusion undermines inclusive development and limits the sector's full potential.

Additionally, there is a notable **absence of an integrated national blue economy strategy**. Salihu and Okafor (2021) observe that the lack of coordination among critical sectors such as maritime transport, fisheries, coastal agriculture, and tourism hampers resource optimization and limits synergies across blue economy initiatives. This gap contrasts sharply with the policy experiences of countries such as Mauritius, Seychelles, and Norway, which have developed comprehensive blue economy roadmaps that effectively integrate sectoral goals (UNCTAD, 2021; Government of Norway, 2020; WIO, 2019).

Blue Economy Contributions to SDG Attainment in Nigeria

The fisheries and aquaculture sector is particularly important for meeting SDG 1 and SDG 2. For instance, Adetayo et al. (2023) report that in peri-urban communities around the Lagos Lagoon, artisanal fishing provides over 60% of daily protein intake. Nonetheless, the sector remains threatened by unsustainable fishing practices and habitat loss.

Maritime transport is another significant contributor to SDG 8. According to the Nigerian Ports Authority (2023), this sector supports over 120,000 direct jobs and 1.5 million indirect jobs. However, outdated infrastructure, port congestion, and inefficiencies reduce the industry's competitiveness.

Coastal tourism, though underutilized, has great potential. Ibe and Iwuoha (2020) note that Nigeria's 850-kilometer coastline could support diverse forms of eco- and cultural tourism. Yet, the sector remains informal and vulnerable to insecurity, unlike in Mauritius, where tourism contributes over 20% to GDP and is a pillar of the national blue economy (UNCTAD, 2021).

Ocean renewable energy remains a largely untapped opportunity in Nigeria. Lessons from Norway's offshore wind sector (IEA, 2020) and Mauritius's pilot wave energy programs (UNDP, 2022) demonstrate feasible models for deployment in Nigerian coastal areas, especially for electrifying island communities and advancing climate action goals.

Challenges to Blue Economy Implementation in Nigeria

The literature identifies several structural and systemic challenges inhibiting the growth of the blue economy. Prominent among these are **institutional fragmentation and weak governance**. Agencies such as the Nigerian Maritime Administration and Safety Agency (NIMASA), Nigerian Ports Authority (NPA), and Nigerian Institute for Oceanography and Marine Research (NIOMR) operate in silos, limiting policy coherence (Salihu & Okafor, 2021).

Environmental degradation is another pressing issue. The Niger Delta region, in particular, suffers from chronic oil pollution, gas flaring, and mangrove deforestation, all of which undermine the ecological foundation of the blue economy (Awosika et al., 2022).

An **infrastructure deficit** also restricts growth. Nigeria lacks modern ports, fisheries cold chains, and tourism facilities. For example, there are no aquaculture export zones or dedicated eco-tourism hubs comparable to those in Seychelles or Norway.

In addition, **limited access to finance and insurance** poses barriers for small-scale actors. Odetola and Lawal (2022) report that fewer than 30% of artisanal fishers have access to formal credit or risk mitigation tools, stalling business expansion and resilience-building.

Opportunities for Scaling Blue Economy Initiatives

Despite these challenges, Nigeria possesses multiple opportunities to scale up its blue economy. The most urgent is the **development of an integrated National Blue Economy Framework** modeled after successful examples from Seychelles and Mauritius (WIO, 2019). Such a strategy should harmonize sectoral priorities and align with SDG indicators.

The **Lekki Deep Sea Port**, a product of Public Private Partnership (PPP), offers a successful model of private investment in maritime infrastructure (NPA, 2023). Similar PPPs can be leveraged to expand training, green port technologies, and Eco-tourism.

Regional cooperation, especially through platforms like the Gulf of Guinea Commission, offers pathways to shared solutions in transboundary fisheries management, maritime security, and pollution control.
Furthermore, **blue skills development** targeting women and youth can be a game changer. Vocational marine schools, like the Tromsø Maritime School in Norway, offer templates for capacity building in aquaculture, Eco-tourism, and maritime engineering sectors where Nigeria has considerable human resource potential.

Policy Implications for Sustainable Development in Nigeria's Blue Economy

To fully harness the transformative potential of Nigeria's blue economy, a concerted effort is required to develop and implement policies that align with the United Nations Sustainable Development Goals (SDGs) while addressing key challenges such as institutional fragmentation, corruption, and environmental degradation. Nigeria, with its extensive coastline and rich maritime resources, has the opportunity to catalyze significant economic growth and development. However, this potential can only be realized through strategic policy interventions and structural reforms that foster sustainable practices and inclusive governance.

A critical first step in this process is the **adoption of a National Blue Economy Strategy**, which would synchronize sectoral development with the broader SDG framework. This strategy must be designed to foster the development of key industries such as fisheries, maritime trade, eco-tourism, and coastal protection, ensuring that all efforts are aligned with national and global sustainability objectives. Countries like Seychelles and Mauritius provide valuable models of policy coherence that Nigeria can emulate (UNCTAD, 2021). By aligning its marine and coastal policies with the SDGs, Nigeria can develop a clear, transparent roadmap for achieving sustainable economic growth and environmental stewardship.

Equally important is the **implementation of Marine Spatial Planning (MSP)**, a tool that helps resolve inter-sectoral conflicts and promotes ecosystem-based management. The Niger Delta, a region rich in oil reserves, has been a major site of industrial activity, leading to frequent environmental degradation. MSP offers a solution by providing a framework for the optimal use of marine space, balancing the needs of various sectors, including oil exploration, fisheries, shipping, and conservation. This will help mitigate the environmental impact of conflicting land and water uses, contributing to sustainable marine resource management.

Moreover, **enforcing environmental regulations** is crucial to safeguarding marine biodiversity and sustaining fisheries in the long term. The Niger Delta's persistent environmental issues, such as oil spills, industrial waste, and unsustainable fishing practices, demand more stringent monitoring and enforcement. Effective regulation will require the strengthening of agencies such as the National Oil Spill Detection and Response Agency (NOSDRA) and the Nigerian Maritime Administration and Safety Agency (NIMASA), ensuring they have the resources and capacity to manage marine pollution and enforce compliance with environmental laws.

In parallel, **institutional coordination** must be enhanced to improve the management of Nigeria's marine resources. The fragmentation of roles and responsibilities among different government agencies—such as NIMASA, the Nigerian Ports Authority (NPA), the Nigerian Institute for Oceanography and Marine Research (NIOMR), and various coastal state governments—has hindered the effective implementation of policies and strategies. To address this challenge, fostering collaboration through inter-agency coordination will be essential. Regular coordination meetings and joint projects will allow for a more cohesive and efficient approach to managing marine resources, ensuring that all stakeholders are working towards shared objectives.

Another key policy intervention is the promotion of **inclusive development** within the blue economy. The benefits of the blue economy must extend beyond the elite and reach marginalized communities, particularly women, youth, and indigenous groups who depend on coastal resources for their livelihoods. Policies that provide access to finance, vocational training, and cooperative enterprise models will help empower these groups, enabling them to participate meaningfully in the development of sustainable coastal livelihoods. Sustainable practices, such as Eco-tourism, sustainable fishing, and aquaculture, should be promoted to enhance the resilience and economic well-being of coastal communities.

However, to unlock the full potential of the blue economy, Nigeria must address the pervasive issue of **corruption**, which has significantly hindered progress toward sustainable development. Corruption in the maritime and coastal management sectors undermines policy implementation, diverts resources, and weakens the effectiveness of regulations. The misallocation of funds, weak regulatory enforcement, and a lack of transparency have consistently thwarted efforts to safeguard marine ecosystems and foster sustainable economic development.

The **misallocation of resources** due to corrupt practices has resulted in the delay or mismanagement of key projects aimed at improving coastal infrastructure, protecting biodiversity, and supporting sustainable livelihoods. Funds earmarked for conservation and sustainable development projects often fail to reach their intended beneficiaries, with some officials siphoning off public funds for personal gain. This has not only hindered the implementation of critical programs but has also diminished public trust in the government's commitment to environmental protection.

Weak regulatory enforcement, particularly in the Niger Delta, has been another byproduct of corruption. The region's oil industry, plagued by illegal dumping, oil spills, and unregulated fishing, continues to suffer from the lack of stringent oversight. Corruption among government officials and industry actors has allowed these harmful practices to persist unchecked, exacerbating environmental degradation and undermining efforts to ensure long-term sustainability.

The **lack of transparency and accountability** in the allocation and use of marine resources has further fueled corruption within the sector. Contracts for marine resource exploitation and infrastructure development are often awarded to politically connected individuals or companies, bypassing transparent and competitive bidding processes. This not only perpetuates inefficiency and waste but also discourages private investment, which is critical for the development of the blue economy.

To combat corruption and ensure the sustainable development of the blue economy, Nigeria must adopt a comprehensive approach that includes strengthening **anti-corruption mechanisms** and promoting **ethical governance**. Transparency must be at the core of Nigeria's marine resource management strategies. Public financial management reforms, independent audits, and the use of technology for monitoring and reporting on resource use can help curb corruption and ensure that funds are used effectively. Additionally, building the capacity of regulatory agencies to enforce environmental laws and hold violators accountable is essential for protecting marine ecosystems and promoting sustainable practices.

Nigeria must also work towards **enhancing institutional transparency**, fostering public-private partnerships, and engaging civil society organizations in monitoring marine resource management. Independent oversight bodies can help track the use of public funds, ensure accountability in the allocation of marine resources, and prevent the abuse of power by government officials and industry stakeholders. The establishment of transparent, competitive procurement processes for contracts and investments related to marine resources will also help reduce opportunities for corrupt practices.

Finally, **international collaboration** on anti-corruption efforts is essential. Nigeria should engage with global bodies such as the United Nations, the World Bank, and international anti-corruption watchdogs to adopt best practices in the fight against corruption. Collaborative efforts with international partners can also provide technical and financial support to strengthen Nigeria's capacity to combat corruption and ensure that its blue economy policies are both effective and sustainable.

In conclusion, the blue economy holds significant promise for reducing poverty, fostering inclusive development, and promoting environmental sustainability in Nigeria. However, to fully realize this potential, the country must address critical challenges such as corruption, weak institutional coordination, and inadequate regulatory enforcement. By adopting strategic policies that promote transparency, inclusivity, and sustainable management practices, Nigeria can unlock the transformative potential of its blue economy. Drawing on global best practices from countries like Seychelles, Mauritius, and Norway, Nigeria can reimagine its marine and coastal resources not only as ecological assets but also as drivers of inclusive economic growth and climate resilience. Without a comprehensive approach that includes addressing corruption, Nigeria risks missing the opportunity to leverage its rich maritime resources for national prosperity and SDG acceleration.

Conclusion

This systematic review critically examined the evolving discourse on the blue economy in Nigeria, synthesizing empirical evidence to evaluate its potential contributions to poverty alleviation and sustainable development. The findings underscore that Nigeria's extensive maritime endowment comprising an 853 km coastline and numerous inland water bodies remains largely underutilized in addressing economic, environmental, and social development challenges. Unlike countries such as Norway, Seychelles, and Mauritius, which have effectively integrated blue economy frameworks into national development

strategies, Nigeria lacks a coherent, cross-sectoral blue economy policy to harness its aquatic resources sustainably.

The study identified key sectors,fisheries and aquaculture, maritime transport, coastal tourism, and marine-based employment as central to the poverty reduction narrative within Nigeria's blue economy landscape. Empirical studies revealed that these sectors significantly support rural livelihoods, especially among coastal populations, while contributing to food security and job creation. For instance, small-scale fisheries alone sustain a substantial portion of the rural coastal workforce (Omojowo et al., 2021; Anwana et al., 2019). However, these gains are undermined by environmental degradation, fragmented governance, weak infrastructure, and inadequate financial and technical investments. Moreover, gender and youth remain marginalized within these sectors, despite their critical roles, particularly in fish marketing and postharvest handling (Ebikeme & Okorodudu, 2018).

Notably, while Nigeria's blue economy initiatives have shown potential alignment with several Sustainable Development Goals (SDGs) notably SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), and SDG 14 (Life Below Water), the impact remains constrained without deliberate institutional reform and strategic policy integration (Okonkwo & Eboh, 2022; Adekunle, 2020). The country's neglect of emerging sectors such as marine biotechnology, ocean-based renewable energy, and climate-resilient coastal livelihoods further limits the diversification and sustainability of its blue economy model.

In contrast, the experiences of nations like Seychelles and Mauritius demonstrate that holistic planning, environmental stewardship, innovation-driven investment, and inclusive stakeholder engagement are critical success factors in leveraging blue economy pathways for sustainable development (UNCTAD, 2021; WIO, 2019). These countries have adopted structured national blue economy roadmaps that align marine spatial planning with development objectives, enabling measurable progress in poverty reduction and ecological resilience.

To reposition Nigeria's blue economy as a transformative tool for inclusive growth, strategic realignments are imperative. This includes formulating a comprehensive National Blue Economy Strategy, strengthening inter-agency coordination, modernizing infrastructure, promoting vocational training in ocean-based sectors, and embedding equity principles to ensure women, youth, and indigenous communities are active participants in the marine economy. With these reforms, Nigeria can effectively unlock the socioeconomic and environmental potential of its aquatic ecosystems and contribute meaningfully to global sustainable development agendas.

Recommendations

To fully realize the transformative potential of the blue economy for inclusive development and poverty reduction in Nigeria, a series of strategic and integrated actions must be undertaken at both national and subnational levels. First and foremost, Nigeria must develop and implement a **comprehensive National Blue Economy Strategy** that is multisectoral in design and rooted in marine spatial planning, biodiversity protection, ocean-based innovation, and employment generation. This strategy should take guidance from successful frameworks such as the Seychelles' Blue Economy Roadmap and Mauritius's Ocean Economy Strategy, which have effectively aligned ecological sustainability with economic diversification (UNCTAD, 2021).

Institutional coordination and governance structures must be strengthened through the establishment of a centralized Blue Economy Coordinating Authority housed within the Federal Ministry of Marine and Blue Economy. This body would harmonize policy actions across key sectors such as fisheries, energy, tourism, and environment, thereby reducing bureaucratic fragmentation and promoting intersectoral synergies.

A critical recommendation is the **expansion of investment in blue infrastructure**, including the modernization of fishing ports and landing sites, development of cold-chain storage systems for fishery exports, coastal eco-tourism infrastructure, and renewable ocean energy technologies such as tidal, wave, and offshore wind systems. To achieve this, the federal and state governments should foster Public Private Partnerships (PPPs) and provide enabling incentives for investment in these sectors.

There is also an urgent need to **promote sustainable coastal and marine livelihoods**, especially for small-scale fishers and aquaculture practitioners. Targeted programs should offer subsidized fishing gear, capacity building on sustainable fishing practices, enhanced access to microcredit and insurance, and tailored support for women and youth engaged in fish processing and marketing. These initiatives would not only increase productivity but also ensure long-term ecological balance and community resilience.

Nigeria must **enhance its marine research and innovation capacity** by investing in institutions such as the Nigerian Institute for Oceanography and Marine Research (NIOMR). Establishing marine innovation hubs and promoting international collaborations with countries such as Norway and Mauritius could further strengthen technical capacity in areas such as aquaculture genetics, marine biotechnology, and sustainable resource management.

Additionally, **environmental protection regulations must be strictly enforced**, especially in ecologically sensitive regions like the Niger Delta, where mangrove forests and estuarine ecosystems are under severe threat from pollution. Robust implementation of Environmental Impact Assessments (EIAs) for all coastal and offshore developments should become standard practice.

Integrating blue economy considerations into broader policy frameworks is imperative. The blue economy must be **mainstreamed into Nigeria's Medium-Term National Development Plan (MTNDP)** and aligned with the African Union's Agenda 2063 and Nigeria's SDG implementation blueprint. Furthermore, support should be extended to state governments to enable the formulation of localized blue economy action plans tailored to their coastal contexts.

To foster equity and sustainability, **inclusive stakeholder engagement** must become a central pillar of blue economy governance. Fishing communities, women's cooperatives, youth associations, traditional authorities, and coastal dwellers must be actively involved in decision making processes and empowered to co-manage marine resources. Ensuring equitable access to these resources is vital for community buy-in and long-term success.

Nigeria should also **leverage regional and international partnerships** to build capacity and promote coordinated action. Collaborations with the African Union's Africa Blue Economy Strategy, the UNDP's Ocean Innovation Challenge, Norway's Blue Justice Initiative, and the Gulf of Guinea Commission can significantly enhance Nigeria's efforts in cross-border maritime security, fisheries management, and knowledge exchange.

Finally, to ensure accountability and adaptive management, there is a pressing need to **establish robust monitoring and evaluation frameworks**. This includes developing blue economy indicators, data dashboards, and periodic impact assessments focused on poverty alleviation, job creation, environmental sustainability, and SDG alignment. These mechanisms will enable evidence-based policy revisions and guide investment priorities over time.

In conclusion, unlocking the potential of the blue economy is not merely an economic aspiration, it is a **developmental necessity** for Nigeria. If pursued inclusively, strategically, and sustainably, the blue economy offers a viable pathway to reduce poverty, diversify the economy, and build environmental resilience. The time for deliberate action is now, informed by global best practices, local realities, and a commitment to innovative and inclusive blue growth.

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