

Blue Economy, Sustainable Development and Economic Growth in Nigeria

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DOI: [10.56201/wjfir.v9.no3.2025.pg77.91](https://doi.org/10.56201/wjfir.v9.no3.2025.pg77.91)

Abstract

Revenue for Nigeria's economy recently has been mostly sustained by oil and gas exports. A decline in foreign exchange profits, a low GDP, and economic instability have resulted from the country's over-reliance on oil, which has exposed it to fluctuations in global oil prices. To lessen the economy's reliance on oil and gas, it is possible to diversify by cultivating the Blue Economy (BE). The blue economy is the path to long-term economic progress for Nigeria. Optimisation of these alternative options will increase our National Gross Domestic Product (GDP), and Nigeria, a nation blessed with a coastline stretching over 850 kilometres along the Atlantic Ocean, has enormous potential of its marine and oceanic resources, including fish stocks, oil and gas, mineral reserves, marine transport, and other valuable biodiversities. "The sustainable use of ocean resources for economic growth, improved livelihoods and jobs while preserving the health of ocean ecosystems." That's what the World Bank means when they talk about the blue economy. Its premise is that BE offers a worthwhile and different way for Nigeria's economy to diversify and flourish, one that would increase wealth generation and job possibilities without harming the environment or ecology. In addition, the paper's suggestions for how to use Nigeria's blue economy to promote long-term sustainability aim to meet the country's present demands for economic diversification and growth, improving people's access to resources, their sense of agency, and the quality of life for all people everywhere without compromising environmental protection or climate change mitigation efforts.

Keywords: blue economy, sustainable development, economic growth, Nigeria

INTRODUCTION

The phrase "blue economy", which can mean either "ocean economy" or "coastal economy", is used to express the social and economic aspects linked to the marine environment, coastlines, and oceans. In 2012, at the Rio + 20 United Conference on Sustainable Development, the blue economy came into play. It rethought the function of the coastal and marine areas in terms of sustainable development and economic growth, and it highlighted the importance of protecting the ocean from the ever-increasing demands placed on its renewable and non-renewable resources (Benzaken et al., 2022). The blue economy is described by the World Bank as "the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem" (World Bank, 2017). It is closely tied to sustainable development and potential economic growth. According to The Commonwealth (2023), the blue economy is mainly defined by the following: fishing, aquaculture, marine transportation and shipping, coastal tourism, renewable energy from the ocean, mining of seabed materials, blue biotechnology, and similar fields.

The Commonwealth (2023) estimates that the blue economy, which is already in widespread use across many continents and nations, is the world's seventh largest economy, with an annual

value of over 1.5 trillion USD, 30 million jobs, and the ability to provide protein sources to more than 2 billion people. The Organisation for Economic Cooperation and Development (OECD) has projected a "blue growth" that would quadruple the economy's worth to \$3 trillion by 2030, thanks to increased global interests, diverse investment possibilities, and promising prospects (OECD, 2024).

In spite of the oceans' deteriorating condition as a result of human activities and climate change, SDG 14—"conserve and sustainably use the oceans, seas, and marine resources for sustainable development"—remains unchanged. Sustainable fishing and aquaculture, conservation of coastal and marine regions, reduction of marine pollution, protection and restoration of the blue ecosystem, and other goals are outlined in SDG 14, which is scheduled to be completed in 2030 (UNDP, 2023). The oceans, which make up nearly three quarters of Earth, are among the most prominent features of our planet. They facilitate around 90% of global trade, 95% of global telecommunications infrastructure, 30% of global offshore oil and gas, 15% of our animal protein supply, 5% of our GDP, and 7% of our employment (European Commission, 2023). Thirteen of the twenty megacities on Earth are located along coastlines, and the global ocean economy includes transportation, mineral exploitation, and coastal tourism (Cicin-Sain, 2023). In addition to regulating global climate and temperature, absorbing 30 per cent of the world's carbon dioxide, and providing oxygen for life on Earth, the natural activities of tides, waves, currents, and offshore winds can be harnessed as renewable energy sources, according to projections from the global blue economy (Cicin-Sain, 2023; Purcell, 2023).

Therefore, the purpose of this study is to propose strategies for establishing a blue economy in Nigeria that is in line with SDG 14, which aims to provide equitable economic growth, ensure environmental sustainability and safety, and boost national wealth. This article aims to contribute to the emerging debate on sustainable development and the blue economy in Nigeria, following President Bola Ahmed Tinubu's intentional moves to establish the Federal Ministry of Marine and Blue Economy.

Given that the oceans and seas make up around 70% of Earth and are thus directly affected by the blue economy, there is an immediate need to consciously manage, optimise, and harness these resources. We should apply the same principles to the blue space that encompasses Nigeria. Along with reducing marine pollution, protecting and restoring marine and coastal ecosystems, minimising the impacts of ocean acidification, regulating fishing practices, conserving coastal and marine areas, and optimising and harnessing the economic benefits that accrue from the sustainable use of marine resources like aquaculture, transportation, and tourism, the effective implementation and take-off of the blue economy in Nigeria in line with SDG 14 will accomplish the following (UNDP, 2023).

CONCEPTUAL CLARIFICATION

Blue Economy

The blue economy is defined as "a concept that holds the promise of sustainable development and responsible resource utilisation within vast oceans and coastal areas" (Purcell, 2023). This definition applies specifically to maritime contexts. She goes on to say that everything having to do with the coastlines, seas, or oceans is part of the blue economy (Purcell, 2023). Sustainable maritime and ocean-specific strategies, solutions, and technologies that aim to mitigate environmental impacts, boost economic growth, and tap the ocean's full potential are all part of what she calls a "blue economy". The blue economy is defined by the World Bank (2017) as the responsible use of marine resources for the sake of human prosperity, environmental preservation, and economic development. According to the European Commission (2023), the blue economy encompasses a broad variety of interconnected, existing, and growing industries that are directly or indirectly involved with the oceans, seas, and coastlines. According to the Commonwealth of Nations (2023), the blue economy is a new

idea that promotes better and more sustainable use of our oceans, seas, and marine resources via innovation and stewardship." The range of economic uses of ocean and coastal resources—such as energy, shipping, fishing, aquaculture, mining, and tourism—as well as economic benefits that are not necessarily marketable, such as carbon storage, coastal protection, cultural values, and biodiversity is what the term "blue economy" refers to (Bertazzo, 2018). The "blue economy" means developing ocean-related industries and activities in a way that doesn't harm the environment, based on the fact that ocean resources are limited and have been damaged a lot by human actions.

Understanding and effectively managing the various facets of marine sustainability, such as sustainable fisheries, ecosystem health, pollution, and so on, is crucial to managing the blue economy. Collaboration between public and commercial sectors, as well as between and within nations, is necessary for the sustainable management of ocean resources, which is a precondition for sustainable development.

Sustainable Development

Within the context of environmental change, the idea of sustainable development emerged in the 1980s during a presentation by the United Nations Environmental Programme, the International Union, and the World Wildlife Fund. This idea was based on economic, social, and ecological considerations (Azapagic et al., 2004). However, the idea became more well-known with the 1987 release of the "Brundtland Report" by the WCED, which stands for the World Commission on Environment and Development. The Brundtland Report defines sustainable development as development that meets current demands without jeopardising future generations' ability to fulfil their own needs (WCED, 1987). The International Institute for Sustainable Development (IISD) asserts that the Sustainable Development Goals (SDGs) serve as the most prominent global framework for collaboration, with the concept of sustainability serving as its cornerstone. Borowy (2015) provided a definition of sustainable development in her analysis of the Brundtland Commission's (WCED) history. According to Borowy, this approach aims to manage society's natural resources to meet human needs without compromising or undermining the integrity and stability of the natural system.

This study aims to clarify and describe sustainable development in relation to the blue economy and how it may directly qualify it to provide economic progress. To put it simply, the blue economy is an approach to economic development that seeks to balance expansion in the economy with preservation of the environment via the adoption of sustainable practices and the responsible use of ocean resources. Sustainable development is the end result of both sustainable usage and sustainable activities, which are the buzzwords here. Therefore, the Sustainable Development Goal (SDG) 14, which focusses on the seas and marine resources, supports this conceptual clarification. At least seven goals make up SDG 14, and they all work together to make the maritime economy sustainable by 2033 (UNDP, 2023). Achieving these goals will lead to blue economy-inspired sustainable development and economic growth. They include reducing and preventing marine pollution, managing and protecting marine ecosystems sustainably so they are healthier and more productive, addressing the impact of ocean acidification, controlling, preventing, and ending harmful and illegal fishing practices, conserving at least 10% of marine and coastal areas, prohibiting certain fishing subsidies, increasing economic benefits to developing countries through sustainable marine resource use (such as tourism, fisheries, and aquaculture), and increasing scientific knowledge, technology, and research for improved ocean health. The Conservation and Sustainable Use of Oceans, Seas, and Marine Resources for Sustainable Development is Defined by SDG 14 of the Global Goals (2023). An approach to development that seeks to balance different and often competing needs against an awareness of the environmental, social, and economic limitations we face as

a society is fundamental to the concept of sustainable development, according to the now-defunct Sustainable Development Commission (SDC) (SDC, 2011).

Economic Growth

In the same way that growth is best understood as a series of steps leading to an improved or enhanced version of something, economic growth highlights the gradual upward transformation of an entity's economy or the way in which a nation's development and wealth rise over time (Nafziger, 2012). The ability of a nation or other entity to increase and improve the products and services it produces is defined as economic growth (McKinsey, 2023) using statistical measures. The expansion of an economy's production and development of goods and services is characterised by a rise in economic growth (DFID, 2009). Factors that contribute to a country's economic growth include those that enhance the production of more valuable goods and services. Economic growth refers to the steady improvement in a country's productivity and overall output of goods and services over the short, medium, and long periods. Increasing production scale and productivity lead to a greater ability to meet consumer demand, which in turn drives economic growth, according to the UK's Department for Business Innovation and Skills (BIS) (2011). In 2009, the Department for International Development argued that economic expansion is still an effective tool for alleviating poverty and improving living conditions in developing nations (DFID, 2009). A country's economic growth may be defined as the rise in the size of its economy during a specific period of time, as stated in (Ref), as the entire output of goods and services in an economy is the measure of its size. The increase in a country's GDP is both a metric and an indication of economic growth. According to Tampakoudis et al. (2014), a country's economic growth rate may be measured by comparing its gross domestic product (GDP) to its population, sometimes known as per capita income.

To further understand the distinction between economic growth and economic development, keep in mind that the latter describes countries that are just above subsistence level, while the former describes economies that are already seeing increases in per capita income (Nafziger, 2012). Economic development, on the other hand, is the set of underlying processes through which a country's general population's welfare and well-being are enhanced, whereas economic growth is the general rise in the monetary value of all goods and services produced within the economy over time (Tampakoudis et al., 2014).

According to Odey (2023), the blue economy is all about finding a way to grow economically without harming the environment. It's about taking advantage of the ocean's untapped resources in a sustainable way and separating economic development from environmental degradation. Similarly, Lee et al. (2020) argue that the Blue Economy, a notion that is gaining traction, will come to fruition when human economic activity is compatible with the ocean's ability to maintain ecologically sound patterns of long-term functioning.

REVIEW OF LITERATURE AND POLICY FRAMEWORKS

The term "blue economy" refers to a wide range of economic and social pursuits that rely on the marine environment and its resources (Bertazzo, 2018). One definition of the blue economy offered by the World Bank is "the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem" (World Bank, 2017). As a result, the idea of a blue economy is gaining traction. One example is the Blue Growth strategy of the European Union, which seeks to promote sustainable development in the maritime industry. This strategy acknowledges the power of the water, land, and sky to generate jobs, boost the economy, and protect marine ecosystems for the future (European Commission, 2020). The blue economy has several positive effects on the environment, including reducing the severity of climate change, preserving marine biodiversity, and increasing food security and employment opportunities for underprivileged communities

(OECD, 2017). Sustainable fishing techniques and aquaculture can achieve two goals: maintaining fish populations and protecting marine environments. While lowering emissions of greenhouse gases, renewable energy derived from ocean resources can lessen dependency on fossil fuels (UNEP, 2020). However, the blue economy is not without its challenges. Threats to the well-being and adaptability of marine ecosystems include overfishing, habitat loss, pollution, and global warming (Cicin-Sain, 2023). To fully use the blue economy, it is necessary to establish efficient governance systems, invest in R&D and innovation, and work together on a global scale. Countries may help achieve sustainable development goals by developing their marine and coastal resources in a way that takes into account economic, environmental, and social factors all at once (UNDP, 2023).

According to the OECD (2017), the blue economy is projected to reach \$3 trillion by 2030 from its current valuation of over \$1.5 trillion each year, making it the seventh biggest economy in the world. Well over 2 billion people rely on fisheries and aquaculture for their protein needs, and the industry supports well over 30 million jobs in addition to providing important services. One important part of the blue economy is coastal tourism, which accounts for 5–7% of worldwide employment and contributes to global GDP (Cicin-Sain, 2023). A number of national and international policy frameworks have played a key role in the growth and maintenance of the blue economy. On the international stage, two policies stand out. The first is SDG 14, which is a goal of the United Nations Sustainable Development Goals. Its main purpose is to promote economic growth and sustainable development via the conservation and responsible use of marine resources. Goals include lowering pollution levels in the ocean, keeping coastal and marine ecosystems healthy, and increasing efforts to preserve and responsibly use ocean resources (UNDP, 2023). The Blue Economy Vision 2025 of the World Bank helps nations craft plans to use the ocean's resources sustainably for economic development. As a different way to achieve sustainable development and economic progress, it stresses the importance of changes to governance, strengthening of capacities, and long-term investment in coastal and marine regions (World Bank, 2017). The blue economy has been very beneficial to Australia's fisheries, tourist industry, and marine transportation.

In addition, the government of Australia has put a lot of money into marine conservation and research to make sure that ocean resources are used sustainably for development. One organisation that is crucial in this regard is the Great Barrier Reef Marine Park Authority, which plays a key role in preserving the reef, improving environmental sustainability, and attracting tourists (Great Barrier Reef Marine Park Authority, 2021). For instance, national policies like Australia's Marine Policy (1998) encourage the conservation of marine life and the responsible use of the ocean's resources in a sustainable manner. Among its components are plans to create marine parks and guarantee coordinated ocean management (Great Barrier Reef Marine Park Authority, 2021).

One component of Canada's blue economy is the fishing sector, which plays an important role in the local economy, particularly in coastal areas. Canada's plan for the blue economy centres on developing biotechnology, preserving natural areas, and maintaining healthy fisheries. Integrated ocean management, which strikes a balance between social, economic, and environmental goals, has its roots in the Canadian Oceans Act of 1997 and following policies (Government of Canada, 2021). To ensure the long-term viability of Canada's maritime resources, the country passed the Oceans Act in 1997. According to the Canadian government (2021), this plan prioritises ecosystem-based management, marine conservation, and the long-term growth of ocean-related businesses.

Norway has developed cutting-edge technology for sustainable aquaculture and offshore oil production to reduce environmental effects as part of its national economic policy that incorporates the blue economy. The research and development of the seafood sector is supported by investments in marine research and innovation made possible by the Norwegian

Seafood Research Fund (FHF) (Norwegian Seafood Research Fund, 2021). Economic growth is the principal objective of Norway's Integrated Ocean Management Plan (2002), which also promotes sustainable aquaculture practices, fisheries management, and conservation of marine biodiversity (Norwegian Ministry of Trade, Industry and Fisheries, 2021). The plan integrates economic, environmental, and social factors as a holistic approach.

Sustainable use and development of marine resources, conservation of the marine environment, and improvement of marine research and technology within Japan are all goals of the Japanese Basic Act on Ocean Policy (2007). Sustainable fishing practices and renewable energy in the ocean are two areas that it backs (Fisheries Agency of Japan, 2021).

Provisions for reducing marine pollution, conserving marine biodiversity, and promoting sustainable use of marine resources for enhanced economic growth are included in South Korea's Marine Environment Management Act (2008), which is designed with the aim of protecting and managing the marine environment sustainably (Korean Maritime Institute, 2020). South Korea serves as a strong example of the importance of the blue economy. In the fields of marine biotechnology and environmentally friendly aquaculture, the nation has made great achievements. According to the Korean Maritime Institute (2020), the goal of South Korea's Ocean Industry Development Plan is to increase the monetary worth of marine resources while simultaneously protecting the environment.

For an African continent that is desperately seeking new revenue streams to fuel economic expansion, the blue economy offers great hope for diversifying and developing the region's economy (AU, 2019).

When it comes to fostering the blue economy, Seychelles and Mauritius are mostly responsible. Sustainable fishing, marine conservation, and the growth of marine-based tourism are the focal points of the Blue Economy Roadmap, a strategic framework and roadmap that Seychelles created in 2018 under the auspices of the Seychelles Blue Economy. Its principal goal is to achieve ocean-based sustainable development in line with the Sustainable Development Agenda 2030 by integrating the economy, the environment, and society. The Seychelles Ministry of Finance, Trade and Economic Planning (2018) states that the government was an early adopter of blue bonds, a tool for financing environmentally friendly fishing and marine projects that contribute to long-term economic growth and development.

The blue economy is an important part of Mauritius's economic strategy. The country has invested in sustainable fisheries, aquaculture, and marine renewable energy, which has helped create jobs and improve livelihoods for coastal communities. The economy as a whole has also benefitted from these policies and initiatives (Mauritius Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping, 2017).

Operation Phakisa is South Africa's plan to increase GDP by tapping into the country's vast maritime resources. Offshore oil and gas development, aquaculture, marine protection services, and marine transport are the main focuses of the effort (South African Government, 2014). Operation Phakisa, which began in 2014 as a crucial part of South Africa's National Development Plan for economic and social growth, is centred on the maritime sector, which could add R177 billion to GDP by 2033 and generate 800,000 to 1 million direct jobs. Establishing a system of marine protection zones to save five percent of the world's oceans is another objective of the program. The strategy also calls for multi-sectoral expert teams to collaborate on planning, setting lofty goals, and then closely monitoring and assessing the tactics put in place to achieve those goals, as well as any obstacles that may arise. With an anticipated rise in business prospects around its ports, South Africa anticipates a surge in economic growth as a result of the movement of more than 300 million metric tonnes of cargo and 1.2 million metric tonnes of liquid fuel along its coastline (South African Government, 2014).

The blue economy is a notion that Kenya has included in its national development objectives. One of the long-term goals of Kenya's Vision 2030 is to build a blue economy that relies on environmentally responsible fishing, shipping, and tourism. Kenya has seen sustainable development and prosperity thanks in large part to the government's policies that encourage investment in marine-based companies and work to improve marine conservation (Kenya Vision 2030, 2018).

As part of its larger plan for sustainable development and economic growth, Ghana has also made progress in building its blue economy, namely in the fishing industry. To guarantee food security and economic prosperity, the Ghana Fisheries and Aquaculture Sector Development Plan seeks to promote sustainable fisheries and aquaculture. The strategy aims to address issues related to illicit fishing, improve fisheries management, and promote the growth of aquaculture (Ghana Ministry of Fisheries and Aquaculture growth, 2015).

Diversification, sustainable development, and economic growth are all within reach in Nigeria thanks to the country's blue economy. The local economy is quite vulnerable to swings in the global oil market because of the country's substantial dependence on crude oil exports. According to Namamah and Ezenyimulu (2023), Nigeria has the potential to safeguard its marine environment, provide employment opportunities, and enhance people's standard of living through the sustainable development of its maritime and coastal resources. One significant move towards realising this potential was when President Bola Ahmed Tinubu created the Federal Ministry of Marine and Blue Economy. The coastal areas of Nigeria are teeming with marine life and resources, making them ideal locations for fishing, aquaculture, tourism, and maritime transportation. But there are many obstacles in the way of Nigeria's blue economy implementation, such as a lack of a solid operational infrastructure, a skewed view of the security risks faced by coastal communities, an official policy framework for the blue economy that has not been released yet, and a lack of understanding, sensitivity, and support from key stakeholders. To solve these problems, we need teamwork between the government and businesses, clear goals, effective blue economy policies, and long-lasting practices that ensure economic growth. Combating elements that discourage investment and weaken the blue economy, including armed piracy, oil theft, infrastructure vandalism, illicit fishing, and aquacultural activities, requires a secure marine environment. Among other important security players, the Nigerian Navy unwittingly assumes this responsibility for security, which is crucial to the launch and operation of the blue economy. Potentially blue economy-defining activities are common in the Niger Delta and other parts of Nigeria's South-South area, but they are not governed, controlled, or assessed by the government. Fishing, aquaculture, and maritime tourism are some of the unofficial endeavours taking place in this oil- and gas-rich region. Distractions such as a lack of political will, inconsistent state policies, and the state's overwhelming preference for oil and gas revenue have taken attention away from the blue economy and all it has to offer.

METHODOLOGY

The goals and objectives of this study informed its approach, which places an emphasis on the interconnectedness of sustainable development, economic growth in Nigeria, and the blue economy. To prove this theory, we had to define "blue economy" and look at relevant literature, including blue economy policy frameworks from across the world that are results-driven, to see if we could find an other way to achieve sustainable development and economic progress. The following definitions and literature evaluations of "blue economy," "sustainable development," and "economic growth" were based on appropriate secondary data and examined their interplay in international, continental, regional, and national settings. Key results, policy choices, and suggestions were elicited through additional analysis.

DISCUSSION, ANALYSIS AND KEY FINDINGS

Many ocean-based economic activities are dependent on rapidly changing marine ecosystems, which are themselves experiencing extraordinary rates of change as more nations see the blue economy as a vital economic frontier and driver of industrialisation and prosperity. A vital job that the ocean performs—the generation of oxygen for living things and the sequestration of carbon dioxide—is jeopardised by human-caused variables, like climate change. To reap the benefits of a country's blue economy, sustainable management and development of ocean areas is essential for sustaining and restoring ocean health, which is the same as guaranteeing ocean riches. Sustainable development and economic prosperity are within Nigeria's reach with the help of the blue economy. Diversifying the economy, creating employment, and improving lives are all possible outcomes of Nigeria's investment in the sustainable use of marine resources. Addressing investment and infrastructure issues, bolstering regulatory and legislative frameworks, and guaranteeing environmental sustainability are all necessary for the blue economy to be successfully implemented. But the latter isn't possible without first establishing a legal and policy framework to direct the blue economy and the marine ecology that supports it. The establishment of a long-term blue economy that contributes to national and individual prosperity will be hindered by the lack of an appropriate legislative and regulatory framework. With the creation of the Federal Ministry of Marine and Blue Economy by President Bola Ahmed Tinubu's administration, Nigeria is making its intentions clear: it wants to tap into its blue economy to develop its maritime resources to their full potential, broaden its opportunities beyond land-based development, and establish itself as a regional and global leader in the blue economy. Adegboyega Oyetola, the federal minister in charge of the ministry, has spearheaded efforts to convene national and subnational stakeholder conferences to formulate a blueprint for the country's approach to the maritime and blue economy. These conferences will bring together representatives from the public and private sectors, as well as international experts in the fields of maritime and blue economy. Maritime transport, trade and shipping; fisheries and aquaculture; marine abiotic resources; and marine innovation and technology are the five (5) main thrusts highlighted in the draft policy document, which provides an overview of the country's marine and blue economy endowments and their current state. As stated by the minister, the ministry's long-term objective is to position the blue economy as a vital engine of national growth in accordance with Africa's Agenda 2063. Economic growth and sustainable development are components of a prosperous nation. In addition, Ibrahim Kalthum, the director of planning and research for the ministry, argues that the blue economy includes important fields like tourism, fisheries and aquaculture, blue energy, and maritime transport. These areas, according to Kalthum, have enormous potential to generate wealth, create jobs, and improve people's livelihoods and living conditions in Nigeria. A key component of national development, the marine and blue economy may lead to social inclusion, environmental sustainability, and economic diversification.

Important results show that some blue economy solutions propel sustainable development and economic progress while solving some of the world's most serious environmental problems. New financial tools, such as blue bonds, can help fund marine and fisheries sustainability initiatives. Launching a blue bond in 2018, Seychelles raised \$15 million to fund sustainable fishing and marine conservation, making them the first government to do so. Nigeria is scheduled to unveil its national policy on marine and blue industries soon, and the success of this program has prompted other nations and areas to investigate comparable funding structures to boost the blue industry. Aquaculture techniques that are both innovative and sustainable are contributing to the seafood industry's ability to keep up with demand without destroying natural resources. Nigeria is also interested in exploring the possibility of integrated multi-trophic aquaculture (IMTA) systems, which include farming several species together in such a way that the waste products of one species may be used as nutrients by another. Nations like Norway

and Canada have used this strategy to great effect, lessening their negative effects on the environment and making better use of their resources. Another novel avenue that Nigeria is investigating is marine biotechnology, which is creating new goods and processes by using marine creatures and their derivatives. This field has great potential for improvements in medicines, biofuels, and environmental remediation. For instance, studies conducted in some continental nations have shown that marine-derived enzymes are being utilised to create novel pharmaceuticals and that algae is being investigated as a potential long-term biofuel source (Leal et al., 2016).

Offshore wind, wave, and tidal power are just a few examples of the renewable energy sources that the maritime industry has to offer. More efficient and cheaper use of these renewable energy sources is becoming possible thanks to technological developments. For example, Nigeria has the opportunity to learn from the world's leading coastal and offshore wind farms in Denmark and the UK, which produce enormous quantities of renewable energy while cutting down on emissions of greenhouse gases. The OECD reports that since its inception, the world's offshore wind capacity has increased from zero to over seven gigawatts (GW), and that by 2050, this number is expected to continue to rise (OECD 2016). These developments show how the blue economy may promote sustainable development, safeguard marine habitats, and generate profits and other advantages. Countries like Nigeria can secure the future of their coastal and marine resources by maintaining their investment in these cutting-edge technologies. The blue economy, which includes maritime trade, is projected to maintain a minimum yearly growth rate of 3% by 2030 and a worldwide tourism rate of almost 4% by 2025, with coastal and ocean tourism showing the most promising development prospects (OECD, 2016). These additional findings demonstrate that the blue economy holds enormous promise for the tourism, recreational, large haul transportation/shipping, minerals exploration, pharmaceuticals, and biotechnology sectors in Nigeria. As a result, these industries are expected to support economic growth by creating jobs and enhancing the surrounding activities. In addition to promoting innovation and technological advancement in the field of ocean sciences and technology, it helps with food security and nutrition by ensuring sustainable fisheries and the previously mentioned aquacultural practices within the marine ecosystem. It also aids in adapting to and mitigating the effects of climate change by storing carbon in the ocean and building resilience.

If the blue economy in Nigeria is put into place correctly, new businesses will spring up to take advantage of offshore wind, tidal, and wave energy; offshore aquaculture; seabed mining; marine biotechnology; cruise tourism; and offshore wind and wave energy, among other resources

Policy Options

According to the World Bank, the ocean contributes an estimated \$1.5 trillion to the world economy every year, and by 2030, this amount is expected to increase. Nearly 50 million more employment may be created in Africa alone through sustainable ocean economy sectors. If Nigeria wants to reap the benefits of its blue economy, it has to put money into projects that tap into its vast network of inland waterways and its 850 kilometres of coastline along the Atlantic Ocean, which is rich in marine resources such as minerals, fish, oil, and gas. The nation's sustainable development and economic growth might be greatly enhanced if these resources are used appropriately through policies that are both well-designed and effective. This paper proposes the following policy ideas that might enhance the existing stakeholder conversation and draft on the national policy for marine and blue economy. Its addition to the body of knowledge is based on its analysis of Nigeria's embryonic blue economy.

S/N	POLICY OPTION	PROSPECT(S) FOR SUSTAINABLE DEVELOPMENT & ECONOMIC GROWTH
1	Policy on Fisheries and Aquaculture - seeking to enhance the sustainability and productivity of fisheries and aquacultural practice while curtailing illegal fishing and other exploitative practices	Will boost food security as well as increased income generation for coastal communities and nation, tapping from Nigeria's coastal waters which are abundant in fish stocks. This will also serve as a source of protein and livelihood for millions of people, hence boosting economic growth. Sustainable and regulated management of fisheries will reduce poverty while promoting economic well-being across coastal communities
2	Policy on Maritime Transportation – seeking to improve infrastructure, transportation and logistics in the maritime sector for diversified movement of large haul goods, commodities and services	Will ensure a more efficient ports system within Nigeria's blue economy, facilitating improved operations, processes and receipts which are attractive to global trade and transportation and enabling growth drivers such as creation of more jobs in port operations, shipbuilding, shipping and large-haul transportation and logistics
3	Policy on Tourism and Recreation – seeking to develop attractive inland and coastal tourism destinations	Will attract tourists and generate increased revenue for Nigeria
4	Policy on Renewable Energy – seeking to invest in the harnessing of offshore wind, tidal, wave and other forms of blue energy as sustainable alternatives or complements to the national grid	Will provide sustainable and alternative sources of power and electricity, complementing the National Grid, while reducing greenhouse gas emissions and its associated hazards
5	Policy on Blue Oil and Gas Exploration - seeking to leverage Nigeria's substantial offshore reserves which stands to benefit from ease of access to the Dangote refinery which is also strategically located offshore and within the blue economy	Will provide a stable source of revenue hence reducing the nation's increasing vulnerability to global oil price fluctuations, market shocks and dependence on foreign refineries
6	Policy on Blue Research and Innovation - seeking to explore research, development and innovation into marine biotechnology and oceanography	Will unlock new economic opportunities with improved implications and prospects for improved policy design and formulation as well as skilled manpower and production capacity in pharmaceuticals and biotechnology
7	Policy on Job Creation within the Blue Economy – seeking to create and leverage vast employment opportunities available within blue economy sectors such as fishing, aquaculture, maritime transportation, tourism etc	Will serve as a strategic driver for job creation, entrepreneurship and empowerment in a nation with a significant youth population as well as high unemployment rates

Recommendations

After careful consideration, we have come up with the following suggestions for the Federal Government's Ministry of Marine and Blue Economy to consider and put into action: In order to create a national policy framework on marine and blue economy that is free of gaps, the

National Assembly and the Federal Ministry of Marine and Blue Economy should work together to review all laws, both current and past, that deal with aquatic ecosystems.

1. A well-trained special force joint marine police should be established to supervise the licensing, patrol, enforcement, and regular monitoring of vessels and ships that traverse the nation's inland and oceanic waterways. The Federal Ministry of Marine and Blue Economy and the Office of the National Security Adviser should work together to achieve this goal.
2. The Federal Ministry of Marine and Blue Economy shall formulate a nationwide strategy for the marine and blue economy that incorporates important aspects of the 1982 United Nations Convention on Law of the Sea (UNCLOS) and major objectives and measures of the Sustainable Development Goals 14.
3. A Blue Economy Bill should be drafted to accompany the national policy on marine and blue economy. This bill should amend, repeal, or enact relevant provisions to allow Nigeria to make the most of its blue economy opportunities in various ocean and aquatic ecosystems, including aquaculture, fisheries, coastal and maritime tourism, transportation by sea, seabed mining, and energy from the ocean or blue.
4. In order to build and enforce strong managerial frameworks that will implement sustainable fishing methods, safeguard marine biodiversity, and prevent pollution and damage of the marine habitat, the Federal Ministry of Marine and Blue Economy should collaborate with the National Assembly and the business sector.
5. The federal government should work with the following departments: Education; Innovation, Science and Technology; Water Resources and Sanitation; Transportation; Art, Culture, Tourism and Creative Economy; and Labour and Employment to invest in training future workers in sustainable blue practices. This includes things like eco-friendly fishing methods, eco-friendly coastal tourism, eco-friendly seabed mining, marine conservation, eco-friendly transportation, safety measures, and biodiversity.
6. The federal ministry responsible for marine and blue economy should collaborate with the federal ministry of innovation, science and technology and other relevant local and international research institutions to expand knowledge in marine biotechnology, oceanography, marine sciences, and offshore renewable energy generation.
7. The Federal Ministry of Marine and Blue Economy ought to form public-private partnerships (PPP) to build coastal recreation and tourism, renewable energy technology, port and transportation infrastructure, and other related projects. It ought to also provide incentives like tax rebates and land concessions to entice the private sector to actively participate and invest.
8. It is imperative that the Federal Ministry of Marine and Blue Economy takes action to address marine pollution, save coastal habitats, preserve biodiversity, and promote sustainable waste management methods in order to decrease plastic contamination.
9. In order to ensure that stakeholders in urban, rural, and coastal communities are sensitised and orientated on the concept of blue economy and its promising opportunities for Nigeria's sustainable development and economic growth, the Federal Ministry of Marine and Blue Economy should collaborate with the National Orientation Agency.

CONCLUSION

Nigeria stands to gain immeasurably from the blue economy. Nigeria could benefit economically and environmentally from better regulation and exploitation of its vast untapped marine and natural resources, including fish stocks, seabed minerals, oil, gas, and tremendous potential for coastal tourism, recreation, and marine transportation, all of which are found along its extensive shorelines. The blue economy, which is being implemented in Nigeria, makes

both goals attainable. The formation of the Federal Ministry of Marine and Blue Economy in Nigeria is a major milestone in the country's efforts to tap into its abundant coastal and inland water resources. Nigeria may realise the potential of its emerging blue economy by formulating and executing sound policies supported by appropriate legal, regulatory, and legislative frameworks. The local economy of Nigeria can be better protected against shocks caused by fluctuations in global markets if more money is invested in the blue economy, which diversifies the economy away from its reliance on oil and gas. Renewable energy sources, including offshore wind, tidal, and wave power, will generate electricity through sustainable blue economy policies, which will lessen the country's impact on the environment and offer long-term power solutions. In addition to improving people's standard of living, Nigeria can protect its coastal habitats and marine resources for future generations.

Accordingly, an all-encompassing national policy, regulatory and legal framework is primary and key to the effective take of Nigeria's blue economy and its eventual efficient functioning to global standards, while locally yielding sustainable development and economic growth.

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