

Blue Economy, Sustainable Development and Economic Growth in Nigeria

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doi: <https://doi.org/10.37745/ijdes.13/vol13n1117>

Published January 02, 2025

Citation: Agunsoye R., Okoye C. and Sankey Z. (2025) Blue Economy, Sustainable Development and Economic Growth in Nigeria, *International Journal of Development and Economic Sustainability*, Vol.13, No.1, pp.1-17

Abstract: *Economic growth experienced in Nigeria over the past decade has been primarily impacted by dwindling foreign exchange earnings. These earnings are dictated by an increasingly monolithic economy with an almost singular dependence on crude export proceeds. While various options for diversifying the economy, enhancing productivity as well as creating multiple sub-national and national income streams, abound, not much has been done towards harnessing and optimising these alternative options, hence a national Gross Domestic Product (GDP) that is impeded by regular fluctuations that have come to define the global oil market. Blue Economy (BE) as defined by the World Bank underscores, 'the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem'. In its hypothesis, this paper posits that BE presents a viable and alternative path to Nigeria's economic diversification and growth in a manner that is not damaging to the environment and ecosystem, but boosts empowerment, job and wealth creation as key indices of sustainable development and economic growth. In its literature review, the paper connects and underlines typical literature backed cases of BE facilitating sustainable development and economic growth. Its analysis derived from global perspectives, insights and experiences, seeks to situate and apply BE prospects within the Nigerian context. These feeds the eventual proffered recommendations. In its recommendations, the paper puts forward steps that underscore a path to harnessing the Nigeria's BE in such a way as to ensure sustainable development, and that seeks to satisfy current socio-economic diversification and growth needs, boosting wealth creation and empowerment while ensuring safe climate and environmentally friendly practices.*

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

INTRODUCTION

The term ‘blue economy’, also referred to as ocean economy, is used to define or describe the socio-economic activities associated with oceans, seas, coastal areas and marine environment. The blue economy emerged as an influential concept at the Rio + 20 United Conference on Sustainable Development in 2012, redefining the role of the coastal and marine space in sustainable development as well as economic growth, while bringing to the fore the need to ensure ocean health in the face of progressively increasing demands on the global ocean’s renewable and non-renewable resources (Benzaken, et al, 2022). The World Bank in tying blue economy to sustainable development and prospective economic growth, defined it 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). Predominant activities that define the blue economy include fishing and aquaculture, maritime shipping and transportation, coastal tourism, marine renewable energy, seabed mining, blue biotechnology etc (The Commonwealth, 2023).

Globally, the blue economy - which is already being largely implemented across several countries and continents - is the seventh largest economy in the world with an estimated worth of more than 1.5 trillion US dollars annually, and provides over 30 million jobs including facilitating the supply of protein sources to the worlds over 2 billion people (The Commonwealth, 2023). Increased global interests, diversified investment opportunities as well as prospects, has seen the Organisation for Economic Cooperation and Development (OECD) predict a ‘blue growth’ that would yield a double economic-worth of 3 trillion US dollars by the year 2030, (OECD, 2024).

The Sustainable Development Goal (SDG) 14, has as its goal to, ‘conserve and sustainably use the oceans, sea and marine resources for sustainable development’, and this is despite the declining state of the oceans due to human behaviour and climate change factors. More specifically, SDG 14 has its targets set for the year 2030 - which is to ensure sustainable fishing and aquaculture, conserve coastal and marine areas, reduce marine pollution, protect and restore the blue ecosystem amongst several others (UNDP, 2023). Covering almost three quarters of the planet Earth, oceans are amongst the most prominent futures on the planet, serving as the Earth’s respiratory system and enabling over 90 percent of global trade, 95 percent of global telecommunications infrastructure, 30 percent of global offshore oil and gas, over 15 percent global animal protein supply, over 5 percent of global gross domestic product (GDP) and over 7 percent global employment (European Commission, 2023). The global ocean economy encompasses coastal tourism, mineral exploration and transportation, and comprises up to 13 coastal megacities out of the world’s 20 megacities (Cicin-Sain, 2023). Other naturally occurring benefits for sustainable development as projected from the perspective of the global blue economy, include provision of oxygen for global life, absorption of 30 percent of the world’s carbon dioxide, global climate and temperature regulation, and the natural activities of tides, waves, currents and offshore winds as sources of sustainable energy (Cicin-Sain, 2023; Purcell, 2023).

Accordingly, this paper seeks to proffer ways and means to attaining a Nigerian blue economy that aligns with SDG 14 amongst other factors seeking to achieve inclusive economic growth, environmental sustainability and safety as well as prosperity for the nation. As such, the paper seeks to contribute to what could be termed the fledgling discourse on blue economy and sustainable development in Nigeria, especially on the back of deliberate steps taking by Nigeria's President, Bola Ahmed Tinubu, in establishing Federal Ministry of Marine and Blue Economy.

With up to 70 percent of planet earth consisting oceans, seas, etc, hence under the immediate purview of the blue economy, there is an urgent need for deliberate management, optimisation and harnessing of these resources, and same should apply within the geographical or blue space that constitutes Nigeria. Furthermore, the effective implementation and take-off of the blue economy in Nigeria in line with the SDG 14 will act to reduce marine pollution, protect and restore marine and coastal ecosystems, minimise the impacts of ocean acidification, regulate fishing practices, conserve coastal and marine areas and optimise and harness the economic benefits that accrue from sustainable use of marine resources such as aquaculture, transportation and tourism (UNDP, 2023).

CONCEPTUAL CLARIFICATION

Blue Economy

Blue economy, according to Purcell, 2023, is 'a concept that holds the promise of sustainable development and responsible resource utilisation within vast oceans and coastal areas.' She further submits that the blue economy encompasses all economic activities that are directly or indirectly linked to the oceans, seas and coasts, (Purcell, 2023). Blue economy she avers, also comprises the innovative and sustainable strategies, solutions and technologies specific to the maritime and ocean sectors, that are designed to address environmental challenges as well as promote economic development while harnessing the full potential of the ocean in a sustainable manner. World Bank (2017), defines the blue economy as the sustainable use of ocean resources for economic growth, improved livelihoods and jobs as well as improved health of the ocean ecosystem. The European Commission defines the blue economy as all economic activities that relate to the oceans, seas and coasts, and which cover or oversee a wide range of interlinked, established and emerging sectors, (European Commission, 2023). The Commonwealth of Nations define the blue economy as an emerging concept which encourages an improved and sustainable exploitation, innovation and stewardship process that oversees our ocean, sea and marine resources (The Commonwealth, 2023). Bertazzo (2018), defines blue economy as referring to "the range of economic uses of ocean and coastal resources – such as energy, shipping, fisheries, aquaculture, mining and tourism, as well as comprising economic benefits that are not necessarily marketable, such as, carbon storage, coastal protection, cultural values and biodiversity". Blue economy, "refers to the decoupling of socioeconomic development through ocean-related sectors and activities from environmental and ecosystems degradation, drawing from scientific findings which submit that ocean resources are limited and that the health of the oceans has drastically declined due to anthropogenic activities" (World Bank & The UN, 2017).

An important aspect to managing the blue economy is to understand and better manage the many aspects of oceanic sustainability, ranging from sustainable fisheries to ecosystem health to pollution and so on. The sustainable management of ocean resources requires collaboration within and across nation-states as well as the public-private sectors, and this in turn will yield sustainable development.

Sustainable Development

The concept of sustainable development originated within the scope of environmental change in the 1980s during a presentation between the UN Environmental Programme and the International Union and World Wildlife Fund; it was underpinned by social, ecological and economic factors (Azapagic, et al, 2004). The concept however gained wider recognition after the publication of the 'Brundtland Report' by the World Commission on Environment and Development (WCED) in 1987. Sustainable development, according to the Brundtland Report, is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). The International Institute for Sustainable Development (IISD) on its part submit that the concept of sustainability is the foundation that underpins the current leading global framework for international cooperation known as the Sustainable Development Goals (SDGs). Borowy (2015) in her assessment of the history of the Brundtland Commission (WCED), defined sustainable development as an organising principle or process that seeks to ensure human development goals is managed in such a way as to ensure society's naturally occurring resources are managed to meet human needs without compromising or undermining the integrity and stability of the natural system (Borowy, 2015).

Sustainable development as envisaged in this paper is clarified and defined vis a vis its direct qualifying of the blue economy, and in yielding economic growth thereof. Blue economy is simply a process that encompasses the sustainable use of ocean resources for economic growth, it aims to harmonise economic growth with environmental preservation – powered by sustainable practices. In this context, the key words are sustainable use and sustainable practices, and both yield sustainable development. As such, the Sustainable Development Goal (SDG) 14 which is dedicated to the oceans and marine resources lends more credence to this conceptual clarification. SDG 14 was premised on at least seven targets all of which holistically converge to achieve a sustainable ocean economy by the year 2030, (UNDP, 2023). These targets, including - preventing and significantly reducing marine pollution of all kinds; sustainably managing and protecting coastal and marine ecosystems for healthier and productive oceans; addressing the impact of ocean acidification; regulating, preventing and ending overfishing, harmful and illegal fishing practices; conserving at least 10 percent of coastal and marine areas; prohibiting certain forms of fishing subsidies; increasing economic benefits to developing countries through the sustainable use of marine resources including tourism, fisheries and aquaculture; and increasing scientific knowledge, technology and research for improved ocean health – all contribute to blue economy inspired sustainable development which ultimately yield economic growth. Global Goals defines SDG 14 as the push to conserve and sustainably use the oceans, seas and marine resources for sustainable development (The Global Goals, 2023). Very importantly, the defunct Sustainable

Development Commission (SDC), explained that the concept of sustainable development has at its core, “an approach to development that looks to balance different and often competing needs against an awareness of the environmental, social and economic limitations we face as a society” (SDC, 2011)

Economic Growth

Growth is best described as a progressive process that sees to an improved or enhanced transformation from a previous state; hence, economic growth underlines a progressive upward transformation of the economy of an entity - a process by which a nation’s development and wealth increases over time (Nafziger, 2012). Economic growth according to McKinsey, 2023, “describes how much an entity such as a country, is increasing and improving the goods and services it produces”. DFID, 2009, defines economic growth as the increase in the production and generation of goods and services in an economy. It includes the underlying processes in which a country’s economy progressively expands over time leading to an increase in the value of goods and services produced. Economic growth is the sustained short, medium to long term increase in productivity and total output of services and goods, respectively, within a nation’s economy. The United Kingdom (UK) Department for Business Innovation and Skills (BIS), in 2011 defined economic growth as, “the continuous improvement in the capacity to satisfy the demand for goods and services, resulting from increased production scale, and improved productivity” (BIS, 2011). On its part, in 2009, the Department for International Development (DFID, 2009), submitted that economic growth remains a powerful instrument for reducing poverty as well as improving the quality of life in developing countries. According to (Ref), the size of an economy is measured by the total production of goods and services in the economy, hence, economic growth is the increase in size of a country’s economy over a set period of time. The rise in a nation’s Gross Domestic Product (GDP), serves as an indicator as well as measurement for economic growth. The rate of economic growth of a country is compared using the ratio of GDP to the population i.e. per-capita income; rate of economic growth refers to the geometric annual rate of GDP growth over a period of time (Tampakoudis et al, 2014).

In clarifying the difference between economic growth and economic development; note that while the latter applies to economies that are close to the level of subsistence, the former applies to economies already experiencing rise in per capita income (Nafziger, 2012). Additionally, economic growth is the increase in the monetary value of all goods and services produced within the economy over a period of time, while economic development refers to the inherent processes by which the overall welfare and wellbeing of a nation’s general population improves (Tampakoudis et al, 2014).

Economic growth in the context of the blue economy is simply charting an environmentally healthy path to sustainable development by decoupling economic development from environmental degradation and in the process harnessing and optimising the benefits obtainable from the largely unexploited marine resources in a manner that sustainable, (Odey, 2023). Lee, at al (2020), equally submit that the Blue Economy as an increasingly popular concept fully

materialises when economic activity is in balance with the long-term capacity of ocean ecosystems to function in patterns that are sustainable and not destructive to the environment.

REVIEW OF LITERATURE AND POLICY FRAMEWORKS

Blue economy comprises various socio-economic activities that mostly exploit the natural habitat provided by oceans, seas, coastal areas, and the marine environment (Bertazzo, 2018). According to the World Bank, blue economy 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). Accordingly, the concept of blue economy has become increasingly recognized, for instance, the European Union's Blue Growth strategy which aims to support sustainable growth in the maritime sector, recognizes the potential of oceans, seas, and coasts in creating jobs as well as spurring economic growth while ensuring the long-term sustainability of marine ecosystems, (European Commission, 2020). Blue economy also offers significant environmental benefits such as helping mitigate the adverse effects of climate change, protecting marine biodiversity, and promoting social inclusion by providing livelihoods and enhancing food security (OECD, 2017). For instance, sustainable fishing practices and aquaculture can help maintain fish populations as well as protect marine habitats. At the same time, renewable energy from ocean resources can reduce reliance on fossil fuels while decreasing greenhouse gas emissions (UNEP, 2020). The blue economy, however, is not without its challenges. Over-exploitation of marine resources, habitat destruction, pollution, and climate change pose significant threats to the health and resilience of ocean ecosystems (Cicin-Sain, 2023). Implementation of effective governance frameworks, investment in research and innovation, and international cooperation are essential to harnessing the full potential of the blue economy. By adopting a holistic approach that integrates economic, environmental, and social considerations, countries can ensure the sustainable development of their marine and coastal resources, contributing to broader sustainable development goals (UNDP, 2023).

Globally, the blue economy is the seventh-largest economy, valued at over \$1.5 trillion annually, and is expected to grow to \$3 trillion by 2030 (OECD, 2017). It supports over 30 million jobs and provides essential services, including food security through fisheries and aquaculture - which supply protein to over 2 billion people. Coastal tourism, contributing 5% of global GDP and 6-7% of global employment, is also a significant component of the blue economy (Cicin-Sain, 2023). Several global and national policy frameworks have significantly contributed to the development and sustainability of the blue economy. Two policies stand out on the global stage; first, the United Nations Sustainable Development Goal 14 (SDG 14) which focuses on conserving and sustainably using the oceans, seas, and marine resources for sustainable development and economic growth; it includes targets to prevent and reduce marine pollution, manage and protect marine and coastal ecosystems, and enhance the conservation and sustainable use of ocean-based resources (UNDP, 2023). Second, the World Bank's Blue Economy Vision 2025, which supports countries in developing policies that promote the sustainable use of ocean resources for economic growth. It emphasizes the need for governance reforms, capacity building, and sustainable investment in marine and coastal areas as an

alternative path to sustainable development and economic growth (World Bank, 2017). Australia benefits significantly from the blue economy through its fisheries, tourism, and maritime transport sectors. The Australian government has invested heavily in marine research and conservation to ensure the sustainable use of ocean resources for sustainable development; for instance, the Great Barrier Reef Marine Park Authority is pivotal in protecting and conserving the Great Barrier Reef, enhancing environmental sustainability and tourism (Great Barrier Reef Marine Park Authority, 2021). At the nation-state level, examples such as Australia's Marine Policy (1998), promotes the ecologically friendly and sustainable development of marine resources as well as the protection of marine biodiversity. It includes measures for ensuring integrated ocean management and establishing marine protected areas (Great Barrier Reef Marine Park Authority, 2021). In Canada, the blue economy includes a robust fishing industry crucial for local economies, especially in coastal regions. Canada's blue economy strategy, emphasizes sustainable fisheries, conservation, and biotechnology development. The Canadian Oceans Act of 1997 and subsequent policies after it, have laid the foundation for integrated ocean management, balancing ecological, economic, and social objectives (Government of Canada, 2021). Canada's Oceans Act (1997) provides a legal framework for sustainably managing Canada's marine resources. It emphasizes ecosystem-based management, marine conservation, and the sustainable development of ocean industries (Government of Canada, 2021). Norway integrates the blue economy into its national economic policy, developing advanced technologies for sustainable aquaculture and offshore oil extraction to minimize environmental impact. Investments in marine research and innovation through the Norwegian Seafood Research Fund (FHF), support the seafood industry's research and development (Norwegian Seafood Research Fund, 2021). Norway's Integrated Ocean Management Plan (2002) focuses on the sustainable use and conservation of marine resources, integrating economic, environmental, and social considerations as a holistic strategy with economic growth as the primary goal; it also supports sustainable aquaculture practices, fisheries management, and marine biodiversity conservation (Norwegian Ministry of Trade, Industry and Fisheries, 2021). The Japanese Basic Act on Ocean Policy (2007) promotes the sustainable development and use of marine resources, the conservation of the marine environment, and the enhancement of marine science and technology within Japan. It supports initiatives in sustainable fisheries and marine renewable energy (Fisheries Agency of Japan, 2021). South Korea's Marine Environment Management Act (2008) is designed with the aim of protecting and managing the marine environment sustainably, it includes ensuring provisions for reducing marine pollution, conserving marine biodiversity, and promoting sustainable use of marine resources for enhanced economic growth (Korean Maritime Institute, 2020). South Korea showcases another robust example of the critical role of the blue economy. The country has made significant strides in marine biotechnology and sustainable aquaculture. South Korea's Ocean Industry Development Plan is designed with the aim to enhance the economic value of marine resources while ensuring environmental sustainability (Korean Maritime Institute, 2020).

Within Africa, the blue economy holds substantial promise for economic diversification and sustainable development to a continent in dire need of alternative income sources to drive economic growth, (AU, 2019).

Majorly, Seychelles and Mauritius have been at the forefront of promoting the blue economy. In 2018, Seychelles developed a strategic framework and roadmap under the auspices of the Seychelles Blue Economy Strategic Framework and Roadmap otherwise known as the Blue Economy Roadmap, which focuses on sustainable fisheries, marine conservation, and the development of marine-based tourism. Its primary objective is an integrated approach to ocean based sustainable development which brings together economy, environment and society, consistent with the Sustainable Development Agenda 2030. The country has also pioneered blue bonds - a financial instrument to support sustainable marine and fishery projects for the country's sustainable development and economic growth (Seychelles Ministry of Finance, Trade and Economic Planning, 2018).

Mauritius views the blue economy as a key pillar of its economic strategy, investing in sustainable fisheries, aquaculture, and marine renewable energy; its policy and strategic initiatives, in this regard, have boosted economic growth by creating jobs, and improving livelihoods across coastal communities while boosting the sub and national economy (Mauritius Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping, 2017).

South Africa, through its Operation Phakisa Initiative, aims to boost economic growth by unlocking the economic potential of its oceans. The initiative primarily targets marine transport, offshore oil and gas exploration, aquaculture, and marine protection services (South African Government, 2014). Launched in 2014 as a key aspect of the National Development Plan for South Africa's socio-economic growth, Operation Phakisa focuses on the ocean economy, which has the potential to contribute up to R177 billion to the gross domestic product (GDP) by 2033, while creating between 800,000 and 1 million direct jobs. The initiative also targets the creation of a network of marine protected areas to protect at least 5% of the ocean space. It also envisages bringing together expert teams from government, labour, business, academia, and other sectors to work together in developing detailed plans with ambitious targets as well as rigorously monitoring and evaluating implementation strategies and potential challenges thereof. South Africa envisages further increase in economic opportunities with the transportation of over 300 million tonnes of cargo and 1.2 million tonnes of liquid fuel along its coast, providing opportunities around the ports, hence increased economic growth (South African Government, 2014).

Kenya integrates the concept of blue economy into its national development plans. Kenya's Vision 2030 comprises the development of the blue economy as a strategic objective, focusing on sustainable fisheries, marine transport, and tourism. The government has also established policies to enhance marine conservation as well as promote investment in marine-based industries all of which has helped yield sustainable development and growth in the nation (Kenya Vision 2030, 2018).

Ghana has also made strides in developing its blue economy as part of its overarching strategy for sustainable development and economic growth, and this in particular in the fisheries sector. The Ghana Fisheries and Aquaculture Sector Development Plan, aims to promote sustainable fisheries and aquaculture to ensure food security and economic growth. The plan includes

measures to combat illegal fishing, enhance fishery management, and support aquaculture development (Ghana Ministry of Fisheries and Aquaculture Development, 2015).

Nigeria's blue economy presents a viable and alternative path to economic diversification, sustainable development and economic growth. The country's heavy reliance on crude oil exports has led to local economic instability due to and often dictated by fluctuations in the global oil market. By harnessing its vast marine and coastal resources, Nigeria can achieve sustainable economic growth that will impact job creation, improve livelihoods, while protecting the marine environment (Anammah & Ezenyimulu, 2023). The establishment of the Federal Ministry of Marine and Blue Economy by President Bola Ahmed Tinubu marks a strategic step towards exploiting and optimising this potential. Nigeria's coastal areas are rich in biodiversity and marine resources, offering opportunities in fisheries, aquaculture, maritime transport, and tourism. However, implementing the blue economy in Nigeria faces several issues and challenges, including inadequate operational infrastructure, poor security risk perception along coastal communities, yet-to-be released official blue economy policy framework, poor stakeholder sensitisation, awareness, and buy-in. Addressing these challenges requires a collaborative approach involving the public and private sectors, setting out clear and measurable goals and milestones, effective policy frameworks and structures for the blue economy, and sustainable practices that ensure economic growth (Benzaken, 2022). Security of the maritime environment is crucial in combating factors that scare investors and undermine the blue economy, such as armed piracy, oil theft, vandalism of infrastructure, illegal fishing and aquacultural practices. This security role, which is essential for the successful implementation and take-off of blue economy, inadvertently falls under the purview of the Nigerian Navy amongst other key security stakeholders. In the South-South region of Nigeria, particularly in the Niger Delta, prospective activities that define the blue economy to some extents are prevalent, but not government regulated, monitored and evaluated. This region, rich in oil and gas deposits, also witness informal efforts invested into fisheries, aquaculture, and marine tourism. Poor political will, state policy inconsistency, and preponderant state-preference for oil and gas income, have all acted to draw focus away from the blue economy, its rich potentials and its prospects.

METHODOLOGY

The methodology adopted in this paper was determined by its aim and objectives which emphasises a nexus between blue economy, sustainable development and economic growth in Nigeria. In validating this hypothesis, the concept of blue economy as a viable and alternative path to sustainable development and economic growth had to be conceptually clarified and literature reviewed – including relevant and results-driven blue economy policy frameworks across the globe. Accordingly, relevant secondary data were adopted in making these clarifications and literature reviews of the respective concepts of 'blue economy', 'sustainable development' and 'economic growth' and their inter-relationship within the global, continental, regional and national context. Furthermore, subsequent analysis was made, which helped elicit key findings, policy options as well as proffered recommendations.

DISCUSSION, ANALYSIS AND KEY FINDINGS

As more countries look to the blue economy as a key economic frontier and source of industrialization and growth, the marine ecosystems upon which many ocean-based economic activities depend are also changing at an unprecedented rate. While the ocean is responsible for generating the much-needed oxygen for human and animal existence as well as carbon sequestration, this important function is under threat due to climate change and other human-initiated factors. Accordingly, maintaining and restoring ocean health is synonymous with ensuring ocean wealth, hence sustainable management and development of ocean spaces for a nation's economic advancement and growth is the cornerstone to deriving benefit from its blue economy. The blue economy offers significant opportunities for Nigeria to achieve sustainable development and economic growth. By investing in the sustainable use of marine resources, Nigeria can diversify its economy, create jobs, and improve livelihoods. The successful implementation of the blue economy requires addressing infrastructural and investment challenges, strengthening governance and regulatory policy frameworks, and ensuring environmental sustainability. Most importantly, however, and very fundamental to the later, is the need to design a policy and regulatory framework to guide the nation's blue economy and its enabling marine ecosystem. The absence of a befitting policy and regulatory framework will impede the implementation of a sustainable blue economy that would yield economic growth for the prosperity of the nation and its citizens. The establishment of Nigeria's Federal Ministry of Marine and Blue Economy by the incumbent administration of President Bola Ahmed Tinubu, communicates the nation's intent at harnessing its blue economy to unlock the vast potential of its marine resources while expanding opportunities beyond the confines of land-based development as well as repositioning Nigeria as a dominant player within the blue economy both regionally and globally. The Federal Minister overseeing the Ministry, Adegboyega Oyetola, has led the push for designing and developing a draft national policy on marine and blue economy through national and sub-national stakeholder conferences that are enriched by diverse private and public stakeholder-inputs, including global maritime and blue economy experts. The draft policy document offers an overview of the country's marine and blue economy endowments and their current state; it underlines the key five (5) thrusts of the framework i.e. legal and institutional framework; maritime transport, trade and shipping; fisheries and aquaculture; marine abiotic resources; and marine innovation and technology. Ultimately, the Ministry's goal, as espoused by the Minister, is to establish the blue economy as a key driver of national prosperity in line with Africa's Agenda 2063. National prosperity encompasses sustainable development and economic growth. To further add to the discourse, the ministry's planning and research Director, Ibrahim Kalthum, submits that the blue economy encompasses key sectors such as fisheries and aquaculture, tourism, blue energy, and maritime transport; these she said hold enormous potential for wealth generation, job creation as well as improvement to livelihoods and conditions of living within Nigeria, which is in tandem with this paper's hypothesis. The marine and blue economy represents a critical pillar for national development and offers a pathway to economic diversification, environmental sustainability and social inclusion.

Key findings reveal that certain innovations within the blue economy help drive sustainable development and economic growth while also addressing some of the most pressing environmental challenges. Innovations such as blue bonds are innovative financial instruments that support sustainable marine and fisheries projects. Seychelles was the first country to launch a blue bond in 2018, raising \$15 million to support sustainable fisheries and marine conservation. The success of this initiative has inspired other countries and regions to explore similar financing mechanisms to promote the blue economy; this is a prospect for Nigeria to explore as it puts together its highly expected National Policy on the Marine and Blue Economy. Innovative but sustainable aquacultural practices are helping to meet the growing demand for seafood while not depleting natural stock. Innovations include developing integrated multi-trophic aquaculture (IMTA) systems, where different species are farmed together to allow one species' waste to be recycled as nutrients for another; this another prospect for exploration by Nigeria. This method has been successfully implemented in countries like Canada and Norway, reducing environmental impacts and improving resource efficiency. Marine biotechnology, which involves using marine organisms and their derivatives to develop new products and processes, holds promise for advancements in pharmaceuticals, biofuels, and environmental remediation, another innovative prospect for exploration by Nigeria. For example, research into some of the continental countries reviewed reveal enzymes derived from marine organisms are being used to develop new drugs, and algae are being explored as a sustainable source of biofuel (Leal et al., 2016).

The marine economy offers vast potential and prospects for renewable energy, including offshore wind, wave, and tidal energy sources. Technological advancements are enabling a more efficient and cost-effective harnessing of these sustainable-energy sources. For instance, coastal and offshore wind farms in the United Kingdom and Denmark are among the world's largest, providing significant amounts of clean energy and reducing greenhouse gas emissions; these are innovative prospects that can further explored by Nigeria. According to the Organisation for Economic Co-operation and Development (OECD), global offshore wind capacity has developed from zero to a capacity of more than 7 gigawatts (GW) today, projections suggest further growth in ocean based renewable energy by 2050 (OECD 2016). These innovations demonstrate the potential of the blue economy to drive sustainable development, protect marine ecosystems, and provide economic growth and the associated benefits. By continuing to invest in these innovative solutions, countries like Nigeria can ensure the long-term sustainability of their marine and coastal resources. Trade within the blue economy i.e. seaborne trade, is expected to continue to grow at annual rates of at least 3 percent by 2030, with global tourism at a rate of almost 4 percent annually by 2025 - with the most prospective growth to be recorded in coastal and ocean tourism (OECD, 2016). These further findings reveal the blue economy presents good prospects for Nigeria's tourism, recreational, large haul transportation/shipping, minerals exploration, pharmaceuticals and biotechnology sectors, respectively, hence contributing to economic growth through job creation and enhanced activities surrounding the operations of these ocean-based industries. It also facilitates support for food security and nutrition through sustainable fisheries and the already highlighted aquacultural practices within the marine ecosystem; it fosters innovation and technology development through research and development in ocean sciences and technology

and supports climate change mitigation and adaptation through ocean-based carbon sequestration and resilience-building.

If properly implemented, Nigeria's blue economy will witness a resurgence of emerging industries that would harness their resources from offshore wind, tidal, and wave energy; oil and gas exploration and production; offshore aquaculture; seabed mining; cruise tourism; and marine biotechnology etc.

Policy Options

The World Bank estimates that the ocean adds \$1.5 trillion annually to the global economy and this figure stands to double by the year 2030. Also, sustainable ocean economy sectors are estimated to generate almost 50 million additional jobs in Africa alone. Nigeria stands to benefit from its blue economy and must key into investments that seek to harness its rich inland waterways as well as its extensive coastline spanning over 850 kilometres along the Atlantic Ocean, which is home to a wide variety of marine resources, including fish stocks, oil and gas reserves, minerals, and other valuable biodiversity. If properly exploited through well designed and effective policies, these resources have the potential to significantly contribute to the nation's sustainable development and economic growth. As part of its contribution to the body of knowledge - within the context of Nigeria's nascent blue economy – this paper proffers the following policy options that can enrich the ongoing stakeholder discourse and draft on the national policy for marine and 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

Accordingly, the following recommendations are proffered to the Federal Government for implementation by its supervising Ministry of Marine and Blue Economy:

1. Federal Ministry of Marine and Blue Economy should partner the National Assembly in reviewing all past and present legislation dealing with the aquatic ecosystem with the view to harmonising them under one roof for the design and development of a gap-free national policy framework on marine and blue economy
2. Federal Ministry of Marine and Blue Economy should partner the Office of the National Security Adviser to coordinate the setting up of a well-trained special forces joint-marine police to oversee the licencing, patrol, enforcement and regular monitoring of vessels and ships plying the nation’s inland and oceanic waterways.
3. The Federal Ministry of Marine and Blue Economy should develop a national policy on marine and blue economy that encompasses significant provisions of the United Nations Convention on Law of the Sea 1982 (UNCLOS) as well as key targets and provisions of the Sustainable Development Goals 14
4. The developed national policy on marine and blue economy should be accompanied by a draft Blue Economy Bill which will ensure the amendment, repeal or enactment of relevant provisions that will enable Nigeria maximise its blue economy potentials within its ocean and aquatic ecosystems, such as aquaculture and fishery, marine

- biotechnology, coastal and maritime tourism, maritime transportation, seabed mining and ocean or blue energy.
5. Federal Ministry of Marine and Blue Economy should partner the National Assembly and private sector in establishing and enforcing robust managerial frameworks that will implement sustainable fishing practices, protect marine biodiversity and prevent pollution and destruction of the marine habitat
 6. Federal Ministry of Marine and Blue Economy should partner the Federal Ministries of Education; Innovation, Science and Technology; Water Resources and Sanitation; Transportation; Art, Culture, Tourism and Creative Economy; and Labour and Employment; in investing in specific skills development and capacity building to enhance skills, knowledge and competency for a prospective workforce in sustainable blue practices such as modern fishing techniques, sustainable coastal tourism, sustainable seabed mining, maritime conservation, maritime transportation, safety and biodiversity
 7. Federal Ministry of Marine and Blue Economy should partner the Federal Ministry of Innovation, Science and Technology as well as relevant international and local research institutions in research and development by conducting studies and training on marine sciences, oceanography, marine biotechnology and offshore renewable energy generation
 8. Federal Ministry of Marine and Blue Economy should engage public private partnerships (PPP) in developing port and transport infrastructure, renewable energy technology, recreation and tourism along the coast as well as facilitate incentives such as tax breaks and land concession to encourage active private sector participation and investment
 9. Federal Ministry of Marine and Blue Economy should implement measures to combat marine pollution, protect coastal ecosystems, conserve biodiversity and reduce plastic pollution through sustainable waste management practices
 10. Federal Ministry of Marine and Blue Economy should partner the National Orientation Agency in ensuring a robust and widespread urban/rural/coastal community stakeholder sensitisation and orientation on the concept of blue economy and its rich prospects for Nigeria's sustainable development and economic

CONCLUSION

The benefits presented by the blue economy to Nigeria cannot be overemphasised. Nigeria, a coastal state with extensive shorelines comprising vast unexploited marine and natural resources such as fish stock, seabed minerals, oil and gas, as well as impressive prospects for coastal tourism, recreation and marine transportation, could do better in regulating and harnessing these for its economic growth and sustainable development. The deliberate design and implementation of the blue economy in Nigeria, presents an extensive opportunity to achieve both the latter. The establishment of Nigeria's Federal Ministry of Marine and Blue Economy marks a significant step towards harnessing these vast inland waterways and coastal resources. By designing and implementing effective policies backed by legislation, regulatory and legal frameworks, Nigeria can unlock the benefits of its nascent blue economy. Further

investing in Nigeria's blue economy allows for diversification away from a monolithic dependence on oil and gas hence reducing local economic vulnerability to shocks dictated by global markets. Sustainable blue economy driven policies will also ensure energy generation from renewable sources such as offshore wind, tidal, and wave energy, hence reducing the country's carbon footprint while providing sustainable energy solutions. Additionally, Nigeria can ensure the longevity of its marine resources and coastal ecosystems while yielding improved livelihoods for its citizenry.

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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