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BLUE ECONOMY IN NIGERIA: OPPORTUNITIES AND CHALLENGES

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Abstract
The over-dependent of the Nigerian economy on oil has posed a serious threat to the country's economic and development prospects. Agriculture was the mainstay of the Nigerian economy prior to the discovery of oil. However, shortly after the discovery of oil, the agricultural sector was gradually abandoned, especially following the oil boom period of the 1970s. The fall in the price of oil in the international oil market has impacted negatively on Nigeria's revenue profile. There has been a persistent call for the diversification of the economy to other sectors, with the blue economy emerging as a potential economic prospect. This paper, therefore, assesses the potentials of blue economy in Nigeria as well as the challenges in driving opportunities in the sector. Methodologically, qualitative approach was used. Extant literature was conceptually and empirically reviewed. Findings reveal that the blue economy contributes to employment generation, generation of Hydro-Electricity, boost of tourism and recreation, serves as veritable source of medicine while also addressing challenges of food security. The paper outlines threats to sustainable blue economy such as unfair trade policy, eutrophication, illegal, unreported, and unregulated (IUU) activities as well as anthropogenic factors such as pollution. The survival and sustainability of the blue economy is predicated on addressing these threats. To address these challenges, the paper recommends, amongst other things, sound legal framework to regulate every activity in the blue economy sector, diversification of the economy and meticulous planning. Furthermore, it recommends interagency collaboration among agencies in the maritime subsector.

Keywords: Economy, Blue Economy and Opportunities.

Introduction
The ocean and its resources are increasingly accepted widely as a viable alternative resource to meet the needs of the rising global population amidst Earth's dwindling land resources. It is projected that with a substantial expansion of many of the current ocean-based economic activities, food, jobs, energy and raw materials to cater for the needs of the projected

population level of 9-10 billion people would become readily available by the year 2030. At the heart of these activities must however remain the health of the ocean ecosystem by preventing its over-exploitation, pollution, biodiversity loss and the negative effects of climate change associated with the expansion. Dealing with these problems, therefore, it is essential to develop of innovative strategies to address the changes that would unfold with the broadening of the ocean waterscape. One of such innovative strategies was the concept of a 'blue economy'. The concept was developed to underscore the importance of the health of the ocean ecosystem considered as pivotal to the sustainability of any economic policy initiative centred on the use of ocean resources. It consists of strategies designed to ensure the sustainable use of ocean resources for economic growth, improved livelihoods, and job creation whilst preserving the health of the ocean ecosystem.

The most important source of human sustenance is the earth's water body which makes up around 70% of the earth's surface, including the ocean, seas, rivers, streams, and lakes (Allison *et al*. 2020). According to Sandifer and Sutton-Grier (2014), the ocean contributes to global wealth by supplying food, clean water, jobs, and clean air, regulating climate, treating waste, supporting biodiversity, and keeping coastal and marine ecosystems healthy. The ocean food industry can provide protein for over 3 billion people and create over 260 million jobs globally, Teh and Sumaila (2011). Globally, the maritime environment's annual worth is $2.5 trillion HoeghGuldberg *et al.* (2015), With the world economy relying on the ocean for approximately 25% of its contribution to the global GDP, estimated at $97 trillion by 2025, this figure is projected to grow further through enhanced conservation of critical marine ecosystems - potentially adding an additional $3 trillion to the global economy (Brito, 2021). The Nigeria economy until the late 1960s relied on agricultural products for its foreign exchange alongside a few solid minerals. However, with the discovery of oil in abundance and following the boom in the oil industry in the 1970s, the other sectors that were predominant in economy notably; agriculture (blue economy) was abandoned (Adeyemi and Abiodun, 2013).

Origin and Concept of Blue Economy

The concept of the Blue Economy as an economic philosophy was first introduced by Gunter Pauli in 1994, following a request by the United Nations to explore sustainable business models for the future, in preparation for COP3 in Japan, where the Kyoto Protocol was later adopted (Pauli, 2010). The term "Blue Economy" gained further international recognition during the United Nations Conference on Sustainable Development (Rio+20) in 2012, where the United Nations Environment Programme (UNEP) presented it as an extension of the Green Economy concept, applied to the marine and coastal environment. The blue economy emphasizes improving human well-being and social equity, while significantly reducing environmental risks and promoting efficient resource use in the ocean sector (UNEP, 2013). The Blue Economy concept grew out of the dissatisfaction of Small Island Developing States (SIDS) and coastal nations throughout the preparatory process for Rio +20. These countries sought to extend the green economy concept to be more applicable to their circumstances and stressed a focus on the "Blue Economy". The differences can, for example, be found in the importance of agriculture versus fisheries in the green economy. SIDS and some coastal States, in addition, are unable to make proper use of Reducing Emissions from Deforestation and Forest Degradation (REDD) programmes, but they nonetheless enjoy the potentials for renewable and non-renewable energy in coastal and offshore areas.

The blue economy recognizes the ocean realm as a newly integrated platform for both ocean-based development and governance. The idea mirrors the dragging line between socioeconomic development and reckless environmental degradation. The term blue economy has been utilized in various ways. However, it is understood to comprise a variety of economic sectors and connected policies that together confirm whether or not the utilization of oceanic resources is sustainable. The blue economy idea seeks to market economic process, social inclusion, and therefore the preservation or improvement of livelihoods while simultaneously guaranteeing the environmental property of the oceans and coastal areas. It's considered the decoupling of socio-economic activities and development from environmental degradation and optimizing the advantages which can be derived from marine resources (Wairimu and Khainga, 2017). The Indian Ocean Rim Association (IORA) defines the blue economy as a subset of the ocean economy that encompasses all direct and indirect ocean-related activities and economic sectors. These activities must function sustainably, ensuring minimal environmental damage and avoiding ecological imbalance while exploring ocean resources for human use (Voyer et al., 2020). Colgan (2003) explains that the ocean economy consists of all economic activities which acquire all or part of its inputs from the ocean or Great Lakes. And the coastal economy which is the second subset of the ocean economy consists of all economic activity in the coastal region and is thus the sum of employment, wages, and output in the region. Some of the coastal economies are the ocean economy, but the coastal economy incorporates a broader set of economic activity (Colgan, 2003).

According to the World Bank (2016), the blue economy is the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs whereas protecting the health of ocean scheme. European Commission defines the blue economy as all economic activities associated with oceans, seas, and coasts. It covers a large vary of interlinked established and rising sectors. The Commonwealth of Nations considers it as a rising idea that inspires a higher situation of our ocean or 'blue' resources. The blue economy integrates an innovative approach to the economic exploitation of the resources of oceans, lakes, rivers and different bodies of water. Blue economy activities can be classified into ocean-based activities (those that are undertaken in the ocean such as fisheries, aquaculture, etc.) and ocean related activities (those that use the products from seafood processing, marine biotechnology, chemicals among others to manufacture products and services for the ocean and ocean-based activities) (UNDP, 2018). Attri (2016) explains that ocean-based economic activities are rapidly expanding, driven by factors such as global population growth, technological advancement, climate change, economic development, and increasing trade. By 2030, it is projected that several ocean-related industries could outpace the growth of the global economy. Blue economy activities are far from being fully harnessed in Nigeria and they are classified into established (shipping, ports, fishing, and marine minerals mainly oil and gas) and emerging (aquaculture, mariculture, biotechnology, and marine renewable energy) activities (NIMASA, 2018). The blue economy in Nigeria can help prepare her for growth without oil (Ekemeabasi, 2020).

Potentials and Opportunities of Blue Economy in Nigeria

Of the estimated 47,000 kilometers of coastline in Africa, Nigeria makes up about 853km. This coastline and a 200 nautical mile exclusive economic zone make up Nigeria’s coastline in the Gulf of Guinea. The coastline equals a maritime area of 290 square kilometers or almost one-third of the nation’s land area of 924 square kilometres (Braimah, 2023). Beyond its

strategic significance, 80 per cent of Nigeria's coastline is made up of the oil and biodiversity-rich Niger Delta. Nigeria has one of the largest wetlands in the world with its coastal and marine ecosystems covering a total of 70,000 square kilometers. These ecosystems are abundant in fish, forests, aquatic plants, coral reefs and aquatic birds, among other types of flora and fauna. Nigeria is classified as a mixed economy, with the maritime sector constituting a significant component, largely due to the country's position as a major oil-producing and exporting nation. Beyond hydrocarbons, Nigeria possesses substantial blue economy potential, encompassing sectors such as fisheries, maritime transport, coastal tourism, offshore renewable energy, and marine biotechnology. According to estimates by the African Blue Economy Alliance, based on data from the Nigerian Maritime Administration and Safety Agency (NIMASA), the value of Nigeria's untapped blue economy is projected at approximately $296 billion. This figure highlights the considerable opportunities for economic diversification and sustainable development, particularly if strategic investments and regulatory frameworks are implemented to unlock these marine-based resources. Both traditional and emerging industries/sectors of the blue economy can lead to job creation, improved food security, tourism and infrastructure development, green energy, smart cities and ports among others when properly harnessed through enabling policy frameworks. These opportunities are thematically discussed:

i. **Employment:** As noted earlier, the blue economy generates employment possibilities in a variety of industries and contributes more than $1.5tn to the global economy. Elisha (2019) opines that with over half of the population under the age of 20, Nigeria is rife with human capital that, if adequately trained and integrated, may change the nation to sustainably reap the benefits of the blue economy through the production of jobs and riches. Moreover, in the world's fisheries industry, women make up 50 per cent of the workforce. If given access to modern technology, affordable funding, and market access, Nigerian women may be able to create a multibillion dollar blue economy that would help to eradicate poverty.
ii. **Source of Tourism and Recreation:** The blue economy also contributes to national development by serving as a source of tourism and recreational. Coastal tourism is a very important sector to the Nigerian economy and many developing countries. Tourism and recreation is a major global industry that not only brings revenue to the nation but also serves as a catalyst to that that attracts investors into the country. Tourism has been a major support of global jobs and has generated trillion of dollars to the participants.
iii. **Sustainable Energy:** The blue economy is being leveraged to create reasonable, sustainable and reliable energy as well as meet mineral resource demands through insights into renewable energy sources and sustainable harvesting of natural resources. The blue economy has enormous potential for renewable energy from wind, tides, waves, biomass sources, and salinity gradients, all of which require technology to capture sustainably.
iv. **Serves as a Source of Food and Medicine:** The blue economy is a source of food and medicine for the people at the seaside. Fish accounts for about 16% of the animal protein consumed globally. Even though human activities have directly and evidently reduced ocean productivity, the blue economy continues to feed the entire nation unequivocally with its various gifts of fishes. The reduction of ocean productivity may also be due to climate change increasing ocean stratification and reducing nutrient mixing in the open seas.

v. **Generation of Hydro-Electricity:** The blue economy presents a viable avenue for enhancing electricity generation across Nigeria's littoral states. However, the country continues to face persistent challenges in power generation, transmission, and, most critically, distribution (Manohar & Adeyanju, 2009). More than a decade later, these structural inefficiencies remain largely unresolved. Sharma and Sharma (2021) lament the underdevelopment of Nigeria's hydroelectric potential, despite the country's considerable natural endowments. Major hydroelectric power stations such as Kainji, Jebba, and Shiroro contribute to national power supply, while gas-fired plants—including Sapele, Egbin, Afam, and Ughelli—operate under their respective generation companies (GenCos). Nigeria is endowed with an abundance of rivers, lakes, and dams that remain underutilized for energy production. Harnessing these water resources through strategic investment and policy reform could significantly expand the nation's electricity generation capacity.

Challenges to Blue Economy Activities in Nigeria

The entire Gulf of Guinea in which Nigeria's coast lies, have been experiencing high numbers of piracy and armed robbery incidents which has become a growing concern to the maritime industry and heavily jeopardizing the activities of the blue economy in the region (NIMASA, 2018). These acts have significant implications within all the sectors of the blue economy by hampering the growth and disrupting the business of the maritime industry as a whole. African states possess meagre infrastructure and proficiencies to assure maritime security and coastal protection in which both are indispensable for establishing a viable blue economy (Rustomjee, 2018). Illegal, Unreported and Unregulated (IUU) fishing is also one of the greatest threats affecting blue economy activities in which almost one-fifth (1/5) of the global fisheries capture is estimated to derive from (Rustomjee, 2018). IUU fishing is so rampant along the all Africa's coastline and especially more on the western coast of Africa where Nigeria's coastline is situated (Rustomjee, 2018). Nigeria and other countries in the region are losing $1.3 billion annually to the IUU fishing as a result of overexploitation of fish stocks, particularly the operation of the unlicensed foreign industrial (Rustomjee, 2016). The blue economy activities have been suffering or threatening by the consequences of climate change as a result of a continual increase in atmospheric carbon emissions cause significant ocean warming. An increase in ocean temperature which is the most common in Nigeria, can lead to the changes in the physical properties of the sea, cause stratification, sea-level rise and changes in the ocean currents then end up generating cumulative impacts to the marine natural resources.

The anthropogenic factors such as pollution from the land-based sources and marine operations, unsustainable exploitation of resources, destruction and alteration of the marine and coastal habitats as a result of coastal development activities and invasive species to mention but few, not all, are the most intense in threatening the activities of blue economy in Nigeria and in Africa as a whole (Ibrahim, 2018). Oil spillage as a result of oil industries activities is also one of the biggest threats affecting the blue economy activities in Nigeria causing a negative impact to the marine environment of the oil producing areas by destructing the ecosystem as a whole (Kadafa, 2012). Eutrophication is also another threat to the blue economy activities caused by an accumulation of nutrients and moves to the sea from industries, agriculture, and sewage discharge. Eutrophication can lead to the formation of algae bloom which change the turbidity of the seawater and reduce the intensity of the light penetrating into the deeper layers of the water causing a lot of temporary and

permanent damage to the marine natural resources, indirectly affecting the blue economy activities as a whole (Visbeck *et al*. 2014).

Regulatory Framework for Nigeria's Blue Economy

Nigeria's maritime sector income is mainly focused on shipping and fisheries. While blue economy presents economic development and opportunities that transcend these traditional established practices to Nigeria, it also places an obligation on Nigeria to implement measures that will protect its aquatic ecosystem for the sustainability of the blue economy. The emerging areas of interest in blue economy include tourism, ocean bottom extractive activities, sea-bed explorations, blue energy, marine biotechnology, and bioprospecting. Presently, there is no comprehensive policy or harmonised law for the implementation of blue economy in Nigeria. South Africa, which is one of the champions of the blue economy, has enacted an Ocean Act and implemented an integrated ocean governance regime to actualise her blue economy policy.[19] Nigeria has set up the ECSBEN and has established a Ministry of Marine and Blue Economy but is yet to have a dedicated or harmonised policy or legislation that will cater to its blue economy vision. Nigeria has different legislations that deal with activities on its aquatic ecosystem. Some of these laws have become obsolete and require amendments to reflect the emerging areas of maritime interest. For instance, the Sea Fisheries Act 1992 does not have a provision for Illegal, Unreported and Unregulated Fishing (IUUF) and other evolving fisheries sustainability principles which were not considered at the time of its enactment. Sustainable fisheries is an essential component of a prosperous blue economy, with marine fisheries contributing more than US$270 billion annually to global GDP.

The Nigerian Coastal and Inland Shipping (Cabotage) Act ("Cabotage Act") has come into effect to ensure that only indigenous vessels and persons can conduct trade of any kind on Nigerian waters. It should be noted that indigenous vessels have also been implicated in IUUF on Nigerian waters. So, there is also the need to license and monitor them just like their foreign counterparts. Some of the legislations that regulate maritime activities in Nigeria are; 1999 Constitution of the Federal Republic of Nigeria (as amended), the Nigerian Maritime Administration and Safety Agency Act 2007 ("NIMASA Act"), Merchant Shipping Act 2007 ("MSA"), the Coastal and Inland Shipping (Cabotage) Act and the Admiralty Jurisdiction Act ("AJA"), National Inland Waterways Authority Act, Territorial Waters Act 1967, Territorial Waters (Amendment) Act 1998, Exclusive Economic Zone Act 1978, Continental Shelf Act 2012, MARPOL and United Nations Convention on Law of the Sea 1982 ("UNCLOS"), It has been noted that the effective implementation of the UNCLOS is necessary for the successful actualization of the blue economy concept.

Theoretical Review

The paper is guided by Institutional Theory. The institutional theory focuses on how organizational behavior and practices are influenced by formal and informal institutions. It goes deeper into the various structures of the society and sees how rules, norms and values become the pathway for social behaviour. Institutional theory focuses on institutions and how they matter in policymaking, so the most general way of explaining how institutions affect policy output is by seeing how the institutions (explained through various trends) empower and constrain actors in policymaking (March and Olsen, 2008). Institutional theory claims that institutions matter in policy process as policymaking process is almost inherently

invaded in the institutional framework of a state which is why institutional theory can be best considered as the best theoretical understanding to be applied in policymaking process. This theory emphasizes how cultural norms, governmental policies, and regulatory frameworks all play a part in influencing entrepreneurial activity in the context of Blue Economy in Nigeria. By fostering an enabling or constrictive atmosphere, institutions can either support or obstruct policy making. Policymakers in Nigeria's blue economy encounter obstacles brought on by bureaucratic red tape, complex regulatory requirements, and overlapping jurisdictions. They can spot chances for policy advocacy and regulatory reform by skillfully navigating the institutional context (Meyer and Rowan, 1977).

Conclusion and Recommendations

The ocean economy has the prospect of contributing immensely to Nigeria's economy engendering economic diversification, promoting food security, facilitating job creation, ensuring technological innovation and supporting environmental conservation. However, it requires meticulous planning, diligent investment, sincere political will and sound legal framework to maximize its positive impact and ensure long-term sustainability. There is also the need for inter-agency collaboration within the maritime subsector in order to realize the potentials of the blue economy. Additionally, international synergy should be fostered between Nigeria and other countries of the world. This will enable them to understudy strategies, concepts and framework put in place to boost blue economy sector.

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