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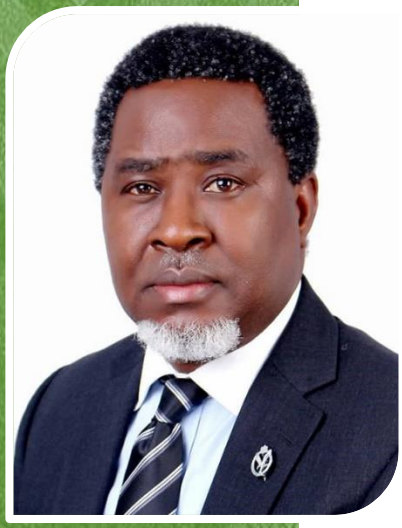
Legal Regimes on Land-Based Marine Pollution Sources and the Social Economic Wellbeing of the Coastal Communities in Rivers State

By

Edward E. Pepple



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Welcome

As humans, our many activities both on land and at sea impact on marine ecosystems, and as population continues to grow, our economic activities produce more intensified impact on the marine environment. It is only recently that man has consistently shown some concern for the long-term pervasive effects of our activities on marine life. This awareness is high now and we try to reappraise the impact of our activities on the ocean. The oceans is critical to man's existence, the ocean feeds us, gives us oxygen, provides millions of jobs, and as well as facilitate international trade. However, there are mountain of threats confronting the ocean and though we look particularly at plastic waste in the study, it may be important to mention such other threats as the rising sea-level, over-fishing, acidification which all do damage these aspects of our lives and infringe on the human rights attached to them.

Plastics find their ways into the seas and ocean environment through land-based sources and pollutes our marine ecosystems at alarming rate with an indication to double by 2030. Plastic are enduring, they take about 20 to 500 **years** to degrade into Micro and Nano plastics. Plastics constitute about **80% of all marine pollution** and experts say there are about **50-75 trillion pieces of plastic** and microplastics in the ocean presently. It is projected that by the year 2050, plastics will likely outweigh the number fishes in the sea. It is true that 100% of all plastics ever produced by humans are still in existence in one form or the other today.

Africa causes 4.4 million metric tons of unmanaged trash due to infrastructural inadequacies. The daily use of plastic products in Nigerians is very high, for instance, at least about 70% of Nigerians drink a sachet of water daily, and that will equal to 60 million plastic bottles daily, which in metric tons should be about 4.8 to 12.7 million metric tons of land-based Single Use Plastic (SUP) which eventually will enter the ocean. Then, most Niger Delta states are particularly vulnerable to plastic pollutions, most of the rivers in the region feeds plastics into the Atlantic Ocean.

This study, raised a call on all critical stakeholders to champion a new cause of action to safe our coastal communities and the marine ecosystem before it is too late.

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Abstract

Marine litters and the general pollution of our marine environment have become a regular and common sight in most coastal communities in Nigeria, from plastic litters to waste oil on our rivers and even vessel wrecks are all becoming a bane on the economic activities that depends on our marine environment, and the major sources of the pollution of the marine environment has been proven to be from human activities on land. The concern both to man and the living resources of the marine environment are real. Fishing, beach leisure and navigational activities are all negatively impacted upon by the menace of marine environment pollution. It has thus, become apposite to examine the legal regimes dealing with Land-Based Marine Pollution with the view to understanding the adequacies or otherwise of our legal system in properly regulating land based marine pollution and to suggest ways to strengthen the regulation of the sector with a view to ending the social, economic and environmental blight of marine pollution. This article looks at the Legal Regimes on Land-Based Marine Pollution Sources and the Social Economic Wellbeing of the Coastal Communities in Rivers State. This article found that the sea and the oceans of the world are governed by international laws and that there are domestic legal and regulatory frameworks governing marine pollutions in Nigeria particularly pollution arising in the areas within national jurisdiction. However, stakeholders in the sector have not been properly put together to play their expected roles in ensuring for attitudinal changes of our communities in dumping waste and plastic litters into creeks and seas. The article recommends that there should be strengthened campaigns and sensitization exercises of stakeholder on the need to take to a new approach in waste disposal to avoid dumping into our creeks, introduce economic and financial systems to promote sustainable investing in the marine sector, strengthen all environmental protection agencies and to scale up trade in alternatives to plastic.

Key Words: Land-Based, Marine, Pollution, Social, Economic, Wellbeing, Coastal Communities, Rivers State.

Background

The Seas and Ocean of the world covers almost three-quarters of our planet, the seas and the oceans sustains life on earth as we know it. The ocean is the 7th largest economy globally in terms of GDP,[1] and the largest continuously connected ecosystem known to mankind, and which span a suite of ecosystem types, ranging from nearshore costal ecosystems to large marine ecosystems to the areas beyond national jurisdiction.[2] The ocean produces products and

[1] UNCTAG, Why a Sustainable Blue Recovery is Needed (2020) < https://unctad.org/news/why-sustainable-blue-recovery needed#:~:text=The%20world%27s%20seventh%20largest%20economy,It%2 7s%20the%20ocean. > Accessed 17 May 2023

[2] GEF, Blue Economy< https://www.thegef.org/sites/default/files/publications/GEF%20Assembly_BlueEconomy%20Factsheet_6.19.18.pdf >Accessed 20 April 2023

services worth 2.5 trillion dollars annually,[3] the ocean feeds our lungs, it feeds our stomach and our wallets. The ocean is said to be the largest most challenging and least exploited territory of the world. To say that the African continent can easily pursue, and build a dynamic blue economy is true because, the fishing sector alone employs about twelve (12) million people in Africa,[4] providing food and nutritional security to over 200 million Africans and generating added value estimated at 24 billion US dollars, which represents almost 1.26% of Africa gross domestic product. Protecting the natural marine resources is protecting our future. The ocean produces half of the world's oxygen, creates the clouds that bring fresh water, and regulates our climate. More than a billion people eat fish as their primary source of protein. Fishing is a $500-billion global industry, and one in six jobs in the United States is marine related.[5]

The ocean is however at grave risk due to certain human activities which threatens the world's ocean. Illegal international fishing practices are decimating fisheries. Huge garbage trash threatens the world oceans, for instance garbage which may be twice the size of Texas floats is said to be in the Pacific Ocean, as an evidence of the trash we cast. There are rising carbon dioxide levels from emissions which consistently increase ocean acidity and thereby endangering coral reefs and other marine life. Until we find suitable ways to reverse these trends, the impact and the damage will be felt whether you live on the coastline or hundreds of miles away from the nearest ocean's edge across the planet and the impact will be profound.[6] These environmental challenges such as rising sea level, high ocean temperature, acidification, plastic litters, climate related disasters, overfishing, and insecurity issues are all real.[7]

The plight of the ocean compels us to fight complacency and build consensus for action. We must reduce the flow of waste into the marine environment and launch out with some intensive studies of the effects of rising acidity levels on sea life. But governments will not undertake this enormous campaign without prodding from the private sector, from businesses that depend on a healthy ocean, from nongovernmental organizations committed to saving the ocean, and from all of us who recognize that the ocean is a defining feature of life on our planet. It will appear that there is no national political will to address this urgent peril has yet to be summoned in Nigeria. Government and the corporate bodies must come together to proffer solution to the myriad of problems confronting the oceans. However, as individuals we stand to ultimately make the difference. Some acts are simple, don't throw trash into

[3] UNCTAD, Ocean economy offers a $2.5 trillion export opportunity: UNCTAD report (2021)< https://unctad.org/news/ocean-economy-offers-25-trillion-export-opportunity-unctad-report >Accessed 20 April 2023

[4] The World Bank, African Program for Fisheries (2020)< https://www.worldbank.org/en/programs/africa-program-for-fisheries >Accessed 20 April 2023

[5] Reuters, Factbox: Why oceans are key to the global economy (2012)< https://www.reuters.com/article/us-oceans-economy-idUSTRE81N09Z20120224 >Accessed 20 April 2023

[6] John Kerry, Opinion: Saving Our Future by Saving Our Oceans (2014< https://www.nationalgeographic.com/science/article/140609-john-kerry-opinion-ocean-conference-science >Accessed 8 March 2023

[7] UNDP, Ocean-driven security challenges in the Pacific (2021)<https://www.undp.org/pacific/news/ocean-driven-security-challenges-pacific >Accessed 20 April, 2023

waterways, buy sustainable seafood, volunteer at least one day a year to clean beaches or waterways in your community. Other acts require a sustained commitment by people everywhere to make certain saving the ocean is a priority for their governments. We recognise that protecting our ocean is not a luxury, it is a necessity that contributes to our economy, our climate, and our way of life.

We cannot over emphasize the importance of the oceans to our world, the oceans regulate the global climate; they mediate temperature and drive the weather, determining rainfall, droughts, and floods. They are also the world's largest store of carbon, where an estimated 83% of the global carbon cycle is circulated through marine waters. Increasingly however, experts hold that the interaction between these two natural forces is altering, and the exchange is intensifying, it is believed that the consequences of this around the world would be very severe as the oceans continue to absorb about a third of all CO2 emitted through all forms of human activities both domestic and industrial. Experts opinion confirms that as the climate responds to decades of increasing carbon emissions, the store of energy and heat from the atmosphere builds up in the ocean and that if we reach a tipping point, we will likely see more extreme weather events, changing ocean currents, rising sea levels and temperatures, and melting of sea ice and ice sheets all of which aggravate the negative impacts of overfishing, illegal fishing, pollution, and habitat degradation.[8]

There is no doubt that the oceans, the seas and river have continued to play significant role in human history and civilization, the oceans have also continued to face severe pressures from human activities and we can do only but continue to strive to save the rivers from man-made pollution sources because the rivers will continue to be a source of life and economic growth to nations. Interestingly, our rivers are diverse and productive ecosystems,[9] they support people and economies. Rivers do contribute to economic growth, food security and human well-being. However, most rivers are indeed heavily polluted particularly in Africa, though some very insignificant number of rivers are still in their natural, wild, meandering state. To keep our river healthy and free flowing is a task that must be pursued by all stakeholders. The oceans and rivers support biodiversity and aquatic lives.[10]

The United Nations Environmental Program (UNEP) and many other international organisations have thus engaged in several programs to keep our world healthy through keeping the oceans and rivers clean. Plastic waste, oil pollution, all forms of garbage and chemical dumps have remained a major challenge to achieving a healthy sea. For instance, we have seen the Tide Turner Plastic Challenge Badge which aims to educate young people about how plastic pollution flows from source to sea, mainly via rivers. One thousand rivers are responsible for nearly 80 per cent of global annual riverine plastic emissions. About 11 million

[8] WWF, How Climate Change Relates to Oceans< https://www.worldwildlife.org/stories/how-climate-change-relates-to-oceans >Accessed 8 March 2

[9] Growing demand for hydropower, irrigation and inland navigation is driving rapid expansion of dam building and other river infrastructure, disrupting and fragmenting rivers.

[10] Lis Mullin Bernhardt, Four Reasons to Protect Rivers (2022)<https://www.unep.org/news-and-stories/story/four-reasons-protect-rivers >Accessed 8 March 2023

tons of plastic finds their ways into the seas annually and that has been calculated to mean about one garbage truck being dumped every minute of the day into the sea.[11]

Statement of the Problems

Shipping operations and activities such as the lifting of oil and transportation of same from production points to end user through giant oil tanker vessels constitute a major sources of oil pollution in coastal communities in Rivers State and this appears to be the case in most littoral states. Chileobu, have said that;

> Maritime industry activities, basically ship operations are the prime factor causing maritime pollution, for example from accidents during oil transportation and ballast water tank transfers of harmful aquatic species between different places in the ocean. In addition, there are the wastes disposed into the sea, especially plastics that remains for several years without decomposition. Ships and marine platforms also release exhaust gases containing SO_2 and NO_2 as well as green-house gases. Ships also release waste water into the sea.[12]

The problems of inadequate waste reception facilities that is prevalent in Africa and indeed in most developing countries seems to be biting very hard in coastal communities in Rivers State. The federal ports facilities in Onne and Port Harcourt do have the presence of a private waste management company-the African Circle, however the need for efficient receptacles to manage waste generated from vessels still exist in Bonny and Andoni communities. The attempt by the Nigerian Ports Authority through her contractor, the African Circle to build a waste receptacle plant in Bonny island had long been halted by community related disputes. The discharge and dumping of waste at sea can be strongly associated to weak maritime domain awareness in Nigeria and as such even where there is a receptacle, some vessel operators particularly vessels used for illegal bunkering activities avoid paying the appropriate fees and thus, prefer to dump waste at sea, because there is no likelihood that they will be caught. Waste management systems for ports in Nigeria is outsourced by the port landlords, the Nigeria Ports Authority (NPA) to private pollution control companies who provide port reception facilities and monitor waste discharge from all vessels visiting the ports and reporting back to the authority in all four navigational districts of Lagos, Port Harcourt, Warri and Calabar.[13]

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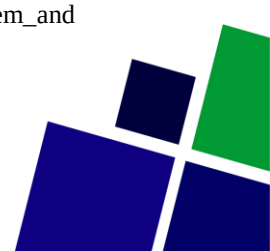
[11] Clean Seas Beat Plastic Pollution()< https://www.cleanseas.org/?_ga=2.223540123.1093649206.1660827778-1252479558.1638359713 >Accessed 9 March 2023

[12] AARON, Chileobu, Marine Pollution and Maritime Environment of Shipping Terminals in Onne Port, Rivers State, Nigeria (2020)< http://www.arcnjournals.org/images/ARCN-IJMMS-2020-13-7-1.pdf >Accessed 20 April 2023

[13] Arinze Uche, Suspended Marine Litter in New Calabar/Bonny Estuary System and Amadi Creek, Rivers State, Nigeria (2020)< https://www.academia.edu/42046760/Suspended_Marine_Litter_in_New_Calabar_Bonny_Estuary_System_and_Amadi_Creek_Rivers_State_Nigeria >Accessed 20 April 2023



The challenge of single use plastic has continued to be an embarrassing one in Nigeria and River State in particular, where virtually all plastic waste finds themselves in the creeks, rivers and seas.[14] Meanwhile, there appears to be an increase in the daily usage of plastic materials as many more daily consumable items are packaged in plastic materials. In Bonny community alone, the commencement of the T7 project has tripled the number of plastic wastes noticed at various dump sites and in the creeks and beach sides. Thousands of construction workers are fed and served with at least one plastic bottle of water daily and the influx into the community mounts huge pressure on the various waste dump sites in the community. The problem of illegal oil bunkering undertaken mostly in the swamp and land oil manifolds results in huge pollution of the environment.[15] Seized vessels that are used by illegal bunkers' is another major pollutant of the seas in Rivers State. The oil leaking from fuel oil bunkering into the sea in highly sensitive areas has a high impact on the marine environment. These pollutants have greatly affected the productivity of Fish and Sea Food Companies in Port Harcourt Metropolis, Rivers State.[16] It is also true that no coastal communities in Nigeria is known to have a well-planned waste collection system that can evacuate waste generated within the community.

Recent research shows that Nature abounds in sustainable alternatives to plastics, which companies and countries must work across borders to boost their production and tackle barriers through policies and cooperation. The present world trade in plastic is about 369 million tonnes as at 2021, this figure will be enough to fill over 18 million trucks and it is imagined that if placed in a queue, would wrap around the globe 13 times.[17] This is a dangerous trend since only less than 10% of plastic materials are recycled. So, a significant number of these plastic material find their way into our seas and oceans, litter our streets, our farm land and create harm to nature.

There is no doubt that many world leaders are truly concerned about the future of the oceans and seas. Just recently, in February 2023 the United Nations have called for an urgent and immediate action to address global problems such as Climate Change, Nuclear threats and Human Rights. It is "a year of game-changing climate action" on climate, pollution and water, said Secretary-General Antonio Guterres as he called for an end to the merciless, relentless and senseless war on nature. We must depart from our old ways and old thinking as it relates to the rivers and oceans of the world. Accordingly, Guterres posit that humanity is taking a sledgehammer to our world's rich biodiversity with brutal and even irreversible consequences for people and planet. "Our ocean is choked by pollution, plastic and chemicals and vampiric

[14] Emeka W. Dumbili and Lesley Henderson, The Challenge of Plastic Pollution in Nigeria (2020)< https://www.researchgate.net/publication/338805077_The_Challenge_of_Plastic_Pollution_in_Nigeria >Accessed 20 April 2023

[15] Jesupemi Are, The Nigeria Security and Civil Defence Corps (NSCDC) has uncovered an illegal oil refining site at Otamiri-Etche, near Port Harcourt, Rivers state capital (2023)< https://www.thecable.ng/nscdc-uncovers-illegal-crude-oil-refinery-in-rivers > Accessed 20 April 2023

[16] Naluba, N. Goddy, Impact of Marine Pollution on the Productivity of Fish and Sea Food Companies in Port Harcourt Metropolis, Rivers State, Nigeria (2021) < https://www.iiardjournals.org/get/IJGEM/VOL.%207%20NO.%202%202021/IMPACT%20OF%20MARINE%20POLLUTION.pdf >Accessed 21 March 2023

[17] UNCTAD, Scaling up plastic substitutes is key to tackling pollution (2023) < https://unctad.org/news/scaling-plastic-substitutes-key-tackling-pollution > Accessed 26 April 2023

overconsumption is draining the lifeblood of our planet water." "We need disruption to end the destruction," he added. "No more baby steps.''[18]

Economic and Financial Mechanisms to Support a Change in Business Approach Towards the Marine Environment.

The economic and financial systems are not yet truly transformed to lead to a shift to sustainability in our business approach here in Nigeria. Governments are yet to incorporate full natural capital accounting into their decision-making and our policies and regulatory frameworks still do not provide special incentives for businesses in the sustainability businesses sector. Green financing, sustainability financing, Sustainability Investment funds and Green Banks are some of the mechanism to draft a change in the attitude of businesses and individuals towards environmental responsibility and sustainability.

Green finance which represents a loaning or investment system that promotes environmental positive activities, such as the purchase of ecologically friendly goods and services or the construction of a green infrastructure is becoming a mainstream phenomenon in many economies of the world. Whether green mortgage,[19] green loan,[20] green credit cards,[21] or green bonds,[22] these mechanisms do generally add great business value, they produce comparative advantages and enhance economic prosperity and prospects by delivering economic and environmental benefits to everybody, and as well, broaden access to environmentally friendly products and services for both individuals and enterprises in ways that leads to more socially inclusive and low carbon growth. This is what has been described as the 'great green multiplier' effect for all.[23] It is still very doubtful if there are Green Banks in Nigeria.[24]

Sustainable finance is about financial standards, norms and regulations which tends to pursue an environmental objective, by allowing the financial system to connect with the economy and its populations through financing its agents while maintaining a growth objective. They are financial tools that serve environmental and social goals, green finance is entirely concerned with environmental objectives. Since the Paris Climate Agreement, sustainable finance has

[18] Dinah Voyle Pulver, UN Secretary-General: 'No more baby steps' on climate change (2022)<https://www.usatoday.com/story/news/world/2023/02/06/united-nations-action-end-climate-change/11195142002/?utm_medium=climate.tue.rd.20230207&utm_source=email&utm_content=article&utm_campaign=email-2022 > Accessed 8 February 2023

[19] These mortgages allow lenders to provide better terms to home purchasers of properties with a high environmental sustainability rating or if the buyer agrees to invest in enhancing the environmental performance of a property.

[20] These are loans used to support environmental initiatives such as household solar panels, electric automobiles, energy efficiency projects, and more.

[21] Green credit cards such as Aspirations' Zero card plant a tree every time a customer makes a purchase. They enable customers to direct their expenditure toward green finance in order to have a lasting impact on the environment.

[22] Green bond are bond investments, the earnings from which are used to support a variety of green initiatives such as renewable energy, clean transportation, and conservation, among others.

[23] Emeritus, How Does Green Finance Benefit Organizations and the World (2023)< https://emeritus.org/blog/finance-what-is-green-finance/ >Accessed 22 April 2023

[24] Green banks are banks that do operate like the traditional banks, but they employ public funds to spur private investment in renewable energy and other environmentally friendly initiatives.

been heavily promoted. Sustainable investing on the other hand, is about actions such as putting cash into green energy projects, investing through sustainable investment funds in companies that demonstrate social values such as social inclusion or good governance, for example, by having more women on their boards. Sustainable Investment Funds are mutual funds or exchange-traded funds that invest in companies or projects that have a positive environmental impact. By investing in sustainable investment funds, individuals or organizations can support environmentally-friendly initiatives while also potentially earning a financial return on their investment. Agencies of government such as the Central Bank of Nigeria (CBN), the Nigerian Stock Exchange and the Securities and Exchange Commission (SEC) are the regulator and drivers of sustainable finance and sustainable business-related activities across the finance and capital market in Nigeria.

I am convinced that until our governments engage in visible actions, campaigns, education and enlightenment exercises and policies that show or express the desire to the meet the Paris Agreement goals and limit dangerous climate change, particularly on ocean related activities, marine litters may still remain with us for much longer period of time. Limiting the global mean temperature increase to well below 2°C and pursuing efforts to hold it to 1.5°C, in line with the Paris Agreement is certainly the way to go, but this require immediate significant strengthening and rapid implementation of existing national pledges to reduce greenhouse gas emissions. And I ask the question: Have we campaigned or enlightened the people enough to take to a new way of life to end most point source pollutants sources? It appears that we are still far from seeing all federal, state and local government environmental protection agencies developing ways to control sources of pollution. Are these agencies not supposed to work together to monitor, assess, and limit all sources of pollution that may result naturally and by human actions.

Are there Sustainable Investment Cases in Nigeria?

The position in Nigeria is that many businesses still do prioritise shareholders as their main and dominant audience or focal point when they do make decisions. The global trend and the new truth is that the future of all businesses and the future of project financing is stakeholder's capitalism.[25] This means that in the Now, what matters or what should matter more to businesses should be the employees, communities, and customers, regulators, but a much more important factor is the planet itself and like the shareholders they too must be heard at all times, just as in all decision-making process, business leaders must do well to integrate Environmental, Social, and Governance (ESG) factors. The business attitude of the past was focused on profit, the driving force is to make as much profit as possible, but the cost of making these profits is left for society and nature to bear. We make so much profit from plastics but it is the environment and biodiversity of the oceans and the seas that suffer the impact of plastic wastes. This is the paradox of life when we concentrate on profits alone.

The business attitude of the future will rely more on stakeholders needs in their decision making, and according to Graham Sinclair, the fundamental question investors will be asking is; why should they deploy their limited assets today to support business that operate without ESG policies? The take home for us is that the subject matter of Sustainable finance has taken an important place today for at least two major reasons. First, good practice has shifted to where it always should have been, valuing all forms of capital. Every business on planet Earth directly or indirectly relies upon biodiversity and natural ecosystems. But population sizes of mammals,

[25] Stakeholder capitalism is a form of capitalism in which companies seek long-term value creation by taking into account the needs of all their stakeholders and society at large.

birds, fish, amphibians, and reptiles have seen an alarming average drop of 68 percent since 1970.[26]

Following the problems stated above, the questions one is faced with in this article, are questions as to;

1. What will constitute land-based marine pollution
2. What are the major pollutant sources of the ocean from the land-based sources
3. What impact can land-based marine pollution cause to the economy and wellbeing of coastal communities in Rivers State.
4. Whether there are opportunities for growth for African Nations and the Nigeria blue economy in the context of the African Union Agenda 2063 and the United Nations Sustainable Development Goals.

However, before we get into tackling these questions, it will be expedient to take a general review of some sources of marine pollutions and some concepts that are related thereto.

General Sources of Marine Pollution

Generally, pollutant types are often categorized into physical, chemical, biological and radioactive pollutants,[27] such as Energy pollutants,[28] Organic or biological pollutants,[29] Crude oil pollutants,[30] Domestic pollutants and Synthetic pollutants.[31] Most marine pollution sources start on the land. We now know that every now and then, various activities cause pollution to the seas, oceans and rivers, billions of pounds in trash form enter the ocean, rivers and seas from different sources and most times these garbage's and trash end up either as pollutants to our beaches, they also turn into ocean gyres, some may sink into the sea bed or be eaten up by marine lives that mistake them for food. Human activities remain the major cause and source of pollutants and as far as sea pollution is concerned, human activities along the coastlines and far inland is one of the biggest sources of pollution. We have two major categories of pollution sources called the Nonpoint sources and the Point Sources.

Nonpoint Source Pollution.

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[26] Rebecca Bakken, What Is Sustainable Finance and Why Is It Important? (2021)< https://extension.harvard.edu/blog/what-is-sustainable-finance-and-why-is-it-important/ >Accessed 22 April 2023

[27] Akankali J. A and E.I Elenwo, Sources of Marine Pollution on Nigerian Coastal Resources: An Overview (2015)<https://www.researchgate.net/publication/275242977_Sources_of_Marine_Pollution_on_Nigerian_Coastal_Resources_An_Overview >Accessed 12 Mach 2023

[28] Some of these forms of energy include Noise, Heat, Nuclear, Vibration and solar (Ultraviolet and other forms of radiation). These energy forms are utilizable by man and applied in various forms to drive the various forms of human socioeconomic activities with the exception of noise.

[29] Some of these include urine, feaces and various other products of decay process of organics from living or dead organisms.

[30] Crude oil pollution, a type of chemical pollutant, deserve specific discuss as a pollutant type. This is because it has become one of the most important pollutants of the marine environment. Several factors make crude oil a top polluting substance of aquatic environment.

[31] Synthetic pollution involves pollutants from substances that are manufactured or synthesized by man from factories and laboratories. In other words, they are artificially formulated compounds, which man utilizes as raw materials, drugs, herbicides and pesticides.

Nonpoint sources pollution[32] are pollution sources that occur as a result of either a land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. This source of pollution, usually comes from diffuse sources and are caused mainly by rainfall or snowmelt which while moving over and through the ground picks up and carries away natural and human-made pollutants and deposit them into lakes, rivers, wetlands, coastal waters and ground waters.[33] Nonpoint source pollution can include such sources as our farms that emits bacteria and nutrients from livestock, pet wastes and faulty septic systems, excess fertilizers, herbicides and insecticides from some agricultural and even residential areas, Oil, grease and toxic chemicals from our urban runoff and energy production sources. In most cases, construction sites constitute a major nonpoint source pollution when sediments and bye products are not properly managed or disposed in a proper manner. Other sources through which a nonpoint pollution can come from are the septic tanks, vehicles, boats, cars, and timber harvest areas that emits small amounts of oil every day and they occur as a result of runoff into the seas. We are also made to know that water pollution may actually starts as air pollution, which later settles into waterways and oceans. Even dirt can be a pollutant, just as top soil or silts emanating from construction sites can run off into waterways, to harm fishes and other wildlife habitats.[34] Correcting the harmful effects of nonpoint source pollution is costly. Each year, millions of dollars are spent to restore and protect areas damaged or endangered by nonpoint source pollutants.[35]

Point-Source Pollution

Point source pollution is easy to identify and as the name implies, these are pollutions that comes from a single place. Accordingly, point source pollution has been defined as any contaminant that enters the environment from an easily identified and confined places such as discharge pipes, smokestacks,[36] oil refineries, paper mills, factories and power plants.[37] Point source pollution sources are always rare to occur but when they do, they create very huge impact on the environment.[38]

Whether in surface water and or groundwater Point-source pollutants are usually found in a plume that has the highest concentrations of the pollutant nearest to the source such as the

[32] Nonpoint source pollution has been reported as a leading cause of water quality problems. The effects of nonpoint source pollutants on specific waters vary and may not always be fully assessed. However, we know that these pollutants have harmful effects on drinking water supplies, recreation, fisheries and wildl

[33] EPA, Basic Information about Nonpoint Source (NPS) Pollution(2022)< https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution> Accessed 12 March 2023

[34]National Ocean Service, What is the biggest source of pollution in the ocean? (2023) < https://oceanservice.noaa.gov/facts/pollution.html >Accessed 12 March 2023

[35] National Ocean Service, What is the biggest source of pollution in the ocean? (2023) < https://oceanservice.noaa.gov/facts/pollution.html >Accessed 12 March 2023

[36] Smokestacks may spew carbon monoxide, heavy metal, sulphur dioxide, nitrogen dioxide, or "particulate matter" (small particles) into the air.

[37] National Geographic, Point Source and Nonpoint Sources of Pollution (2023)< https://education.nationalgeographic.org/resource/point-source-and-nonpoint-sources-pollution/ >Accessed 12 March 2023

[38] National Oceanic and Atmospheric Administration, Ocean Pollution Marine Debris < https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-pollution >Accessed 8 March 2023

end of a pipe or an underground injection system and diminishing concentrations farther away from the source. The various types of point-source pollutants found in waters depends on the types of business, industry, agricultural, and urban sources that produce them. Commercial and industrial businesses use hazardous materials in manufacturing or maintenance, and then discharge various wastes from their operations and which raw materials and wastes may include pollutants such as solvents, petroleum products (such as oil and gasoline), or heavy metals. For instance, in sectors like that of agriculture where activities such as animal feeding operations, animal waste treatment lagoons, or storage, handling, mixing, and cleaning areas for pesticides, fertilizers, and petroleum are carried out. Some of the point sources may include and or result in wastewater treatment plants, landfills, utility stations, motor pools, and fleet maintenance facilities. The experience has been that all these activities stated above may involve the use of raw material that are hazardous in nature either used in the process as well as in the waste stream for the facility. And where for any reason, these raw materials have not been handled, stored, and disposed of properly, they may end up in the water supply through discharges at the end of a pipe to surface water, discharges on the ground that move through the ground with infiltrating rainwater, or direct discharges beneath the ground surface.[39]

Usually point source pollution includes many pollutants such as nutrients, metals, biological material, bacteria which have been found to be very common with factories and sewage treatment plants. It is common knowledge that most factories discharge their effluent directly to the local waterways and some factory do actually treat before they discharge. It has become very important to care for our seas and oceans because a sea, ocean or water that is polluted is dangerous to wildlife, and also dangerous for drinking or recreational purposes for humans.[40]

Marine debris

This is a persistent pollution problem that reaches throughout the entire ocean and Great Lakes. Our ocean and waterways are polluted with a wide variety of marine debris, ranging from tiny microplastics, derelict fishing gear[41] and abandoned vessels which impact on marine lives negatively. Marine debris can harm or kill an animal when it is ingested or when they become entangled with it, and can threaten the habitats generally. Marine debris can also interfere with navigation safety and potentially pose a threat to human health. All marine debris originating on land and entering the ocean through littering, poor waste management practices, storm water discharge, and extreme natural events such as tsunamis and hurricanes. Marine debris have become a persistent problem in many coastal areas of the world and this problem has been associated with a variety of huge economic losses. Loss of revenues in this regard has been as a result of the effect of debris on commercial fisheries, effects on waterfront property values, costs incurred by local governments, companies and volunteer organizations to remove and

[39] Julie K. Harvey, Pollution Sources: Point and Nonpoint (2011) < http://www.waterencyclopedia.com/Po-Re/Pollution-Sources-Point-and-Nonpoint.html> Accessed 12 March 2023

[40] Extention UtahState University, Point-Source Pollution (2017) < https://extension.usu.edu/waterquality/protectyourwater/howtoprotectwaterquality/typesofpollution/point-source >Accessed 12 March 2023

[41] Derelict fishing gear is considered a major problem because it can continue to capture and kill wildlife, damage sensitive habitats, and even compete with and damage active fishing gear.

dispose of marine debris. There are two major types of economic losses which has been seen as it relates to marine debris and they include the loss of recreational value to beach visitors, and the regional economic impact from reduced spending on beach visits in a particular region, that is the value of recreation and the economic impacts of recreation. The value of recreation is a monetary measure of the enjoyment people get from participating in beach recreation.[42]

There is a huge economic impact of marine pollution to the oceans and the seas, The tourism and recreation sector provide huge employment opportunities and the main trust of the sector is on healthy coastal and ocean resources as well as the aesthetic quality of the beach and the ocean environment. It is this main trust of the sector that marine debris tend to destroy in many coastal areas of the world. Studies have revealed that marine debris on beaches and the coastal environment generally leads to a decrease in the number of days visitors spend on those beaches and the result is loss of income. In some coastal environment and beaches like in Bonny there is a complete lack of beach recreation because the beaches are used as garbage dumps.[43] Regaining our coastal environment and making our beaches clean enough will attract beach visitors and thereby generate so much income for our communities, when we create recreational value to beach visitors, we encourage increased spending on our beaches.

Garbage Patches

These are large areas of the ocean where trash, fishing gear, and other marine debris collects. The term “garbage patch” is a misleading nickname, making many believe that garbage patches are "islands of trash" that are visible from afar. These areas are actually made up of debris ranging in size, from microplastics to large bundles of derelict fishing gear, and can be found from the surface of the ocean all the way to Ocean floor. These patches are formed by large, rotating ocean currents, the gyres which pull debris into one location, often to the gyre’s center.[44] There is already an unprecedented rise in the amount of debris and very particularly macro plastics found in the ocean. An estimated 171 trillion plastic particles, primarily microplastics, weighing around 2.3 million tons were afloat in oceans as at 2019.[45] Without widespread policy changes, the study has suggested that the rate at which plastics enter our

[42] ABT Associates, The Effects of Marine Debris on Beach Recreation and Regional Economies in Four Coastal Communities: A Regional Pilot Study. ()< https://marinedebris.noaa.gov/sites/default/files/2019.07.Econ_.Impacts.Marine.Debris.complete.wFN_30Aug2019_508.pdf >Accessed 10 March 2023

[43] Marine Debris Program, The Economic Impacts of Marine Debris on Tourism-Dependent Communities(2023)< https://marinedebris.noaa.gov/research/economic-impacts-marine-debris-tourism-dependent-communities >Accessed 10 March 2023

[44] National Oceanic and Atmospheric Administration, Ocean Pollution Marine Debris () < https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-pollution >Accessed 8 March 2023

[45] Susan Chacko, Polymer plume: Over 170 trillion plastic particles are floating in the oceans, says study (2023)< https://www.downtoearth.org.in/news/pollution/polymer-plume-over-170-trillion-plastic-particles-are-floating-in-the-oceans-says-study-88170 >Accessed 21 April 2023

waters will increase approximately 2.6 times by 2040.[46] Accordingly, Marcus Eriksen[47]said that;

> "We've found an alarming trend of exponential growth of microplastics in the global ocean since the millennium, reaching over 170 trillion plastic particles. This is a stark warning that we must act now at a global scale. We need a strong, legally binding UN Global Treaty on plastic pollution that stops the problem at the source."

A healthy ocean will start with us, our conducts, our life styles, and our waste management systems must change. Humans are at the center of sea and ocean pollution. Heavy metals and other contaminants can accumulate in seafood and be ingested by fishes and other marine animals, making it harmful for humans when we consume them.

Some Causes and Effects of Ocean Pollution

It is true that there are many causes of ocean pollution and we know however that of all the facts available as to the sources of marine pollution, there is one constant event which is the fact that most pollution in our oceans begins on land and they are caused by humans. Ocean pollution, stems primarily from human activities, and more than 80% of which comes from land-based sources.[48] In most cases we have seen industrial and manufacturing plants release chemical bye products such as mercury and other toxic waste into the ocean intentionally. Oil spills from ships activities have also contributed to ocean pollution, especially following transportation of crude oil either through ships and pipelines. Several spills like the Torrey Canyon, The United Kingdom's biggest ever oil spill which occurred in 1967 taught invaluable lessons about the response to disasters, toughened up shipping safety and stirred green activism.[49] On several times winds carry objects and materials into the oceans and this atmospheric pollution as it is called, has been another source of marine pollution. Most deep-sea ocean mining activities in search of various precious substances such as gold, copper, cobalt, zinc, and silver can causes major pollutions.[50]

Ocean pollution is detrimental to marine lives and as well as humans, and marine animals are common victims of ocean pollution. Most ocean pollution sources like oil spills, ensnare or suffocate under water lives. A sea that is polluted with oil traps other creatures like the seabird and their sources of food to feed their young ones is usually affected too. Expert opinion says that most sea animals that survive a crude oil spill sometimes end up with cancer, and are

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[46] E&T, Unprecedented Rise in Ocean Plastic Since 2005, Study Finds (2023) < https://eandt.theiet.org/content/articles/2023/03/unprecedented-rise-in-ocean-plastics-since-2005-study-finds/ >Accessed 11 March 2023

[47] Marcus Eriksen, is the co-founder and researcher from the 5 Gyres Institute

[48] Megan Avakian, New Study Finds Ocean Pollution a Threat to Human Health (2021)< https://www.niehs.nih.gov/research/programs/geh/geh_newsletter/2021/2/articles/new_study_finds_ocean_pollution_a_threat_to_human_health.cfm >Accessed 21 April 2023

[49] The Guardian, Torrey Canyon disaster – the UK's worst-ever oil spill 50 years on(2017)< https://www.theguardian.com/environment/2017/mar/18/torrey-canyon-disaster-uk-worst-ever-oil-spill-50tha-anniversary >Accessed 9 March 2023

[50] Texas Disposal System, Ocean Pollution: Causes, Effects and Prevention (2020)< https://www.texasdisposal.com/blog/ocean-pollution-causes-effects-and-prevention/ >Accessed 9 March 2023

unable to reproduce.[51] Pollution sources like plastic wastes are also very dangerous to sea lives as such micro plastic debris are mistaken for food and eaten by fishes and other aquatic creatures. In some cases, marine lives are entangled and even strangled[52] by these debris such as big plastic bags and derelicts of fishing nets. Marine pollution causes the depletion of oxygen in seawater.[53] The dumping of excessive debris in the ocean and the pollution of the sea through other sources do have gradual consequence of degradation through the use of oxygen sometimes over several years, and which will certainly result to less 02 in the ocean which kills marine lives in the ocean. Ocean pollution is a major threat to even human lives as it is believed that all pollution in the ocean make their way back to our homes, when fishes ingest crude oil and eat dangerous chemical and plastics in the sea, we still in most cases have such fishes back on our dining tables as our meals and all toxics eaten by them are after all deposited in our own system.

The Customary International Law Principle of *Sic utere tuo ut alienum non laedas*

Historically, this principle has been attributed to the *Trail Smelter* arbitration of 1941 wherein the arbitral tribunal had taken the position that in international law, and laws of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein. When the case is of serious consequence and the injury is established by clear and convincing evidence.[54] Both the Stockholm declaration of 1972 and the Rio Declaration of 1992 have made clear adoption of the principles in principles 21 and 2 respectively. Wherein the guiding language and principles have been that, the sovereign right of a state to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction, and states are to protect the environment beyond the limits of national jurisdiction. This is the position also, in the customary international law.[55] It is important to note that obligation under this principle is subject to the use of 'due diligence' to ensure that no trans frontier damage is caused, the implication of which is that a state shall not be held responsible for damage if it has deployed enough 'due diligence'.[56]

[51] Best Ordinioha and Seiyefa Brisibe, The human health implications of crude oil spills in the Niger delta, Nigeria: An interpretation of published studies (2013)< https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3644738/ >Accessed 21 April 2023

[52] Animals most vulnerable to harm from plastic debris in the ocean include dolphins, fish, sharks, turtles, seabirds and crabs.

[53] Conserve Energy Future, Causes, Effects and Solutions to Ocean Pollution That Could Save Our Planet< https://www.conserve-energy-future.com/causes-and-effects-of-ocean-pollution.ph >Accessed 21 April 2023

[54] Yoshifumi Tanaka, Regulation of Land-Based Marine Pollution (2016)<https://lawexplores.com/regulation-of-land-based-marine-pollution-yoshifumi-tanaka/#law-9780199683949-chapter-5-note-728 > Accessed 9 April 2023

[55] This has been established in the 1997 Gabčíkovo-Nagymarous Project case.

[56] It has been argued though, that 'due diligence' is a very vague concept, and the degree of 'due diligence' may vary depending on circumstances such as the nature of activities, technical and economic capabilities of States, and the effectiveness of territorial control. Also, standard of 'due diligence' may change with time and the development of science and technology and so, 'due diligence' standards may not be very helpful, since it offers

Due diligence has become a standard of obligation imposed upon states to take measures to protect persons or activities inside or beyond their respective territories to prevent harmful events and outcomes. In the Corfu Channel case between **UK v Albania**, the judgment by the ICJ in 1949 confirms that it is "every State's obligation not to knowingly allow its territory to be used for acts contrary to the rights of other States." And also, in the Pulp Mills case on the River Uruguay between Argentina v Uruguay in 2010, the ICJ clarified the outlines of the obligation of "due diligence", and further in that case, advocated for an obligation of co-operation for the implementation and application of appropriate measures for the preservation of the marine environment.[57]

Secondly, the principle of ***sic utere tuo ut alienum non laedas*** has not absolutely prohibited environmental damages, it implies that the harm must be significant in order to have recourse to this rule. Though what becomes significant or substantial damage may be less easy to define in a precise form. The third position of the principle of ***sic utere tuo ut alienum non laedas*** is that it is the law of State responsibility concerning already caused damage, meaning that the principle primarily applies only after damage has been caused in the other State's territory in terms of establishing State responsibility and so, it does not directly oblige States to protect the marine environment or to regulate specific sources of marine pollution. It is true and we all do know that most environmental damage are mainly irreversible, so, we look forward more to the prevention of such damage. Accordingly, the International Court of Justice in the *Gabčíkovo-Nagymarous Project* case, has stated that in the field of environmental protection, vigilance and prevention are required on account of the often-irreversible character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damages. Thus, 'Prevention should be a preferred policy because compensation in case of harm often cannot restore the situation prevailing prior to the event or accident'. The argument has been that the customary law principle of ***sic utere tuo ut alienum non laedas*** alone cannot protect the marine environment from land-based marine pollution and therefore many specific rules regulating the marine environment have been negotiated to prevent and regulate land-based marine pollution at treaty levels.

Legal Frameworks

The legal and regulatory frameworks include the Constitution, statutes and government regulations, case laws, which provides binding judicial precedents, and international maritime conventions.

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little guidance with respect to the specific measures which should be taken by each State. The identification of a breach of 'due diligence' encounters considerable difficulty in the context of the regulation of land-based marine pollution because it involves various substances, sources and actors. This is particularly true in the situation where marine contaminations may be produced by activities in more than one State in the same region. In this case, shared responsibility of multiple States may arise. Yet, the determination of the breach of the obligation of due diligence by multiple States will be difficult in reality. Hence an injured State may encounter considerable difficulties in invoking responsibility of multiple States on the basis of the breach of the principle of *sic utere tuo ut alienum non laedas*.

[57] Akiko Takano, Land-Based Pollution of the Sea and Due Diligence Obligations (2017) < https://core.ac.uk/download/pdf/234651098.pdf >Accessed 9 April 2023

International legal framework

All the international legal framework governing the prevention of marine pollution, have clearly established a duty to protect the marine environment from plastic pollution, and a duty to protect the marine environment. Here are some of the international legal frameworks governing land-based marine pollution.

United Nations Convention on the Law of the Sea 1982

The principal international legislation being the United Nations Convention on the Law of the Sea (UNCLOS)1982 mandates the prevention of marine pollution from all sources, including plastics, and applies to land-locked countries that contribute to marine plastic pollution via rivers and other pathways. Article 194 of UNCLOS deals with measures to prevent, reduce and control pollution of the marine environment and it provides that States shall take, individually or jointly as may be appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies. This relates to all sources of pollution of the marine environment, including, those designed to minimize to the fullest possible extent: the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping etc.

Generally, therefore Part XII of UNCLOS have established provisions regarding the protection and preservation of the marine environment on a global, regional and local basis. The understanding is that all state obligations regarding prevention of pollution should be carried out in a manner consistent with the general principles and objectives of the Convention, as indicated in Article 237 of UNCLOS. Particularly, UNCLOS has under Article 207, paragraph 1 provided that States shall adopt laws and regulations to prevent, reduce, and control pollution of the marine environment from land-based sources.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989.

The United Nations Environment Program (UNEP) had on March 22, 1989, in Basel, Switzerland adopted through the Conference of Plenipotentiaries,[58] the Basel Convention as the first attempt to establish an agreement on global standards for hazardous waste, including

[58] Plenipotentiary is a person and especially a diplomatic agent invested with full power to transact business. The Merriam Webster Dictionary have explained that; “When government leaders dispatch their ambassador plenipotentiary, minister plenipotentiary, or envoy plenipotentiary, they are not just sending an agent to deal with foreign affairs but one having full power to act on the behalf of his or her country and government. The word *extraordinary* is also found in titles of government representatives-sometimes in combination with *plenipotentiary* (as in "Ambassador Extraordinary and Plenipotentiary")-to denote an agent assigned to a particular (or extraordinary) diplomatic mission. Both the adjective and the noun *plenipotentiary* (meaning "a person invested with full power to transact business") appeared in the mid-17th century.” See Merriam Webster Dictionary, Plenipotentiary < https://www.merriam-webster.com/dictionary/plenipotentiary >Accessed 21 April 2023

the trade and disposal of toxic waste.[59] The Basel Convention is in response to a public outcry following the discovery, in the 1980s, in Africa and other parts of the developing world of deposits of toxic wastes imported from abroad. There is no doubt that as at the 1980s there has been an increased public environmental awareness which led to corresponding increase in environmental regulations and strong resistance towards the disposal of hazardous wastes in the oceans particularly in the industrialized world. Not In My Back Yard (NIMBY) syndrome is still fresh in our minds.[60] The main thrust of the Basel Convention which entered into force in 1992 was to combat the "toxic trade", as it was termed, protect human health and the environment against the adverse effects of hazardous wastes as the main objective of the Basel convention.

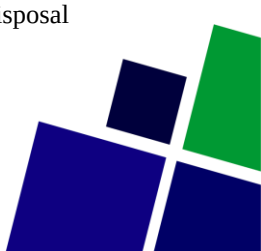
The principal aims of the convention have been expressed under Article 4 and 11 of the convention. Article 4 of the convention creates an obligation on member States to observe the principles of sound environmental waste management and also prohibits member states from exporting waste to Antarctica, to any State not party to the Basel Convention, or to a party having banned the import of hazardous wastes. Under Article 11, parties are free to enter into bilateral or multilateral agreements on hazardous waste management with other parties or with non-party states, provided that such agreements are "no less environmentally sound" than the Basel Convention. In all cases, where transboundary movement is not, in principle, prohibited, it may take place only if it represents an environmentally sound solution, if the principles of environmentally sound management and non-discrimination are observed and if it is carried out in accordance with the Convention's regulatory system.[61] If a transboundary movement of hazardous waste is carried out illegally in contravention of the provisions of articles 6 and 7or cannot be completed as foreseen, articles 8 and 9 of the Convention attributes responsibility to one or more of the States involved, and imposes the duty to ensure safe disposal, either by re-import into the State of generation or otherwise.

Article 14 provides for the establishment of regional or sub-regional centre's which mainly will cater for training and technology transfers in relations to the management of hazardous other wastes. As at date, about fourteen (14) of such cantres have been established for the purpose of carrying out training and capacity building activities in the various regions. There is also, established a prior information principle which implies that before any export may take place, the authorities of the State of export notify the authorities of the prospective States of import and transit, providing them with detailed information on the intended movement. And under Article 6 and 7, any such movement can commence when all States concerned have given their written consent. Plenty of cooperation activities such as information exchange, are required under the convention and technical assistance and as such under Article 10 and 13

[59] CSIS, The Basil Convention: From Hazardous Waste to Plastic Pollution (2021) < https://www.csis.org/analysis/basel-convention-hazardous-waste-plastic-pollution >Accessed 9 April 2023

[60] There is the opinion that it is this increased awareness and resistance to the disposal of industrial waste that led to an escalation of industrial waste disposal costs, which has resulted in the practice by some operators to seek cheap disposal options for hazardous wastes in Eastern Europe and the developing world, where environmental awareness, regulations and enforcement mechanisms were lacking.

[61] UNEP, Basel Convention; Controling Transboubaries Movement of Hazardous Waste and Their Disposal (2011)< http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx >Accessed 9April 2023.



such cooperation's are allowed. Under Article 16, the secretariat is empowered to serve as the clearing house for all such cooperations.

Stockholm Convention (Convention on Persistent Organic Pollutants) 2001.

The Stockholm Convention on Persistent Organic Pollutants (POPs) was adopted by the Conference of Plenipotentiaries on 22 May 2001 in Stockholm, Sweden and the Convention entered into force on 17 May 2004. This global treaty is negotiated for the protection of human health and the environment from chemicals that remain intact in the environment for long periods.[62] It is true that persistent organic pollutants become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment. They are said to lead to serious health concerns like cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and damages to the central and peripheral nervous systems.[63] Thus, the convention requires its member states to take measures to eliminate or reduce the release of Persistent Organic Pollutants into the environment. Member states are under Article 3 of the convention expected to prohibit and/or eliminate the production,[64] use, import and export, any intentionally produced POPs that are listed in Annex A[65] to the Convention. Parties are also under Article 3, restricted to the production and use, as well as the import and export, of the intentionally produced POPs that are listed in Annex B[66] to the convention. The reduction or elimination of releases from unintentionally produced POPs are listed in Annex C to the Convention as provided for under Article 5. Under Article 6, states are also to ensure that stockpiles and wastes[67] consisting of, containing or contaminated with POPs are managed safely and in an environmentally sound manner.

Article 7 provides for the development of implementation plans, while Article 9 talks about the information exchange, public information, awareness and education is provided under Article 10 and the issues of research, development and monitoring are contained in Article 11. The matters that relate to technical assistance are provided for in Article 12. The convention under Article 13 have set out all matters dealing with financial resources and mechanisms. When it deals with such matters as concerning reporting, they are seen in Article 15 of the convention,

[62] Article 1, Stockholm Convention 2001

[63] EPA, Persistent Organic Pollutants: A Global Issue, A Global Response (2023) < https://www.epa.gov/international-cooperation/persistent-organic-pollutants-global-issue-global-response >Accessed 21 April 2023

[64] The Convention promotes the use of best available techniques and best environmental practices for preventing releases of POPs into the environment.

[65] Annex A allows for the registration of specific exemptions for the production or use of listed POPs, in accordance with that Annex and Article 4, bearing in mind that special rules apply to PCBs. The import and export of chemicals listed in Annex A can take place under specific restrictive conditions, as set out in paragraph 2 of Article 3.

[66] Annex B allows for the registration of acceptable purposes for the production and use of the listed POPs, in accordance with that Annex, and for the registration of specific exemptions for the production and use of the listed POPs, in accordance with that Annex and Article 4. The import and export of chemicals listed in Annex B can take place under specific restrictive conditions, as set out in paragraph 2 of Article 3.

[67] Note that the Convention requires that such stockpiles and wastes be identified and managed to reduce or eliminate POPs releases from these sources. The Convention also requires that wastes containing POPs are transported across international boundaries taking into account relevant international rules, standards and guideli

while Article 16 deals with effectiveness evaluation and issues of non-compliance are contained in Article 17 of the Stockholm's convention. The convention established the Persistent Organic Pollutants Review Committee which shall be composed of experts in chemical assessment or management for the purpose of examining proposals for the listing of chemicals, as provided for under Article 8 which set out detailed procedures for listing of new POPs in Annexes A, B, and C, this also applies all information requirements specified in Annexes D, E and F of the Convention.

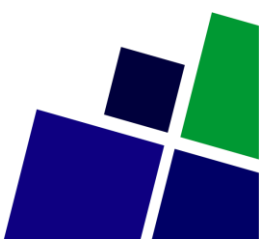
International Convention for the Prevention of Pollution from Ships (MARPOL) 2011

This is the main international convention negotiated for the purpose of the prevention of pollution from ships caused by operational or accidental causes. It was adopted at the International Maritime Organization (IMO) in 1973. The 1978 Protocol was adopted in response to a number of tanker accidents that took place between the year 1976 to 1977. The 1978 Protocol was absorbed into the parent Convention and the combined instrument entered into force in 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added, which came into force in May 2005. The technical requirements of MARPOL are included in six separate Annexes which can be seen hereunder.

1. Annex I—Regulations for the Prevention of Pollution by Oil
2. Annex II—Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk
3. Annex III—Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form
4. Annex IV—Prevention of Pollution by Sewage from Ships
5. Annex V—Prevention of Pollution by Garbage from Ships
6. Annex VI—Prevention of Air Pollution from Ships

Looking at the above, prevention of pollution by garbage from ships are contained in Annex V of MARPOL. Just as oil is to the environment, garbage from ships can be just as deadly and the greatest danger of ship garbage comes from plastic, which can float for years. There is a mistaken beliefe, that the oceans could absorb anything that was thrown into it, but this attitude has to be changed in our society as we continue to create greater awareness of the environment. MARPOL Annex V apply to all ships and it seeks to eliminate and reduce the amount of garbage being discharged into the sea from ships whether a merchant ships to fixed or floating platforms to non-commercial ships like pleasure crafts and yachts. As at date, more than 150 Countries have signed up to MARPOL Annex V. Generally, MARPOL Annex V prohibits the discharge of all garbage into the sea, except as provided otherwise in regulations 4, 5, and 6 of the Annex, which are related to food waste, cargo residues, cleaning agents and additives and animal carcasses.

> Under MARPOL Annex V, garbage includes all kinds of food, domestic and operational waste, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the



> normal operation of the ship and liable to be disposed of continuously or periodically, but does not include fresh fish and parts thereof generated as a result of fishing activities undertaken during the voyage, or as a result of aquaculture activities.

The Marine Environment Protection Committee (MEPC) has developed and also adopted a guideline known as a living document which is to be implemented by all ships and operators of Ports in carrying out MARPOL Annex V, and the main objectives of these Guidelines,[68] is to assist the following target groups; Governments in developing and enacting domestic laws which implement MARPOL Annex V, Shipowners, ship operators, ships' crews, cargo owners and equipment manufacturers in complying with requirements set forth in MARPOL Annex V and relevant domestic laws, and Port and terminal operators in assessing the need for, and providing, adequate reception facilities for garbage generated on all types of ships. There is an obligation on governments to ensure that all ports under MARPOL to have appropriate Port Reception Facilities (PRF) located especially within special areas at ports and terminals for the reception of garbage without causing undue delay to ships. In consideration of the cost of providing an appropriate PRF, Regulation 8.3, of MARPOL Annex V provides that Small Island Developing States (SIDS) could satisfy the requirements for providing adequate port reception facilities through regional arrangements because of those States' unique circumstances. However, parties participating in a regional arrangement must develop a Regional Reception Facility Plan, taking into account the guidelines developed by IMO.

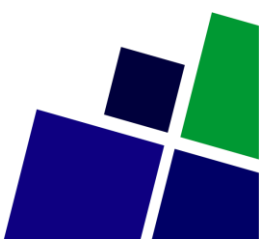
National Legal Frameworks for the Control of Marine Pollution

The Harmful Waste Act 1988

Since the 1980s when a foreign company dumped toxic waste in Koko, Bendel State, Nigeria passed into law the Harmful Waste Act of 1988 which prohibits the dumping or depositing of harmful waste on water or land. Also, the Act criminalised the act of transporting, dumping and depositing harmful waste on land or water. The Act make it an offence to carry, deposit dump, be in possession for the purpose of carrying, depositing or dumping any harmful waste anywhere in Nigeria soil, inland waters and sea, including the Exclusive Economic Zones of Nigeria (E.E.Z).

A person is deemed to deposit or dump harmful waste under this Act if he deposits or dumps the harmful waste, whether solid, semi-solid or liquid, in such circumstances, or for such period that he may be deemed to have abandoned it where it is deposited or dumped, or to have brought it to the place where it is so deposited or dumped for the purpose of its being disposed of or abandoned whether by him or any other person.[69] Both individuals and corporate bodies can commit a crime under the Act. When a person counsels another to commit a crime under this Act, and a crime is actually committed after such counsel by the person to whom the

[68] In the interest of uniformity, Governments are requested to refer to these Guidelines and related guidance developed by the Organization when developing and enforcing appropriate national regulations.
[69] Section 1 (3) HW (SCP, ETC.) ACT, 1988



counsel was given and also it becomes immaterial that the crime, actually committed is the same as the one counselled or a different one or that the crime is committed in the way counselled or in a different way. Provided however, that, in either case, the facts constituting the crime actually committed are a probable consequence of carrying out the counsel. [70]

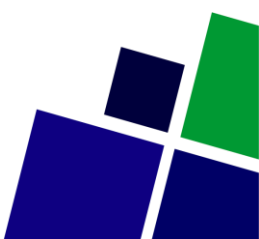
Section 7 of the Act provides that where a crime under this Act has been committed by a body corporate and it is proved that it was committed with the consent or connivance of or is attributable to any neglect on the part of, a director, manager, secretary or other similar officer of the body corporate, or any other person purporting to act in the capacity of a director, manager, secretary or other similar officer, he, as well as the body corporate, shall be guilty of the crime and shall be liable to be proceeded against and punished accordingly. The usual immunity from prosecution conferred on certain persons by or under the Diplomatic Immunities and Privileges Act does not apply and or extend to any crime committed under this Act by any of those persons.[71] The Act,[72] empowers the minister of environment to seal any premises suspected to be used for the dumping of harmful wastes.[73] And the under Sec. 13 of the Act, enforcement jurisdiction resides with the Federal High Court.

The Nigerian Ports Act, 1999

This Act established the Nigerian Ports Authority and defines its functions, powers and liabilities. Under the Act, the authority is in charge of matters relating to port operations like towage, pilotage, and may compulsorily make an acquisition of land in Nigeria.[74] The Authority shall provide and operate, in ports, such facilities as it deems appropriate and maintain, improve and regulate the use of the ports in Nigeria. NPA is authorized under the Act to control pollution arising from oil or any other substance from ships using the port limits or their approaches,[75] and to maintain, improve and regulate the use of ports, and "shall carry out such other activities which are connected with or incidental to its other functions vide this Act".[76]

However, it is important to note that though the Authority has the mandate to handle marine incidents and pollution control within and outside the port, and also saddled with the

[70] Sec 4(1) (a) and (b) HW (SCP, ETC.) ACT, 1988
[71] Sec 9 HW (SCP, ETC.) ACT, 1988
[72] Section 11 (1) HW (SCP, ETC.) ACT, 1988
[73] (2) Where the Minister acts under subsection (1) of this section, any person aggrieved may appeal to the Minister within ten days and the Minister after considering the appeal may confirm or cancel any action taken pursuant to subsection (1) of this section. (3) The sealing of any area or site shall last for three months in the first instance and may be extended by the Minister for another period of three months at a time, so however that the total period of the sealing shall not exceed twelve months. (4) Notwithstanding subsection (2) of this section, upon the receipt of any report in respect of any area or site sealed up, the Minister may direct that any substance found therein which in his opinion is of a harmful nature shall be destroyed or disposed of at such time and in such manner as the Minister thinks fit in the circumstances. (5) The Minister may take other necessary measures to safeguard lives or property found or within the area or site sealed up pursuant to subsection (1) of this section. (6) Any person who knowingly and without reasonable excuse breaks a seal affixed under subsection (1) of this section or obstructs or hinders any operation or measure being taken under subsection (5) of this section shall be guilty of a crime and on conviction shall be liable to a fine of not less than N50, 000 or to imprisonment for not less than five years.
[74] Provided that compensation shall be paid for alienation of land or damage to crops or trees by the Authority.
[75] Section 7 (i), NPA Act 1999
[76] Section 7(b) and (K), NPA Act 1999



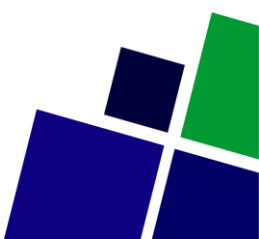
responsibility of managing marine pollution from ships visiting any Nigerian port, it is true that as at date, the Authority does not own, or operate any waste reception facilities but rather have outsourced that responsibility to a private sector party involved in pollution control services. The question many had continued to ask is the question as to the method of checking the quality of services provided by these private sector proponents, are they properly audited, apart from maintaining a pollution monitoring unit even though it has contracted out its waste management responsibility to a private company.

The Nigeria Maritime Administration and Safety Agency (NIMASA)

The Nigeria Maritime Administration and Safety Agency (NIMASA) is the main Nigeria's agency which is specially mandated to prevent and control pollution in the marine environment in Nigeria through implementation of domesticated IMO conventions. Thus, the administrative framework in place for controlling pollution in Nigeria depicts overlapping functions of the parastatals involved and represents a potential source of conflict, the discussion of which is beyond the scope of this paper. The agency is entrusted with the role of enforcing, supervising, and enforcing compliance with all International Maritime Organisation (IMO) conventions such as MARPOL ANNEX V and others. These functions are discharged by NIMASA through its department of Marine Environment Management. The agency is charged with the responsibility to control and prevent marine pollution,[77] to inspect ships for the purposes of maritime safety, maritime security, maritime labour and prevention of maritime pollution.[78] Where the agencies reasonably believe that a crime has been committed by any vessel, shipping company or port operator in relations to the pollution of any part of the Nigerian maritime domain, NIMASA may cause an investigation into any offence which it has reason to believe is being committed, or is about to be committed or has been committed with respect to offences committed under this Act. [79]

Part X of the NIMASA Act deals specifically with the issues of regulation of Marine Pollution and the Agency is empowered to make regulations as it considers appropriate but with the approval of the Minister of transportation and provided that such regulation is not inconsistent with the NIMASA Act. Such regulation[80] shall be in relation to the dumping of ship and shore generated waste in Nigerian waters, and the removal of wrecks which constitute navigation risks and which is a threat to the marine environment.[81]

[77] Section 22 (1) (i), NIMASA Act 2007
[78] Section 22 (2) (a), NIMASA Act 2007
[79] Section 23 (5) (d), NIMASA Act 2007
[80] However, in making such regulations, the Agency shall take into account the need to give effect to provisions which are contained in any international convention or agreement to which Nigeria is a party. The regulations may provide that where a person contravenes a requirement under the regulations, he is guilty of an offence and is liable on summary conviction, to a fine not exceeding the amount as may be determined by the Agency, or on conviction on indictment to imprisonment for a term not exceeding two years or to a fine not exceeding the amount as may be determined by the Agency or to both statutory maximums.
[81] Section 44 (1) (a) (b), NIMASA Act 2007



Section 45 (1) (a)(b) of the Act also Prohibits the carriage, shipment and jettisoning of harmful substances. All documents relating to the carriage of harmful substances by sea, the correct technical name of each such substance shall be stated, and such document supplied by the shipper shall include, or be accompanied by, a signed certificate or declaration that the shipment offered for carriage is properly packaged and marked, labelled or placarded as appropriate and in proper condition for carriage to minimise the hazard to the marine environment. Section 45 (5) (a) to (c) of the Act makes it mandatory for a ship carrying harmful substances to maintain a special list or manifest setting forth the harmful substances on board and the location thereof, or a detailed stowage plan setting out the location of all harmful substances on board in lieu of the special list or manifest referred to above and copies of such documents shall also be retained on shore by the owner of the ship or his representative until the harmful substances are unloaded and a copy of one of these documents shall be made available before departure to the office of the Director-General of NIMASA.

Oil in Navigable Waters Act, 1968

The Act makes provisions governing the implementation of the terms of the International Convention for the Prevention of Pollution of the Sea by Oil 1954 to 1962 and to make provisions for such prevention in the navigable waters of Nigeria. Section 1 (1)of the Act prohibits the discharge of certain oils into prohibited sea areas, if any oil such as crude oil, fuel and lubricating oil[82] is discharged from a Nigerian ship into a part of the sea which, in relation to that ship, is a prohibited sea area, or if any mixture containing not less than 100 parts of oil to which this section applies is discharged from such a ship into such a part of the sea, the owner or master of the ship shall, subject to the provisions of this Act, be guilty of an offence under this section.[83] Except the minister makes by way of a regulation any exceptions from the operation of subsection (1) above.

National Oil Spill Detection and Response Act 2006

The Act established the National Oil Spill Detection and Response Agency[84] with responsibility for the preparedness, detection and response to all oil spillages in Nigeria. And also established the National Control and Response Centre.[85] Section 5 of the Act sets out the main objective of the agency which shall include to co-ordinate and implement the National Oil Spill Contingency Plan for Nigeria by way of establish a viable national operational organization that ensures a safe, timely, effective and appropriate response to major or disastrous oil pollution, identify high-risk areas as well as priority areas for protection and clean up, and establish the mechanism to monitor and assist or where expedient direct the

[82] Section 1 (2) (a)(b) ONW Act, 1968
[83] Any other description of oil which may be prescribed under this subsection by order made by the Minister, having regard to the provisions of any subsequent Convention in so far as it relates to the prevention of pollution of the sea by oil, or having regard to the persistent character of oil of that description and the likelihood that it would cause pollution if discharged from a ship into a prohibited sea area.
[84] Section 1 (1) NOSDRA Act 2006
[85] Section 18 (1) a to c (2) (3) NOSDRA Act 2006

response, including the capability to mobilize the necessary resources to save lives, protect threatened environment, and clean up to the best practical extent of the impacted site;

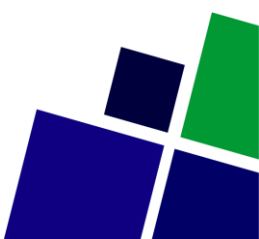
Under section 6 of the Act, the agency is to perform inter alia such function as to

A. be responsible for surveillance and ensure compliance with all existing environmental legislation and the detection of oil spills in the petroleum sector
B. receive reports of oil spillages and co-ordinate oil spill response activities throughout Nigeria;
C. co-ordinate the implementation of the Plan.as may be formulated, from time to time, by the Federal Government;
D. co-ordinate the implementation of the Plan for the removal of hazardous substances as may be issued by the Federal Government
E. perform such other functions as may be required to achieve the aims and objectives of the Agency under this-Act or any plan as may be formulated by the Federal Government pursuant to this Act.

Some special functions[86] has been created for the Agency and these special functions includes the followings;

a) ensure the co-ordination and implementation of the Plan within Nigeria including within 200 nautical miles from the baseline for which the breath of the territorial waters of Nigeria is measured
b) undertake surveillance, reporting, alerting and other response activities 'as they relate to oil spillages
c) encourage regional co-operation among member States of West African sub-region and in the Gulf of Guinea for combating oil spillage and pollution in our contiguous waters
d) strengthen the national capacity and regional action to prevent, control, combat and mitigate marine pollution
e) promote technical co-operation between Nigeria and member States of the West African sub-region;
f) facilitate: (i) the arrival and utilization in and departure from Nigeria of ships, aircrafts and other modes of transport engaged in responding to oil pollution incidents or transporting personnel, cargo, materials and equipment required to deal with such an incident; and (ii) the expeditious movement into, through and out of Nigeria of personnel, cargoes, materials and equipment;
g) (i) The National Control and Response Centre shall for the purposes of a Tier 3 oil spill response, undertake such functions as specified under section 20 of this Act. *(ii)* The Director-General shall have the power to co-opt all the Government Ministries and Agencies mentioned under the Second Schedule to this Act, in the management of a Tier 3 or a major Tier 2 oil spill.

[86] Section 7 NOSDRA Act 2006



The agency has the statutory duty of managing and reducing the impact of oil spills on the Nigerian environment, both marine and land-based environments and as well as prevention and swift response to oil spills. The Land-based is basically for oil and gas pipelines across land and water.[87]

Criminal Code Act Cap. 77 L.F.N of 1997.

The Act contains the basic criminal law offences that relate to damage to the environment, public health and natural resources. Section 245 of the criminal code Act which deals with fouling water prohibits any person to corrupts or fouls the water or any spring, stream, well, tank, or place as to render it less fit for the purpose for which it is ordinarily used and anyone who does shall be guilty of a misdemeanor and is liable for imprisonment for six months. According to Obilor[88] however, this provision over years have been honoured more in its breach than in compliance. Also, any person who vitiates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carrying on business in the neighborhood or passing along a public way and or does any act which is, and which he knows or has reason to believe to be, likely to spread the infection of any disease dangerous to life, whether human or animal, is guilty of a misdemeanor and is liable to imprisonment for six months. [89]

National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2000**.**

The Act establishes the National Environmental Standards and Regulations Enforcement Agency (NESREA)[90] which can rightly be described as Nigeria's lead environmental protection agency and the establishment is in line with section 20 of the 1999 constitution. NESREA[91] was created to replace the defunct Federal Environmental Protection Agency (FEPA). NESREA is responsible for the enforcement of environmental standards, regulations, rules, laws, policies and guidelines.[92] Its authority extends to the enforcement of environmental guidelines and policies,[93] such as the National Policy on the Environment, 1999. The NESREA Act has been described as a new dawn because in both purpose and contents, they aim at addressing the preponderance of obsolete environmental regulations, standards and

[87] Osuji, JN and Agbakwuru JA, A Review on Effectiveness of Marine Pollution Control and Management in Nigeria (2022)<http://www.bioline.org.br/ja >Accessed April 11 2023

[88] Chisom Obilor, Review of the NOSDRA ACT 2006< https://www.academia.edu/28817987/REVIEW_OF_THE_NOSDRA_ACT_2006 >Accessed 13 April, 2023

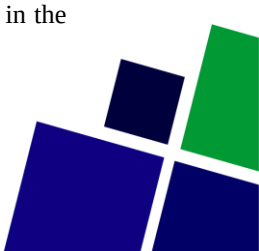
[89] Section 247 (a) and (b) CC Act 1967

[90] Section 1 NESREA Act 2007

[91] NESREA was established on 30 July 2007 as a body corporate with perpetual succession and a common seal, which may sue and be sued in its corporate name.

[92] Section 1 (2) a to c NESREA Act 2007

[93] Though these rules and policies may not have the force of law, they are a vital and necessary element in the protection and preservation of the environment.



enforcement mechanisms, which resulted, over the years, in the high rates of non-compliance with environmental laws, regulations and standards in Nigeria.[94]

The main objective of the agency has been provided under section 2 of the Act to be the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources as well as environmental technology, including coordination and liaison with relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards, regulations, rules, laws, policies and guidelines. And it is the function of the Agency amongst others to;[95]

a) The Agency is to perform such functions as, enforce compliance with laws, guidelines, policies and standards on environmental matters.
b) Coordinate and liaise with stakeholders, within and outside Nigeria, on matters of environmental standards, regulations and enforcement;
c) Enforce compliance with the provisions of international agreements, protocols, conventions and treaties on the environment, including climate change, biodiversity, conservation, desertification, forestry, oil and gas, chemicals, hazardous wastes, ozone depletion, marine and wild life, pollution, sanitation and such other environmental agreements as may from time to time come into force
d) Enforce compliance with policies, standards, legislation and guidelines on water quality, environmental health and sanitation, including pollution abatement
e) Enforce compliance with guidelines and legislations on sustainable management of the ecosystem, biodiversity conservation and the development of Nigeria's natural resources
f) Enforce compliance with any legislation on sound chemical management, safe use of pesticides and disposal of spent packages thereof
g) Enforce compliance with regulations on the importation, exportation, production, distribution, storage, sale, use, handling and disposal of hazardous chemicals and waste other than in the oil and gas sector
h) Enforce through compliance monitoring, the environmental regulations and standards on noise, air, land, seas, oceans and other water bodies other than in the oil and gas sector;
i) Ensure that environmental projects funded by donor organizations and external support agencies adhered to regulations in environmental safety and protection
j) Enforce environmental control measures through registration, licensing and permitting systems other than in the oil and gas sector
k) Conduct environmental audit and establish data bank on regulatory and enforcement mechanisms of environmental standards other than in the oil and gas sector
l) Create public awareness and provide environmental education on sustainable environmental management, promote private sector compliance with environmental

[9494] Muhammed Tawfiq Ladan, Review of NESREA Act 2007 and Regulations 2009-2011: A New Dawn in Environmental Compliance and Enforcement in Nigeria (2013) < https://www.researchgate.net/publication/272290396_Review_of_NESREA_Act_2007_and_Regulations_2009-2011_A_New_Dawn_in_Environmental_Compliance_and_Enforcement_in_Nigeria >Accessed 13 April 2023

[95] Section 7 (a) to (m) NESREA Act 2007

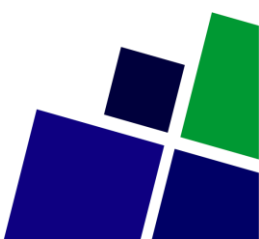
regulations other than in the oil and gas sector and publish general scientific or other data resulting from the performance of its functions.

The power of the agency amongst others includes to[96]

1. Subject to the provisions of the Constitution of the Federal Republic of Nigeria, 1999, and in collaboration with relevant judicial authorities establish mobile courts to expeditiously dispense cases of violation of environmental regulations
2. Conduct public investigations on pollution and the degradation of natural resources, except investigations on oil spillage
3. Submit for the approval of the Minister, proposals for the evolution and review of existing guidelines, regulations and standards on environment other than in the oil and gas sector including items mentioned in section 8 (k)(i) to (xiv)
4. Develop environmental monitoring networks, compile and synthesize environmental data from all sectors other than in the oil and gas sector at national and international levels
5. Undertake, coordinate, utilize and promote the expansion of research, experiments, surveys and studies by public or private agencies, institutions and organizations concerning causes, effects, extent, prevention, reduction and elimination of pollution and such other matters related to environmental protection and natural resources conservation other than in the oil and gas sector as the Agency may, from time to time, determine
6. Enter into agreement and contracts with public or private organizations and individuals to develop, utilize, coordinate and share environmental monitoring programs, research effects, and basic data on chemical, physical and biological effects of various activities on the environment and other environmental related activities other than in the oil and gas sector
7. In collaboration with other relevant agencies and with the approval of the Minister, establish programs for setting standards and regulations for the prevention, reduction and elimination of pollution and other forms of environmental degradation in the nation's air, land, oceans, seas and other water bodies and for restoration and enhancement of the nation's environment and natural resources
8. Collect and make available, through publications and other appropriate means and in co-operation with public or private organizations, basic scientific data and other information pertaining to environmental standards.

The Agency may make regulations setting specifications and standards as it may relate to Air Quality and Atmospheric protection to protect and enhance the quality of Nigeria's air resources, so as to promote the public health or welfare and the natural development and productive capacity of the nations' human, animal, marine or plant life.[97] And in relation to the Ozone protection, the Agency shall in collaboration with other relevant agencies undertake to

[96] Section 8 (a) to (m) NESREA Act 2007
[97] Section 20 (1) (a) to (h) and (2), (2), and (4) NESREA Act 2007



study data and recognize developments in force in other countries, regarding the cumulative effects of all substances, practices, processes and activities which may affect the stratosphere.[98] The agency may in consultation with appropriate authorities identify major noise sources, noise criteria and noise control technology and make regulations on noise, emission, control, abatement, as may be necessary to preserve and maintain public health and welfare, and shall enforce compliance with existing regulations and recommend programs to control noise originating from industrial, commercial, domestic, sports, recreational, transportation or other similar activities.[99] It is within the powers of the agency to collaborate with other relevant agencies to make regulations for the purpose of protecting public health or welfare and enhancing the quality of water to serve the purpose of this Act, provided that in drawing up proposals for such regulations and standards, the Agency shall take into consideration the use and value of public water supplies, propagation of marine and wildlife, recreational purposes, agricultural, industrial and other legitimate use.[100] Generally, matters relating to Effluent limitations,[101] Environmental sanitation,[102] Land resources and watershed quality,[103] and Discharge of hazardous substances and related offences.[104]

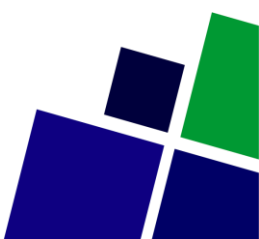
In Part VII-Miscellaneous Provisions, [105] an officer of the Agency may, in the course of his duty, at any reasonable time and on production of his certificate of designation if so required enter and search with a warrant issued by a court, any premises including land, vehicle, tent, vessel, floating craft except Maritime Tankers, Barges or Floating Production, Storage, Offload (FPSO) and oil and gas facilities or any inland water and other structure, at all times, for the purpose of conducting, inspection, searching and taking samples for analysis which he reasonably believes, carries out activities or stores goods which contravene environmental standards or legislation.

Constitution of the Federal Republic of Nigeria 1999

The constitution is the grundnorm and under section 20 provides106 that the State shall protect and improve the environment and safeguard the water, air and land, forest and wild life of Nigeria. Though a lot of scholars have expressed the view that the non-justiciable status of this provision of the law is indicative of the shabby attention given to the environment by the Nigerian State. It must be noted that the inclusion of the protection of the environment in the country's grundnorm and referring to it as a duty of the state is worthy of commendation and it sets out a commitment of the state towards the environment.

Land-Based Marine Pollution

[98] Section 21 (1) to (3) NESREA Act 2007
[99] Section 22(1) a and b (2) (3)(4) NESREA Act 2007
[100] Section 23 (1) to (4) NESREA Act 2007
[101] Section 24 (1) to (5) NESREA Act 2007
[102] Section 25 (1) and (2) NESREA Act 2007
[103] Section 26 (1) and (4) NESREA Act 2007
[104] Section 25 (1) and (5) NESREA Act 2007
[105] Section 30 (1) a to g (2) to (5) NESREA Act
[106]Section 20 CFRN 1999



Land-based marine pollution has become a major challenge faced globally by coastal states and their governments. Many states are yet to discover very effective ways in dealing with this nature of pollutant sources because of their very complex nature. Land based marine pollution sources are indeed described as very difficult marine environmental challenge to handle with ease. There are no sets of rules or methodologies that can be described under international law to fit all in dealing with the prevention, reduction and or control of pollution sources from the land into the sea. The best guide in terms of international law to deal with and or handle maritime pollution from land sources can be seen under UNCLOS,[107] which provided that States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.[108]

There is no doubt that activities[109] whether municipal, industrial or agricultural when carried out on our landmass generate so much wastes and usually a significant amount of these waste run-off into our oceans, seas and rivers. This source alone account for as much as 80 per cent of all marine pollution. Human health, well-being, and the coastal ecosystems are heavily impacted by this trend negatively. Today, we experience more carcinogens in seafood, we see many beaches that are not clean enough for recreation and as such closed, we have more red tides, and more beached carcasses of seabirds, fish and even marine mammals. It is a known fact that about One billion people in developing countries depend on fish for their primary source of protein, making them vulnerable to the chemicals that the fishes carry.[110] The implication therefore is that if nothing is done to prevent continued land-based marine pollution about one billion people in the developing countries will continue to ingest chemicals through sea food daily.

Today, both global and regional alternatives have now acquired special relevance in the management of the oceans, particularly as it relates to pollution and in protecting the marine environment. The international legal dimensions to the protection of marine environment has been examined from the position of the United Nations Convention on the Law of the Sea (1982), and the gaps noticed suggest that the global regulation of marine pollution, may not be suitable to all marine pollution sources.[111] Some marine pollution sources may need approaches

[107] Article 207 UNCLOS 1982

[108] Diego L. Gil Agudelo and Peter G. Wells, 5 Impacts of Land-based Marine Pollution on Ecosystems in the Caribbean Sea()< https://www.degruyter.com/document/doi/10.1515/9789048512805-007/html?lang=en >Accessed 24 February 2023

[109] For instance, sewage and waste water, and other persistent organic pollutants including pesticides, heavy metals, oils, nutrients and sediments are brought by runoff rivers or they are discharged directly into coastal waters

[110] UN Environment Programme, Land-Based Marine Pollution<https://www.unep.org/explore-topics/oceans-seas/what-we-do/working-regional-seas/land-based-pollution >Accessed 13 March 2023

[111] Some argue that the obligations imposed by UNCLOS to prevent pollution from land-based sources are weaker than obligations relating to pollution from other activities, such as seabed activities subject to national jurisdiction (Art. 208), dumping (Art. 210), and pollution from vessels (Art. 211). States are merely called upon to "take into account" international standards and practices. Each state is thus left to judge what measures should be adopted and whether they should be more or less stringent than those reflected in international standards and practices.

that takes into account the common features of a particular region. There have been arguments as to what framework will be more effective in handling land-based marine pollution sources. Some believe and argue that regional approach will be better than a global or national approach. Unlike vessel source pollution, Land-based marine pollution sources usually affects local coastal interests, and therefore the global community shares a smaller part of the environmental cost, and hence, the strong opinion is that regional approaches are suitable. As all seas are connected, land-based source of marine pollution (LBSMP) also have some impacts on oceanic water.

Though we do need global standards in regulating marine pollutions, regulations as it may relate to land-based marine pollution should be seen as more a national and regional affair. In the strong opinion of Alheritiere D,[112] pollution from land-based sources calls for regional action, while other sources of marine pollution like illegal dumping at sea by ships, could be globally handled. Many global, regional and national programmes have been adopted in the fight against land-based marine pollution.

National Efforts to Control Land Based Marine Pollution

Nigeria has about 870-kilometer coastline, stretching from Benin Republic to Cameroon, with an inland waterway measuring 3,000 kilometers and like other coastal countries, Nigeria experiences the challenge of marine pollution which sometimes occur through industrial activity at the sea ports and other landing jetties. As a petroleum producing nation, Nigeria's marine pollution challenge is exacerbated by oil and gas exploration and production activities particularly in the Niger Delta, a region characterised by rivers, rivulets, creeks and the Atlantic ocean. Marine pollution arising out of petroleum activities happens to be a major cause of the social unrest in the area and which over the years have attracted national and international attention.[113]

Land-based pollution represents the single most important cause of marine pollution. The threat of land-based pollution to the marine environment is a serious one because, it mainly affects coastal waters, which are sites of high biological productivity. Contaminations in coastal waters may pose serious risks to marine ecosystems as well as human health. Thus, there is no exaggeration to say that the very survival of coastal populations depends on a healthy marine environment. Whereas the types of land-based sources vary, it may be broadly considered that such sources include municipal, industrial or agricultural sources, discharges from which reach the marine environment from the coast, including from outfalls discharging directly into the marine environment and through run-off, rivers, canals of other water- courses, including underground watercourses. About 60 percent of the world's population live within

[112] Alheritiere Dominique, Marine Pollution Control Regulation: Regional Approach (1982) < https://ideas.repec.org/a/eee/marpol/v6y1982i3p162-174.html >Accessed 13 March 2023

[113] Festus Ugwu, Nigeria: The Law and Marine Pollution (2005) < https://allafrica.com/stories/200601030839.html >Accessed 28 March 2023

100 km of the coast and so, as human population growth continues, marine pollution from land-based activities will become even more problematic.[114]

According to Peterside Dakuku, communities along the coast are paying a huge price for ocean pollution and therefore, it becomes imperative for the federal government to tackle the menace of plastic waste immediately. The Marine Litter Action Plan is one of such ways the government will through NIMASA contribution to build the necessary collaboration in tackling this issue of plastic that poses a great threat to all of us.[115]

Maritime Action Plan on Marine Litter and Plastic Management in Nigeria (MAP-ML+P).

The core commitment of the Nigerian Maritime Administration and Safety Agency (NIMASA), is towards the enthronement of global best practices in the provision of maritime services in Nigeria. The agency particular focus areas include the effective Maritime Safety Administration, Maritime Labour Regulation, Marine Pollution Prevention and Control, Search and Rescue, Cabotage enforcement, Shipping Development and Ship Registration, Training and Certification of Seafarers, and Maritime Capacity Development. These commitments are basically discharged under enabling instruments such as the NIMASA Act 2007,[116] the Merchant Shipping Act (MSA),[117] and the Merchant Shipping (Marine Environment) Regulations, 2012. Nigeria is also a signatory to so many international conventions negotiated under the United Nations Organisation[118] and the International Maritime Organisation (IMO). And thus, in addition to complying with national laws and regulation applicable to ships and shipping companies, is also bound to comply with all provisions of the Marine Environment Protection Conventions of the International Maritime Organization (IMO) to which Nigeria is a signatory to.[119]The maritime action plan is the major

[114] Yoshifumi Tanaka, Regulation of Land-Based Marine Pollution in International Law: A Comparative Analysis Between Global and Regional Legal Frameworks (2016) < https://www.zaoerv.de/66_2006/66_2006_3_a_535_574.pdf >Accessed 25 March 2023

[115] Sulaimon Salau, Government moves to rid Nigerian waters of pollution (2020) < https://guardian.ng/business-services/govt-moves-to-rid-nigerian-waters-of-pollution/ >Accessed 30 March 2023

[116] Sections 22(2); 23 (9) (b) of the NIMASA Act, 2007

[117] Part XXIII Section 335 of the Merchant Shipping Act (MSA), 2007;

[118] The United Nations Convention on the Law of the Sea 1982

[119] Some of the IMO instruments referred to include; International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL), Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LC), 1972 and the 1996 London Protocol, International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990, International Convention on Civil Liability for Oil Pollution Damage, (CLC) 1992, The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND 1992), The International Conference on Limitation of Liability for Maritime Claims, 1976/96, Protocol on Preparedness, Response and Co-operation to pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC-HNS Protocol), International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS), 2001, International Convention on Civil Liability for Bunker Oil Pollution Damage, (BUNKER CONVENTION) 2001, The International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (INTERVENTION), 1969, International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWMC), 2004, Nairobi International Convention on the Removal of Wrecks, 2007, and the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, (HKC) 2009.

policy for which NIMASA has continued to embark on the clean-up of identified marine litter hot-spots and the distribution of sanitation equipment, tools, waste receptacles to coastal communities in Nigeria.

The Maritime Action Plan is made up of six (6) main thematic themes which are implemented through a task force on Marine Litter constituted and inaugurated to coordinate the full execution of the roadmaps of the plan and other plan of activities which are directed towards ensuring for attitudinal change towards the illegal disposal of plastic waste in our rivers and creeks. The plan is also a platform for the agency to seek cooperation and partnerships in the control and possible eradication of marine plastic litters within our marine environments. Through the plan, it is expected that the agency shall development alternatives to single use plastics, and become even more accountable as far as marine environment is concerned. Membership to the task force is targeted at securing public stewardship and effective implementation of the Action Plan.[120] The main objectives of the marine action plan is to sustainably reduce marine litter in Nigerian waters to such level that will not be detrimental to the living resources of the river through the enforcement of a behavioral change of coastal and urban communities, including the enlightenment of all Nigerians on the dangers of marine litters. The main essence being that when we do achieve a cleaner and healthier ocean through collaborations with stakeholders, we enhance the economic growth of Nigeria through the opportunities offered in the blue economy.

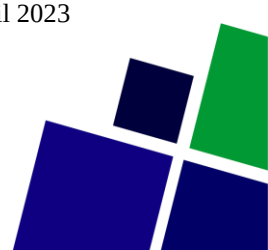
According to the findings of an initial UNEP- GPA and NIMASA study on main items, materials, quantity and sources of marine litter,[121] the Maritime Action Plan on Marine Litter and Plastics (MAP-ML+P) has been divided into six components which explains the actions, activities, timelines and expected outcomes of the program. The components include the following:

Action 1, deals with actions to combat land-based sources of marine litter which is said to constitute about 80% of Marine Litter, and as recommended by UNEP, to tackle the problem of Marine Litter from upland is a reasonable preventive action.

Action 2, is about actions to combat sea-based sources of marine litter which account about 20% of marine litter and they emanate from activities such as shipping, fishing and recreation. This action is focused at implement and enforce MARPOL ANNEX V and London Protocol mainly by providing adequate port and offshore waste reception facilities as well as iintegrated waste management system.

[120] The membership of the Task Force was drawn from the various sectors of ocean governance in line with SDG Goal 17 (Partnerships). This transparent involvement of relevant stakeholders including key Ministries, Departments, Agencies, Manufacturers, NGOs and littoral States is aimed at securing public stewardship and effective implementation of the Action Plan.

[121] Abubakar, Yakubu, An assessment of the Awareness Level of Coastal and Upland Communities in Nigeria on the Impacts of Marine Ltter on the Ocean and its Ecosystem Services (2021)< https://commons.wmu.se/cgi/viewcontent.cgi?article=2668&context=all_dissertations >Accessed 22 April 2023



Action 3, is in respect to actions for legislation, policies, penalties and enforcement which is cantered on creating a strong sense of environmental stewardship foe all, not just for ocean users. This action plan of the Marine Litter and Plastics Action Plan (MAP-MLP) is considered essential in the absence of any legislation in the area.

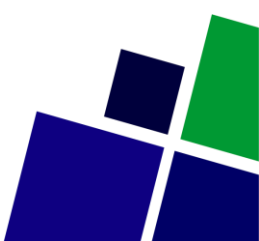
Action 4, is about all action in relation to monitoring and research programmes. This, makes it essential for the introduction of a national marine litter-monitoring programme that can support and build expanded understanding of the problem, which can become an on-going component of management strategies that deal with pollution by marine litter. This will entail an effective and efficient periodic and consistent monitoring which will be used to further understand the types, sources, pathways and the impacts of marine litter. Policy development of the country can be based on data obtained from such marine litter research.

Action 5, deals with such actions for the education and advocacy on the issues of marine litter in Nigeria, which shall focus on developing a marine litter education and awareness campaign that can be accessed by government agencies, NGO's and corporate organizations.

Action 6, is mainly about actions to encourage Extended Producers' Responsibility (EPR) and Green Purchasing. There is the believe that a good extended producers' responsibility if integrated into environmental laws in Nigeria will impact on the marine litter challenge.

The Maritime Action Plan for Marine Litter and Plastics Management in Nigeria (MAP-ML+P)' is critical for the transition of the country from a linear to circular economy and the development of a sustainable Blue Economy. In Nigeria, the activities of the maritime action plan on marine litter and plastic management Task Force is expected to be funded through the annual budgetary provisions of the ministry of transportation, departments, agencies as well as the Littoral States. Other sources may include financial support from International and National Donor Agencies as may be available. The main categories of activities to be funded under the action plan may include activities such as;

i. Clean-up exercises for all identified hotspots and accumulated marine litter zone throughout the nation of Nigeria
ii. Awareness campaigns in collaboration with MDA's CBO's, Corporate bodies and NGO's incorporating factors such as cultural, level of education, vocation, age-groups etc.
iii. Collaboration with agencies responsible for management of waste from ships and state municipal waste management bodies responsible for proper management of waste upland.
iv. Sensitization campaign to educate industries on the importance of proper litter management as a way of demonstrating Corporate Social Responsibility (CSR).
v. Inclusion of litter management in the civic syllabus of educational institutions of all tiers especially those in the littoral communities.

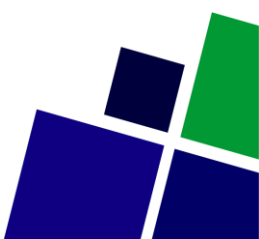


The Federal Ministry of Transportation (FMoT) in Nigeria is mandated to formulate, harmonize and supervise the implementation of policies relevant to shipping and protection of the marine environment. The ministry also supervises the Lead Agency which is NIMASA, Nigerian Ports Authority (NPA), Maritime Academy of Nigeria Oron (MAN-Oron), Nigerian Inland Waterways Authority (NIWA) and the ministry assist NIMASA in dealing with inter agency and ministerial issues. In the same manner the Federal Ministry of Environment (FMoE) has been charged with matters relating to the regime of marine biological assessment and responds to incidences and emergencies concerning marine litter, monitoring availability and adequacy of Port Reception Facilities (PRF) for the management of waste.

Some of the functions of the lead agency, the Nigerian Maritime Administration & Safety Agency (NIMASA- Lead Agency) is to give effect to the environmental functions and the review of syllabus for the education and training of officers in charge of watch and masters including the knowledge required for the control of marine litter in Nigeria. NIMASA is responsible to design in collaboration with other agencies and the National Task Force on Marine Litter (NTF-ML), tailor made courses that would improve activities on Marine Litter Management in Nigeria. Assisting research institutes under the program in areas of human capacity development, coordinating training and education, short courses with other institutions both national and international in order to bench mark human capabilities on matters concerning Marine Litter Management. The Nigerian Ports Authority (NPA) as the landlord of ports in Nigeria is responsible to designate possible areas for waste collection and to provide standard and adequate Port Reception Facilities (PRF) for ship generated waste in Nigerian ports and report to the Lead Agency cases relating to marine litter, and may respond to incidents of marine litter in collaboration with the Lead Agency.

As far as marine litters and marine pollution generally is concerned, the Nigerian Institute of Oceanography and Marine Research (NIOMR) play some critical roles of assisting building indigenous capacity, research and development program. The institute coordinate training and education including short courses with other regional and international institutions, and may implements marine environment management policies and also create awareness campaigns. In liaison with other institutions, NIOMR can co-ordinate education and training programs in support of research work on Marine Litter Management and effect and executes the Marine Litter inspections and surveys in Nigeria. Generally, the institute may conduct and carry out research on marine litter trajectory and its prevalence in Nigeria and proffer strategic solutions to the Lead Agency, and can design strategies for Marine Litter Strategy and introduce changes where necessary. Other agencies in Nigeria that may directly involve, liaise, partner, with the lead agency and or international organisations and assist in educating and training, research and responding to incidents of marine litters in Nigeria include, the Maritime Academy of Nigeria, Nigerian Inland Waterways Authority (Niwa), National Environmental Standards Regulatory Agency (NESREA).[122] Non-Governmental Organisations (NGOs) and Community Based Organisations (CBOs) may also engage in programs to raise awareness on

[122] NESREA may collaboration with NIMASA on issues of extended producer responsibility and green purchasing Notify Lead Agency on any observations concerning marine litter in the marine environment.



the harmful impacts of marine litter and also raise alarm for any hidden violations within the sector and assist in capacity building and community mobilization to engage in efforts to combat marine litter in Nigeria. Also, it is important to note here that coastal community youths have been engaged as Marine Litter Volunteer Marshals and are enabled by NIMASA to serve as field underlings for the implementation of Maritime Action Plan on Marine Litter and Plastics Management in Nigeria.

It is interesting to note that some corporate Nigerians have made very great efforts in ensuring for a free marine litter environment within our territorial waters. The Nigerian Liquefied Natural Gas Company Clean Water Initiative is one of such efforts.

The Clean Water Initiative of Nigerian Liquefied Natural Gas (NLNG) Ltd

The Bonny river channel is a maritime gate way into the Rivers State and for the frequent user of the channel one constant site along the channel has been the menace of litters defacing the marine environment. The various garbage and crude oil on the surface of the river is only but embarrassing. One can only imagine the level of damage this development will impact on the living resources and marine lives that will ingest and mistake some of these poisonous substances for food. When fishes consume chemicals in the rivers, man is at risk of been served a poisoned meal at home.

No doubt therefore that the leadership of the NSML in collaboration with NLNG introduced the Clean Water Initiative (CWI) as part of their corporate social responsibility. The essence of the program is to highlight the negative impact of marine litter on the maritime environment and its users. The Bonny Port Harcourt water ways and other water ways in Nigeria remains the primary focus area of the initiative. The main aim of the initiative is towards building a sustainable action and plans to combat the pollution sources of the Bonny-Port Harcourt wetlands and waterways under the 'triple-A' strategy which stands for Awareness, Advocacy and Action. The vision is to tackle and rid-off all forms of negative effects of chemicals, plastics and garbage on our national aquatic ecosystem.[123]

Since 2020 when the initiative was launched, it has been a success story with the regular clean-up exercise usually organised by the NSML and NLNG. The initiative identifies with the need for collaboration towards achieving a national success story on the marine plastic litters within our maritime domain. I agree with the initiative that a collaboration with government and her agencies with the private sector actors can drive our dream faster. Thus, I salute the ambition and courage of the leadership of the NSML in using Bonny-Port Harcourt Water ways to launch a model in the fight against land-based marine pollution sources in Nigeria. I am very pleased to say that, Mr. **Abdulkadir K Ahmed**, MD/CEO of NSML and Mr. **Henry Agbodjan** must be commended for showing such a strong commitment to the Nigerian marine environment, it is indeed a laudable effort towards a national growth.

[123] Ikenna Duru, The NSML Clean Water Initiative; Cleaner Bonny-Port Harcourt Waterways (2022) Vol 2 Issue 1 The Mariner < https://online.pubhtml5.com/ugkz/rhyl/index.html#p=2 >Accessed 22 April 2023

Regional Efforts

There are various arguments and opinions in favour of adopting regional approaches in the fight against Land based marine pollution sources. The tendency toward regional approach has been hinged on the fact that there is homogeneity of interests, traditions, and values within small groups of neighbouring states. Political, economic, social and cultural integration and cooperation are more easily attained within the regional level to create strategies for environmental development and control. This suggests that, to facilitate environmental protection, 'environmental standards must be tailored to reflect local conditions and varying public preferences. Caldwell posit that;

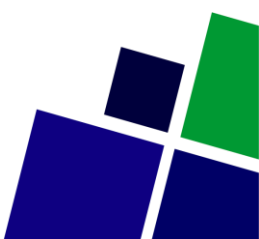
> In a world of nations, most of the actual work of environmental protection is done at the local level with the involvement or cooperation of national government. Nearly every nation has a stated policy for the environment, and by treaty or statute, some national policies extend to international commitments. And because many environmental policies transcend national boundaries but fall short of being global, governments have developed bilateral or regional arrangements to deal cooperatively with matters that they cannot effectively manage separately.[124]

The first regional steps to deal with this widespread problem were taken in the Mediterranean, with the adoption of the Protocol on Land-Based Sources of Pollution in May 1980 after three years of difficult and delicate negotiations. Over the next two decades, this landmark agreement led to similar regional agreements in other Regional Seas such as;

- Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, 23 March 1981 (entered into force 5 August 1984), ('Abidjan Convention')
- Convention for the Protection of the Marine Environment and Coastal Area of the South East Pacific, 12 November 1981 (entered into force 19 May 1986), ('Lima Convention')
- Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment, 12 February 1982 (entered into force 20 August 1985), ('Jeddah Convention')

As posited by Boczek, decision makers saddled with handling international problems bothers about which approach to adopt, a global solution to the problem or a geographically more limited "regional" approach and to this end, there has been various theories, some of regional approach and the others of international approach. However, the important thing to make out of this is that issues of maritime environmental safety is a very vital duty for many nations and

[124] Lynton Keith Caldwell, International Environmental Policy (1996) < https://www.perlego.com/book/1466266/international-environmental-policy-from-the-twentieth-to-the-twentyfirst-century-pdf >Accessed 13 March 2023



the interest of the international community as well is huge in everything concerning the ocean. Thus, there must be a balance at each time as to which approach will be best suited to adopt. From the early account of history, the ocean and the issues as to who should control the ocean has been a major concern to the international community. Hugo Gruitus and John Seldon are well known for their arguments relating to Mare Clausum and Mare liberum . Hugo Grotius[125] argued for an open sea in his work **Mare Liberum** and he was opposed by John Selden[126] who in defense of British interests in his work **Mare Clausum**[127] argued for a closed sea. Hugo Grotius has opted for the doctrine of the freedom of the seas and acknowledged that Nation States can contract a portion as far as would be reasonably controlled from the land[128]. At least to be determined from the reach of their cannon shuts on the shores and from where the three nautical miles limit of the state contract of the sea emanated[129]. While John Selden's opinion is for the sea to be controlled by the state and following which the major contention became whether a sea free for passage by all [130] or a sea totally closed in control of states[131].

The international approach to the protection of the marine environment is been endorsed in all major international frameworks like the United Nations Convention on the Law of the Sea (UNCLOS III) 1982 and the Stockholm Declaration of the United Nations Conference on the Human Environment of 1972. Boczek[132] have further stated some arguments in favour of an international approach in the regulation of marine pollution as follows;

- First, since the oceans are a commonly shared environment, any assumption of unilateral legislation may jeopardize the legitimate interest of other nations.
- Second, unilateral initiative may become a vehicle for a coastal state to expand its jurisdiction to include matters totally unrelated to the protection of the marine environment.
- Third, in the final analysis, only joint efforts can successfully cope with the environmental challenge.
- Finally, the protection of the marine environment is closely related to navigation, fishing and other marine activities which, as experience has shown, are of international concern and can be governed predict- ably and effectively only by international agreement.

[125] Hugo Grotius (1583–1645) is a great Dutch jurist and is called the father of modern-day law of the sea.
[126] John Seldon (1584–1654), an English lawyer and polymath
[127] Jonathan Ziskind, 'International Law and Ancient Sources: Grotius and Selden' (2009) (Vol 35) (4) pp. 537-559 Cambridge University Press Online < https://www.cambridge.org/core/journals/review-of-politics/article/international-law-and-ancient-sources-grotius-and-selden/15D116B976ADD296D97CF29DCE355D98>Accessed 31 January 2020
[128] US Maritime Zones/Boundaries. History of the Maritime zones under international law, <www.nauticalcharts.noaa.gov/staff/law-of-thesea-html>Accessed 23 November 2020
[129] The United States passed the law allowing foreign vessels within 12 win form the coast then called "Custom water" in 1799 and later called contiguous zone.
[130] Mare Liberum
[131] Mare Clausum
[132] Boleslaw Adam Boczek, Global and Regional Approaches to the Protection and Preservation of the Marine Environment(1984)<https://scholarlycommons.law.case.edu/cgi/viewcontent.cgi?article=1767&context=jil&httpsredir=1&referer= >Accessed 13 March 2023

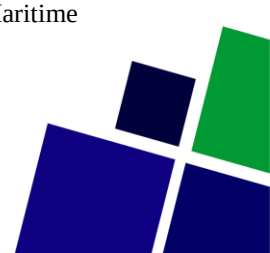
The proponents of regional approach to the management of ocean pollution sources have based their arguments on several reasons some of which include the fact that, there exist some local peculiarities which suggests that any solutions would take into account the heterogeneity of some oceans. The vulnerability of the marine environment varies greatly, and depends upon the geography, depth, temperature, salinity and currents of the ocean. The marine environment is further affected by the intensity and nature of traffic and the economic and political development of the coastal area and these factors may produce peculiar pollution problems for the littoral states within the same region. This, will certainly warrant a more narrow and limited concerns and approach. There are also, some semi-enclosed seas which typify ecological units of the ocean where global environmental pollution standards would not be appropriate. Even some larger portions of the oceans, such as the segments of the Indian Ocean for instance which is characterised with heavy tanker traffic or the North Sea with its oil exploration and exploitation, require adaptation of general standards to that regional peculiarities. This is regardless of the fact that marine pollution is recognized as a global problem which requires some kind of centrally coordinated anti-pollution standards.[133]

According to Boczek, pollution from land-based sources such as dumping and the environmental protection of enclosed and semi-enclosed seas areas are primarily regional concerns while vessel-source pollution from oil and certain persistent toxic substances is a global problem. The same will be the case as it relates to activities such as deep-sea mining. Thus, Boczek concludes by summarising that some of the key reasons why the regional approach is especially well suited for controlling marine pollution are as follows:

1. It is inappropriate to attempt to handle any form of land- based pollution sources from a global approach because of the nature of the problem, the heterogeneity of the oceans requires taking into account regional differences.
2. All regionally organised anti-pollution mechanisms can be more readily made available in case of an emergency.
3. Regional approaches do encourage maximum participation by the regional nations, especially the less developed countries which might otherwise stay away from a globally organized and technologically advanced system.
4. Regional cooperation is cost-effectiveness and makes transfer of technology to the developing nations easier.
5. Regional arrangements can serve as a forum for consultation and might even contribute to developing habits of cooperation eventually transcending matters relating to the protection of the marine environment into other core developmental issues.

These arguments as to whether a global or regional approach should be adopted to handle land-based marine pollution, may not be taken too much out of the context of the marine environment because the political region of the oceans and seas may differ from a political region of the land because of the very nature of the maritime boundaries itself. The logical

[133] For instance, the vessel-source pollution regime which has been established under International Maritime Organization (IMO)



reason has been that a region is a perceptual concept designed and achieved by selecting certain features that may be relevant to a certain issue, whether for the reason of protecting the marine environment or managing the living resources of the sea. Boundaries are most times not very objective and fixed, I do subscribe to the fact that what constitute a region may only be in the eyes of the beholder.

However, over the years we can comfortably conceptualise a physical marine region as an expanse of water which is set aside from other parts of the world ocean by some distinctive feature or features. We have ocean basins[134] and the semi-enclosed seas[135] as the main two sub categories of a physical marine region.[136] Nation states are encouraged within their marine region to initiate arrangements for the protection of the marine environment of their region in a very reasonable manner with very clear objectives. Although the regional approach has vast appeal in the management of the ocean environment,[137] caution and restraint must be maintained in other not to give rise to problems in international law, particularly as it may concern vessel-source pollutions which usually requires a global rather than regional approach. The international maritime law allows a foreign vessel the right of passage provided such passages are innocent and free of any maritime crime within the territorial sea or Exclusive Economic Zone (EEZ) of a littoral state and as such should not be subjected to unpredictable harassment. The truth is that a maritime region can adopt regional or sub regional regulations establishing a special regime for the marine region, even though such regulations involve potential conflict with states from outside the region.

The six sources of marine pollution identified under UNCLOS Convention include;

1. Municipal, industrial and agricultural wastes which reach the ocean from rivers, estuaries, pipelines and outfall structures
2. Offshore sea-bed activity like drilling for oil, which results into various forms of hazards during exploration and exploitation of offshore oil and gas resources
3. Illegal dumping at Sea, that is any deliberate disposal of wastes or other matter from vessels, air craft, platforms or other man-made structures at sea, either dispersed or in

[134] The North and South Atlantic, Indian Ocean, Arctic Ocean, Antarctic Ocean, and North, West and East Pacific are recognized as the eight basins

[135] A semi-enclosed sea has been defined as an area which has at least 50,000 square nautical miles, the quality of being a primary sea rather than an arm of another semi-enclosed water body, at least 50 percent of its periphery occupied by land and which is surrounded by at least two states. However, UNCLOS defines "enclosed or semi-enclosed sea" as "a gulf, basin, or sea surrounded by two or more States and connected to the open seas by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal States. Under these criteria some other bodies of water, such as the Coral, Norwegian and the Barents Seas, the Greenland Sea, the Bay of Biscay and perhaps, the Arabian Sea would have to be added to the list of the semi-enclosed seas. A semi-enclosed sea can further be broken or a have a sub region.

[136] There are some 23 seas that adhere fairly closely to these criteria: Gulf of Aden, Andaman Sea, Baffin Bay-Davis Strait, Baltic Sea, Bay of Bengal, Bering Sea, Black Sea, Caribbean Sea, Celebes Sea, East China-Yellow Seas, Gulf of Guinea, Sea of Japan, Mediterranean Sea, Gulf of Mexico, North Sea, Sea of Okhotsk, Gulf of Oman, Persian (Arabian) Gulf, Red Sea, Solomon Sea, South China Sea, Sulu Sea and Timor-Arafura Seas.

[137] The CLME + Hub, Regional Approach to Ocean Governance (2017) < https://clmeplus.org/1-2-regional-approaches-to-ocean-governance/ >Accessed 22 April 2023

containers. A good example is the dumping of nuclear waste, nerve gas and highly toxic substances in the sea.

4. Pollution from vessels by oil and other potentially hazardous substances in the natural course of shipping activities which may generate pollution
5. Pollution from the atmosphere is the least explored and publicized area, but is potentially dangerous.
6. The expected mining of manganese nodules in the deep sea-bed beyond the limits of national jurisdiction involves pollution hazards.

We can say therefore that pollutions control and prevention can be approached from either a national, regional, sub regional and or a global level depending on the circumstances, nature and source of pollution. For instance, vessel source pollution which emanate from deliberate oil discharges is a global issue because of the worldwide traffic of oil tankers and chemical carriers, but, sources like the land-based pollution in a semi-enclosed sea, such as the Gulf of Guinea is a primary concern of the regional, and littoral states. Nollkaemper,[138] have strongly argued that a global approach to marine pollution from a land-based sources can only be achieved in situations where there is a strong back up by what he has described as global cooperation and strategy.

Global Efforts

We must state very clearly that in attempting to address the challenge of Land-Based Marine Pollution, we do need an effective, strong and very well coordinated action plan for which the United Nations Organisation has graciously done through several programmes and policies such as the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA).

Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA).

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) was created and adopted by 108 Governments, and the European Commission at an intergovernmental conference convened in Washington, D.C., in 1995 as a unique intergovernmental mechanism for the purpose of countering the issue of land-based pollution. Parties to the GPA set out their common goal to maintain and sustain an effective action to deal with all land-based impacts upon the marine environment, specifically those resulting from sewage, persistent organic pollutants, radioactive substances, heavy metals, oils (hydrocarbons), nutrients, sediment mobilization, litter, and physical alteration and destruction of habitat. Since 2012, marine litter, nutrient management, and wastewater have been highlighted as priority source categories to be addressed by parties.[139]

[138]Andre Nollkaemper, Marine pollution from land-based sources: Towards a global approach (1992) < https://www.sciencedirect.com/science/article/abs/pii/0025326X9290309T >Accessed 16 March 2023

[139] UN Environment Programme, Addressing Land-Based Pollution< https://www.unep.org/explore-topics/oceans-seas/what-we-do/addressing-land-based-pollution >Accessed 13 March 2023

The GPA from its inception was set out to tackle nine source categories of pollution. However, after the Manila Declaration of 2012, the GPA have focused its resources on addressing three priority source categories, namely marine litter, nutrient management, and wastewater through global voluntary multi-stakeholder partnerships of governments, intergovernmental agencies, academia, the private sector, and civil society.

Agreement to Ensure the Conservation and Sustainable Use of Biodiversity in Marine Areas Beyond National Jurisdiction (BBNJ)

> The First Global Integrated Marine Assessment, or World Ocean Assessment (WOA), which was published in 2015, stated that the deep sea constitutes the largest source of species and ecosystem diversity on Earth. These ecosystems are crucial for global functioning and there is a strong evidence that the richness and diversity of organisms in the deep sea exceeds that in all other known biomes, from the metazoan to the microbial realms.[140]

So, there is the need to fill the lingering gap in the United Nations Convention on the Law of the Sea 1982 particularly as it concerns the protection of the maritime environment and the common heritage of mankind principle. The need is mainly about a global legal and regulatory regime that will place an obligation on nation states to make sure that they practice conservation and sustainable use of the ocean resources by standing as stewards of the ocean. The protection of the biodiversity of the high sea otherwise called the Area beyond national jurisdiction is a great concern particularly to the developing nations of the world. Thus, the Intergovernmental Conference (IGC) have been in the negotiation to reach an agreement to protect the global ocean diversity, and interestingly, just recently the IGC after several years of discussion have now reached a consensus on an Agreement to ensure the conservation and sustainable use of biodiversity in marine areas beyond national jurisdiction (BBNJ).

Yes, on 4 March 2023 global negotiations concluded on the landmark Treaty of the High Seas to protect the ocean, tackle environmental degradation, fight climate change, and prevent biodiversity loss**.**[141] Under the Agreement, states are to be guided by the common heritage principle and the main emphasis is about the freedom to conduct marine scientific research, in recognition also of the various other high sea's freedoms granted by the United Nations Convention on the Law of the Sea. Among other things, the agreement has enabled the establishment of area-based management tools (ABMTs) for the conservation and sustainable use of BBNJ, including marine protected areas (MPAs). Parties are to submit proposals, which will be assessed by a Scientific and Technical Body (STB). The Conference of the Parties

[140] DSCC, Preventing Biodiversity Loss in the Deep Sea(2020)< https://savethehighseas.org/wp-content/uploads/2020/10/Preventing-Biodiversity-Loss-in-the-Deep-Sea-SUMMARY-REPORT-Oct-2020.pdf >Accessed 16 April 2023

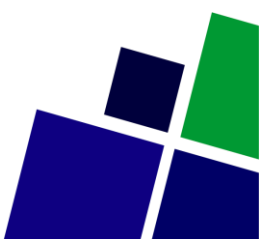
[141] The European Union, Protecting the ocean, time for action High Ambition Coalition on Biodiversity Beyond National Jurisdiction (2023)< https://oceans-and-fisheries.ec.europa.eu/ocean/international-ocean-governance/protecting-ocean-time-action_en >Accessed 22 April 2023

(COP) will then decide whether to adopt the proposal, ideally by consensus but with the possibility of a ¾ majority vote. This includes option for opt-out procedures which allows a Party to justify a derogation from the majority-approved measure.[142]

The main aim of the arrangement is to promote cooperation and proper coordination, in such a manner that does not hinder the operations, functions and progress of the diverse range of existing instruments, frameworks and bodies (IFBs) that enjoy various mandates on BBNJ. Some of which instruments, bodies and frameworks may include, the International Maritime Organization and their regulatory activities over shipping, and the International Seabed Authority and the functions they perform relating to the regulation of underwater mining activities. In the same circumstance, many existing Regional Fisheries Management Organizations (RFMOs) which has been adopted to regulate certain fish stocks whose functions and roles must not be tampered with by the agreement. Mostly, these RFMOs are adopted in accordance with international law to respond to the impact of the destructive fishing practices. Principally therefore, under the agreement, the COP makes consultations and recommendations, while Parties to the Agreement must promote conservation and sustainable use of BBNJ when participating in the decision-making processes of other IFBs. Glem Wright and Others have identified some of the major issues negotiated under the agreement thus;

- Under the agreement, the environmental impact assessment (EIA) provisions of UNCLOS will be strengthened, with the BBNJ Agreement setting out a clear process that requires stakeholder consultation and involvement of the STB. Developing States had argued for an internationalized EIA process that would have given Parties, via the COP and other organs of the BBNJ Agreement, much greater oversight and involvement.
- These proposals included the possibility of investing the COP with the power to ultimately authorize or disallow a proposed activity, but developed States were unwilling to cede their sovereignty over activities conducted by their vessels on the high seas. The Agreement therefore leaves it to the State conducting the EIA to decide whether an activity may proceed, with the role of other Parties being limited to notification and consultation.
- The Agreement also includes the possibility of developing Strategic Environmental Assessments (SEA), a proactive and collaborative process to assess scientific knowledge and understand the potential impacts of future developments. These assessments could be conducted when new activities and threats to biodiversity are on the horizon, such as exploration for novel fisheries.

[142] Glem Wright and Others, "The ship has reached the shore": why the historic Agreement to protect the High Seas matters and what happens next (2023) < https://www.iddri.org/en/publications-and-events/blog-post/ship-has-reached-shore-why-historic-agreement-protect-high-seas >Accessed 29 March 2023



On matters relating to Marine Genetic Resources (MGR), Article 9 of the agreement makes provisions thereto that;

1. Activities with respect to marine genetic resources of areas beyond national jurisdiction may be carried out by all Parties, irrespective of their geographical location, and natural or juridical persons under the jurisdiction of the Parties. Such activities shall be carried out in accordance with this Agreement.
2. Parties shall promote cooperation in all activities with respect to marine genetic resources of areas beyond national jurisdiction.
3. Collection *in situ* of marine genetic resources of areas beyond national jurisdiction shall be carried out with due regard for the rights and legitimate interests of coastal States in areas within their national jurisdiction and also with due regard for the interests of other States in areas beyond national jurisdiction, in accordance with the Convention. To this end, Parties shall endeavour to cooperate, as appropriate, including through specific modalities for the operation of the clearing-house mechanism determined under article 51, with a view to implementing this Agreement.
4. No State shall claim or exercise sovereignty or sovereign rights over marine genetic resources of areas beyond national jurisdiction. No such claim or exercise of sovereignty or sovereign rights shall be recognized. Collection *in situ* of marine genetic resources of areas beyond national jurisdiction shall not constitute the legal basis for any claim to any part of the marine environment or its resources.
5. Activities with respect to marine genetic resources of areas beyond national jurisdiction are in the interests of all States and for the benefit of all humanity, particularly for the benefit of advancing the scientific knowledge of humanity and promoting the conservation and sustainable use of marine biological diversity, taking into particular consideration the interests and needs of developing States.
6. Activities with respect to marine genetic resources of areas beyond national jurisdiction shall be carried out exclusively for peaceful purposes.

It has been advocated that setting up a High Seas Finance Implementation Mechanism supported by public and private partners would help to start on a vital preparatory work even before the treaty enters into force.[143] In same manner, there has been an increased awareness and ongoing discussions on the operational monitoring of Open-Ocean Carbon Dioxide Removal deployments (CDR): Detection, Attribution, and Determination of Side Effects. The efforts have been on approaches, marine carbon dioxide removal which range from methods based on natural processes to more industrial techniques,[144] and one thing has been certain that the world is truly concern about health of the marine environment and biodiversity therein and

[143] Kristina M. Gjerde and Others, Initial reflections to support rapid, effective and equitable implementation of the BBNJ Agreement (2023) < https://www.iddri.org/en/publications-and-events/policy-brief/initial-reflections-support-rapid-effective-and-equitable >Accessed 29 March 2023

[144] There is the open-ocean mCDR approaches, including alkalinization (i.e., adding alkaline substances, such as olivine or lime, to seawater to enhance the ocean's chemical uptake of CO2 from the atmosphere) and nutrient fertilization (i.e., adding a nutrient that limits phytoplankton photosynthesis, such as iron, to surface waters to enhance the photosynthetic uptake of DIC), which aim to enhance DIC sequestration resulting from increased CO2 influx from the atmosphere.

all efforts are being put in place to protect the future operational monitoring system for the detection, attribution, and determination of side effects of open-ocean mCDR deployments.[145]

One can therefore say that stakeholders welcome the draft agreement reached on Saturday March 4, 2023 under the UN Convention on the Law of the Sea on the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, known as BBNJ which now commits countries to safeguarding life on the high seas through a variety of means including the equitable use of marine genetic resources, area-based management tools such as marine protected areas, environmental impact assessments, and capacity building and the transfer of marine technology.[146] The Secretary-General of the UN has described the Agreement as a breakthrough which covers nearly two-thirds of the ocean, it marks the culmination of nearly two decades of work and builds on the legacy of the United Nations Convention on the Law of the Sea and that the action is a victory for multilateralism and for global efforts to counter the destructive trends facing ocean health, now and for generations to come. The Agreement has become crucial for addressing the triple planetary crisis of climate change, biodiversity loss and pollution, and also vital for achieving ocean-related goals and targets of the 2030 Agenda for Sustainable Development, and the Kunming-Montreal Global Biodiversity Framework.

> The Kunming-Montreal Global Biodiversity Framework (GBF) was adopted during the COP 15 following four years of intense consultation and negotiations, which supports the achievement of the Sustainable Development Goals and builds on the Convention's previous Strategic Plans, sets out an ambitious pathway to reach the global vision of a world living in harmony with nature by 2050. Among the Framework's key elements are 4 goals for 2050 and 23 targets for 2030. And the implementation of the Kunming-Montreal Global Biodiversity Framework will be guided and supported through a comprehensive package of decisions also adopted at COP 15.[147]

The Secretary-General particularly commends all parties for their ambition, flexibility and perseverance, while he salutes **Ambassador Rena Lee** for her leadership and dedication. Non-governmental organizations, civil society, academic institutions and the scientific community must be recognized for their inputs. In all the Secretary-General of the United Nations has

[145] Jean- Pierre Gattuso, Operational monitoring of Open-Ocean Carbon Dioxide Removal Deployments: Detection, Attribution, and Determination of Side Effects (2023)< https://www.iddri.org/en/publications-and-events/scientific-publication/operational-monitoring-open-ocean-carbon-dioxide >Accessed 29 March 2023

[146][146] Carlos Manuel Rodríguez**,** The GEF to expand ocean support under new high seas treaty (2023) < https://www.thegef.org/newsroom/press-releases/gef-expand-ocean-support-under-new-high-seas-treaty >Accessed 17 April 2023

[147] CBD, Preparations for the Post-2020 Biodiversity Framework < https://www.cbd.int/conferences/post2020 >Accessed 17 April 2023

expressed that he looks forward to continuing working with all parties to secure a healthier, more resilient, and more productive ocean, benefiting current and future generations.[148]

There is a serious need for all nations and Parties to UNCLOS to commence preparations as it may relate to the effective implementation of this new international agreement on the conservation and sustainable use of marine biodiversity beyond national jurisdiction (BBNJ) which just got concluded at the resume of fifth session of the intergovernmental conference (IGC5). Nations must commence the appropriate preparatory efforts towards laying the foundation for successful implementation as an important key to securing ocean health for the benefit of present and future generations. According to Gjerde,[149] rapid, effective, and equitable implementation of the Agreement will be anchored on three key priority areas which may include; bringing the Agreement into force, establishing the institutional framework and setting out the financial mechanisms and developing capacity, science, and technology. The ratification process is supported mainly through specially targeted activities and event, and needs assessments towards providing assistance to States in codifying the Agreement into their national law and ideally, nations must look towards building the right skills whether for scientific, legal, organisational and institutional capacities that will support an effective implementation of the Agreement. Experts have suggested the setting up a High Seas Finance Implementation Mechanism (HSFIM) through a collaborative effort of both the public and private sector partners.[150] Generally, states and stakeholders must be supported to raising awareness at the national, regional, and even global levels to ensure understanding, acceptance and ratification of the Agreement through outreach activities, workshops, webinars, and high-level events all geared towards raising the momentum to a national consciousness for ocean health and economy.

Land-Based Marine Pollution and the Concern for Blue Economy Globally

Marine pollution has a direct link with human activities on land and not mainly of human activity while at sea. Most coastal communities of the world and very particularly coastal communities in Africa are affected with land based marine pollution. All human activities on land results into waste and in most cases, these wastes whether from an industrial source,[151]or agricultural source, chemical residues, fertilizers and soil from agricultural sources are washed

[148] United Nations, Statement attributable to the Spokesperson for the Secretary-General - on Int'l Legally Binding Instrument under the UN Convention on the Law of the Sea (2023) < https://www.un.org/sg/en/content/sg/statement/2023-03-04/statement-attributable-the-spokesperson-for-the-secretary-general-intl-legally-binding-instrument-under-the-un-convention-the-law-of-the-sea?_gl=1*8sc79t*_ga*NDIyMjY0MTcyLjE2NzYxNzAyODE.*_ga_TK9BQL5X7Z*MTY3ODA3MjkyMS43LjAuMTY3ODA3MjkyMS4wLjAuMA.. >**Accessed 17 April 2023**

[149] Gjerde, K. M. and Others, Getting Beyond Yes: Fast-tracking Implementation of the United Nations Agreement for Marine Biodiversity Beyond National Jurisdiction, NPJ Ocean Sustainability (2022). < https://doi.org/10.1038/s44183-022-00006-2. > Accessed 19 April, 2023

[150] Kristina M. Gjerde, Initial Reflections to Support Rapid, Effective and Equitable Implementation of the BBNJ Agreement(2023)<https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Propositions/202302-PB0123-high%20seas.pdf >Accessed 19 Aprill 2023

[151] Waste waters from industries carry numerous and different pollutants that frequently end up in the marine environment.

by rivers into oceans.[152] It is true that our rivers, oceans and seas which are constantly the victims of the environmental consequences of land based activities are also, a unique sources of wealth and other resources, but yet they are constantly neglected and always forgotten. The sectors such as the fisheries, aqua tourism, port sector, shipping and maritime transportation, renewable energy, sea bed mining, and aquaculture, are known to be major economic sectors that must be responsibly be approached and exploited to foster interconnectedness with other economic sectors. And to respond to the emerging and frontier sectors to achieve gender mainstreaming, food and water security, poverty alleviation, wealth retention, and jobs creation.

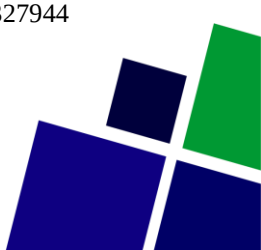
Generally, Africa can be proud of a vast ocean resource base that can contribute to sustainable development, about 38 out of the 54 African countries are purely coastal with about 13 million square kilometres of maritime zones within its jurisdiction, territorial seas and Exclusive Economic Zones (EEZ), with 6.5 million square kilometres for the continental shelf which each country has jurisdiction over only the seabed. Nigeria has a coastline of about 853km on the Atlantic Ocean which lies between latitude 4o 10' to 6o 20' N and longitude 2o 45' to 8o 35' E with four distinct geomorphology units namely the Barrier-Lagoon Complex, the Mud Coast, the Arcuate Niger Delta and the Strand Coast.[153]

There is a huge, uncontrolled and intense activities in the oceans and seas over the various economic sectors in Nigeria which results in some harmful impacts on the sea and its resources, and this is coupled with the impacts of climate change generally. The growing human population around the coastal communities doubles the impact of human activities within the coastal and maritime environment and its resources. Illegal bunkering, single use plastic materials, dumping of waste on coastlines are some of human activities depleting the value of our maritime resources. There is therefore, the need to make serious efforts on the ways and manner we relate with and manage the maritime environment.

Blue economy provides the platform to build the right skills, attitude and responses towards a sustainable use and management of the ocean resources in spite of the pressure on the oceans. In Africa today, issues relating to the blue economy are viewed as central in our economic planning because our ocean resources and potentials have been largely underexploited, in spite the fact that the sector is considered huge and with the potential to contribute to the inclusive and sustainable growth for the continent. The Blue world encompasses all the rich geographical, social, and cultural space and should not be viewed as a mere economic space. When we build and indeed develop the right knowledge base, and relevant capacity, it will become easier to see, understand, and benefit from the wealth of the blue economy sector.

[152] Innocent Ogwude, Framework for Management and Control of Marine Pollution in Nigeria Seaports (2017) < https://independent.academia.edu/InnocentOgwude >Accessed 19 March 2023

[153] Peter C. Nwilo and Olusegun T. Badejo, Impacts and Management of Oil Spill Pollution along the Nigerian Coastal Areas (2023)< https://www.researchgate.net/figure/Map-of-Nigerian-Coastal-Areas_fig1_242327944 >Accessed 20 March 2023



Today, both governments and private sector actors have not taken the right steps to encourage investments in the sector.[154] At least we have not done enough in this regard.

As a concept, Blue Economy was introduced at the "Rio+20" United Nations Conference on Sustainable Development (UNCSD), held in Rio de Janeiro, 20-22 June 2012. The conference focused basically on two main themes: The further development and refinement of the institutional framework for Sustainable Development and the advancement of the "Green Economy" concept. The Blue Economy concept was considered within the context of sustainable development and poverty eradication but during the conference however, coastal states wondered what exactly binds them with Green Economy.[155] Thus, called for a "Blue Economy" to be pursued within the concept and ideological frameworks of the Common Heritage of Mankind (CHM) and sustainable development. This brought about the global efforts to expand the Blue aspect of the Green Economy as embodied in the "Green Economy in a Blue World" report. It also brought about an increased global awareness that the world's Oceans and Seas deserved attention and a globally coordinated advocacy action on the Oceans, Seas and Sustainable Development led by Coastal and Small Island developing State (SIDS).[156]

The blue economy space in the entire Africa and very particularly in Nigeria has continued to be seen a major source of wealth creation and can sustain the nation's economy in a sustainable manner. Thus, fighting all forms of illegality and marine environmental pollution sources, IUU fishing and other vices in our oceans and seas will only but bring about a sustainable economic growth. The blue economy will certainly support quality growth, job creation, through the generation of inclusive wealth, through activities that are within environmentally acceptable limits. To achieve these, we must come out of our old ways and attitude to face the realities of the enormous wealth of the ocean economy. It is already projected that some blue economy sectors for instance the renewable energy sector has the potential to provide 400% of global energy demand.[157]

In the face of the global search for renewable energy and carbon net zero footprints, it has become very apparent that the blue economy will be a credible alternative to fossil fuel and even natural gas energy sources. The blue economy is also called the blue ocean economy, ocean economy, marine economy, sustainable ocean economy and has been described as an emerging concept, which imposes an obligates on states, companies, individuals and all users of the ocean and seas to engage in better stewardship over the ocean resources. The concept

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[154] United Nations, Africa's Blue Economy : A Policy Hand Book (2016)< https://repository.uneca.org/bitstream/handle/10855/23014/b11560836.pdf?sequence=1&isAllowed=y >Accessed 19 March 2023

[155] Evgeniya Arumova, Green Economy as a Direction of Sustainable Development of Coastal Areas(2019)< Green Economy as a Direction of Sustainable Development of Coastal Areas* | Atlantis Press (atlantis-press.com) >Accessed 5 May 2022

[156] The United Nations, Blue Economy Concept Paper()<2978BEconcept.pdf (un.org)> Accessed 5 May, 2022

[157] International Energy Agency estimates that ocean renewable energy has a power potential sufficient to provide up to 400% of global current energy demand. Other estimates indicate that in 2010 the total annual economic value of maritime related activities reached 1.5 trillion euro. It is forecasted that by 2020, this figure will reach 2.5 trillion euro per year. Surely, Africa needs holistic and coherent strategies to harness this potential.

of blue economy has emerged in response to all forms of threats, environmental risks and ecological scarcities that the seas and oceans are constantly subjected to in the cause of our unsustainable exploitation of the resources therein through activities such as the illegal, unreported and unregulated (IUU) fishing fleets, illegal dumping at sea, under water mining activities and Distant water Fishing Nations (DWFNs) fleets. DWFNs is a term used to describe those countries that fish outside their own territories and usually extend their range of action to faraway places.[158] The establishment of the exclusive economic zones regulated the access to these areas in order to avoid conflicts for the use of marine resources between coastal and distant nations.

The idea of a blue economy was mooted by the international community as a means to ensure that the seas and oceans of the world are safeguarded against unsustainable exploitations so that the seas and oceans resources will continue to bring huge opportunities for the economies of coastal countries and communities.[159] According to the World Bank, Blue Economy refers to the sustainable and integrated development of oceanic sectors in healthy oceans.[160] It is a set of development paradigms that define an ocean-based economic growth model and it is the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health. It is important to also state that blue economy as a concept serve as a medium to link all the issues posed by climate change to both coastal ecosystems and the communities that are reliant on them. Note also that;

> The United Nations have offered general definition which describes "Blue Economy" as an ocean economy that aims at "the improvement of human well-being and social equity, while significantly reducing environmental risks and ecological scarcities"[161]

The oceans, seas and waterways provide ecological, economic, and social benefits, which are combined to guarantee continued existence not only for humans but also for other living things. To mitigate the abuse of oceans in coastal countries and promote the principle of sustainable development, the term 'blue economy' was developed to escalate the compelling issue of unsustainable use of oceans. The strong opinion I express in this article is that the blue economy concept provides an opportunity for Africa and her small island developing states and communities to re-evaluate and chat a new development pathway within the context of a Blue Economy. The economic concept that must take into account all socioeconomic, political, and environmental considerations. Communities whose livelihood depends on the ocean

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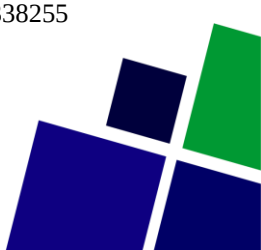
[158] International Sea Food Sustainability Foundation (ISSF), Distant water Fishing Nations (DWFNs)(2023) < https://www.iss-foundation.org/glossary/distant-water-fishing-nations/ > Accessed 17 April 2023

[159] Lukman Raimi and Others, The Discourse of Blue Economy Definitions, Measurements, and Theories: Implications for Strengthening Academic Research and Industry Practice (2022) < https://www.igi-global.com/chapter/the-discourse-of-blue-economy-definitions-measurements-and-theories/300675 >Accessed 12 March 2023

[160] The World Bank's Blue Economy Program and PROBLUE: Supporting integrated and sustainable economic development in healthy ocean (2022)< https://www.worldbank.org/en/topic/environment/brief/the-world-banks-blue-economy-program-and-problue-frequently-asked-questions >Accessed 22 April 2023

[161] Ki-Hoon Lee and Other, The Blue Economy and the United Nations' sustainable development goals: Challenges and opportunities (2020)< https://www.sciencedirect.com/science/article/pii/S0160412019338255 >Accessed 2nd April, 2023



environment and marine resources must bother about the well-being of the ocean resources. An African transition to a blue economy is absolutely possible.

Africa is with a coastline of about 26,000 nautical miles and maritime zones under its jurisdiction, totalling 13 million km2 and is confronted with challenges such as the Plastic pollution which alone costs about $13 billion a year in damage to marine ecosystems and about 90% of ocean plastic waste are said to originate from Asia and Africa as a result of mismanagement and inappropriate disposal of waste.[162] If we properly confront ocean pollution with the Blue Economy development approach and principles, we can get closer to meeting the targets set out in the UN Sustainable Development Goals (SDG) and the Africa Union's Vision 2063.[163] Thus, all stakeholders and the Federal Government of Nigerian through NIMASA, State Government, Local Governments Authorities and Corporate Citizens should rise to the occasion to play different roles in tackling ocean pollution and plastic waste in our coastlines, creeks and oceans.

Yes, in answering the question as to whether there is opportunity for growth for African nations and Nigeria in particular in the context of the African Union Agenda 2063 and the United Nations Sustainable Development Goals. It is my well-considered opinion that Africa and indeed Nigeria has great opportunity to develop an African Blue Economy narrative that will better reflects the development options and goals, possible partnerships, and the social reciprocity that will best suit African and Nigerian coastal communities needs as they move into the future. A unique marine economy focused vision for Africa and Nigeria that is based on well-built knowledge and social foundations will distinguish us in the global community as we look forwards to reducing carbon foot prints, and practicing innovative ways to achieve sustainable development.

Land-Based Marine Pollution Sources and the Social Economic Wellbeing of the Coastal Communities in Rivers State

All coastal and even the inland communities in Rivers State are faced with a huge challenge of land based marine pollution which has generated so much harsh economic situation in the state. These communities and local government council authorities are all in a crossroads and bereaved of how to tackle the continuously growing waste management challenge. For instance, along the in-land waters in Part Harcourt city council the common practice has been to dump domestic waste in their large quantity daily along the creeks as seen within the Amadi Ama. Amadi-Ama community is in southern Port Harcourt and is a vital inland water body. The Amadi Creek, is an estuary which lies on the north of the Bonny River, upstream from the Bight of Benin.[164] Okuru Ama, Abuloma up to Okrika community's axis, witness so much in

[162] Sulaimon Salau, Marine plastic pollution costs $13b damage yearly (2019)< https://guardian.ng/business-services/marine-plastic-pollution-costs-13b-damage-yearly/ >Accessed 2nd April 2023

[163] African Union, Sustainable Environment and Blue Economy (SEBE) (2020) < https://au.int/en/directorates/sustainable-environment >Accessed 2nd April 2023

[164] Beloved John, How Plastic Waste Disrupts Aquatic Life In Rivers' Waters (2020) < https://www.premiumtimesng.com/features-and-interviews/432954-how-plastic-waste-disrupts-aquatic-life-in-rivers-waters.html?tztc=1 >Accessed 21 March 2023

terms of land-based waste which are seen to be washed into the creeks daily and through tidal flow they get into our rivers and seas. Among the major sources of land based marine pollution seen in Rivers state, single use plastic and illegal bunkering activities are the main concern in Rivers state. Virtually all the creeks in rivers state are heavily polluted with huge plastic waste particularly of sachet water.

Volumes of plastic waste are washed from the Ikoku street, D/Line, old GRA and Habert Macauley street into the Nta Wogba creek in Port Harcourt city, Choba creek also is faced with the same challenge of huge plastic waste been washed into the creeks from activities of traders and consumers of plastic waste. Drains and gutters in Port Harcourt city are all built to direct all waste into the inland body of water and this inevitably makes marine litter unavoidable and a permanent incident in Rivers state. There are a few local recycling companies in the state, which collects wastes from households, industries, and dumpsites around the city Port Harcourt but a major concern has been that not all plastic waste are recyclable.

Communities and people in Rivers state are predominantly fishermen and farmers and the fishing industry is about the worst hit by the menace of marine litters pollution in the state. There have been several oil spills from the activities of oil companies,[165] port operators,[166] ships and activities of vessels within jetties in the state and which hugely impact on fishes, making fish catch so small. Illegal bunkering activities are very high[167] in most coastal communities in Rivers state with several local and illegal refining activities operational in most coastal communities in the state. Creeks within Bonny communities are no longer comfortable for fishing with the huge crude oil spill into the River on daily basis.[168] Plastic waste from resident and the companies in Bonny has become a near crisis as many creeks within Bonny island are covered with plastic waste that are either directly dumped or washed into the various creeks. Igonipolo, Adapa poshe, Perekule Iwoama, Perekule Aganya, Ayambo, Akiam community creeks are all a major problem for the fishing community today.

In answer to the question as to the impact of land-based marine pollution to the economy and wellbeing, one can say that it has become very difficult to engage in profitable commercial fishing activities for communities within Bonny and generally in Rivers state. There is also the problem of single use plastic source in the case of Bonny community. In the past couple of years many companies on the island provide feeding and plastic bottle water for their workers and from records there are thousands of workers who are given a minimum of one plastic bottle

[165] Obinna Nwaoku, Rivers community laments oil spill, calls for govt intervention (2022)< https://guardian.ng/news/rivers-community-laments-oil-spill-calls-for-govt-intervention/ >Accessed 17 May 2023

[166] Samson Nitonye, Analysis of Marine Pollution of Ports and Jetties in Rivers State, Nigeria (2018)< https://www.academia.edu/60693176/Analysis_of_Marine_Pollution_of_Ports_and_Jetties_in_Rivers_State_Nigeria >Accessed 17 May 2023

[167] Ignatius Chukwu, Bunkering and Port Harcourt soot wars (2023) < https://businessday.ng/news/article/bunkering-and-port-harcourt-soot-wars/ >Accessed 17 May 2023

[168] Chris Oluoh, Pollution: Bonny Communities, Group Lament illegal Bunkering (2013)< https://www.thetidenewsonline.com/2013/12/04/pollutionbonny-communities-group-lament-illegal-bunkering/ >Accessed 17 May 2023

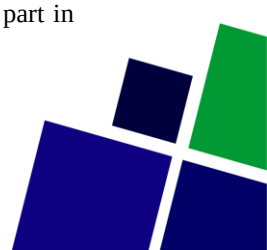
of water daily and these bottles in most cases find their ways into the river and creeks constituting nuisance at the stretch of coastline and within the creeks. There is no plastic recycling plant within Bonny community and there is no clear evacuation plan or system that is known to the present writer.

The economic impact of these pollution sources is far reaching and the local economies of coastal towns that depend on the fishing and tourism industries are already devastated by a large-scale disaster.[169] It is true that marine pollution impacts negatively on the health, economy and living resources of a coastal communities, and if not controlled marine pollution will not only endanger the environment but also the human health and will put to a serious risk, the aquatic life. Several communities such as Bonny, Abuloma, Okuru, Amadi Ama, Elelenwo, choba, Iwofe in Port Harcourt City, Okrika, Eleme, Ogu/Bolo, Buguma, Degema, Abonnema, Kula, Tombia, Gokhana, Khana, Opobo, Andoni, Nkoro and many other communities are all littoral and depends on the creeks, sea and river for daily subsistent living. The quality and health of the ocean reflect in the health and the economy of the people in these communities. The reality is that all manners of land based marine pollution particularly those of single use plastic and illegal bunkering activities have continued to be a very serious challenge to the maritime economy in these communities in Rivers state. It is also true that adequate attention has not been given to the challenges posed by marine pollution and the negative impacts it has continued to have on human health, aquatic lives, the environment and the economies of communities.

This article finds that sources of marine pollution from domestic waste, industrial waste, spills from ships and local marine transport activities, illegal bunkering are still regularly discharged into the creeks and the sea in an uncontrollable manner in Rivers state. The very adverse effects of these pollutant sources into the marine environment will continue to get worse in such a way that the future generation may be seriously affected if steps are not taken today. The ecosystem in continuously depleted as a result of marine pollution and it is only appropriate at this point for both the private sector and government to work together to set the right environment for both preventive and control measures to be instituted in Rivers state for the purpose of addressing land based marine pollution through Public Private Partnerships (PPP) in the state. Globally there has been several government and private sector funded clean seas campaign under taken to properly educate young people and local government authorities on the dangers of plastic pollution and their expected roles they can play.[170] Young people must become aware of the issues threatening the community they live in, and we must endeavour to engage them in a fun but yet challenging tasks that will be targeted at leading them to develop a sense of personal fulfilment in taking responsibility for the community well-being. There should be a movement of all local governments and the young people in the littoral communities in Rivers

[169] Samson Nitonye and Ofanson Uyi, Analysis of Marine Pollution of Ports and Jetties in Rivers State, Nigeria (2018)< https://www.scirp.org/journal/paperinformation.aspx?paperid=81974 >Accessed 21 March 2023

[170] The Tide Turners Plastic Challenge Badge is one of the organisations supported and funded by the UK Government's Department of Environment, Food and Agriculture, and is being developed as part of UNEP's Clean Seas Campaign to educate young people about plastic pollution and to encourage them to play a part in resolving pressing environmental issues.



state that will be committing to take action to reduce plastic waste in their lives, at schools, and within the community.[171]

Corporate Greenwashing and Greenrinsing

The major issue affecting a Public Private Partnership in working together towards building the right awareness and policy actions in fighting the pollution of our coastal environment and our rivers has been the increasing turn to greenwashing techniques. Many organisations are seen to be involved in the fight to prevent plastic waste and illegal bunkering activities but the question is do they mean what they say. Greenwashing can be defined as the use of advertising and public messaging to appear more climate friendly and environmentally sustainable than [a company] really is. It is also a technique used by companies to distract consumers from the fact that their business model and activities do a lot of environmental harm and damage. Accordingly, it has been dais that greenwashing is not always illegal, but it is always misleading.[172] Greenwashing is now a common practice because most producers are aware that consumers are more careful and selective of products they go for. The global climate crisis demands that we act differently and as such, consumers become very conscious about the environmental impact of the services and products they patronise or use. These days companies therefore engage in all sorts of activities to make them appear more environmentally sustainable and caring just for the face value of it. However, the truth has been that such efforts in deceiving the public by way of false environmental claims hinders the development of the blue and green economy. Greenwashing is a sad development and indeed a misallocation of funds by investing in the wrong people and not those genuinely trying to bring about sustainable programs to help clean the environment and raise the awareness.

Another major concern faced in building strung partnerships between companies and government in fighting marine pollution sources particularly the single use plastic and illegal bunkering activities is the concept of Greenrinsing. By greenrinsing we mean situation where companies regularly change its Environmental, Social and Governance (ESG) targets before they are achieved. According to the Planet Tracker,[173] the world's two top plastic polluting brands, Coca-Cola and PepsiCo, have adopted this strategy by regularly adjusting their recycling targets before the target date, without meeting them. It must be said here that truly the global addiction for the use of plastic is not in any way sustainable and so we must all make very frantic efforts to significantly curtail the use of plastic materials (bags, bottles, clamshell packaging, straws, and disposable utensils).

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[171] UN Environment Programm, The Tide Turners Plastic Challenge Badge (2022)<https://www.unep.org/explore-topics/education-environment/what-we-do/tide-turners-plastic-challenge-badge >Accessed 8 March 2023

[172] Conor McGlone, Track Down the Plastic Greenwashers (2023)< https://eandt.theiet.org/content/articles/2023/03/track-down-the-plastic-greenwashers/ >Accessed 11 March 2023

[173] Planet Tracker is a non-profit financial think tank producing analytics and reports to align capital markets with planetary boundaries. Their mission is to create significant and irreversible transformation of global financial activities by 2030. See https://planet-tracker.org

Building relevant capacity and supporting government at the local level to effectively control plastic waste and its entry into our creeks and seas should be the target of multi-national firms doing business in Rivers State. Local governments alone are unable to effectively engage in the recycling of waste that are generated within their jurisdictions. In fact, across the globe 6.3 billion metric tons of plastic waste has been generated since the middle of the last century, and the world have only managed to recycle only about 9 percent of it.[174] The rest of it gets trashed and ultimately ends up in our landfills or our oceans. More need to be done by all stakeholders through PPP.

Single use plastic sources have become the most convenient habit to keep particularly in the cities and this habit is about the most dangerous to the environment and our seas and ocean. Accordingly, Lindwall have posited that,

> A straw with our iced coffee, a plastic bag to carry our takeout, a wrapper on a candy bar: taken individually, each seems harmless. These modern conveniences are so ubiquitous and so quickly thrown out that they hardly register in our minds. But single-use plastics come with a steep environmental price one that we'll be paying off for millennia. Our plastic addiction is having a devastating impact on our oceans, our wildlife, and our health.[175]

It is most interesting to know that though the plastic crisis is real and almost overwhelmingly entering and devastating our oceans, plastic pollution is a problem that is solvable.[176] Plastic crisis touches every aspect of our lives, even if you do not see discarded plastic in your community, tiny pieces of plastic have been found in tap and bottled water, in salt, beer and honey, in oysters, clams, mussels, crabs, lobsters, and even inside us. The revelation in terms of data has been described as staggering and real.[177]

Billions of plastic wastes overwhelm and choke our oceans, lakes, rivers and land with about 380 million metric tons of plastic that are being produced yearly. Since the 1950s when plastic was introduced, about 8.3 Billion Metric Tons (9.1 Billion US Tons) of plastic has been produced, half of which global annual plastic production is destined for a single-use product. The annual production value is Five trillion plastic bags. Humans use about 1.2 million plastic bottles per minute in total and approximately 91% of plastic is not recycled.[178] It is only frightening to know that virtually every piece of plastic that was ever made still exists in some shape or form, only a small proportion of that has been incinerated. It can take up to 1,000

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[174] Jeff Turrentine, America Needs a Plastics Intervention. Now's the Time (2018) < https://www.nrdc.org/stories/america-needs-plastics-intervention-nows-time > Accessed 22 March 2023

[175] Courtney Lindwall, Sible-Use Plastic 101(2020)< https://www.nrdc.org/stories/single-use-plastics-101>Accessed 17 March 2023

[176] UNEP Single-Use Plastics: A Roadmap for Sustainability (2018) (Rev. ed., pp. vi; 6).

[177] Dianna Cohen, Health and Environmental Impact of Single Use Plastic < https://www.plasticpollutioncoalition.org/guides/singleuseplastics/healthimpacts >Accessed 23 March 2023

[178] Americans alone throw away 100 billion bags annually and which is the equivalent to dumping nearly 12 million barrels of crude oil.

years for a bag to disintegrate completely. About 500 billion plastic cups are used across the globe every single year.[179] The world also produces more than 29 million US tons of polystyrene (plastic foam) each year.[180] In all, at least 14 million tons of plastic end up in our oceans every year and when plastics end up in landfills, they aren't harmless. They break down into tiny toxic particles that contaminate the soil and waterways and enter the food chain when animals accidentally ingest them.[181]

Put simply, single-use plastics are goods that are made primarily from fossil fuel–based chemicals (petrochemicals) and are meant to be disposed of right after use and often, in mere minutes. Single-use plastics are most commonly used for packaging and service ware such as bottles, wrappers, straws, and bags. Some other uses for plastic that are not only reasonable but important, may include items such as surgical gloves, or straws for people with diabetics. By switching to reusable shopping bags, we can eliminate that waste which amounts to about 307 bags per person.[182] And the time is now to explore and embrace alternatives to single-use plastic in our food ware, and together, we are shifting the system to make better choices for the health of humans, animals, waterways, oceans, and our environment. We must join other countries like Australia this journey.

Australia is known to have launched the "Blue Well-being Initiative", on the principles that ocean-based industrial development and growth, or a blue GDP is of great potential to a coastal nation like Australia. The European Union "Blue Growth" concept which was introduced in 2012 is still very fresh in our memories. These efforts are only an indication that we can use "Blue Economy" as a policy tool to pursue our economic growth and create jobs in Nigeria, especially by revitalizing marine economy sectors and their industrial activities which includes construction, transportation, mineral resources development, ship building, communication cable laying, pharmaceutical enterprises, equipment deployment, sustainable energy from waves, currents, seaside leisure tourism, and fisheries and aquaculture.[183] Truly, to understand, utilize and to protect the oceans of the world, is simply a shared goal and responsibility for all human being if we must achieve a sustainable marine development in the future. At present, blue economy, as the new development concept and the "blue engine," is becoming an important driving force for achieving global sustainable development. We should shoulder global responsibilities, and make well to step up deep-sea environmental management actions. It is time to understand the accumulative effects of human and climate change actions on the health of all deep-sea creatures, biodiversity and ecological system. We must strengthen

[179] Trinstan Lebleu, Cleancup, Fighting Plastic Pollution One Cup At A Time (2019) < https://solarimpulse.com/news/cleancup-fighting-plastic-pollution-one-cup-at-a-time >Accessed 23 March 2023
[180] Statista, Production Forecast of Thermoplastics Worldwide From 2020 to 2050, By Type (2020) < https://www.statista.com/statistics/1192886/thermoplastics-production-volume-by-type-globally/ >Accessed 23 March 2023
[181] Earthday.Org, Green Cities Fact Sheet: Single-Use Plastic (2022) < https://www.earthday.org/fact-sheet-single-use-plastics/ >Accessed 23 ,arch 2023
[182] Earth Day, End Plastic Pollution (2022)< https://www.earthday.org/fact-sheet-single-use-plastics/ >Accessed 3 April 2023
[183] Lu Wenhai and Others, Successful Blue Economy Examples With an Emphasis on International Perspectives (2019)< https://www.frontiersin.org/articles/10.3389/fmars.2019.00261/full >Accessed 3 April 2023

controls at least by targeting micro-plastics around global oceans, strive forward to establish a responsible community of marine ecological protection and marine environment governance, and push forward for the establishment of a common community for all such that will guarantees the sustainable development of oceans and human being.

Now is the time to truly push for the establishment of blue partnerships around the globe, as we make mutual efforts to foster the new driving force of blue economy, explore new markets, generate new growth, co-establish service platforms and provide an industrial service platform for achieving a global blue economy development, connecting technologies and markets, and also linking enterprises with finance, through our local efforts. It is posited thus, that only a well nurtured local collaborative efforts by internal stakeholder that will lead to and support a robust global sustainable blue economy practice.

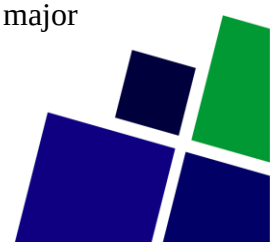
Recommendation

1. **Sustained Enlightenment, Campaign and Advocacy on Safer Attitudes**

The need to commence and indeed sustained actions on the enlightenment, campaign and advocacy programs on the change of attitude to the environment is key in controlling land based marine pollutions. Safer ways of disposing our waste on land and a conscious attitude towards reducing single use plastic material on daily basis can reduce the pollution of our marine environment. Efforts must be made to train and build capacity of relevant stake holders including coastal communities, local and state government officials on modern day global practices that reduces marine pollution in all its ramifications. Active collaboration with professionals, experts, local and international agencies is required in solving localized marine pollution problems such as plastic litters and abandoned lost or other fishing gears (ALDFG's). We advocate and recommend for a Nigerian Ocean Conference which will serve as a routine enlightenment programs on the blue economy and maritime domain awareness. Governments can't solve all of these problems alone. Just as we share a common dependence on the ocean, we must join together in a common endeavour to save the ocean from the damage caused by humans. A good Public Private Partnerships (PPP) efforts is an option to enlighten and educate our rural coastal community dwellers on the dangers of our disposal of the use and disposal of plastic. Blue is a priority for all dwellers of our coastal communities, who the sea has been a constant part of their lives. This is because stewardship of the ocean is more than just a personal passion for those of us who hail from coastal communities. There should be a national concern to properly enlighten and educate all on the need to fight land based marine pollution.

2. **Develop an Economic and Financial Systems that is Geared Towards Sustainability.**

Governments should encourage and develop financial systems that will embrace new industry-shaping growth trends, such as environmental, social, and governance (ESG) investing, beyond-banking offerings, and advanced analytics. And government should incorporate full natural capital accounting into decision-making and use policies and regulatory frameworks to provide incentives for businesses to do the same. Sustainable finance should become a major



theme for banks in Nigeria and more issuance of sustainable bonds should be seen to dominate the bond market. Sustainability-related syndicated loans should dominate the banking sector in Nigeria. As a matter of policy, the federal government of Nigeria through the Central Bank of Nigeria (CBN) should develop single digit interest loan schemes to support the financing of clean energy related projects and programs. Sustainable financing[184] and Green financing[185] should be the way forward to stir up new attitude to business. On the Green finance will delivers economic and environmental advantages to all, It will certainly broaden access to environmentally friendly goods and services for individuals and enterprises, and will equalise the transition to a low-carbon society, which will result in more socially inclusive growth. This results in a 'great green multiplier' effect in which both the economy and the environment will gain, making it a win-win situation for everyone.

3. Government Must Strengthen Environmental Protection Agencies and Scale Up Actions on Legal and Regulatory Issues.

All federal, state and local government Environmental Protection Agencies should be properly supported by way of training, and funding to develop new ways to control both point source and nonpoint source related marine pollutions. These agencies must collaborate with critical stakeholders and work together to monitor, assess, and limit pollution sources that may result naturally and by human actions. In the same way, governments must scale up and accelerate action on legal and regulatory issues to ensure for proper enforcement and implementation of existing laws. A strong will to meet the Paris Agreement Goals and limit dangerous climate change will naturally boost our responses to the environment and therefore government must show strong commitment towards our national determined contribution on carbon foot prints. Emissions reductions entail rapid and far-reaching transformations in the energy, land, industrial production, urban and infrastructure sectors. Scaling up our policies on financial and technical assistance to industries and enterprises, and individuals, and our policies on reforestation with native trees, restoration of degraded lands, improved soil management and agroforestry can help in controlling the waste on the land and thereby reducing land based marine pollution as well and as much as it will contribute significantly to reducing the atmospheric abundance of carbon dioxide.

4. Scale Up Trade in Alternative Item to Plastic

As already stated, a recent research shows the huge volume of trade in plastic annually ranging up to 369 million tonnes in 2021which poses a major threat to the world because less that 10%

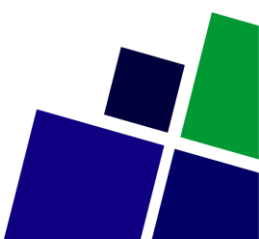
184 In The World Bank, Sustainable Financing (2021)< https://www.worldbank.org/en/topic/financialsector/brief/sustainable-finance >Accessed 22 April 2023, Sustainable Finance is described as the process of taking due account of environmental, social and governance (ESG) considerations when making investment decisions in the financial sector, leading to increased longer-term investments into sustainable economic activities and projects.

185 In Emeritus, What is Green Financing (2023) < https://emeritus.org/blog/finance-what-is-green-finance/ >Accessed 22 April 2023, green finance is defined as a loan or investment that promotes environmentally-positive activities, such as the purchase of ecologically-friendly goods and services or the construction of green infrastructure. As the hazards connected to ecologically destructive products and services rise, green finance is becoming a mainstream phenomenon.

are recycled. We must thus scale up in the trade of alternative and environmentally friendly and sustainable materials of nature such as bamboo, sand, banana plants and algae that could be used to make eco-friendly versions of the straws, shopping bags, bottles, food wrappers and other plastic products we consume daily. As Henrique Pacini will put it, this will be of much benefit to planet and it will promote economic activities both in developing and in the developed world. Concerned corporate organisations and government agencies must through their internal policies promote alternatives to plastics. Consumers must pressure for environmentally friendly products and services, and eco-friendly packaging alternatives.

Conclusion

Whether humans live near the coasts or far inland, they are a part of the problem and the only solution to ocean pollution. Through several academic research paper like this one, we are always well informed of the types of pollution harming our ocean, and we learn about actions that can be taken to prevent further pollution no matter where we live. It has become incontrovertible that marine pollution adversely impacts on our coastal resources in more ways than we can readily comprehend. Whereas marine pollution is something we cannot avoid in a world with a rapidly growing population and technological concerns that generates hazardous pollutants, we can surely minimize the impacts and effects of marine pollution if we become more careful in the way we manage the ocean. In other to achieve this, we have in the paper made some useful the recommendations to curb the effects of marine pollution in the Nigerian coastal waters.



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Edward & William