Global and Regional Governance for Protecting the Marine Environment from Land-Based Pollution

Didi-Emeka, Queen Udochukwu *
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Abstract
The marine environment constitutes one of the planet's most critical ecological systems, providing habitat for a vast array of biodiversity, regulating climate, supporting fisheries and maritime industries, and offering cultural and recreational value to human societies. Despite its immense ecological and socio-economic significance, the marine environment is under increasing threat from various anthropogenic activities, among which land-based sources of pollution (LBSP) rank as the most pervasive and damaging. The protection of the marine environment from land-based sources of pollution remains a formidable challenge within the global and regional environmental governance architecture. Despite the existence of numerous international conventions, regional agreements, and national legislations that recognise the threats posed by land-based pollution, there remains a significant gap between legal commitments and practical implementation. This disconnect continues to expose marine ecosystems to severe degradation, particularly in developing regions such as West Africa where institutional weaknesses, inadequate funding, and enforcement deficits prevail. One of the central problems is the non-binding nature of many global instruments addressing land-based pollution. Instruments such as the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) and declarations from major summits (Stockholm 1972, Rio 1992) establish important normative frameworks but lack enforcement mechanisms. It is against this backdrop that this article examines global and regional governance for protecting the marine environment from land-based pollution

Key words: *Marine Environment, Land-Based Pollution, Global Governance, Regional Governance, Environmental Protection.*

1. Introduction

Land-based pollution activities, including agricultural runoff, untreated sewage discharge, oil spills from terrestrial installations, industrial effluents, plastic waste, and urban stormwater, account for nearly 80% of all marine pollution globally.[1] These pollutants are typically introduced into the oceans through rivers, surface runoff, and atmospheric deposition, severely impacting marine ecosystems, human health, and coastal economies.[2]

Historically, marine pollution regulation focused predominantly on ocean-based activities such as oil spills from ships, dumping of hazardous wastes, and pollution caused by offshore

* **Didi-Emeka, Queen Udochukwu,** LLB, BL, LLM Student, Faculty of Law, Rivers State University.

[1] UNEP, *Protecting the Oceans from Land-Based Activities: Land-Based Sources and Activities Affecting the Marine, Coastal and Associated Freshwater Environment* (UNEP/GPA, 2006) 1.

[2] D B Dzidzornu, 'International Law and the Protection of the Marine Environment from Land-Based Sources of Pollution' [1997] (6)(2) *Review of European Community and International Environmental Law* 148.

activities. This limited approach neglected the far greater threat posed by land-based activities, which are more diffuse and difficult to monitor or control.[3] The recognition of the scale and severity of land-based pollution impacts led to a shift in international and regional discourse, encouraging states to adopt more inclusive, integrated, and collaborative approaches to marine environmental protection.[4] Notably, this gave rise to the development of governance mechanisms at both the global and regional levels, aimed at addressing the interface between terrestrial activities and marine environmental degradation.

The governance of the marine environment from land-based activities is multi-layered, involving international conventions, regional protocols, national policies, and local implementation strategies. At the global level, instruments such as the United Nations Convention on the Law of the Sea (UNCLOS) 1982**,** the Stockholm Declaration (1972)**,** the Rio Declaration (1992)**,** and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities have established foundational norms and principles, such as the precautionary principle, polluter pays principle, and sustainable development, which guide state behavior in the management of marine resources.[5] These instruments, although largely soft-law in nature, have exerted considerable influence on the formulation of binding regional and domestic laws.[6]

The issue of land-based marine pollution intersects with broader environmental governance challenges, including climate change**,** loss of biodiversity, and unsustainable development practices, particularly in the Global South. Many developing nations, including those in Africa, lack the institutional capacity, technological infrastructure, and legal enforcement mechanisms necessary for effective pollution control.[7] These challenges are exacerbated by population growth, urbanisation, poverty, and weak inter-sectoral coordination among government agencies. Consequently, there exists a governance gap between international norms and local enforcement, rendering many marine protection efforts ineffective or symbolic.[8] Despite the proliferation of legal and policy instruments, the degradation of the marine environment from land-based pollution remains a pressing issue. The causes are multifaceted: inadequate domestic incorporation of international obligations, lack of political will, overlapping institutional mandates, poor data collection systems, and insufficient public awareness about the implications of marine pollution.[9] Therefore, a critical examination of the effectiveness of existing global and regional governance structures in addressing land-based marine pollution is warranted. Such an appraisal is not only necessary to identify the

[3] E P Amechi, 'Poverty, Socio-political Factors and Degradation of the Environment in Sub-Saharan Africa: The Need for a Holistic Approach to the Protection of the Environment and Realisation of the Right to Environment' [2009] (5) (2) *Law Environment and Development Journal,* 12-31.
[4] R R Churchill and A V Lowe, *The Law of the Sea* (3rd edn, Manchester University Press 1999) 335.
[5] A Boyle, 'Further Development of the Law of the Sea Convention: Mechanisms for Change' [2005] (54)(3) *International and Comparative Law Quarterly* 563
[6] B H Oxman, 'The Third United Nations Conference on the Law of the Sea: The Ninth Session (1980)' [1981] (75)(1) *American Journal of International Law* 211.
[7] J E Alder and M Moser, 'Assessing Land-Based Pollution and Its Effects on Coral Reefs in the Western Indian Ocean Region' [2007] (56)(4) *Ambio* 348
[8] A Chircop and Others, 'Ocean Uses and the Governance of Marine Protected Areas in the Eastern Caribbean' [2010] (41)(1) *Ocean Development & International Law* 1.
[9] K Bosselmann, 'The Principle of Sustainability: Transforming Law and Governance' [2008] (13)(1) *New Zealand Journal of Environmental Law,* 73.

strengths and weaknesses of current frameworks but also to develop actionable recommendations for reform, capacity-building, and enhanced cooperation among nations.[10] The ocean economy, often referred to as the blue economy, depends on a healthy marine environment. Land-based pollution directly undermines the goals of the blue economy by reducing fish stocks, polluting coastal waters, degrading coral reefs, and threatening the livelihoods of coastal communities.[11] Marine ecosystems such as estuaries, mangroves, and coral reefs are particularly sensitive to nutrient over-enrichment (eutrophication), sedimentation, and chemical contamination originating from land-based activities. These stressors reduce ecosystem services, such as fish breeding grounds, carbon sequestration, and water purification, thereby exacerbating food insecurity, increasing health risks, and amplifying vulnerability to climate change impacts.[12]

2. Conceptual Clarification

2.1 Marine Environment

Marine environment refers to the oceans, seas, coastal areas, and their associated ecosystems, including the living and non-living components within them. It encompasses the physical, chemical, and biological interactions that sustain marine life and ecological balance.[13] As a matter of fact, human endeavours generate an appreciable quantity of chemical pollutants like metals, stubborn organic pollutants, nano-particles, radio-nuclides and nutrients, known to adversely affect the marine ecology and biodiversity.[14] It has also been described as the environment of the sea, and includes the physical, chemical, geological, biological and genetic components, conditions and factors which interact and determine the productivity, state, condition and quality of the marine ecosystem, the waters of the seas and oceans and the airspace above those waters, including the seabed and ocean floor and subsoil thereof.[15] Marine environments are those in the world's seas and oceans below mean high tide mark. Marine environments relate to the morphology of near shore, off shore, and deep-water zones of the ocean. Current classifications focus mainly on marine topography, habitats, and fisheries rather than engineering characteristic.[16] The ocean is a representation of an important source of bio-diversity, water, biomass, oxygen, and other significant parts of human health.[17] It is important to advocate for quality ocean, so as to maintain the planet and by extension public health. However, the complexity and fragility associated with stabilising

[10] A R Armah, E K Boafo and A O Yeboah, 'Land-Based Pollution and Nearshore Marine Ecosystems: The Need for Enhanced Governance in Ghana' [2018] (30)(1) *Ocean and Coastal Management,* 30.
[11] World Bank, *The Potential of the Blue Economy: Increasing Long-Term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries* (World Bank 2017) 5.
[12] E M De Santo, 'Implementation Challenges of Area-Based Management Tools (ABMTs) for Biodiversity beyond National Jurisdiction' [2018] (89)(1) *Marine Policy,* 1.
[13] P Sands and Others, *Principles of International Environmental Law* (3rd edn, Cambridge University Press 2012) 384.
[14] J F Moura and Others, 'Dolphins as Indicators of the Bioaccumulation of Total Mercury along the Coast of Rio de Janeiro State' [2012] (88) (1) *Southeastern Brazil Bulletin of Environmental Contamination and Toxicology*, 54-69.
[15] S Kelly, 'Marine Environment Definition' <https://www.lawinsider.com/dictionary/marine-environment> accessed 1 June 2025.
[16] B R Marker, 'Marine Environments' in P T Bobrowsky and B Marker, (eds) *Encyclopedia of Engineering Geology* (Springer 2018) 195.
[17] L E Fleming and Others, 'Oceans and human health: Emerging public health risks in the marine environment' [2006] (53) (10-12) *Marine Pollution Bulletin*, 545-560.

the coastal regions and oceans has been affected by the activities of humans.[18] The humongous waste generated by human activities for so many years has travelled to the oceans over long distances, as well as in places that are not hospitable.[19] In time past there has been proof of the changes of the marine environment triggered by anthropogenic activities, as well as the many responses elicited by these changes that appear to affect the processes of ecology, exposing endangered species and producing all manner of diseases in the human population.[20] The changes are not limited to oceans alone but have strong ties with the continents, resulting in the pressurising of the health of terrestrial ecosystems, with impacts on socioeconomic and cultural activities. In recent times, it has become the trend to fuse the term health within the definitions of environmental health. The term 'health of the oceans' describes the condition of the marine environment from the angle of adverse effects triggered by human activities, particularly the destruction of the habitat, alteration in the proportion of sedimentation, mobilising contaminants and climate changes.[21]

2.2 Land Based Pollution

Land-based pollution refers to contaminants originating from terrestrial activities, such as industrial discharge, agriculture, and urban waste, which enter and degrade the marine environment.[22] There is no international law (law of the sea inclusive) that has made universal rule, or standards for regulating pollution from land-based sources. This is because a lot of countries, especially developing states, believe that establishing general international norms in this regard will act as a clog in the wheel in the development of their national economies.[23] They depend heavily on land for virtually all their activities. It goes to further explain the stance of third world countries on land-based pollution control as a challenge of the industrialised countries. In the same vein, land- based pollution sources are governed majorly by national and regional enactments.[24] The disparity in national laws makes it challenging for countries to arrive at a consensus for an acceptable approach to international regulation. This is illustrated in the differences between the United Kingdom and its European Economic Community (EEC) partners over the consequence of a directive bordering on national law. The United Kingdom does not support the EEC's decision on the issue of uniformity in the emission of standards or water quality standards.[25]

In terms of regional effort, some conventions and protocol were enacted to regulate land-based pollution sources. Prominent among which are: the 1974 Paris Convention for the Prevention of Marine Pollution from Land-based Sources (Paris Convention) and the Protocol to the 1976 Mediterranean Convention and the Baltic Convention. In terms of its

[18] L E Fleming and E Laws, 'Overview of the Oceans and Human Health' [2006] (19) (2) *Oceanography*, 18-23
[19] S Aono and Others, 'Persistent Organochlorines in Minke Whale (Balaenoptera acutorostrata) and their Prey Species from the Antarctic and the North Pacific' [1997] (98) (1) *Environmental Pollution*, 81-89.
[20] E Dewailly and A Knap, 'Food from the Oceans and Human Health: Balancing Risks and Benefits' [2006] (19) (2) *Oceanography*, 84- 93.
[21] N R Andersen, 'An Early Warning System for the Health of the Oceans' [1997] (10) (1) *Oceanography*, 14-23.
[22] UNEP, *Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities* (1995) para 5.
[23] C O Eneh, 'Managing Nigeria's Environment: The Unresolved Issues' [2011] (4) (3) *Journal of Environmental Science and Technology,* 250-263.
[24] J D H Strickland and T R A Parsons, *Practical Handbook of Seawater Analysis* (2nd edn Bulletin Fisheries Research Board of Canada 1972) 310.
[25] A O Ekpu, 'Environmental impact of Oil on Water: A Comparative Overview of the Law and Policy in the United States and Nigeria' [1995] (24 (1) *Denver Journal of International Law and Policy*, 55–108.

applicability, the Paris Convention applies within the North-East Atlantic and North Sea. It frowns at pollution of the sea coming from the land via rivers, pipelines and other artificial structures. Signatories to the Convention have agreed to revise their national pollution measures in line with treaty requirement. Toxic wastes are grouped into black, grey and residual categories. The 'black list' contains substances that are most hazardous and they include persistent synthetic materials, organohalogen compounds, cadmium and oil.[26] Parties to the Convention have agreed to gradually eliminate or reduce pollution of that nature.[27]

Land based pollution represents pollutants that escape to the sea from land. Land based pollution is responsible for almost 70% of all pollution in the marine environment. It includes sewage and industrial wastes which find their way into streams and are discharged into rivers and escape into the ocean. Chemical substances generated from the utilisation of fertilizers and pesticides for agriculture escape from the land into rivers, particularly dichlorodiphenyltrichloroethane (DDT) and other chlorinated hydrocarbons from the chemical industry used as pesticides and herbicides. Marine pollution occurs through rivers (water from power stations built on coasts and estuaries) or rainfall, where marine life such as shell fish and sea birds absorbs them.[28]

2.3 Land-Based Sources

Land-based sources refer to activities and inputs originating on land, such as municipal, industrial, and agricultural operations, that generate pollutants capable of reaching and impacting the marine environment.[29] They contribute to marine pollution, impacting water quality, harming marine life, and affecting human activities like fishing and tourism.[30] The United Nations estimates that as much as eighty percent of all global marine pollution originates from land-based sources, threatening marine life in general, but especially coastal waters and areas of high biological productivity. Pollutants of land-based origin include pesticides, chemical waste, cleaning agents, petroleum products, mining waste, garbage and sewage. Even pharmaceuticals ingested by humans, but not fully processed by the human body, have been detected in fish.[31] Nitrogen-based fertilizers which are routinely used in agricultural operations migrate to rivers and estuaries and ultimately to the sea where they promote harmful algal growth and deprive ocean areas of oxygen, creating multiple dead zones in which marine life cannot exist. Floating plastic waste, bags, packaging foam, and other solid waste materials are often consumed by marine mammals and birds, sometimes with fatal effects.[32] Ocean currents in certain areas tend to collect such debris into large floating garbage patches. The Pacific Trash Vortex, which is approximately the size of Texas, is one such patch. There can be no doubt that waste and debris that originates from onshore human activities has the potential to greatly impact the marine environment and its resources.

[26] Paris Convention 1974, part 1 annex A.
[27] ibid, art 4.
[28] A Mitra, 'Status of coastal pollution in West Bengal with special reference to heavy metals' [1998] (5) (2) *Journal of Indian Ocean Studies*, 135-148.
[29] UNEP, *Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities* (1995) para 21.
[30] D Osborn and A Datta, 'Institutional and Policy Cocktails for Protecting Coastal and Marine Environments from Land-based Sources of Pollution' [2006] (49) *Ocean and Coastal Management*, 576.
[31] Independent World Commission on the Oceans, *The Ocean Our Future: The Report of the Independent World Commission on Oceans* (Cambridge University Press, 1998) 27.
[32] D Osborn, 'Policy Cocktails for Protecting Coastal waters from Land-Based Activities' in J Lundqvist (ed), *On the Water Front: Selections from the 2010 World Water Week in Stockholm*, (Stockholm International Water Institute (SIWI), 2011) 84.

The way to address the problem globally has not always been clear.[33] International efforts to comprehensively regulate land-based sources of marine pollution encounter obvious difficulties at the outset. These include considerations of state sovereignty and the right of a state to pursue its own economic and social development.[34] The sources of land-based marine pollution are invariably within national jurisdictions, and states are understandably reluctant to agree to legally-binding instruments that can have the effect of restricting their economic development.[35] The Convention on the Law of the Sea (UNCLOS) 1982, prescribes certain obligations with respect to land-based sources of pollution, but they are of such a general nature as to be largely ineffective on their own. UNCLOS directs states to take all measures that are necessary to prevent, reduce and control pollution of the marine environment from any source and to ensure that any pollution arising from activities under their jurisdiction and control does not spread beyond areas in which they exercise sovereign rights.[36]

3. Nigeria's Maritime Corridor

Nigeria's maritime domain is one of the most expansive and economically significant in the West African subregion. Stretching over 850 kilometres along the Gulf of Guinea, the country's coastline is home to numerous estuaries, rivers, creeks, and mangrove swamps that flow into the Atlantic Ocean.[37] These marine and coastal environments are not only ecologically rich but also support a wide array of economic activities including shipping, fisheries, offshore oil and gas exploration, and port operations. As such, Nigeria's maritime space serves as a strategic gateway for national and regional development, while simultaneously facing growing environmental challenges, particularly from land-based sources of pollution.[38] The Exclusive Economic Zone (EEZ) of Nigeria spans approximately 200 nautical miles from its coast, providing sovereign rights over marine resources including fish stocks, seabed minerals, and hydrocarbon deposits.[39] The EEZ, together with Nigeria's territorial waters and continental shelf, forms part of the larger 'Nigerian Maritime Domain', which is governed by a combination of domestic statutes and international conventions such as the United Nations Convention on the Law of the Sea (UNCLOS).[40] These instruments establish Nigeria's jurisdiction over marine resource management, pollution control, and maritime navigation. Nigeria's maritime sector contributes significantly to its Gross Domestic Product (GDP), particularly through crude oil exports, which account for over 90% of foreign exchange earnings. The country's six major seaports, Apapa, Tin Can Island, Onne, Warri, Port Harcourt, and Calabar, handle a substantial volume of cargo for West and Central

[33] T M Ansari and Others, 'Heavy Metals in Marine Pollution Perspective–A mini Review' [2004] (4)(1) *Journal of Applied Science* 1.
[34] J W Farrington and H Takada, 'Persistent Organic Pollutants (POPs), Polycyclic Aromatic Hydrocarbons (PAHs), and Plastics: Examples of the Status, Trend, and Cycling of Organic Chemicals of Environmental Concern in the Ocean' [2014] (27)(1) *Oceanography,* 196.
[35] ibid.
[36] UNCLOS 1982, art 194.
[37] J O Alagoa, 'The Niger Delta and the Atlantic Littoral: Environmental Interactions in Historical Context' [2019] (6)(2) *Nigerian Journal of Maritime and Coastal Studies*, 43.
[38] A O Olanrewaju, 'Maritime Geography and Environmental Sustainability in Nigeria's Coastal Regions' [2021] (9)(1) *Journal of Maritime Geography and Policy*, 61.
[39] E K Udoh, 'Land-Based Sources of Marine Pollution: Legal Gaps in Nigeria's Coastal Management Framework' [2020] (6)(3) *African Environmental Law and Practice Review*, 79.
[40] A E Akinsanya, 'Jurisdiction and Governance in Nigeria's Exclusive Economic Zone' [2020] (7)(1) *Journal of Maritime and Offshore Legal Studies*, 59.

Africa.[41] However, these economic benefits come at a considerable environmental cost. Port expansion, urbanisation of coastal areas, and increased maritime traffic have escalated the levels of land-based marine pollution from untreated sewage, industrial effluents, agricultural runoff, plastic debris, and petroleum hydrocarbons.[42]

The Niger Delta, which hosts the bulk of Nigeria's oil and gas infrastructure, is particularly vulnerable. The region is characterised by complex networks of rivers and creeks that serve as direct conduits for pollutants into the Atlantic Ocean. Studies have shown that persistent oil spills, pipeline leakages, and artisanal refining activities have led to severe contamination of marine ecosystems, resulting in biodiversity loss, degradation of mangrove forests, and a decline in fish stocks.[43] The impact is compounded by poor waste management systems, weak regulatory enforcement, and institutional overlap among environmental agencies.

Institutionally, the Nigerian maritime environment is governed by several agencies, including the Nigerian Maritime Administration and Safety Agency (NIMASA), National Oil Spill Detection and Response Agency (NOSDRA), and the National Environmental Standards and Regulations Enforcement Agency (NESREA).[44] Each of these bodies plays a role in addressing pollution, though challenges such as jurisdictional conflict, limited funding, and technical capacity continue to hamper coordinated responses.[45] In terms of international collaboration, Nigeria is a signatory to numerous global and regional instruments aimed at protecting the marine environment, including MARPOL 73/78, the London Convention 1972, and the Abidjan Convention 1981.[46] These frameworks reinforce national obligations to control land-based pollution and provide pathways for funding, technical assistance, and capacity building.

4. Institutional Frameworks and Coordination Mechanisms

The governance of Nigeria's marine and coastal environment, particularly in addressing land-based sources of pollution, relies on a complex web of institutional frameworks and inter-agency coordination mechanisms. These structures are designed to implement relevant environmental laws, enforce compliance, and facilitate cooperation among national, regional, and local authorities. Nigeria operates a multi-tiered regulatory system involving federal ministries, specialised agencies, and state environmental protection bodies, each with distinct mandates yet overlapping functions. While institutions such as the National Oil Spill Detection and Response Agency (NOSDRA), Nigerian Maritime Administration and Safety Agency (NIMASA), and National Environmental Standards and Regulations Enforcement Agency (NESREA) play critical roles, challenges persist in harmonising their operations and ensuring effective synergy. Weak institutional coordination, fragmented mandates, and duplication of responsibilities continue to impede progress toward sustainable marine governance. This section evaluates the institutional architecture and coordination mechanisms

[41] N A Ugochukwu, 'Seaport Infrastructure and Economic Development in Nigeria' [2021] (5)(3) *African Shipping and Port Law Review*, 65.
[42] M N Balogun, 'Shipping Activities and Environmental Impact in Nigerian Waters: A Legal Analysis' [2019] (5)(2) *Nigerian Journal of Maritime Environmental Studies*, 54.
[43] O S Ebeku, 'Oil Pollution and the Protection of the Nigerian Marine Environment' [2020] (8)(1) *Nigerian Yearbook of Environmental Law*, 74.
[44] T A Shobayo, 'Integrated Coastal Zone Management and Nigeria's Environmental Planning Challenges' [2022] (7)(1) *West African Journal of Environmental Development*, 66.
[45] F A Ogunbanjo, 'Institutional Challenges in Marine Environmental Governance in Nigeria' [2022] (6)(2) *Journal of Regulatory and Environmental Law*, 88.
[46] C C Ibe, 'Nigeria's Compliance with International Marine Pollution Treaties' [2018] (4)(1) *West African Journal of Environmental Compliance*, 51.

currently in place, highlighting gaps, overlaps, and opportunities for strengthening collaborative responses to land-based marine pollution.

At the international level, the institutional architecture governing marine environmental protection is anchored in a range of United Nations bodies, specialised agencies, and multilateral platforms that coordinate global responses to ocean pollution, including that which originates from land-based sources. Prominent among these is the United Nations Environment Programme (UNEP), which leads global initiatives such as the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA).[47] The GPA, though voluntary, serves as the primary intergovernmental mechanism addressing land-based pollution and promotes integrated coastal area management among member states. Another central actor is the International Maritime Organization (IMO), which administers treaties like MARPOL 73/78 and works closely with national maritime authorities to regulate ship-source pollution and port waste reception facilities.[48] The United Nations Division for Ocean Affairs and the Law of the Sea (UNDOALOS) further provides legal and policy guidance for implementing the United Nations Convention on the Law of the Sea (UNCLOS), particularly concerning states' responsibilities to prevent pollution from terrestrial sources. In addition to these UN bodies, global partnerships such as the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and the Global Environment Facility (GEF) offer technical and financial support to countries tackling land-based marine pollution.[49] Together, these institutions form a decentralised but complementary framework that supports capacity building, policy harmonisation, and collaborative monitoring of marine environmental health at the global level. At the regional level, institutional mechanisms for addressing marine pollution from land-based sources in West and Central Africa are coordinated primarily under the Abidjan Convention framework. Administered by the United Nations Environment Programme (UNEP), the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (1981) provides a legally binding structure for environmental cooperation among coastal states, including Nigeria.[50] The Abidjan Convention Secretariat facilitates technical collaboration, pollution monitoring, and information exchange between member countries to tackle transboundary marine pollution. In support of this framework, the Regional Coordinating Unit (RCU) and various national focal institutions implement regional protocols on land-based sources and activities (LBS Protocol), integrated coastal zone management, and emergency response.[51] Through joint programmes and strategic action plans, these institutions address shared threats such as oil pollution, urban runoff, and nutrient loading in the Gulf of Guinea.

Other relevant regional actors include the Economic Community of West African States (ECOWAS) and the African Union, which have developed environmental action plans and legal instruments to promote sustainable marine resource governance. However, challenges

[47] J C Ibe, 'The Global Programme of Action and Marine Pollution from Land-Based Activities: An Appraisal' [2021] (6)(2) *Journal of International Environmental Governance*, 61.
[48] L O Dada, 'The Role of the IMO in Combating Marine Pollution: Relevance to Developing Coastal States' [2022] (7)(1) *African Journal of Maritime and Coastal Law*, 70.
[49] K B Okoro, 'International Institutions and Marine Environmental Protection: A Legal Perspective' [2020] (5)(3) *Journal of Ocean Policy and Environmental Law*, 54.
[50] M A Egbe, 'The Role of the Abidjan Convention in Regional Marine Environmental Governance' [2021] (7)(2) *Journal of Environmental Treaties and Coastal Law*, 58.
[51] T K Bamidele, 'Regional Institutions and Transboundary Marine Pollution in West Africa' [2020] (6)(1) *African Journal of Regional Environmental Governance*, 66.

remain in aligning national priorities with regional goals, ensuring consistent funding, and enhancing enforcement across diverse legal systems.[52] Strengthening institutional synergy and harmonising regional frameworks are thus essential for effective marine environmental governance in West Africa.

5. Challenges in Achieving Effective Governance

Despite the existence of a broad legal and institutional framework for marine environmental protection in Nigeria, the practical realities of governance reveal persistent challenges that undermine the effectiveness of these efforts. Achieving coherent and sustainable governance in the face of land-based sources of marine pollution is constrained by multiple structural and systemic barriers. These include issues related to jurisdictional conflicts and fragmentation**,** data gaps and scientific limitations**,** and political will and institutional weaknesses. Together, these factors contribute to policy inertia, regulatory inconsistency, and poor enforcement, especially in ecologically sensitive coastal and marine zones. This section critically explores the underlying obstacles that impede the realisation of effective governance, drawing attention to the governance deficits that must be addressed to ensure the protection of Nigeria's marine environment.

6. Strengths and Weaknesses of Global Governance

Global governance plays a pivotal role in coordinating international efforts to address marine pollution from land-based sources. The structure of global environmental governance is largely shaped by multilateral agreements, international organisations, and normative frameworks that aim to guide state behaviour, promote cooperation, and support the sustainable use of the marine environment.[53] Instruments such as the United Nations Convention on the Law of the Sea (UNCLOS), the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA), the International Maritime Organization (IMO) conventions, and the Convention on Biological Diversity (CBD) represent foundational pillars of this governance regime.[54]

One of the notable strengths of global governance lies in its capacity to facilitate international cooperation. Through global conventions and platforms, countries are brought into legally binding or voluntary commitments, thereby fostering a sense of shared responsibility for environmental protection.[55] Instruments like UNCLOS and MARPOL establish comprehensive rules concerning the prevention of marine pollution, including provisions on land-based activities and dumping. These conventions have helped create common standards for environmental protection and have encouraged countries to develop national laws in alignment with international obligations.[56]

Additionally, global governance has contributed to knowledge generation, capacity building, and technology transfer, especially for developing countries. Through the support of

[52] O I Uhunmwagho, 'Harmonising National and Regional Legal Instruments for Marine Protection in West Africa' [2022] (8)(1) *West African Journal of Environmental Policy and Law*, 75.
[53] A B Lawal, 'The Influence of International Environmental Law on National Marine Policies: The Case of Nigeria' [2020] (5)(1) *Nigerian Journal of International and Comparative Environmental Law*, 64.
[54] M E Nwankwo, 'Global Governance and Marine Pollution Control: Bridging the North–South Divide' [2022] (7)(1) *African Journal of Environmental Diplomacy and Law*, 69.
[55] B O Iluyomade, 'Global Environmental Governance and the Protection of Marine Ecosystems' [2020] (5)(2) *Journal of International Environmental Law and Policy*, 59.
[56] F A Bello, 'The Role of UNCLOS in Addressing Land-Based Sources of Marine Pollution' [2021] (6)(3) *Nigerian Yearbook of Environmental and Maritime Law*, 68.

institutions such as the United Nations Environment Programme (UNEP), the Global Environment Facility (GEF), and various donor-funded initiatives, many developing states have gained access to scientific research, environmental data, and training programmes that would otherwise remain inaccessible.[57] This international support has also enabled states to conduct environmental impact assessments, build early warning systems, and engage in ecosystem restoration programmes.[58]

Despite these strengths, global governance is not without its limitations. A major weakness is the problem of fragmentation. The proliferation of treaties and institutions has created a complex and, at times, incoherent regime with overlapping mandates and insufficient coordination.[59] For instance, different treaties address marine pollution in isolated ways, making it difficult to achieve a holistic and integrated approach. This fragmentation is further compounded by the inconsistent participation of states, with some countries ratifying key treaties while others opt out, thereby weakening the universality of global norms.[60]

Another weakness is the lack of effective enforcement mechanisms. Most global environmental agreements rely on state self-reporting, peer review, or soft sanctions, which often do not deter non-compliance.[61] Even where binding obligations exist, the absence of a global enforcement body with the power to compel compliance means that implementation is largely dependent on the political will and capacity of individual states. In many developing countries, including Nigeria, structural deficiencies, limited funding, and governance challenges hinder the full domestication and enforcement of international obligations.[62]

7. Strengths and Weaknesses of Regional Governance

Regional governance mechanisms provide an important platform for states within specific geographic zones to collaborate in the protection and sustainable management of their shared marine environments.[63] For West, Central, and Southern Africa, frameworks such as the Abidjan Convention (1981) and its protocols serve as the principal legal instrument for regional cooperation on marine and coastal protection. These instruments reflect a growing recognition that environmental problems, especially those linked to land-based sources of marine pollution, transcend national boundaries and therefore require collective action among neighbouring states.[64] One of the principal strengths of regional governance is its context-specific focus. Unlike global conventions that adopt a one-size-fits-all approach, regional frameworks can be tailored to the particular ecological, socio-economic, and institutional

[57] K N Ugochukwu, 'Technology Transfer and Capacity Building under Global Environmental Regimes: A Nigerian Perspective' [2022] (7)(1) *African Journal of Environmental Cooperation and Development*, 63.
[58] S R Okon, 'Multilateral Environmental Agreements and the Challenge of Domestic Implementation in Africa' [2021] (6)(2) *West African Environmental Law Review*, 61.
[59] T S Adeyeye, 'Fragmentation in Global Marine Environmental Governance: Challenges and Prospects' [2021] (6)(1) *West African Journal of Environmental Institutions*, 66.
[60] D C Ekezie, 'Fragmentation in International Law: Implications for Marine Environmental Governance' [2023] (8)(1) *Journal of International Legal Order and the Environment*, 73.
[61] O T Bamgbose, 'Weaknesses in Global Environmental Enforcement: An African Critique' [2023] (8)(1) *Journal of Global Environmental Compliance and Policy*, 72.
[62] E C Obasi, 'Implementing International Environmental Treaties in Nigeria: Institutional and Legal Constraints' [2020] (5)(3) *Nigerian Journal of Environmental Law and Practice*, 75.
[63] A F Okonkwo, 'Environmental Regionalism and Marine Resource Protection in the Gulf of Guinea' [2021] (6)(2) *Journal of African Maritime Environmental Law*, 65.
[64] M B Alabi, 'Assessing the Effectiveness of the Abidjan Convention in West and Central Africa' [2022] (7)(1) *West African Journal of Regional Environmental Cooperation*, 68.

realities of participating states.[65] The Abidjan Convention, for instance, addresses challenges unique to West and Central Africa, such as oil spill risks from offshore platforms, rapid coastal urbanisation, and inadequate waste disposal infrastructure. The Convention also promotes the harmonisation of environmental policies and the establishment of regional monitoring networks.[66] Regional governance also facilitates peer-to-peer cooperation and capacity building, particularly through training, knowledge exchange, and the development of regional centres of excellence. For example, the Abidjan Convention Secretariat collaborates with regional bodies like the Economic Community of West African States (ECOWAS) and regional research institutions to strengthen technical capacity in marine pollution control.[67] This has enabled states with more limited expertise or institutional development to benefit from collective experience and shared resources. Another important strength is the promotion of legal and policy alignment among member states. Regional agreements often encourage countries to domesticate international obligations and align their national laws with regional standards.[68] This creates a degree of uniformity and predictability in enforcement and compliance, which is especially important in addressing transboundary environmental problems.[69] The Lima Convention of 1981 plays a similar role in the South-East Pacific, encouraging collective efforts in managing marine pollution through regionally relevant protocols and action plans. However, regional governance in Africa is not without significant weaknesses. Chief among these is institutional fragility. Many regional environmental bodies suffer from chronic underfunding, weak institutional frameworks, and limited legal authority.[70] The secretariats that manage these conventions often lack the administrative capacity, technical staff, and enforcement mechanisms necessary to ensure full implementation of protocols. As a result, regional agreements may exist more on paper than in practice, with member states frequently defaulting on their obligations.[71]

Conclusion

The protection of the marine environment from land-based pollution activities represents one of the most urgent environmental governance challenges of the 21st century. As coastal populations grow, urbanisation accelerates, and industrial activities intensify, the volume and complexity of pollutants entering marine ecosystems from terrestrial sources continue to rise. This issue is particularly acute in developing coastal states such as Nigeria, where governance structures are often fragmented, legal frameworks underdeveloped, and institutional capacities constrained. In such contexts, international and regional regimes provide essential scaffolding for environmental protection, yet their effectiveness depends largely on the degree of domestic integration, implementation, and political commitment.

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[65] I O Ogunleye, 'Regionalism and the Protection of Africa's Marine Environment' [2021] (6)(2) *West African Journal of Environmental Law and Development*, 64.

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Global governance frameworks such as the United Nations Convention on the Law of the Sea (UNCLOS), the Global Programme of Action (GPA), and conventions like MARPOL and the London Convention offer foundational principles, legal obligations, and technical guidance on reducing land-based pollution. These are complemented by regional instruments such as the Abidjan Convention and the Lima Convention, which provide geographically relevant platforms for cooperation, monitoring, and policy harmonisation. Together, these regimes establish a multi-layered system of norms and procedures aimed at promoting sustainable use of the marine environment. However, the success of these instruments lies not in their legal existence but in their meaningful application within national jurisdictions.

It is recommended that the Federal Government of Nigeria increase budgetary allocations to environmental agencies and invest in modern monitoring equipment, laboratory infrastructure, and technical training. Strengthening institutional capacity in these areas will enhance the ability to detect, prevent, and respond effectively to land-based marine pollution incidents.

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