THE ROLE OF THE NATIONAL OIL SPILL DETECTION AND RESPONSE AGENCY ON MARINE POLLUTION IN NIGERIA: CHALLENGES AND PROSPECT*

Abstract
Healthy and clean marine environment is important for society since it provides services and support a diverse range of sea life that is important for global biodiversity. Marine environment provides valuable benefits for human activities, including protein sources and economic activity through fisheries, aquaculture and navigation. However, oil spillages that produce pollution have affected and still affecting the Nigerian marine environment. The Nigerian government has made several efforts to control ship-source marine pollution but still the menace persists. Therefore, the paper entitled, 'The Role of the National Oil Spill Detection and Response Agency on Marine Pollution in Nigeria: Challenges and Prospects' aimed to examine the role of the major marine pollution control agency (particularly, the National Oil Spill Detection and Response Agency) in controlling marine pollution by oil spills in Nigeria with a view to appraising the effectiveness or otherwise of the agency. To achieve the aim of the paper, the doctrinal method of research which involves the use of textbooks, journals, relevant laws and other relevant documents was adopted. In the course of the research, it was found that one major challenge facing the NOSDRA is lack of adequate funding to enable it acquire modern equipment/facilities and to embark on regular training of its personnel. Therefore, it was recommended that the government should increase its budgetary allocations to the environmental sector to enable NOSDRA acquire modern equipment and training of its personnel. Alternatively, there should be a special percentage for NOSDRA from the annual budget of Nigeria.

Keywords: Role, Marine, Pollution, Challenges and Prospects.

1. Introduction

Nigeria is one of the countries in the world that are rich in crude oil and since the inception of oil exploration/activities in the country, the country has witnessed series of oil spills incidences, which negatively affected and continues to affect its marine environment. This propelled the Nigerian government to establish some agencies that will be responsible for controlling oil spills with a view to minimizing the incidences of marine pollution by oil spills. One of such agencies established to control oil spills is the National Oil Spill Detection and Response Agency (NOSDRA),[1] which this paper intends to examine its functions in controlling oil spills in Nigeria.

Oil spill is the release of crude oil or oily petroleum products or substances into the environment[2] and usually in Nigeria is the marine environment since oil activities in Nigeria occur in the coastal areas of

[7]Chinweze, CU (2004), 'Impact of an Oil Spill Case Study on Women Health in the Niger Delta Region, Retrieved from <https;//www.cnn.com/2006/WORLD/Africa/12/26/Nigeria.blast/index.hmtl> on July 2, 2024 at 10pm.

[8]Landrigan P., Stegeman J., *et al*, (2022), 'Human Health and Ocean Pollution', *Annals of Global Health*, 86 (1), 151, Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7731724> on June 29, 2023 at 12am.

[9]*Ibid.*

[10]National Geographic (2024) Marine Pollution', Retrieved from <https://www.education.nationalgeographic.org/resources/marine-pollution> accessed on October 26, 2024 at 1pm.

[11]Santhil PK and Prasannamedha G (2021) 'Biological and Chemical Impacts on Marine Biology' in Santhil PK (2021) Modern Treatment Strategies for Marine Pollution, Retrieved from <https://www.sciencedirect.com/topics/earth-and-planery-science/marine-pollution> accessed on October 26, 2024 at 1pm.

[12]United State Environmental Protection Agency, *'Understanding Oil Spills and Oil Response'*, Retrieved from <https://www.epa.gov>ospgwide99> accessed on August 17 at 11pm. Surface tension is the measure of attraction between the surface molecules of a liquid. The higher the oil's surface tension, the more likely a spill will remain in place. If the surface tension of an oil is low, the oil will spread even without help from water and wind current. For example, because increased temperatures can reduce a liquid's surface tension, oil is likely to spread in warmer waters than in very cold waters.

the country.[3] Oil pollution of the marine environment includes, but not limited to the accidental or intentional, operational spills of oil from oil exploration and exploitation activities, shipping activities, especially tankers, offshore platforms and pipelines. Marine oil spills involve accidental release of oil ranging from various types of crude oil to a large array of refined products, from heavy persistent fuels to light, less persistent, but very toxic fuels.[4] Oil spills are of great concern due to the enormous economic loss and the long-term, significant harm to marine ecosystem, local economy and coastal society and community.[5] This pollution results in damage to the marine environment, to the health of all organisms and to economic structure worldwide.[6] The presence of oil on the waters can block sunshine from the oxygen producing plants under the ocean, on which they rely on for survival. It can create dead zones in the ocean. Oil spill pollution has negative health effects on mankind. Studies on crude oil spills from the Ibodo production plant farm to mobil Qua Iboe Terminal in Akwa Ibom State showed that health conditions normally associated with operations like skin disorder like ashes, corruption and discharge were recorded and were linked with oil acne (a kind of skin eruption resulting from exposure to crude oil).[7] About 97% of the Earth's water supply is stored in our oceans and as such, oil spilled into the ocean can affect the water quality supplied to the earth.[8]

As a major source of energy globally, the production and consumption of petroleum products have been on the increase with a significant rise in its environmental impacts.[9] Despite significant effort of Nigerian government to reduce oil spills through the establishment of various agencies, the risks of oil spill continue to increase in Nigeria. It is on this premise that this paper seeks to examine the functions of NOSDRA in controlling marine pollution by oil spills in Nigeria with a view to evaluating the effectiveness or otherwise of the agency in controlling oil spills in Nigeria.

2. Conceptual Discourse

For better understanding of the subject matter of this paper, it is important to discuss certain key terms that are relevant to the paper. This is because most of these terms assume meanings beyond there literal and natural meanings, hence the need to explain them briefly.

2.1 Marine Pollution

Marine pollution is a combination of chemicals and trash, most of which comes from land source and is washed or blown into the ocean.[10] It is the introduction of substances from humans into the marine environment resulting in such harmful effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality use of seawater and the

[13]*Ibid.* Specific gravity is the density of a substance compared to the density of water. Since most oils are lighter than water, they float on top of it. However, specific gravity of an oil spill can increase if the lighter substances within the oil evaporate. Heavier oils, vegetable oils and animal fat may sink and form tar balls or may interact with rocks or sediments on the bottom of the water body.

[14]*Ibid*. Viscosity is the measure of a liquid's resistance to flow. The higher the viscosity of the oil, the greater the tendency for it to stay in one place. Honey is an example of viscous liquid.

[15]Fingas MF (2012), *The Basics of Oil Spill Cleanup* (Taylor and Francis, New York) Pp. 7-48; Jackqueline Michel and Merv Fingas (2016) '*Oil Spills: Causes, Consequences, Prevention and Countermeasures'*, DOI: 10.1142/978981469483.0007.

[16]*Ibid*.

[17]*Ibid*.

[18]Rout C and Sharma A (2013), Oil Spill in Marine Environment: Facts and Effects *2nd International Conference on Evolution in Science and Technology and Eyre on Educational Methodologies.* PPTIMT, HISAR, INDIA.

[19]Best O and Seiyefe B (2013), 'The Human Health Implications of Crude Oil Spills in Niger Delta, Nigeria: An Interpretation of Published Studies', *National Library of Medicine*, *54* (1), 10-16. doi: 10.4103/0300-1652.108887.

[20]Daniel R., Ejike E., Ochuko F. O., *et al*. (2023), Survey of Wastewater Issues Due to Oil Spills and Pollution in the Niger Delta Area of Nigeria: A Secondary Data Analysis, *Bulletin of the National Research Centre*, *47*(116).

[21]UROSS system is a novel system that has been designed to provide continuous and automated oil spill surveillance for subsea pipeline. It has the capacity to remain underwater conducting oil spill surveillance for 51 months at a time. Daniel Raphael, *op cit*.

[22]Otega E and Godswill O (2019), 'Crude Oil Spill Detection Using Robotic Systems', *European Journal of Engineering Research and Science*, *4* (12), 112-116, Doi: https:dx.doi.org/10.24018/ejers.2019.4.12.1684.

[23]Jan-victor B and Rivo U (2021), 'Oil Spill Detection Using Fluor metric Sensors: Laboratory Validation and Implementation to a Ferry Box and a Moored Smart buoy', *Marine Pollution 8* (1), Retrieved from <https://doi.org/10.3389/fmers.2021.778136>, accessed on March 7 2024.

reduction of facilities.[11]

2.2 Oil Spill Pollution

The term oil describes a broad range of hydrocarbon based substances. Hydrocarbons are chemical compounds composed of the elements hydrogen and carbon. This includes substances that are commonly thought of as oils, such as crude oil and refined petroleum products, but it also includes animal fats, vegetable oils and other non-petroleum oils. Each type of oil has distinct physical and chemical properties. These properties affect the way oil will spread and break down, the hazard it may pose to marine environment. The rate at which oil spreads will determined its effect on the marine environment. Most oils tend to spread horizontally into a smooth and slippery surface, called a slick, on top of the water. Factors which affect the ability of an oil spill to spread include surface tension[12], specific gravity[13] and viscosity.[14]

Oil spill is the unintentional or intentional release of crude oil or refined petroleum products or any type of oil into the marine environment.[15] Oil spills are the leakages of oil or other petroleum products that occur on the land or water through ships or wells or oil containers.[16] When waters are contaminated due to an oil spilled or poured by accident or human error or human activities, it is said that oil spill pollution has occurred.[17] Oil spill pollution in Nigeria can also include the accidental or deliberate, operational spills of oil from ships, especially tankers, offshore platforms and pipelines.[18] Oil spills can come from land, runoff, waste from cities, industries and rivers would carry the oils into the ocean and thereby pollute the marine environment. Most oil spills in Nigeria are a common fallout of oil exploitation and exploration in Nigeria with an estimated total of over 7000 oil spill incidences reported over a 50-year period in Nigeria.[19] Oil pollution of the marine environment can occur by entrance of hydrocarbons into the marine environment as gaseous air pollutants from vapour derived from loading and unloading of oil. Therefore, oil spill pollution can contribute to air pollution and greenhouse gas emissions in Nigeria which can exacerbate climate change.[20]

2.3 Oil Spill Detection

To detect means to discover, identify or notice the presence or existence of something that is totally or partly hidden or that is not clear, usually by using equipment. Oil spill detection is therefore the act of discovering, identifying or noticing the presence of oil spills in the marine environment using technological equipment or other chemical, physical or biological methods. It is necessary because it heralds the response and cleanup exercise needed from the appropriate authorities. In modern times, oil spills in the ocean are detected using a technology called Underwater Robotic Oil Spill Surveillance[21] (UROSS) system, which provides constant and autonomous spill surveillance for subsea pipelines.[22] Nowadays the most dominant and cost effective means for remote spill detection is the combination of Satellite-based Synthetic Aperture Radar (SAR) images and aircraft surveillance flights for verification. Ships and aircraft equipped with radar or optical sensor are also widely used for detection and monitoring of oil spill pollution.[23]

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[24]Otega E and Godswill O, *op cit*.
[25]*Ibid*.
[26]*Ibid*.
[27]Ismila CI., *et al*. (2020) 'A Study on Preparedness and Response of Oil Spill', *Journal of Physics: Conference Series*, *1529* (3), Doi: 10.1088/1742-6596/1529/3/032088; Miller Environmental Group, *Oil Spill Response and Cleanup Best Practices: Protecting the Environment*, Retrieved from <https://www.millerenv.com>, accessed on August 19, 2024 at 2pm.
[28]*Ibid*.
[29]Containment plays a vital role in preventing oil from spreading further. Once specialized equipment and skilled personnel are deployed to ensure efficient containment, it is time to focus on cleaning up the impacted marine areas.
[30]Ismila CI., *et al*., *op cit*.
[31]*Ibid*.
[32]*Ibid*.

In detecting oil spill incidence, the Ultra Violet (UV) sensors are very useful. The UV sensors detect surface oil because the optical properties of the oil are very different from those of the surrounding water. Oil has a higher refractive index than water, particularly in the UV spectral range; surface oil reflects more of the incident light from sun and appears brighter than the surrounding water.[24] Prompt and timely information about the location and extent of oil spill are required for effective response with a view to control marine pollution, hence the need for oil spill detection.

Spills are also detected using METS methane sensors. Crude oil spills from subsea crude oil pipelines are difficult to detect early because of inaccessible nature of their location. Underwater robotic systems are used to assess and locate ongoing crude oil spills from subsea pipelines long after the oil has spread miles into the ocean.[25] In many cases, crude oil spills from subsea pipelines reach shores and pollute beaches and hinterlands before the spill is detected. When the UROSS system detects the presence of a spill from the pipelines, it stops and takes pictures of the spill site. After spill detection and capture of spill site images, a Personal Locator Beacon (PLB) contained within the electronic housing module is activated and when so activated, it transmits the position and identity of the UROSS system to a rescue coordination center via satellite link. Then the nearest rescue service can contact the required personnel for rescue mission.[26]

2.4 Oil Spill Response

To respond simply means to take some remediation steps or to do something in reactions to something that has happened. Oil spill response may mean to take appropriate remediation steps or do something in reaction to the incident of oil spill with a view to removing the oil from the surface of the water so as to prevent marine pollution by the spill. The aims of oil response are to minimize damage and reduce the time for environmental recovery by guiding or re-distributing the oil into less sensitive environmental components such as deflecting oil away from mangroves onto a sandy beach. To ensure an effective oil spill response in Nigeria, there are indispensable immediate response protocols that must be observed. One of the protocols is prompt reporting of the incident of oil spill to the relevant authorities.[27] Secondly, it is important to assess the extent of the spill and the potential risks it possess for devising appropriate action plan.[28] Thirdly, it is crucial to also deploy containment[29] measures, such as booms and barriers to prevent the spill to spread and to limit its impact.[30] Lastly, it is necessary for effective oil spill response to initiate a coordinated response.[31] In global best practices for oil spill response, there are certain key spill clean-up response strategies that must not be dispensed with. One strategy is called sorbents. Materials that absorbed oil are designed to remove oil from water surfaces. Second is the Bioremediation strategy. This natural process uses

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[33]Global Marine Oil Pollution Information Gateway (2020), '*Oil Pollution'*, Retrieved from <https://www.undrr.org>, accessed on June 3, 2024 at 10pm.

[34]Office of Response and Restoration (2020), *Natural Ocean and Atmospheric Administration,* Retrieved from <https://www.response.restoration.noaa.gov>, June 4, 2024 at 7pm.

[35]*Ibid*.

[36]*Ibid*.

[37]*Ibid.*

[38]ACME, Environmental, '*What Causes Oil Spills?'*, Retrieved from <https://www.acmeboom.com>, accessed on June 4, 2024 at 8pm.

[39]*Ibid.*

[40]*Ibid.*

[41]Oghenevwede DO (2024), 'A Legal Analysis on the Nature of Oil Spillage in Nigeria', Retrieved from <https://www.researchgate.net> accessed on March2024; Hycienth ON and Ngah S (2014), 'Groundwater Resources of the Niger Delta: Quality Implications and Management Consideration', *Journal of Water Resources and Environmental Engineering*, *6* (5), 155-163. DOI: 10.5897/IJWREE. 2014.0500.

[42]Nnedimna E, Ewuhum BE and Ejike O (2020), 'An Appraisal of the Impact of the National Oil Spill Detection and Response Agency on Environmental Pollution in Nigeria', *IJCAC*, v, 48-62.

[43]NOSCP, Section 9.

[44]*Ibid.*

microorganisms to break down oil to restore affected marine areas. The third strategy is mechanical method. These tactics include vacuuming, skimmers, in-situ burning, or using absorbent materials for efficient oil recovery. The last strategy for effective oil spill cleanup response is dispersant method. Chemical agents also called dispersing agents break up oil into smaller droplets.[32]

3. Nature and Causes of Oil Spill in Nigeria

Oil discharges to the marine environment may occur from natural seeps, and ocean-based and land-based sources. Examples of ocean-based discharges are oil spills from ships/tankers and offshore platforms and pipelines. Examples of land-based sources are untreated sewages and storm water, rivers, coastal industries, coastal refineries, oil storage facilities, oil terminals and reception facilities. Hydrocarbons can also enter the marine environment as gaseous air pollutants from vapour derived from loading and unloading of oil.[33]Crude oil naturally enters the ocean at areas known as 'Seeps.' These hydrocarbons leak out of the ground through features and sediments in the same manner freshwater springs bring water to the surface.[34] These seeps contribute about 5 million gallons of oil to the ocean annually.[35] Oil from underwater seeps generally behaves like oil spilled during or after extraction forming large slicks which spread and drift with winds and currents.[36]

Generally, spill can be caused by natural disasters like severe weather events like storm, hurricanes and tsunami. These can cause damage to oil infrastructure leading to oil spills. High winds, strong currents and rough seas can rapture pipelines, damage storage tanks or cause vessels to run aground and thereby cause accidental discharge of oil.[37] Volcanic activity can cause oil spill when underwater volcanic eruption releases oil stored beneath the seafloor. The intense heat and pressure can cause hydrocarbons to escape and form oil slicks on the surface of the water, similar to natural seeps.[38] Volcanic eruptions can also generate solidified lumps of oil, known as tar balls or tar mats, which can be washed ashore and impact marine ecosystems.[39]

Shipping and tanker accidents cause oil spills. Collisions between vessels such as ships or barges, can damage their hulls, leading to oil spills, which eventually pollute the marine environment. Also, offshore drilling accidents can cause oil spill. Drilling accidents such as blowouts or wellhead failures can cause serious spill and pollute the marine environment. A blowout occurs when the pressure control systems fail during drilling thereby causing an uncontrolled release of oil from the well. Malfunctions or failures of wellhead equipment, such as blowout preventers can result in the uncontrolled flow of oil from the well.[40] Other causes of oil spill are pipelines and storage tanks failure; accidents during oil transfer operations; deliberate spills by oil companies; illegal dumping and discharge; sabotage and acts of war; etc.

In Nigeria, oil spills into river, bays and the ocean caused by accidents involving tankers, barges,

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[46]*Ibid.*

[47]Etuk EA (2023), 'Adverse Impacts of Oil Spills on Marine, Lowland and Upland Ecosystems of Niger Delta of Nigeria and the Control Measures', *Advances in Social Sciences Research Journal, 10* (9), 288-301.

[48]*Ibid.*

[49]Ekpo, IE, Obot, OL and David, GS (2018), 'Impacts of Oil Spill on Living Aquatic Resources of the Niger Delta Region: A Review',. *Journal of Wetland and Waste Management, 2* (1), 48-57.

[50]Opukri CO and Ibada SI (2008), 'Oil Induced Environmental Degradation and Internal Population Displacement in the Nigeria's Niger Delta', *Journal of Sustainable Development in Africa, 10* (10), 173-193.

[51]Nwokedi TC, *et al*. (2017), 'Economic Implications of Marine Oil Spill to Nigeria: A Case for Improvement in Coastal Pipeline Management and Surveillance Practice', *International Journal of Economy, Energy and Environment*, *2* (3), 40-47. DOI: 20.11648/j.ijeee.20170203.12.

[52]Peter, CN and Olusegun TB (2006), 'Impacts and Management of Oil Spill Pollution along the Nigerian Coastal Areas', *Environmental Sciences,* Retrieved from <https://www.semanticscholar.org>, accessed on June 5, 2024 at 9am.

[53]*Ibid*.

[54]*Ibid*.

[55]Nwokedi, *op cit*.

pipelines raptures; refineries, drilling rigs and storage facilities. Spills can be caused by human error, equipment break down, natural disasters, etc.[41] This spillage is as a result of lack of regular maintenance of the pipelines and storage tanks. Some of these facilities have been in use for decades without replacement.[42] Response to oil spill in Nigeria is based on 3 tiers/levels as contained in the National Oil Spill Contingency Plan NOSCP.[43] Tier 1 is a spill of less than or equal to 7 metric tonnes (i.e. 50 barrels). This tier of spills occurs near the facility of the company as a result of the activities of the company. Here, the company is expected to respond to the spill using its own resources.[44] In tier 2, the oil spill is more than 50 barrels/7 metric tonnes but less than 700 metric tonnes (i.e. 5000 barrels). It occurs in the vicinity of the facility of the company where resources from another company, industry or government agencies around the company can be called to assist in the response.[45]

The company in question will participate in local cooperatives such as the Clean Nigeria Association (CAN) where each member pools its tier 1 resources and has access to any equipment which have been jointly procured for the cooperatives.[46] Tier 3 spill is greater than 700 metric tonnes (i.e. more than 5000 barrels), where substantial further resources will be required and support from a National Tier 3 or International Cooperatives Stockpile, like the Oil Spill Response Limited (OSRL) may be required. This operation is subject to government control and directives.

4. Impacts of Oil Spill Pollution on Marine Environment in Nigeria

Oil spill pollution is a growing environmental concern, especially in oil producing countries like Nigeria, that adversely impacts the entire marine ecosystems. Oil exploration and exploitation have had far reaching negative environmental, social as well as economic impacts on the coastal communities of Nigeria.[47] The Nigerian marine environment where oil is being produced are the major victims of pollution caused by oil spillage.[48] Oil spill pollution has affected the Nigerian marine environment drastically including human and environmental degradation. It has affected fishing activities which is the major economic activities of about 70% of the people dwelling in the coastal areas.[49] This oil spill destroys vegetation, mangrove forests, food/cash crops, fishing, ground marine life, reduces nutrients value of the soil, induces land fragmentation, etc.[50]

The International Maritime Organization (IMO) views oil pollution in the marine environment as a grave offence which must be dealt with seriously if the marine environment must be protected from oil spill pollution.[51] Oil spill pollution amounts to destructive wastages of the natural resources as a capital base of Nigerian economy. Wastes and damages of productive capital resources by oil pollution cannot guarantee economic growth, development, employment and improvement in living standards of marine environment dwellers. Therefore, the impacts of oil spill pollution in Nigeria are numerous; it kills plants and animals in the estuarine zone.[52] Oil settles on beaches, thereby affecting tourism, and it kills organisms that live there. Spilled oil also settles on ocean floor and kills benthic organisms such as crabs. When oil spills, it poisons algae, disrupts major food chain and decreases the

[56]Davis, (2023), Cleanup of Inactive Gulf of Mexico Wells Estimated at $30 Billion. *Science Daily*, Retrieved from <https://www.sciencedaily.com>, accessed on June 5, 2024 at 2pm.
[57]Nwokedi TC, *op cit*.
[58]Redaction Africanews and AFP (2023), '*Clean-up of Oil-Polluted Nigerian State Would Cost $12 bn: Report'*,. Retrieved from <https://www.africanews.com>, accessed on May 20, 2024 at 2pm.
[59]NEWS WIRES (2010), '*Clean-Up Bill Hits 2.65 Billion Dollars'*, Retrieved from <https://www.france24.com>, accessed on May 20, 2024 at 2pm.
[60]Sunday A (2021), 'Assessing the Roles of the Institutions Responsible for the Regulation of Oil Pollution in Nigeria', *Journal of Emerging Technologies and Innovative Research, 8* (8), 239-250.
[61]NOSDRA Act 2006, Sections 6 & 7.
[62]Nnedimma E., *et al*. (2020), 'An Appraisal of the Impact of the National Oil Spill Detection and Response Agency on Environmental Pollution in Nigeria', *African Journal of Constitutional and Administrative Law*, (v), 48-61.
[63]NOSDRA Act, 2006, Section 5 (d).
[64]UNCLOS, 1982, Article 56.

yield of edible crustaceans.[53] Oil spill pollution endangers fish hatcheries in marine waters as well as contaminates the fish flesh of commercially valuable fish.[54]

Cleanup of a marine environment polluted by oil is very costly as a lot money is required to cleanup marine pollution by oil. That means a lot of revenue will be saved from reduction in oil spill pollution induced losses and be expended in improving public expenditure in different areas of needs.[55] Therefore, the issue of marine pollution by oil spill must be handled with utmost diligence as it has a way of crumbling the economy. This is so because the cost of cleanup of a marine pollution by oil is far beyond the reach of many countries. For example, when oil spill pollution occurred in Gulf of Mexico, a total of $30 Billion was estimated for the clean and the overall Gulf of Mexico Restoration after the Deepwater Horizon explosion and oil spill.[56]

Oil spill pollution has affected the Nigerian economy in a very destructive manner and hampers the economic development of the country in many respects. It was asserted that within the period of 28 years, Nigeria lost about Three Billion, Nine Hundred and Twenty-eight Million, Two Hundred and Sixty Thousand, One Hundred and Ninety-six Naira (N3, 928,260,196) due to oil spill pollution.[57] For instance, it was estimated that the environmental clean-up of coastal environment of Bayelsa State would cost Twelve Billion USD ($12,000,000,000).[58] The British Petroleum (BP) estimated about $2.65 billion as the cost of clean-up of Gulf of Mexico oil spill.[59] These are monies that would have been saved and expended on developmental projects if the government had avoided the oil spillages that polluted the marine environment by taking proactive measures to tackle the menace of oil spill pollution.

5. Control and Management of Oil Spill

Nigeria is one of the oil producing countries in the world that face a lot of environmental disasters as a result of oil spills occurring naturally or by human activities. Thus, the government has established several institutions, though with identical functions, to monitor and control oil spills.[60]

6. Legal Regime

The National Oil Spill Detection and Response Agency (NOSDRA) Act, 2006 established the National Oil Spill Detection and Response Agency NOSDRA[61] and it is the principal legislation on the response to oil spill incidents in Nigeria. The Act makes provisions for control and management of marine pollution in Nigeria by empowering the NOSDRA to coordinate and control response to oil spills in Nigeria with the view to minimizing the incidences of marine pollution by oil spillage.[62] The Act provides for main objectives of NOSDRA, firstly, to establish the mechanism to monitor and assist where expedient direct the response, including the capability to mobilise the necessary resources to save lives, protect threatened environment and clean up to the best practical extent of the impacted site. Secondly, to maximize the effective use of the available facilities and resources of corporate bodies, their international conventions and oil spill co-operative, that is Clean Nigeria Associates (CAN) implementing appropriate spill response.[63]

[65]Sunday A, *op cit*.
[66]*Ibid*.
[67]UN, 'National Oil Spill Detection and Response Agency (n.d.)', *Office for Outer Space Affairs UN-Spider Knowledge Portal*, Retrieved from <https://www.un-spider.org>, accessed on June 8, 2024 at 5am.
[68]EDITORIAL (2011, October 19), 'NOSDRA: Challenges of Cleaning Oil Spills', *Vanguard*, Retrieved from <https://www.vanguardngr.com>, accessed o June 13, 2024 at 7pm.
[69]NOSDRA Act, 2006, Section 5.
[70]OSDRA Act, 2006, Section *6* (3).
[71]NOSDRA Act, 2006, Section 6 (3).
[72] NOSDRA Act, 2006, Section 6; Adati A., *et al*. (2012). 'Oil Spill and Pollution in Nigeria: Organisational Management and Institutional Framework.' *Journal of Environmental and Earth Science*, 2(4), 22-30.
[73]NOSDRA Act, 2006, Section 6; Redaction Africanews and AFP, *op cit*.

The United Nations Convention on the Law of the Sea (UNCLOS)[64] gave sovereign rights of ownership of certain zones in the ocean to coastal states (which Nigeria is one), to fulfill their socio-political and economic interests in the use of the ocean and its resources. The UNCLOS also provides that it is the undisputable duty of coastal states to manage their claimed portion of the ocean/marine environment and protect it from pollution, especially oil spill pollution.[65] This led to the establishment of various agencies by Nigerian government, such as the NOSDRA, with a view to enforcing the provisions of UNCLOS to handle issues relating to marine environmental pollution, particularly from oil spill.[66]

NOSDRA is an agency established to coordinate the implementation of the NOSDRA Act, the National Oil Spill Contingency Plan (NOSCP) for Nigeria pursuant to the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC 90).[67] It is to ensure that oil exploration activities in Nigeria meet environmental best practices, effect timely and effective response to oil spills and to ensure proper clean-up and remediation of all polluted areas.[68] Some of the objectives of establishing NOSDRA are to 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. The agency is to establish the mechanism to monitor and assist or, where expedient, direct the 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 sites.[69]

NOSDRA Act places a responsibility on any individual or corporate body who pollutes the marine environment by oil spill to clean it up.[70] By providing that "…failure to clean up the impacted site (that includes marine environment), to all practical extent including remediation, shall attract a fine of One Million Naira (N1000,000)," means that it is the duty of every polluter to clean-up the polluted area and also provide remediation. The provision it does not only provide for clean-up of the polluted marine environment by polluter, but also makes provision for remediation measures to compensate the victims of pollution[71] and prevent future occurrences of oil spill pollution in the marine environment. This is in tune with the Polluter Pays Principle (PPP),[72] but the amount provided by the Act is so small given the economic reality of Nigeria.

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[74]NOSCP is an elaborate document in which all the human and material resources required to fight oil spill in Nigeria are highlighted. It has also established links with the various foreign organizations that can be called upon in cases where internal resources are inadequate to combat the magnitude of oil spill that has occurred. The document clearly assigned roles to the relevant government organizations such as the police, military, ministry of health, National Emergency Management Agency (NEMA), e.t.c in the event of emergency of oil spill management-see John O. O. (2011), The forward to the NOSCP for Nigeria, 2011. NOSCP is designed to mitigate the impact of all oil spills on the environment by setting specific standards for oil spill equipment, stockpiles, establishing time frame for oil spill response and increasing collaboration among partner agencies. Under the NOSCP, Deepwater drilling operators will now be required to demonstrate accessibility to a Containment Cap System to arrest a sub-sea blow-out event, as well as the availability of an additional rig to drill a relief well to effectively seal the uncontained well. Operators would also require Remote Operated Vehicles (ROVs) in country, support vessels to transport and deploy this equipment and access to vessels for fire-fighting in the event of a fire/explosion event. Measures under the NOSCP include the acquisition and deployment of surveillance and maintaining technologies to ascertain liability in the event of a spill.

[75]Sweet C. (2013). *National Oil Spill Detection and Response Agency Activates National Oil Spill Contingency Plan*-DG. Retrieved from <https://www.sweetcrudereports.com>, accessed on June 10, 2024 at 9pm.

[76]*Ibid.*

[77]Examples of such countries are Angola, Benin, Cameroon, Cabo Verde, Congo, Côte d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Liberia, Mauritania, Namibia, Nigeria, Democratic Republic of the Congo, South Africa, Sao Tome and Principe, Senegal, Sierra Leone and Togo.

[78]Sweet C. *op cit*.

[79]*Ibid.*

[80]*Ibid.*

[81]'International Petroleum Industry Environmental Conservation Association', Retrieved from <https://www.ipieca.org> accessed on June 16, 2024 at 11pm.

[82] Chikwudi VO (2012), 'NOSDRA and the Challenges of Management of Oil Spillage in the Niger Delta', *Commercial and Industrial Law Journal, 3* (2), 105-117.

[83]Michael NO & Steve AW (2021), 'Oil Spill Management and Environmental Clean-up: a Study of NOSDRA Policy Implementation on Oil Spills in the Niger Delta', *International Journal of Innovative Environmental Studies Research, 9* (3), 29-36.

The Act gives the NOSDRA the right to receive reports of oil spill incidences from all who are operating in the sector with a view to providing a prompt solution to avert devastating pollution of the marine environment. It makes it mandatory for all individuals and organizations operating in the oil sector to immediately report any incidence of oil spill, clean-up the polluted site and also provide all necessary remedial measures to prevent future occurrence of oil spill that would pollute the marine environment. This penal provision of NOSDRA Act, though it is laudable, it is not without some loopholes that need to be reviewed for effective functioning of NOSDRA. For instances, the fine of Five Hundred Thousand Naira only (N500,000) for each day of failure to report oil spill incidence and One Million Naira only (N1,000,000) for failure to clean-up of impacted site, are weak considering the high cost of clean-up oil spill.[73]

7. Achievements of NOSDRA

Since its inception in 2006, NOSDRA has recorded some laudable achievements worthy of commendation. Some of these achievements are pointed out as follows:

(i) One of NOSDRA's achievements is that it has activated its National Oil Spill Contingency Plan (NOSCP)[74] to respond effectively to oil spill disaster in the country by collaborating with Shell Petroleum Company. The agency also deployed its first vessel in 2023 and established a Web-based Oil Spill Monitor for reporting oil spills in the country.[75] The Oil Spill Monitor helps the agency to monitor oil spill incidences and the impacted sites that have not been cleaned-up over time. By this, the Oil Spill Monitor have been showing the performance of the oil companies in respect of environmental pollution by oil spills.[76]

(ii) The NOSDRA had also been collaborating with other Western, Central and Southern African countries[77] where they come together to help combat oil spill disaster that hit any country.[78] The agency was affiliated to the International Petroleum Association (IPA) and International Maritime Organization (IMO), to share experiences and learn best practices on addressing oil spill to prevent marine environmental pollution.[79] It also adopts some measures to encourage companies to comply with its regulations by rewarding companies for environmental performance.[80]

(iii) Another remarkable achievement of NOSDRA was the successful bidding of the Regional Coordinating Centre for Oil Spill Preparedness and Response in West, Central and Southern Africa. This is partnership with the IMO and IPA to enhance the capacity of countries to prepare for and respond to marine spills. The agency had carried out community-based sensitization and awareness programmes to integrate and mainstream active community engagement into disaster risk reduction plan for oil spill management.[81]

(iv) NOSDRA has been using the spill oil monitor technology to monitor and detect oil spill incidences in Nigeria. The oil spill monitor has been live since 2014 and it has been improving the capacity of NOSDRA to monitor and track the oil spills in the Niger Delta marine region of Nigeria

[84]Ayorinde, O. (2016), 'Environmental Policy Enforcement in the Niger Delta Region of Nigeria', *Journal of Humanities and Social Sciences, 11* (4), 110-132.
[85]Noah AK (2021), 'The Paradox of NOSDRA to Prevent and Quickly Respond to Oil Spills in Nigeria', *American Journal of Humanities and Social Sciences Research, 5* (1), 158-167.
[86]R. 5 of the Regulations, 2011.
[87]Rim-Rukel A (2016), 'Oil Spill Management in Nigeria: SWOT Analysis of the Joint Investigation Visit (JIV) Process', *Journal of Environmental Protection, 6* (03), 259-262.
[88]Chikwudi VO, *op cit*.
[89]Regulations 26-27 of the Regulations, 2011.
[90]Nnedimma E (2020), 'An Appraisal of the Impact of the National Oil Spill Detection and Response Agency on Environmental Pollution in Nigeria, *African Journal of Constitutional and Administrative Law, 1* (1), 48-62.
[91]NOSDRA (2023), Retrieved from <https://nosdra.gov.ng>, accessed on September 2, 2024 at 1pm.
[92]*Ibid.*
[93]*Ibid.*

and it gained strategic insight from the data they had been gathering since 2007.[82] NOSDRA has taken some protective and remedial actions to address the menace of oil spill in Nigeria. On remedial action, NOSDRA has done a lot to save the marine environment from oil spill pollution in Nigeria. For example, a study showed that NOSDRA response to oil spill areas from 2014 to 2023 has been timely in the marine communities and that there is also a link between NOSDRA policies and sustainable marine environmental practices in Nigeria.[83]

(v) NOSDRA has also put several policies in place to control marine pollution in Nigeria, but lack of will in enforcing those policies on the part of the government is one of the setbacks towards the realization of the mandate of NOSDRA.[84] NOSDRA has made the Oil Spill Recovery, Clean-up, Remediation and Damage Assessment Regulations, 2011 with a view to addressing the problem of oil spill marine pollution in Nigeria.[85] The regulations placed a duty on the oil corporations/operators to provide vessels for the joint visitation of crude oil spill sites. One of the remediation parts of the Regulations is the one that requires a Joint Investigation Visit (JIV) to the site immediately if there is an oil spill.[86] The JIV is to find out the cause of oil spill, the total volume of oil spill, the area it has covered and the impact on the marine environment.[87] The JIV is the fact-finding mission which includes the oil companies, a representative of the affected marine community and NOSDRA officials. This remedial step by NOSDRA is a commendable one and can be effective in controlling marine pollution by oil spills. Apart from JIV effort of NOSDRA, has been able to embark on some remediation actions on impacted sites and monitor all spill drill exercises and facilities inspection of remediated sites.[88]

As part of protective action by NOSDRA to control marine pollution, the Regulations made by NOSDRA provide for compensation regime to be paid by any polluter. This will make oil operators to be careful not to cause oil spill to avoid payment of compensation.[89] Despite the challenges pointed out earlier, NOSDRA has been able to address some critical oil spills in Nigeria.[90] One of which is the Eteo oil spill incident in Eleme local government area of Rivers State, Nigeria. In that incident of oil spill, NOSDRA was able to respond to the spill on 10th of May, 2023 after being informed of the spill on the 8th of May, 2023 and within few days, it was able to retrieve 930 barrels out of 1734 barrels of the crude oil that spilled.[91] This means that, NOSDRA has witnessed a significant improvements in its mandate of detecting and responding to oil spills in Nigeria.

Furthermore, in November 2021, NOSDRA announced that it had rolled out strategies to tackle incessant oil spills in Niger Delta marine communities. According to NOSDRA, the plan will be community-driven, community-implemented, community-monitored and community-based Disaster Risk Reduction (DRR), held to create awareness on the dangers of pipeline vandalism that mostly causes oil spills in Nigeria.[92] This is a landmark protective measure taken by NOSDRA to address marine pollution by oil spill in Nigeria. The development of DRR by NOSDRA in all coastal states in Nigeria is one action plan to create and sustain an interface with stakeholders engaged in the effort to curb pipeline vandalism, which causes oil spills in Nigeria.[93]

8. Challenges of NOSDRA

[94] *Ibid.*
[95] Christian CO, BOG N and Ibeyinwa E (2022), Niger Delta Conflict and Dilemma of Environmental Policy Enforcement in Nigeria-A Critique of NOSDRA, *International Journal of Academic Research, 13* (3), 55-69. DOI:2726145271335.
[96] NOSDRA
[97] *Ibid*
[98] Davis T & Jones T (2011) *Environmental Assessment of Ogoniland* (United Nations Environmental Programme) p. 139.
[99] Noah A, *op cit*.
[100] *Ibid*.
[101] *Ibid.*
[102] *Ibid.*
[103] Adinda DO, *et al* (2024) 'Oil Spill Response Strategies: A Comparative Conceptual Study between USA and Nigeria, *Global Scholarly Communication Advanced Research and Reviews*, 20 (01), 208-227. DOI url:htpps://doi.org/10.30574/gscom.2024.20.1.0262.
[104] Adati AK, *op cit*.

Despite the achievements recorded by NOSDRA, it has been facing several challenges since its establishment in 2006, which have been limiting its optimum performance, few of which would be discussed below. One of its challenges is inadequate funding, which brings with it some resultant consequences. Lack of adequate funding from the government is believed to be the greatest challenge of NOSDRA as it has been complaining of not getting enough funds to execute its mandates.[94] The budget allocation of NOSDRA can showcase its lack of adequate funding. For example, it was recorded that NOSDRA was allocated the sum of Two Billion, Six Hundred and Eighty-two Million, Six Hundred and Eighty-two Thousand, Two Hundred and Eighty-two Naira (N2,682,682,282) in 2018 for its total resource cost, salaries and wages, benefits and allowances, social contribution and total goods and ono-personal services.[95] The money was not enough for NOSDRA to purchase surveillance equipment and, according to its Director-General, that is why NOSDRA resorted to hiring them, where it spent Two Hundred and Forty-six Thousand, Five Hundred Naira (N246,500) on hiring one surveillance boat alone.[96] Also, this inadequate funding can be seen from the 2024 budget allocation of the entire ministry of environment that is the mother-ministry to NOSDRA, which stands at N6,430,048,203. This amount is not even enough for just NOSDRA as one agency let alone other agencies under the ministry. This factor is responsible for making NOSDRA not to purchase enough equipment to quickly respond to oil spill in Nigeria. Thus, most of the times, NOSDRA depends on other corporations and institutions for funding. The implication of this is that NOSDRA may be careful how it deals with such institutions it derived some financial benefits from in which case, regulations are sometimes compromised and oil spillage and its consequential environmental degradation continues unabated.[97]

Poor response to oil spill incidents is a challenge that is caused by lack of inadequate funding. The challenge of inadequate funding is indirectly causing delays experienced by NOSDRA in responding to oil spill in Nigeria as it cannot purchase all the necessary equipment needed to respond to oil spill in time. As such, most times the investigation of oil spill sites is organized and led by the oil companies which have the equipment.[98] This shows that NOSDRA needs more facilities to convey its staff to oil spill sites in order to tackle the oil spill incidences on time. There has been records of delays by NOSDRA to respond to oil spills even after it was reported to it. This is what happened in Imo River-Ogale pipeline oil spill when NOSDRA was informed of the incident of oil spill on the 8th of October, 2017, but turned off the spill after 121 days.[99] Again, it took NOSDRA 180 days to stop oil spill that occurred at Otumara-Esoravos pipeline at Ogidigben.[100] Again, in Bodo oil spill incident, NOSDRA was informed about the spill on 28th August, 2008, but no site visit was done until 7th November, 2008, which is 72 days after the spill.[101] Justifying these delays, the Shell Petroleum Development Cooperation (SPDC) states that lack of specialist equipment was one of the factors that caused the delays.[102] With this few examples, it will not be out of point to state that NOSDRA's response to oil

[105]Egufe Y, 'Nigeria Lags Behind in Response to Oil Spill-NOSDRA' Vanguard, Wednesday, April 18, 2018, Retrieved from <https://www.vanguardngr.com>, accessed on October 27, 2024 at 2pm.
[106]Nigerian Oil Spill Monitor-Visualizing Oil Spill Data from Nigerian NOSDRA (2019), '*About Oil Spills in Nigeria*', Retrieved from <https://www.nosdra.oilspillmonitor.ng>, accessed on June 13, 2024 at 7pm.
[107] Patrick W (2013), 'Bacteria Clean-up after Gulf of Mexico Disaster', *Royal Society of Chemistry,* Retrieved from <https://www.chemistryworld.com, accessed on June 14, 2024 at 9am.
[108]*Ibid*.
[109]David B (2015), *How Microbes Helped Clean BP's Oil Spill,* Retrieved from <https://www.scientificamerican.com> accessed on June 14, 2024 at 10am.
[110]*Ibid*.
[111]Egufe Y, *op cit*.
[112]Noah AK (2021), 'The Paradox of NOSDRA to Prevent and Quickly Respond to Oil Spills in Nigeria', *American Journal of Humanities and Social Sciences Research*, *5* (1), 158-167.
[113] NOSDRA Act, 2006, Section 6.
[114] *Ibid*.
[115] Stakeholder Democracy Network (2020), *The Nigerian Oil Spill Compensation Regime: A Framework for Change,* Retrieved from <https://www.stakeholderdemocracy.org>, accessed on June 10, 2024 at 9pm.
[116] EDITORIAL, *op cit*.

spills incidents in Nigeria is below the global best practice standards compared to countries like United States, where oil spill response is rapid. This is because the United States is portrayed as having a robust, technologically advanced and well-coordinated response strategy underpinned by stringent regulatory frameworks and significant investment in research and development.[103]

Inadequate funds makes NOSDRA unable to be at par with its counterparts in other countries of the world, such as USA and UK, in best practices, manpower, equipment and weak legal framework among others.[104] As a result of lack of adequate funding, NOSDRA sometimes depends on oil operators to carry out its regulation duties by using their helicopters, boats and other equipment to inspect or monitor oil spill as stated by the erstwhile Director-General (DG) of NOSDRA, Sir Peter Idabor.[105] This will make NOSDRA compromise its functions, especially when it has to do with sanctioning the operators that have been assisting it with their equipment. This also suggests a situation of lack of complete independence of the NOSDRA. The agency also relies on voluntary engagement and support of oil companies to provide data, logistics, quantity estimates, soil/water samples and to carry out cleanup operations.[106] The agency needs funds to enable it engage the services of more experienced agencies around the world for training and transfer of technology for clean-up, control and management of oil spill in Nigerian marine environment. For instance, after the Deepwater Horizon Oil Spill, the US used some microbial communities (maggot/microbes) which helped to sink Deepwater Horizon Oil Spill.[107] After about 4.1 million barrels of oil spilled into the Gulf of Mexico, bacterial communities made a significant contribution to the clean-up exercise. These bacteria helped to take much of the oil to the bottom of the ocean as 'marine snow.' This knowledge could be used to develop new ways to tackle oil spills using these bacteria as an alternative to toxic dispersants.[108] Like cars, some microbes use oil as fuel. Such microorganisms are a big reason why British Petroleum's (BP) 2010 oil spill in the Gulf of Mexico was not far worse.[109] The microbes did a spectacular job of eating a lot of the natural gas.[110] This kind of biological way of controlling and management of oil spill pollution can assist the NOSDRA if there is a collaborative synergy between it and other sister agencies around the world.

Limited funding can result into inadequate qualified staff and availability of modern equipment which may cripple the effectiveness of NOSDRA in performing its duties in Nigeria as reiterated by its former DG of NOSDRA.[111]It has been reported that NOSDRA has been performing below expectations in detecting and responding to oil spill incidents in Nigeria.[112]The recent amendment of the NOSDRA Act tries to make reporting system easier when it placed a legal obligation on the oil spiller to report oil spill incidents in writing, by fax or by electronic mails within 24 hours after the occurrence of an oil spill.[113] Failure to do so attracts a fine of Two Million Naira (N2,000,000) for each day of the failure to comply with the 24 hours' deadline.[114] However, NOSDRA is still lagging behind in carrying out its functions in Nigeria, possibly due to inadequate funding which leads to understaffing of expertise and inadequate modern technological and scientific equipment.

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[117] John OM (2013), 'Managing Climate Change for Sustainable Development', *World Affairs: Journal of International Issues, 17* (2), 52-79, Retrieved from <https://www.jst.or.org/stable/48531886>, accessed on September 3, 2024 at 9am.

[118]Nigeria Maritime Administration and Safety Agency (NIMASA) Act, 2007, Section 22 1 (i).

[119] NOSDRA Act, 2006, Section 7 (1) (d).

[120]EGASPIN, 2002, para. 5.1.1. 'Special Prevention and Counter Measures Plan'.

[121]NOSDRA Act, 2006, Section 6 (1)(b).

[122] Ayobami O (2015). 'The Multi-Agency Response Approach to the Management of Oil Spill Incidents: Legal Framework for Effective Implementation in Nigeria', *Afe Babalola University Journal of Sustainable Development, Law and Policy*, 6 (1), 110-128.

[123]Section 7 (1) (d) of NOSDRA Act, 2006.

[124] Ephraim IE & Justine AA (2014), 'Environmental Policies and Strategies in Nigerian Oil and Gas Industry: Gains, Challenges and Prospects', *Natural Resources, 5* (14), 884-896. DOI: 10.4236/nr.2014.514076.

[125] *Ibid.*

9. Challenge of Regulatory Overlap

Another challenge faced by NOSDRA, which hamper its effectiveness in controlling marine pollution by oil spill include but not limited to lack of effective and clear-cut Polluter-Pays Principle (PPP) throughout oil exploration and production chain.[115] NOSDRA is also facing a challenge of regulatory overlap amongst the different agencies responsible for oil investigation.[116]Although NOSDRA is responsible for control and management of oil spills in Nigeria, many bodies like the Department of Petroleum Resources (DPR) also have similar responsibility in this regard. Other institutions like Nigeria Maritime Administration and Safety Agency (NIMASA) and Niger Delta Development Commission (NDDC) have similar responsibility in respect of oil spill in Nigeria. For example, the functions of NOSDRA overlap with NIMASA in respect of monitoring oil spills on the high seas from vessel accidents.[117] While the major mandate of NIMASA in respect of oil spill is preventive in nature, the mandate of NOSDRA in respect of oil spill is both preventive and remedial as such, NOSDRA can effectively carry out the function of NIMASA in this respect. This untidy atmosphere favours oil companies which prefer weak and fragmented regulatory and enforcement agencies. While part of NIMASA's function is to control and prevent marine pollution,[118] NOSDRA's Act also places the same responsibility of controlling and preventing marine pollution on NOSDRA as part of its special functions.[119] Also, the provisions of Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN) 2002,[120] created a conflict between NOSDRA and DPR in that it places the responsibility of receiving reports of oil spills on DPR in conflict with the provisions of NOSDRA Act,[121] 2006 with also places the responsibility of receiving reports of oil spills on NOSDRA.[122] This conflict of responsibility may bring about inefficiency in the function of NOSDRA as it will give room for conflicting reporting system. The scenario would also bring about administrative conflict such as conflicting reporting system regarding oil spills in Nigeria. A good example of conflict of function of NOSDRA with other sister agencies is when oil spill occurred in Ijegun, Lagos, Nigeria, in which about 40,000 barrels of crude oil spilled into the Atlantic Ocean. NOSDRA carried out its investigation and recommended to the Federal Government of Nigeria that an administrative fine of Five Billion Dollars ($5,000,000,000) be mated out against Shell company responsible for the crude oil spill. On the same issue, the NIMASA came out and did its investigation and recommended to the Federal Government a fine of Six Billion, Five Hundred Million Dollars ($6,500,000,000) to be paid by the company responsible for the crude oil spill as compensation to the victims of the oil spill. This is a clear situation of conflict usually faced by NOSDRA in performing its mandate, as NOSDRA is recommending certain amount as administrative fine, NIMASA on the other hand is recommending a different amount of money as compensation.[123]

Also some coastal states in Nigeria created some agencies with conflicting functions with NOSDRA. For example, in 2006, Rivers State created a state agency called, “Rivers Green Book”, which may give rise to conflict of functions with NOSDRA in that area.[124] This conflict may render the process of policy implementation not just cumbersome, but also costs are unnecessarily duplicated.[125]

The NOSDRA does not have an adequate legal framework that empowers it to recover damages from any polluter and an ability to revoke the license of any defaulting company just like the powers of the National Agency for Food, Drugs Administration and Control (NAFDAC), National Universities Commission, Council for Legal Education, etc. to revoke licenses of agencies under their control and this enables them to function effectively. This will assist the agency to enforce full compliance with its regulations and enable it to source for enough funding for its effective operations.

[126] For instance, in 2022 Shell Petroleum Development Company of Nigeria Unlimited alone recorded 10 operational spill incidents as against 9 incidents it recorded in 2021. See Shell Global (2024), 'Spill Response and Prevention in Nigeria', Retrieved from <https://reports.shell.com.>, accessed on October 26, 2024 at 2pm.

[127] Okafor P (2022), 'Crude Oil Spillage in Nigeria Rises by 22%', *Vanguard*, Tuesday, February 8, 2022.

10. Conclusion

The discovery of oil in Nigeria has led to the increase in oil exploration and exploitation which eventually caused and still causing environment problems. One serious and devastating environmental problem of oil exploration and exploitation is oil spillage. The effects of oil spill on marine environment is devastating. Oil spill pollutes the marine environment, kills the marine lives and resources and in the long run, affect the entire biodiversity. This is what informed the decision of the Nigerian government to create some institutions to tackle the menace of oil spill on the marine environment. Thus, the Nigerian government established the NOSDRA with the view to controlling and managing oil spill. The major function of NOSDRA is to review reports of oil spillage and co-ordinate oil spill response activities throughout Nigeria with the view to preventing the pollution of the marine environment by such spillage.

The paper revealed that NOSDRA has recorded significant achievements since its inception. The agency deployed its first vessel in 2023 and established a Web-based Oil Spill Monitor for reporting oil spills in the country. The Oil Spill Monitor helps the agency to know all companies that are polluting more than the others and which sites have not been cleaned-up over time. By this, the Oil Spill Monitor have been showing the performance of the oil companies in respect of environmental pollution by oil spills.

However, despite the establishment of NOSDRA and the achievements it recorded, oil spill keeps increasing the rate of environmental degradation[126] and has perpetuated food insecurity as a result of high death rate of fish as well as other environmental problems that affect mankind.[127] This means that NOSDRA is faced with various challenges in carrying out its functions. It has been found, in the course of this research, that one major challenge facing the NOSDRA is lack of adequate funding to enable it acquire modern equipment/facilities and to embark on regular training of its personnel as stated by its DG. Besides, NOSDRA is faced with responsibility overlap with different agencies responsible for oil spill control such as DPR, NIMASA, NESREA, etc. There are many agencies with similar functions with NOSDRA which affects its effectiveness and efficiency in carrying out its mandates. For example, NIMASA has a similar function of controlling oil spills on the high seas just like NOSDRA has.

It is in a view to enhancing the functions of the NOSDRA and thereby reduce the menace of marine pollution by oil spill that the article recommend that the government should increase its budgetary allocations to the environmental sector to enable NOSDRA acquire modern equipment and training of its personnel. Alternatively, there should be a special percentage for NOSDRA from the annual budget of Nigeria. It is further recommended that the provisions of the laws that provide for functions of other agencies which conflict with the functions of NOSDRA should be amended. For example, section 22 (1)(i) of NIMASA Act, 2007 should be amended to delete the function of controlling and preventing oil spill marine pollution since section 7 (d) of NOSDRA Act, 2006 has placed such responsibility on NOSDRA as its special function. Also the provisions of Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN), 2002 that give the DPR the responsibility of receiving oil spill reports should be deleted since the NOSDRA Act, 2006 has placed such responsibility on NOSDRA. This will remove the untidy responsibility overlap between NOSDRA and other agencies in Nigeria.

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