



A Review on Effectiveness of Marine Pollution Control and Management in Nigeria

*¹OSUJI, JN; ²AGBAKWURU, JA

¹*Department of Transport Management Technology, Federal University of Technology Owerri, Imo State, Nigeria*

²*Department of Marine Engineering, Federal University of Petroleum Recourses, Effurun, Delta State, Nigeria.*

*Corresponding Author Email: joshuaosuji@yahoo.com; Tel: +2348037820628

Other Author Email: agbakwuru.jasper@fupre.edu.org; Tel: +2348106891639

ABSTRACT: This study reviews the successes and limitations of agencies saddled with marine pollution control and management in Nigeria using secondary data. The agencies investigated include Nigerian Port Authority (NPA), National Oil Spill Detection and Response Agency (NOSDRA), and Nigerian Maritime Administration and Safety Agency (NIMASA). The study shows that NIMASA has been at the frontline of marine pollution control and has been dynamic and effective in marine pollution control and management in Nigeria. Port reception facilities by NPA for ship waste collection within stipulated time to encourage turn-around time of vessels is encouraging. For NOSDRA, the review highlights some statutory impediments affecting the effective functioning of the agency. It is important to de-bottleneck all statutory issues threatening the smart performance of NOSDRA. Delay in attending to oil pollution, for instance, is a huge control failure with multiplying consequences for the environment. The effort in the development of an action plan referred to as National Oil Spill Compensation Rate (NOSCR) which stipulates compensation to affected or host communities from facility operators is not a control measure and may even be misused by criminal minds to intentionally cause spills and pollution in order to seek financial gain. Grassroots operators should be sensitized to more effective ways to control and handle marine pollutants. This can be achieved with the simple truth that harms to the marine environment are an invitation to the end of the existentialism of life itself. It is believed that once the attitudinal change by the marine operators and especially the grassroots is achieved, marine pollution control and management can be made more effective.

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Sustainable Development Goals 14 and 15 focus on conserving and protecting underwater and land ecosystem (NNGO, 2019). Marine pollution in the Nigeria coastal environment has an extensive impact on the entire ecological environment in general and on the flora and fauna in particular (Elenwo and Akankali, 2020). Marine pollution is a growing problem in today's world, according to Morgan (2019). Marine pollution is the introduction of harmful substances as a result of human activities to the marine environment which have harmful effects on the marine ecosystem especially marine living organisms and marine water quality which hinders marine activities like fishing which are in return hazardous to human health (Senthil and Prasannamedha, 2021). According to Senthil and Prasannamedha (2021), examples of contaminants in the marine environment are

radioactive waste, solid waste, oil spills, organic compounds, and increased nutrients. The biological, physical, and chemical properties of the marine ecosystem such as the ocean and coastlines are affected by these contaminants, thereby threatening the marine ecosystems, biodiversity, and organisms (Senthil and Prasannamedha, 2021). Obvious marine litter issues for Nigeria are plastic products, abandoned shipwrecks, fishing gear, ships, and oil spills. However, there is no direct official study yet on the impacts of marine litter that can be cited in this brief.

The law establishing Nigeria Port Authority (NPA) gave it the mandate to handle marine incidents and pollution control within and outside the port. Furthermore, at the international level NPA is saddled with the responsibility of managing marine pollution

*Corresponding Author Email: joshuaosuji@yahoo.com; Tel: +2348037820628

from ships visiting any Nigerian port (Onwuegbuchunam et al., 2017). According to Onwuegbuchunam et al. (2017), the Nigerian Port Authority (NPA) custodian of National Ports, does not own, or operate waste reception facilities but outsourced that responsibility to a private pollution company. However, no independent organization has been put in place to audit the activities of pollution control contractors (Onwuegbuchunam et al., 2017). National Oil Spill Detection and Response Agency (NOSDRA) controls crude oil pollution in Nigeria (Kumor, 2021). Although the agency has the statutory duty of managing and reducing the impact of oil spills on the Nigerian environment, both marine and land-based environments and as well as prevention and swift response to oil spills (Kumor, 2021). Land-based is basically for oil and gas pipelines across land and water. Furthermore, NOSDRA Section 5 of the formulated Oil Spill Recovery, Clean-up, Remediation, and Damage Assessment Regulations, 2011 recommends a joint investigation of the oil spill source facility which comprises of oil operator’s team and NOSDRA to determine the causes and event of spillage. The requirement is that the operator provides a craft to convey NOSDRA staff to the site for the joint investigation. Nigerian Maritime Administrative and Safety Agency (NIMASA) is a government agency saddled with the responsibility of enforcing, supervising, and compliance with IMO conventions that have to do with the safety of marine environment and sustainability such as MARPOL ANNEX V, London protocol, and Sustainable Development Goal (SDG) of 6,11,12,13,14 and 17 (NIMASA, 2019). However, the Department of Marine Environment Management in NIMASA is in charge of all marine pollution management activities.

Although, a coherent database for effective oil spill preparedness and ease in coordination, cost of implementation of conventions and framework together with effective coordination among other agencies operating with the sustainability of the marine environment in Nigeria and beyond are basic identified challenges NIMASA is saddled with in the effective and efficient management of their statutory

functions (NIMASA Voyage 2018). Therefore, the objective of this paper is to provide a critical review of the successes and limitations of agencies saddled with the responsibilities of marine pollution control and management in Nigeria.

MATERIALS AND METHODS

The materials are secondary data acquired from NIMASA, NPA, and NOSDRA sources such as Nigerian Maritime Administration and Safety Agency (NIMASA) Voyage magazines, MARPOL convention compliance review records and publications, Nigerian Port Authority (NPA) waste compliance inspection records, National Oil Spill Detection and Response Agency (NOSDRA) oil spill monitoring website. Other data sources include published (Journals, Newspapers e.t.c.)

The method was comparing secondary data to the statutory functions of NIMASA, NPA, NOSDRA and MARPOL convention compliance.

RESULTS AND DISCUSSION

NOSDRA’s challenge of being the lead in oil spill investigation can be seen from Table 1 showing spill sites that the agency visited each year. From Table 1, it can be observed that the visit was relatively less than 30% of the total spill sites. It appears from Table 1 that NOSDRA has not done well with respect to response and detection of oil spill in the marine environment according to the statutory duties of the act establishing the agency. We argue in this paper that it is not adequate for NOSDRA to depend on the oil operators for logistics according to the regulation and still expect the agency to act timely, effectively and safely in response to oil spillage caused by the same oil operator.

According to NOSDRA Boss (Ayawei, 2015), the nation is in great danger with the continuous oil spill incidents which not only affect the marine environment but human health in general and reduction in revenue which have a negative impact on the economy.

Table 1: Spill Incidence Summary from 2017 to 2021

Year	Total Number of Oil Spill	JIV number of visited sites	Sites with no estimated quantity of oil	Quantity of oil spilled (bbls)	Oil equivalent in Liters
2017	595	73	177	34,866.69	5,512,096.30
2018	708	104	154	27,998.37	4,423,742.84
2019	742	70	190	41,776.42	6,600,673.53
2020	458	35	89	23,586.10	3,726,603.99
2021	393	33	121	23,985.29	3,789,675

Source: (<http://nosdra.oilspillmonitor.ng>)

Table 2: Wastes generated by vessels at Nigeria Sea ports from January – November 2019

Ports	No. of vessel call	Garbage (Kg)	Oily Waste (cubic meter)
Lagos(Tin Can Island and Apapa)	2,356	196,415.63	12, 529
Port Harcourt	553	56,571	1,041.71
Onne	905	165,953	2,503
Calabar	376	25,882	124
Warri	568	49,611	1,792

Source: Table by authors adopted from (Anagor 2020)

NOSDRA has commenced the development of an action plan which will guide both facility operators and host or affected communities on appropriate compensation referred to National Oil Spill Compensation Rate (NOSCR) (Oshienemen et al., 2017). It is believed that this in a way could scare operators and enable them to buckle up in reducing spills in the environment where they are operating. In the authors’ opinion, this action does not seem like a control measure and may have some non-positive consequences. For instance, intended damages by vandals who may turn around to seek compensation.

The NPA ensuring a marine environment devoured of pollution, from January to November 2019 received over 2.3 million kilograms of garbage from 4,752

vessels that called at Calabar, Warri, Port-Harcourt, Onne, Apapa, and Tin Can Island Ports in Lagos (Anagor, 2020) (Table 2).

Considering the increase in the vessel traffic in ports of the three maritime zones in Nigeria, NPA just recently acquired state-of-the-art port reception facilities for MARPOL Annex IV for the maritime zones (Anagor, 2020). Lagos, Port Harcourt, Onne, Calabar, and Warri Ports now have the following reception facilities; Oil collection tanker, storage tanks, oil-water separator, sorting plant, bailer, garbage compactor truck, and granulator modular laboratory (Anagor, 2020). The procurement of the facilities by NPA has shown that ship-based marine waste can be minimally reduced in other to save our marine ecosystems.

Table 3: Current efforts by NIMASA in Marine Environment Management

S/ N	Convention	Efforts	Challenges	Way Forward
1.	Ballast Water management Convention (BWm convention)	Ballast water record book, Evaluating ballast water management plan, Feasibility study for exchange area to comply with D-1 regulation of the BWMC	Laboratory for monitoring ballast water; trained manpower to monitor ballast water quality	-Establishment of a Laboratory or signing MoU with accredited labs - Training of enforcement staff - Ballast water exchange area designation
2	London Dumping convention/ protocol	Awareness campaign, Proposed study on designation of marine dump sites on shore and in the sea bed. Marine litter removal	Coordination with Nigerian Pots Authority on dump sites, Illegal dumping of toxic waste in waterways.	- Designating of dumpsites - Testing treated wastes before permit Issuance
3	International convention for the prevention of pollution from ships (MARPOL1973/78) six annexes	Development of scope of work for providing a database on existing oil and gas installations in the country. Water Hyacinth removal exercise. Boat drills for skimmers and booms Monitoring oil spillage. Approval of SOPEP (Shipboard Oil Pollution Emergency Plan). Manual for Ship owners. Framework for development for chemical tracking and dangerous goods Monitoring of Port reception facilities	Coherent database for effective oil spill preparedness in the country to ease coordination -Cost of implementation of conventions -Monitoring of vessels Implementation of the framework	- Creation of an ICT database of oil and gas installations and integrating it with a sensitivity mapping to enhance effective coordination - Training of NIMASA Staff - Establishment of modular labs - Procurement of NIMASA vessel
4	Hong Kong international convention for the safe and environmentally sound recycling of ships (hong Kong convention)	Ensuring ship scraping and recycling are in line with best international practice Issuance of permits for establishment of scrap yards. Inspection of scrap yards	Effective inspection of scrap yards by well-trained inspectors	- Ensuring proper environmental design of ship recycling yard before permit issuance. - Movement of ship scrap yard far from coastal areas

Source: (NIMASA Voyage 2018)

NIMASA through its Department of Marine Environmental Management, has processed and issued a total of 299 certificates in the year 2019; a mandatory IMO circular on mandatory documents and certificates carried and used onboard vessels as against 266 certificates processed and issued in 2018 (Anagor,2020). The certificate signifies IMO pollution and environmental management compliance. Currently, NIMASA is carrying out a lot of activities in the management of the Nigerian marine environment which is illustrated in Table 3. Although most marine environmental management approaches have their own challenges, we argue in this paper that NIMASA has been able to present a possible way forward towards overcoming those challenges in order to have a sustainable Nigeria marine environment. However, the NIMASA performance indicator is based on their ability to integrate stakeholders in the area of marine environment management just as it included the 36 States of Nigeria in the Marine Litter Action Plan and the formation of Volunteer Marshals in the local communities for the sensitization and awareness creation together with the enforcement of indiscriminate dumping of refuse in the coastline (Yakubu, 2012).

Though NIMASA through its action plan, is carrying out both sea and land-based (i.e., coastal area) marine environment pollutants management through effective collaborations with coastal state agencies in waste management. We argue in this paper that the sensitization is not to the grassroots enough'. The market women, engine mechanics on the streets, hoteliers, etc, who daily generate plastics and oily wastes are not fully aware of the consequences of the waste they generate. These wastes even when generated at uplands naturally or artificially find their way through seepage, drainages, and canals into the coast and ocean water.

Conclusion: There is collaboration among government agencies toward making their statutory functions achievable. For a safer and cleaner marine environment, IMO has come up with some conventions and Nigeria is a party or signatories to such conventions. Though the NPA, NIMASA, and NOSDRA have performed fairly well in effective management and control of marine pollutants, there is room for improvement. Efforts should be geared towards sensitization and implementation of various action plans put in place for marine pollution control and management, especially at the grassroots.

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