# DISCHARGING SUSTAINABLE DEVELOPMENT OBLIGATIONS BY PARTIES TO A DECOMMISSIONING PROGRAMME UNDER THE PETROLEUM INDUSTRY ACT (PIA) 2021: ENSURING GLOBAL BEST PRACTICES

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## Abstract

*The obligation to ensure sustainable development is essential to the oil and gas industry and the economic development of petroleum energy based economies. Accordingly, the obligation to carryout global best practices in the implementation of a decommissioning programme for oil and gas installations is very important especially in Nigeria. Over the years, oil and gas exploration and exploitation activities have been carried out with little or no sustainability measures which led to the ecological devastation of the environment of the Niger-Delta area of Nigeria where most of the oil exploration takes place. The International Oil Corporations (IOCs) have paid lip services to the obligation to ensure sustainable development due to an absence of a legal framework on decommissioning to hold IOCs liable over the years. However, with the enactment of the Petroleum Industry Act (PIA) 2021 the much needed impetus has been given to the quest for global best practices in the process. Using doctrinal approach, the article analyses the obligation to adhere to sustainable measures in the implementation of decommissioning programme or plan. It seeks to identify the challenges militating against the application of global best practices in decommissioning of oil and gas installations in Nigeria. The paper finds that corruption and politicisation of the entire oil and gas industry process in Nigeria among others constitute a*

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*hinderance to the effective compliance of global best practices which engenders sustainable development. It is suggested that sustainable development obligation be enforced through stringent compliance by the Regulatory body under the PIA 2021.*

## Introduction

Sustainable Development practices for decommissioning of oil and gas installations are simply those internationally accepted measures necessary for the safety of both workers and the environment during the process of decommissioning. Decommissioning is defined as the process of commencing the final removal of oil and gas installations used during operations whether onshore or offshore with the intention of restoring the environment to its previous state through a rehabilitation program contained in a decommissioning plan.[1] These practices are adopted in the management of environmental outcomes in the form of impacts as a result of activities in the oil and gas industry operations. To ensure effective compliance to international best practices by Operators (mainly International Oil Corporations), there must be a functional legal regime which spells out obligations between the Regulator and Operator with the responsibility to enforce strict compliance with such environmental regulations in relation to decommissioning. Also, the law must contain clauses regulating different segments of the oil and gas industry from exploration and production to decommissioning. Nigeria as a developing economy has laws regulating the upstream stage, however when it comes to the final stage of oil and operations, that is, to say, decommissioning there was the absence of a national legislation to enforce the obligation to observe and ensure global best practices in the process of decommissioning, which engenders sustainable development until the passing into law of the Petroleum Industry Act (PIA) 2021 by Nigeria's National Assembly. The objective of this Article is to assess the sustainable development obligation of parties to a decommissioning programme to determine to what extent both Regulator and Operator comply with global best practices under the Act.

[1] IP Enemo and O J Alozie and CO Ukaoma and IE Nwafor, Proposing a Legal Framework for Decommissioning of Oil and Gas Installation in Nigeria [2019](45)(2) *Commonwealth Law Bulletin* 211-230.

## Meaning of Environmental Sustainability and Development

Sustainable Development is defined as 'development that meets the need of the present without compromising the ability of future generations to meet their own needs.'[2] This definition has become the standard due to its widespread and regular citation. This globally accepted ethic aims towards environmental sustainability and development. This article defines sustainable development as the necessity to solve the challenges of the present with available resources in accordance to the realities of the present and reserving resources for the future. Sustainable development is a plan of action that came about from core human values. The term Sustainable Development derived its roots in the 1972 Stockholm Conference on the Human Environment where the conflicts between environment and development were first acknowledged. From the above definition, any development that meets the needs of the present generation without any infringement on the capacity of future generation to meet their own needs is sustainable development, while any development to the contrary would not be considered as sustainable development. The Brundtland commission's definition of sustainable development seeks to integrate protection of the environment with economic development.

An important question to ask is, what needs to be sustained? There are objectives that need to be sustained such as nature, life support systems and community.[3]There are three sectors that require development, people, economy and society. When developing people, the need to address the survival of the child, life expectancy and quality, education, equity and equal opportunity for all human beings.[4] However, 'Development" is defined as the increasing capacity to meet human needs and to improve the quality of human life.[5] This definition of development seeks to integrate both environment and economic imperatives with realities. The development of the concept is achieved on the recognition that the

[2] World Commission On Environment and Development 1987, the commission was Chaired by Gro Harem Brundtland Then prime Minister of Norway, Hence the Popular name" Brundtland Commission."

[3] U.S National Research Council, Policy Division Board on Sustainable Development, Our Common Journey: A Transition Towards Sustainability (Washington DC: National Academy Press 1999).

[4] R W Kates and Others, 'What is Sustainable Development' [2005](47) *Environment, Science and Policy For Sustainable Development* 10.

[5] Ibid.

protection, preservation, and sustenance of the environment must be considered in tandem with economy and development. It is observed that these principles of environmental protection have gone a long distance in influencing the sovereign states in their extractive industry contracts within their national jurisdiction aimed at protecting their immediate environment.[6]These are concerns about the state of affairs which affects the environment, economy and human existence. Sustainable development as a concept in environmental protection adopts both precautionary and polluter pays principles to ensure the prevention of irreversible damage and remediation to the environment. This burden therefore applies to States in addressing environmental impacts of decommissioning of oil and gas installations using environmentally sound methods to ensure sustainability. It is also important to observe that under the expanded definition of international law the, this obligation is not limited to states alone but extends to multinational corporations, public international institutions whose activities often times come into conflict with the environment.[7] However, the precautionary principle is often contrasted with a 'sound science' based approach to risk regulation, in situations where environmental protection measures must be clear in terms of scientific evidence of environmental risks, that such precaution must be taken even in the face of uncertain or hypothetical risks.[8]The precautionary principle requires measures to be taken to protect the environment despite scientific uncertainty about the likelihood of harm.[9] But on the contrary, the precautionary principle calls for better science, especially investigation as complex interaction over long periods of times. However, the precautionary principle is often contrasted with "a sound science" based approach to risk regulation, in which environmental protection measure requires clear

6 E Onyeabor and N Nwafor and O J Alozie, 'Lessons from Legal Transubstantiation: Analysing the Nigerian Environmental Protection Regime' [2018](1)(4) *African Nazarene University Law Journal*(ANULJ) 83.

7 MT Ladan, .*Materials and Cases on Public International Law.*(Zaria: ABU Press 2007)31.

8 C Rosie, *The Precautionary Principle in Bio Diversity: Conservation and Natural Resources Management,* IUCN and Global Change Series No.2, The IUCN-World Conservation Union, 2004, 9.

9 UD Ikoni, *An Introduction to Nigerian Environmental Law.* (Lagos: Malthouse Press Limited, 2010) 245.

scientific evidence of environmental risks rather than precaution in the face of uncertain or hypothetical risks.[10]

Sustainable Development has made society aware and at best recognise the role and importance of environmental factors which affects lasting development.[11] 'The reasoning in sustainable development is to ensure that our environment is safe for human habitation and to check the adverse effect of emerging environmental problems.'[12]The capacity of the earth to protect itself from various forms of harms and a lasting programme of action which takes recourse to social, economical and technical development into ecological concerns to meet present challenges without compromise to future generations are essential. It is important to reiterate that sustainable development being a programme of action which intends to preserve exhaustible natural resources, are contained in the legislation for decommissioning to ensure measures are taken to enhance regeneration of damaged natural resources in order to prevent any form of irreversible damage. However, the programme of action aimed at preserving the environment and the exhaustible natural resources are rarely provided for. The International Oil Companies (IOCs) have an obligation to ensure that their exploration activities within the oil industry are in line with global best practices which engenders sustainable development. It is important to state that the Regulator being an agency of the Host State must be immune from the compromises, political influences brought to bear upon it by the IOCs and their associates. Further, the complicity of regulatory personnel in the agency of government in aiding and abetting certain nefarious practices when it concerns the sue of maintaining strict adherence to rules.

Over the years, the occurrences of oil and gas spills, explosions and other forms of hazards have shown a complete disregard for the adoption of global best practices in the entire process. Sustainable development seeks to create a balance between economy and ecology from one generation to another. Integration as a concept under sustainable development

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10 N Myers, *Debating the Precautionary Principle*, Science and Environmental Health Network 2000, 15.

11 L Dogaru, 'The Importance of Environmental Protection and Sustainable Development: A paper presented at the 3rd World Conference on Learning Teaching and Education Leadership(WCLTA),Budapest, Romania 2012.

12 AO Obabori and Others, 'An Appraisal of the Concept of Sustainable Development Under Nigerian Law [2009] (28)(2) *Journal of Human Ecology* 136.

distinguishes sustainability from other policies.[13] In Nigeria, the law regulating environmental protection is the National Environmental Standards Regulatory Enforcement Agency (NESREA) Act 2007. The Agency has the obligation to protect and develop the environment, biodiversity conservation and sustainable development of the country's natural resources among others.[14] This legislation contains provisions fundamental to environmental sustainability. Unfortunately, the law has certain impediment such as the exclusion of its applicability to the oil and gas sector of Nigeria's economy which is its weak spot.[15]

**Relationship Between Sustainable Development Obligations and Decommissioning of Oil and Gas Installations**

Sustainable Development is also a three prong issue dealing with human, economic and environmental development. This has become known as the three pillars of sustainable development.[16]Human development affects quality of life which human beings lead, as it bothers on access to food, shelter, health care and others. Economic development deals with the creation of wealth through various means of production and the utilisation of available natural resources, while environmental development affects the wellbeing of the environment. The health of the environment is affected by the manner in which humans explore the environment for economic development. This is in tandem with the principles of decommissioning of oil and gas installations for both onshore and offshore, that the environment must be restored to its previous state upon cessation of operations. Sustainable development seeks to create a balance between economy and ecology from one generation to another. It also factors into development environmental objectives. Other related principles of sustainable development have integrated decision making into their essentials. Integration as a concept under sustainable development distinguishes sustainability from other policies.[17]There are various best practices such as controlling and disposing offshore wastes (waste water, waste gases and

[13] J C Dernbach, 'Achieving Sustainable Development': Centrality and Multiple Facets of Integrated decision making [2003] *Indiana Journal of Global Studies* 243-250.
[14] NESREA Act 2007, s3.
[15] NESREA Act 2007, s7.
[16] The World Summit on Sustainable Development, Johannesburg, South Africa 2002.
[17] J C Dernbach, 'Achieving Sustainable Development': Centrality and Multiple Facets of Integrated decision making [2003] *Indiana Journal of Global Studies* 243-250.

waste residues dusts, radioactive substances) in an environmentally sound manner must be contained in a legislation to ensure compliance and achieve environmental sustainability and development.[18]Sustainable development obligations are embedded in the environmental management theories which exist to ensure sustainability. Theories and concepts in environmental management are those philosophies or schools of thoughts and reasoning which shapes principles, guidelines and regulations that makes environmental management a reality. One of the objectives of environmental management is the improvement and preservation of the quality of human life and the ecology.[19]Environmental management is defined as 'the process of allocating natural and artificial resources so that to make optimum use of the environment in satisfying basic human needs, if possible for an indefinite period, and with minimal adverse effects.'[20] The process of managing the environment could also be defined as the interaction between relevant stakeholders and organizations(including public entities, private sector and civil society, formal and informal organizations) to articulate societal preferences and goals and transforms those into actions to influence environmental quality in a desirable manner.'[21] Environmental management is entirely an emerging and dynamic concept. Some of these theories include; Theory of Environmentalism which opines that the human industrial society is focused on the goal of optimum profit, this enhances over consumption and utilisation of environmental resources to the extent that such industries generate wastes from their exploiting activities which pollutes the environment greatly. Environmentalists propose that nature must be protected and respected, and man must be ready to exist in harmony with nature, realising that nature operates according to the laws of carrying

[18] AI Ofuani, 'Environmental Regulation of Offshore (E&P) Waste Management in Nigeria: How Effective?'[2011](7)(2) *Law, Environment and Development (LEAD) Journal*, 83.

[19] World Commission On Environment and Development Report 1987, the commission was Chaired by Gro Harem Brundtland Then prime Minister of Norway, Hence the Popular name" Brundtland Commission".

[20] CJ Barrow, *Environmental Management for Sustainable Development*(London: Routledge Taylor and Francis Publishing 1999) 6.

[21] J J Kessler and Others, Environmental Management: Towards a Conceptual Framework for Environmental Governance (2001) Inter-American Development Bank Environment Division Publication.

capacity.[22]This theory creates a link between economics and ecology. The economic activities impacts adversely on the environment, therefore there exists a need to conserve, control and effectively manage these activities. Theory of Determinism: The theory of environmental determinism proposes the view that humans do not possess the will power to determine or decide what happens to them in their relationship with the environment and such choices are made for them by the external influences which they have no control over. Determinists opine that humans respond to the dictates of nature. This position is in sharp contrast with the theory of environmentalism which posits that there exists a nexus between the activities of humans on the environment and the consequent effects on the environment gives by way of response. This theory could simply be viewed as proposing that the environment is responsible for the activities of mankind. The idea that nature was responsible for human actions which impacts adversely on the environment is a major feature of environmental determinism. Environmental determinism has been linked with metaphysical views in which the universe had already determined what would eventually become or occur. Environmental determinism as a theory of environmental management proposes that the activities and behaviour of man is determined by the environment. Theory of Positivism: This School of Thought disagrees with other forms of assertions, but states that only scientific understanding could expose the position of nature and reality. This theory believes strongly in the instrumentality of science in dealing with environmental management issues. The preservation and control of the environment needs to be achieved through scientific methods and nothing else. This theory disagrees with both theories of environmentalism and determinism, and will support them only when it is backed by science. Positivism as a theory opines that occurrences are gauged by empirical analysis and not traditional philosophies of metaphysics. Furthermore, the theory posits that where there is an assertion that the activities of man impacts adversely on the environment, it must be proved with scientific evidence. Theory of Sustainability: This theory has its foundation in the

[22] The Law of Carrying capacity concerns the ability of the earth's resources to cater for a certain number of inhabitants and where the resources are depleted, then human population will suffer lack of resources to cater for its later inhabitants.

concept of Sustainable development which gained prominence in 1987.[23] The sustainability theory proposes an integration of socio-economic problems in relation to human and biophysical activities. Human systems and ecological systems should exist in harmony however; environmental challenges are issues which plague the future of humans, which gives rise to the issue of sustainability. The theory of sustainability operates to bring about a balance of obligation between the present and future generation. The theory of sustainability attaches premium on goods produced from the environment's resources, safety of the ecological systems and others. It demands that humans realise there exists a mutual environmental dependency by man on the environment, and the need to sustain such mutually beneficial interaction. These theories form the core values of global best practices.

These theories of environmental management operate in agreements with the objectives of a decommission plan, that is, to protect the environment and restore it back to its previous nature which engenders sustainable development. The theory of environmentalism which proposes that the resources (environment) be left untapped for the purpose of preservation has a link with the decommissioning process. The relationship between environmentalism and the concept of decommissioning is that both the theory of environmentalism and decommissioning as a concept work for the overall protection and preservation of the environment. The proponents of environmentalism are of the view that at some point, the environment will be sacrificed for the economic benefit of the society. However, humans should accord the environment equal rights and dignity as it pertains to human beings. Furthermore, the theory proposed that the resources (environment) should not be used in a manner inimical to the interest of the next generation.

Environmentalism as a concept has its features ingrained in decommissioning of oil and gas installations through the use of the best and sound environmental management methods for decommissioning. This is implemented through an environmental management plan which

[23] The World Commission on Environment and Development(WCED) chaired by the former Prime Minister of Norway Gro Harlem Brundtland, which defined 'Sustainable Development as the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs' WCED 1987,43.

incorporates sustainable development.[24] The concept of sustainable development seeks to preserve the equitable rights of the next generation to use the resources provided by nature to meet their own needs. The purpose of removing disused or decommissioned installations is to return the environment back to its previous condition and prevent any further form of harm and by extension sustain the earth's resources and enhance the development of society. The theory of environmental determinism and decommissioning do not agree that the activities of man impacts on the environment. Theory of environmental determinism propose that humans lack the will power to determine the outcome of their actions in relation to environment. The theory rather opines that nature is responsible for everything that happens to human beings. To the proponents of this theory, humans react to nature therefore the anthropogenic activities of humans which include construction of oil and gas installations which would eventually be decommissioned upon cessation of operations are determined by the environment. In other words, decommissioning as a concept and procedure is humans' way of reacting to the leading of the environment. The relationship between the theory of environmental determinism and decommissioning is that there is an agreement that the interaction between humans and the environment brings about an impact, but the determining cause of the impact is the point of divergence. Their essence is the protection of the environment from harm.

The theory of environmental positivism deals with the empirical investigation and analysis into the causes of environmental effects, that is, whether or not the activities of humans are responsible for such effects. The implication for this school of thought under environmental management incorporates scientific approach into environmental management.[25] In relation to decommissioning, this theory operates to provide sound environmental evidence aimed towards precautionary, preventive and remediation methods showing that failure to decommission any installation which no longer serves any useful purpose could be responsible for endangering the health and safety of the environment. The theory of environmental sustainability, ecological concerns are incorporated into

[24] T Richardson, 'Environmental Assessment and planning Theory: Four Short Stories about Power, Multiple Rationality and Ethics' [2005](25)(4) *Environmental Impact Assessment Review* 341.

[25] Ibid.

economic development issues to engender sustainability. In tackling the challenge of decommissioning, the operator of an oil and gas installation to be decommissioned must ensure the process would achieve environmental sustainability through the incorporation of environmental protection measures such as the precautionary, preventive and remediation measures.[26]

The political structure and system of governance existing in the Host Country where an installation is due for decommissioning could determine the extent to which environmental management regulations and policies would be effective. In dealing with the political question, recourse needs to be taken into the manner environmental regulations are made, the way laws and policies are implemented. Some of the policies include the host Country's international obligations to legal instruments on decommissioning and the applicability of those instruments within its municipality.[27]In Nigeria, the environmental management foundation is built on the Constitution and other extant laws.

These issues become determinants to whether or not the decommissioning process would achieve the desired outcome of preserving the environment. The government needs the political will to carry out its responsibilities, by activating useful provisions in our Statutes to ensure environmental protection. Furthermore, the regulators of the host Country must ensure strict compliance with environmental regulations by the operators. The operators must adopt sound environmental management methods in accordance with global practices. The laws available must be comprehensive to address current issues surrounding the process of decommissioning especially in the area of environmental protection when carrying out a decommissioning plan to remove oil and gas installation. 'Decommissioning of installations is subject to a hierarchy and tight network of international, regional and national regulations.'[28] The process of decommissioning are governed by laws and such laws must regulate the process and financial responsibilities. The process commences through the service of notices which require the operator to provide a comprehensive

[26] T Richardson, 'Environmental Assessment and planning Theory: Four Short Stories about Power, Multiple Rationality and Ethics' [2005](25)(4) *Environmental Impact Assessment Review* 341.

[27] S I Nwatu, 'Legal Framework for the Protection of Socioeconomic Rights in Nigeria' [2011-2012](10) *Nigerian Juridical Review* 48.

[28] R Bemment, 'Decommissioning Strategy, Offshore Technology Report' 2001/032, 44.

plan for decommissioning.[29]The responsibility for regulating the process of decommissioning is borne by the host country in whose territory the installation to be decommissioned is located, in accordance with the available laws.[30]During decommissioning of oil and gas installations, there are potential, ecological and economic and political consequences. These risks need to be understood and examined to ascertain the extent of damage the process would cause to the ecosystem.[31]After the assessment of such risks, then the best option for decommissioning is adopted. The next step is dealing with the cost of financing an installation for decommissioning. The cost of decommissioning is a matter of legal or contractual obligation.[32]When incorporating sustainable development into environmental protection recourse must be taken to adopt environmental impact assessment on the construction and development of projects to determine its suitability, durability and sustainability.[33]

By reason of this mutually interwoven obligation, the responsibility to include sustainable development essentials in the oil and gas contract in relation to decommissioning rests on both parties. The issues of oil spill, gas flaring and other environmental challenges ought to be reported in line with sustainable reporting systems, stating the number and volume of oil spill, gas flared or vented, toxic wastes (hazardous and non hazardous discharges) and efforts to remedy these challenges as an environmentally sustainable measure during the process of decommissioning are seldom upheld by the courts due to the economic importance of oil and gas resource to the Nigerian State.[34]Furthermore, courts are usually reluctant to rule against

29 UK Petroleum Act, s29.

30 D Baker and T Bartlett and P Griffin and R Jones, The Opportunity and Promise of Decommissioning'(2017) Oil and Gas Series, 1.

31 M V McGinnis and L Fernandez and C Pomeroy, The Politics, Economics and Ecology of Decommissioning Offshore Oil and Gas Structures. MMS OCS Study 2001-006. Coastal Research Centre, Marine Science Institute, University of California, Santa Barbara, MMS Cooperative Agreement Number 14-35, 001-30761, 12.

32 Revising an Existing Decommissioning Liability: View Points Applying IFRSs in the Oil and Gas Industry(2014) 5.

33 JC Nwafor, 'Environmental Impact Assessment for Sustainable Development': The Nigerian Perspective(Enugu: EDCPA 2006)416.

34 TO Asaolu and Others, 'Sustainability Reporting in the Nigerian Oil and Gas Sector'; proceedings of the Environmental Management Conference, Federal University of Agriculture, Abeokuta, Nigeria, 12 June 2011,4.

environmentally degrading activities especially from oil and gas industry.[35] The implication of such provisos are that the sustainable measures contained in various International Environmental Agreements, protocols, addressing several forms of environmental degradation will not apply to the oil and gas sector, thereby providing an easy get away for environmental offenders such as operators of installations during decommissioning. Admittedly any removal of oil and gas installation will pose some level of environmental challenges and would lead to degradation and cause hazards to humans and other living things.[36]

The recovery of the affected habitats and species following an oil spill which could be a consequence of a decommissioning process will depend on the type of ecosystem, the vulnerability of the species and not least the climate of the region where the oil spill occurs. Generally, recovery will proceed faster in warmer climates and on rocky shores compared to cold climates and, for example, marshes. The long-term effects on deeper bottoms (i.e., if oil sinks and is absorbed in bottom sediments) is also a matter of concern. Others methods include the use of booms, skimmers, sorbents, detergents and others.[37] A boom can be placed around the tanker that is spilling oil. Booms collect the oil off the water. A boom may be placed somewhere before oil spill. They can also be placed around an entrance to the ocean, like a stream. They also can be placed around a habitat with many animals living there. These booms absorb any oil that flows around it.

Skimmers are boats that can remove the oil off the water. Also, skimmers which use pumps or vacuums to remove oil as it float on water. Sorbents are sponges that can collect the oil. Dispersants act as detergents, clustering around oil globules and allowing them to be carried away in the water. This improves the surface aesthetically, and mobilizes the oil. Smaller oil

35 MT Ladan, 'Critical Appraisal of Judicial Attitude towards Environmental Litigation and Access to Environmental Justice in Nigeria', A Paper presented at the 5th IUCN Academy Global Symposium, Rio de J, Janeiro, Brazil, From 31st may-6th June 2007,34.

36 KBO Ejumudo and FO Nwador, 'Environmental Management and Sustainable Development in Nigeria's Niger Delta' [2014](5)(15) *Journal of Economics and Sustainable Development* 31.

37 RG Prasad and MVVS Anukaprakash, 'Pollution Due to Oil Spills in Marine environment and Control Measures'[2016](10)(9) *Journal of Environmental Science, Toxicology and Food Technology,* 1.

droplets, scattered by currents, may cause less harm and may degrade more easily. But the dispersed oil droplets infiltrate into deeper water and can lethally contaminate coral. Recent research indicates that some dispersants are toxic to corals. An airplane can be used to fly over the water dropping chemicals into the ocean. The chemicals can break down the oil into the ocean. In addition, to compare the effects and degree of spilled-oil pollution with the concurrent application of chemical degreaser-detergent for its remediation rather than relying on prolonged natural rehabilitation processes or bioremediation are socio-economically and environmentally sensitive enough to be studied.[38] Bioremediation and natural rehabilitation, however, take prolonged period and can isolate the actual people affected by the problem from the solution. Therefore, an approach that better involves the affected people in a quick solution could be the chemical remediation route, whereby they could watch, or even participate, as the restoration process is expected to take a short period.[39] Bioremediation is a process by which bacteria or other microbes are introduced to the environment to help oxidize the oil. Controlled Burning is the process of burning the freshly spilled oil on sea surface with fireproof booms. Burning, only works under certain wind and weather conditions. This is the last option to decide, as this method causes air pollution. Watch and wait in some cases, natural attenuation of oil may be most appropriate, due to the invasive nature of facilitated methods of remediation, particularly in ecologically sensitive areas such as wetlands.

Solidifiers are composed of dry hydrophobic polymers that both adsorb and absorb. They clean up oil spills by changing the physical state of spilled oil from liquid to a semi-solid or a rubber-like material that floats on water. Solidifiers are insoluble in water, therefore the removal of the solidified oil is easy and the oil will not leach out. Solidifiers have been proven to be relatively non-toxic to aquatic and wild life and have been proven to suppress harmful vapours commonly associated with hydrocarbons such as Benzene, Xylene, Methyl Ethyl, Acetone and Naphtha. The reaction time for solidification of oil is controlled by the surface area or size of the polymer as well as the viscosity of the oil.

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[38] OE Essien and IA John, 'Impact of Crude oil Spillage Pollution and Chemical Remediation on Agricultural Soil Properties and Crop Growth'[2010](14)(4) *Journal Applied Sciences and Environmental Management* 147.

[39] Ibid.

The land use management method entails the mapping out of specific portions of available land within the area of operations as designated sites for the disposal of toxic wastes generated from the oil and gas explorations. This will discourage the indiscriminate dumping of generated wastes to avoid environmental and health hazards to inhabitants of communities located close to operation sites. Soil Management as a sustainable development practice covers the remediation of the impacted soil by the disposal of such toxic wastes and oil spills. This treatment could be achieved through the use of bio remediation.[40] Also, soil washing technique could be adopted, as this involves flushing of water into contaminated sites and the water collated is forwarded to a bio reactor for treatment monitoring and analysis, and the treated water is flushed back into the contaminated site to help the damaged soil regenerate. It also serves as a means for efficient water management, as the treated water could be fit for human consumption.

Water management as a resource for sustainable development addresses the challenge of protecting freshwaters sources and its maintenance within the location of oil and gas operations, by exercising due diligence in avoiding deliberate pollution of water bodies such as rivers, streams and lakes that serve as water sources for inhabitants of communities close to the site of operations. Where there is a failure to exercise due diligence to avoid pollution, of water bodies, then the precautionary principle of environmental protection would have been violated; such acts of failure will automatically activate the polluter pays and remediation principles into action to ensure sustainable environmental development for the present and future generation.[41]These principles will apply through efficient water treatment, monitoring and recycling. Waste recycling deals with the challenge of transforming wastes into wealth through effective waste management.

It is stated that 98% of the transportation of crude oil in Nigeria, takes place within the Niger Delta due to its numerous oilfields, flow stations and

[40] Bio Remediation is the use of living organisms deliberately imported into the toxic waste site to help reduce or eliminate environmental hazards emanating from accumulated wastes.

[41] Polluter pays Principle and Remediation Principles.

terminals by which crude oil flows.[42] Environmental challenges in the oil industry are those related to oil and gas exploration, due to its impact on the human, socio-economic and ecological impact on the environment. Dealing with incessant challenges of oil spill, operators should maintain oilfield facilities through the conduct of periodical tests to ascertain the integrity of the facility. The operator must have a comprehensive decommissioning plan after environmental assessment of the facility.[43] In response to the occurrence of oil spills, the operators in the industry must carry out remediation measures through Natural Attenuation Process or Bio remedial techniques. The above measures discussed are complex processes applied during the course of decommissioning depending on the type of installation due to be removed. Therefore, the reality of containing these measures and procedures in an oil and gas contract executed by both the host State and operator(s) in the event of joint ventures would be too cumbersome. It is therefore the view of this paper that obligations and other issues arising from this relationship be contained in legislation but not in an oil and gas contract. All these are measures necessary to engender sustainable best practices in the obligation of parties to the process of decommissioning of oil and gas installations.

Nigeria's National Oil Spill Detection and Response Agency (NOSDRA) Act 2006, was established and charged with the responsibility for preparedness, detection and response to all oil spillages in Nigeria as set out under the Act. The Act specifies the goals of the Agency which includes among others the co-ordination and implementation of a contingency plan known as 'National Oil Spill Contingency Plan for Nigeria.'[44] The goal of the Act ensures sustainable development which is at the core of global best practices necessary for environmental protection in the oil and gas industry. To ensure environmental protection and sustainability, international best practices operates to protect, preserve and restore the health and safety of the environment to its previous state after the final phase of oil and gas operations. The essence is to achieve continued existence of the

[42] OB Akpomuvie, 'Tragedy of Commons: Analysis of Oil Spillage, Gas Flaring and Sustainable Development of the Niger Delta of Nigeria' [2011](4)(2) *Journal of Sustainable Development* 201.

[43] United Nations Environmental Programme (UNEP) Environmental Assessment of Ogoniland 2011, 205.

[44] NOSDRA Act 2006, s5.

environment as a useful resource for future generations which is described as sustainable development. These best practices are environmental management strategies adopted to rehabilitate and restore sites impacted by oil and gas operations.[45]Furthermore, the Act prescribes penalties for polluter called 'Oil Spiller' to pay a fine of ₦500,000.00 (Five Hundred Thousand Naira Only) for failure to report any incidence of oil spill to the Agency within 24 hours.[46]

NOSDRA,[47] should have a contingency plan and be more proactive, rather than relying on reports from oil companies. The operator whose facility caused the oil spill is under a duty by law to report the incidence, and remedy the impacted site in accordance with international best practices. Where there is failure to remedy the impacted site, the oil spiller shall be liable to a fine of ₦1,000,000.00 (One Million Naira).[48] The philosophy behind the duty placed upon the shoulders of an oil spiller to clean up and restore the impacted site back to its previous position is the polluter pays principle. This principle operates to ensure environmental sustainability in line with Principle 13 of the Rio Declaration 1992. It is the view of this research that NOSDRA should be removed from being a sole Agency to a department under a new Agency charged with the responsibility of regulating the process of decommissioning of oil and gas installation. Sustainable Development practice involves the development of a decommissioning and restoration plan in collaboration with regulatory authorities. The content of the plan must include removal of impacted surfaces, replacement of topsoil among others. Also, there must be a review or assessment of the restoration exercise to determine if there is compliance with international best practices during the process. The provisions of Environmental Guidelines and Standards for the Petroleum Industry in Nigeria 2002 now 2018 (EGASPIN) does not satisfy the requirements of international treaties on decommissioning, however, it contains necessary measures aimed at ensuring a successful decommissioning process in line

[45] These measures are the same among others already discussed under Chapter 2.1.5 of this thesis as Environmental Management Techniques for restoration and remediation of decommissioned sites.

[46] Ibid, s 6 (2).

[47] National Oil Spill Detection and Response Agency (NOSDRA) Act 2006, s5(c).

[48] Ibid, s 6(2-3).

with global best practices.[49] Therefore, the need for a legislation clearly to define the responsibility of the Regulator and Operator, in respect to finance, technical responsibility, environmental obligations and incorporation of the measures contained in EGASPIN 2018 among others, cannot be over emphasised.

**Discharging Sustainable Development Obligations and Ensuring Global Best Practices Under the Petroleum Industry Act (PIA) 2021**

Section 232 of the Petroleum Industry (PIA) 2021 deals with the process of oil and gas installation and abandonment. It is important to state that the process of removal contains legal, technical, financial and environmental issues surrounding the entire obligation to decommission the installation. Firstly, there must be a written approval from the Commission or the Authority. Secondly, there must be a decommissioning plan to serve as a guide for the exercise. The removal process must be in line with the standards of the International Maritime Organisation (IMO) in regards to the removal of offshore oil and gas infrastructure.[50] Furthermore, the need to carry out the process of decommissioning with recourse to environmental courtesy and concerns are clearly entrenched in the Act.[51]The obligation to decommission the disused installations in line with global best practices and environmental development stems from the remediative, regenerative and restorative philosophy in various environmental principles which are globally recognised. Where disused installations are allowed to remain in place, regards must be taken to consider the present and future impact on the environment.[52]The steps taken to ensure the safe and healthy removal of these installations are the obligations of both the Operators and the Regulators. The Regulator has several responsibilities ranging from organizing stakeholders and public hearings, environmental impact assessment (EIA), application for a decommissioning plan and approval for the commencement of decommissioning programme and evaluation of the cost of decommissioning an installation among others. This process could take 2-5 years from the date of application before the project actually

[49] Ifeoma Pamela Enemo and Onyedikachi Josiah Alozie et al, Proposing A Legal Framework for Decommissioning of Oil and Gas Installations in Nigeria Commonwealth Law Bulletin [2019] *(45)(2) Commonwealth Law Bulletin 211-230.*

[50] Petroleum Industry Act (PIA) 2021, s232(1)(b).

[51] PIA 2021, s232(6)(c)

[52] PIA 2021, s232(10)(e)

commences depending on legislative provision. The Regulator is saddled with the obligation of ensuring that Operators or Managers of the installations to be decommissioned comply with available laws, regulations and guidelines especially those dealing with health, safety and environmental issues. An Operator of an installation is a person having the management of an installation or its main structure, or a person with a right to exploit or explore mineral resources in any area, to unload, store or recover gas in any area or to convert any natural feature in any area for the purpose of storing gas. The transportation within the area mentioned through the use of pipelines or mineral got, or gas being stored or recovered, in the exercise of that right and the provision of accommodation for persons who work on or from an installation which is or has been maintained, or is intended to be established for the carrying on activity on an installation. A person who transfers the right to control and manage installations or a party to a joint operating agreement relating to right under question, or a person who owns interest in the installation.[53]The Operator has a duty to remove all disused installations on the site of operations upon the cessation of production activities.

This must be done in consultation with the Regulatory Authority (RA) through the implementation of a decommissioning programme or plan. In practice, the Operator is required to adopt a comparative assessment approach to determine the best removal option for an oil and gas installation. The consultation is necessary to ensure compliance with available regulations and policy. The Operator needs to collaborate with the RA to ensure the cost of decommissioning is kept at a cost effective level. The duty to remove all disused installation rest on the Operator by reason of the polluter pays principle which is a globally accepted standard practice geared towards ensuring environmental sustainability and development. The principle of decommissioning underpins the expectation that the Operator will restore the environment to its previous position. The necessary criteria for such assessment would involve technical feasibility, environmental effect, safety and economics of removal, legal framework and others.[54]

53 UK Petroleum Act 1998, s29 and s30.

54 M Henrion and B Bernstein and S Swamy ‘A Multi-Attribute Decision Analysis for Decommissioning of oil and Gas Platforms [2015] (11)(4)in Review for *International Assessment and Management Journal* (IEAM) 594.

Furthermore, it is the duty of the Operator to consider alternatives to decommissioning installations such as re-using or conversion and so on.

The Operators are those International Oil Corporations (IOCs) and other legal personalities saddled with the obligation to operate, manage, maintain and ensure the daily functioning of the installation to the benefit and profit of the Corporation. Consequently, the obligation to decommission the facility rests squarely on the shoulders of the operator. The obligation of the Regulator exist to the extent that the regulator must provide regulatory guidelines and strict compliance directives to ensure a smooth, efficient and hitch-free removal process. The obligation to restore the environment back to its previous condition before the installations were constructed is the cardinal goal of decommissioning. This is to ensure the continued and sustainable use of the land, water and environment at large.[55] Therefore where the Holder of a licence fails to comply with the decommission plan, the Commission or Authority shall enforce the compliance upon such holder.[56] Decommissioning serves the purpose of environmental restoration whether the installation is located on land or water. Installations on land need to be removed to allow for continued land use for agricultural purposes. While installations offshore need to be decommissioned and the appropriate removal method adopted to ensure safety of navigation at sea, regeneration of marine species to boost the marine ecosystems. This Article posits that the essence of sustainable development obligations under the Petroleum Industry Act (PIA) 2021 is to ensure that environment is restored back to its original position and the present generation do not jeopardise the rights of the next generation in accessing the natural resources of nature domiciled in the environment to meet their own needs. As a result of this underlining pinner, the obligation to decommission disused oil and gas installations must be done in an environmentally sound manner adopting effective environmental management strategies to achieve a successful decommissioning. Under the Petroleum Industry Act 2021, the need for sustainable development in the process of decommissioning is seen clearly in the recommendation of the relevant provisions of the Act indicating that phrases like ‘global best practices,’ ‘sustainable environmental development,’ and others which operates to ensure the complete

[55] PIA 2021, s232(7)
[56] PIA 2021, s232(11)

remediation restoration and regeneration of the environment after the exploitation of oil and gas.

## Conclusion

Sustainable Development practices for decommissioning oil and gas installations are simply those internationally accepted measures necessary for the safety of both workers and the environment during the process of decommissioning. These practices are adopted in the management of environmental outcomes in the form of impacts as a result of activities in the oil and gas industry operations. To ensure effective compliance to international best practices by Operators (mainly International Oil Corporations), there must be a functional national agency established by law with the responsibility to enforce strict compliance with environmental laws and regulations in relation to decommissioning. Nigeria has laws regulating the upstream stage and the stage of decommissioning which is the final stage through the provisions of the Petroleum Industry Act (PIA) 2021 legislation. This legislation has in its content addressed issues such as measures accepted as the standard ethic in the oil industry globally. Therefore, decommissioning of oil and gas installations whether onshore or offshore must be in accordance with these globally recognised standards. By necessary implication, any action on the part of operators and regulators to fall short of the standards such actions should be met with strict sanctions to gain full compliance and consequently do not meet the criteria for sustainable development.