
ASSESSMENT OF THE SPATIAL COMPLIANCE AND VIOLATION OF ENVIRONMENTAL LAWS IN THE EXTRACTION AND EXPLOITATION OF CRUDE OIL RESOURCES IN THE SOUTH-SOUTH GEOPOLITICAL ZONE OF NIGERIA.

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ABSTRACT

This study assessed the spatial compliance and violation of environmental laws in the extraction and exploitation of crude oil resources in the south-south region of Nigeria. Cunningham and Cunningham (2006) defined environmental laws as official rules, decisions and actions concerning environmental quality, natural resources and ecological sustainability. Data for this study were collected from primary and secondary sources, though the administration of one thousand eight hundred (1800) questionnaires and existing records of violation of environmental laws in the exploitation and exploration of crude oil activities in the area. Results from this study revealed that, in the exploitation and exploration of crude oil activities in the study area, (26.3%) of the respondents strongly agreed that pollution of streams, river and other water bodies in their area emanates from crude oil explosion, vandalization and spillage, (14.1%) also agreed, (30.4%) strongly disagreed, and (29.2%) of the respondents disagreed. The study therefore recommends that, in our pursuit of environmental protection and compliance of environmental laws, we must strive towards achieving a balance in the benefits we derive from activities that causes environmental pollution and the resultant harm.

KEYWORDS; *Assessment, Compliance, Crude-Oil, Environmental Laws, South-South Region of Nigeria and Violation.*

1.1 INTRODUCTION

Nigeria has been a very active player in most of the global environmental initiatives (Yar'Adua, 2007). He further stressed that the country has also made efforts to operationalize the implementation of the various environmental agreements and other outcomes of these global initiatives at the country level. Events surrounding the unfortunate Toxic Waste Saga in the small town of Koko in Delta State in 1987 gave rise to the Harmful Waste Decree 42 of 1988. The incidence also facilitated the establishment of the Federal Environmental Protection Agency (FEPA) through Decrees 58 of 1988 and 59 (amended) of 1992. The agency was then charged with the overall responsibility for environmental management and protection across the country, this was until 1999, when Federal Environmental Protection Agency (FEPA) and other relevant Departments in other Ministries were merged to form the then Federal Ministry of Environment, now Federal Ministry of Environment, Housing and Urban Development (Yar'Adua, 2007). This situation however created a vacuum in the effective enforcement of environmental laws, standards and regulations in the country. To address this, the Federal Government created, by law, a new institutional mechanism, the National Environmental Standards and Regulations Enforcement Agency (NESREA). Thornton and Beckwith (1997) defined environment to include natural resources both biotic and abiotic, thus covering not only the natural environment, but also the man-made landscapes, buildings and objects, which form parts of man's natural heritage. An environment represents the surrounding condition, influence on the whole complex of climatic edaphic and biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival (Gboyega, 1998).

Environmental law draws from and is influenced by principles of environmentalism, including ecology, conservation, stewardship, responsibility and sustainability. Pollution control laws generally are intended (often with varying degrees of emphasis) to protect and preserve both the natural environment and human health. Resource conservation and management laws generally balance (again, often with varying degrees or emphasis) the benefits of preservation and economic exploitation of resources. From an economic perspective, environmental laws may be understood as concerned with the prevention of present and future externalities and preservation of common resource from individual exhaustion. The limitations and expenses that such laws may impose on commerce, and the often unquantifiable (non-monetized) benefit of environmental protection, have generated and continue to generate significant controversy (Abegunde, et al, 2007).

1.2 STATEMENT OF THE PROBLEM

Osibanjo (2009) stated that Nigeria is endowed with natural resources including forestry and other biodiversities, solid minerals, oil and gas to mention a few. Environmental problems, however, vary in different ecological zones of the country and include rapid urbanization (e.g. Lagos; Nigeria will be one of the ten (10) mega cities in the world by 2015 with a population of more than twenty three (23) million people), solid wastes, flood and erosion, drought and desertification, oil and gas pollution, industrial pollution and indoor air pollution, in urban centres. He further stressed that rapid industrialization occurred in Nigeria, since independence in 1960 with inadequate attention to environmental considerations such that, industrial pollution has caused and continue to cause depletion of natural resources and the impairment of human health.

According to a recent World Bank Report (2006), Nigeria counts with a large natural wealth, which contributes to the economic development and social well-being of the country. Yet, much of the environmental and natural capital is being lost every year owing to population growth, economic activities, lack of environmental considerations and policy failures. Osibanjo (2009) equally noted that every year, environmental degradation costs the Nigerian economy between 5 and 10 percent of the Gross Domestic Product (GDP) with a mean estimate of 8 percent. Damages from indoor air pollution accounts for between 1 and 2 percent of the Gross Domestic Product (GDP) making it a major cause of death in Nigeria. Every year, on the average, nearly 50,000 children under the age of 5 die, due to acute respiratory illnesses linked to household smoke. Lack of water and sanitation and poor hygiene are also important; on the average, diarrhea alone kills every year, 30,000 children less than 5 years of age.

The South-South Region of Nigeria is blessed with both human and material resources, but the unfavourable manner in which these resources are harnessed overtime, is the bane of the regions predicament (Eregha and Irughe, 2009). It was further stressed that before the discovery of crude oil, agriculture was the dominant occupation of the people. Crude oil was discovered in commercial quantity in the region specifically in the present Bayelsa State in 1956 (Omofonmwan and Odia, 2009). Since then oil exploration and exploitation has continued resulting into what is termed environmental destruction due to neglect and less concern of the multinational companies in environmental management in the area.

Environmental degradation resulting from oil and gas production in the South-South Region of Nigeria has attracted the attention of environmentalists, who looked at the region within the larger context of globalization (UNDP Report, 2006). The world today recognizes the significance of environmental sustainability to the development of nations. In fact, one of the cardinal objectives of the Millennium Development Goals (MDGs) is to ensure environmental sustainability. It then implies that there should be reduction in environmental degradation.

Environmental degradation and pollution, due largely to oil spillage, gas flaring and continuous oil exploration activities in the Niger Delta, could be said to be as old as the discovery of crude oil in Nigeria. The sustained exploration has therefore had serious impact on the terrestrial and aquatic life in the region that lays the golden egg to sustain the Nigerian economy. Not much effort was however made to nip the situation in the bud and, today, it has negatively impacted on the people of the area and the fragile yet productive ecosystem of the Niger Delta.

1.3 AIM AND OBJECTIVES OF THE STUDY

The main aim of this study is to examine the factors responsible for the spatial compliance and negligence of environmental laws in the south-south region of Nigeria.

The specific objectives of this study were to:

- i examine environmental problems which emanate from the non-compliance of environmental laws, through the extraction and exploration of crude oil activities in the study area.
- ii identify the causes of pollution which emanates from the extraction and exploration of crude oil activities in the study area.
- iii recommend possible remedial measures on environmental problems which emanates from the negligence of environmental laws, as well as strengthen the existing environmental laws in the study area.

1.4 THE STUDY AREA

Nigeria is the most populous country in Africa (Juang, 2008). The United Nation estimated that the population in 2009 was at 154, 729,000 distributed as 51.7% rural and 48.3% urban, and with a population density of 167.5 people per square kilometer. The National Population Commission (2006) released the most recent census result in Nigeria and gave a population figure of 140,003,542. The only breakdown available was by gender: males numbered 71,709 859, while females 68, 293,683 (National Bureau of Statistics, 2006).

The South-South Region of Nigeria is made up of six states; these are Edo, Delta, Bayelsa, Rivers, Akwa-Ibom and Cross River States. The South-South Region of Nigeria is an oil-rich region, and has been the centre of international controversy over devastating environmental pollution.

The South-South Region of Nigeria majorly account for Nigeria's sixth world's largest deposits of crude oil.

Other solid decorative stone cutting and quarrying mineral deposits in the South-South in Region of Nigeria are industrial clay, silica, lignite, kaolin, tar, sand, decorative rocks, limestone etc (Park, 2004). These are raw materials for industries such as brick making ceramics, bottle manufacturing and sanitary wares, and gas and over 70% of Nigeria's income, the region which is home to about 30 different tribes and nationalities have played host to activities of multi-national oil and gas firms with its attendant environmental consequences since the discovery of commercial quantities of oil and gas in 1959 (Ba-Ana-Henebe, 2009).

The vegetation in the South-South Region of Nigeria, consist mainly of forest swamps. The forests are of two types, nearest the sea is a belt of saline/brackish mangrove swamp separated from the sea by sand beach ridges within the mangrove swamp. Numerous sandy islands occur with fresh water vegetation. Fresh water swamps gradually supersede the mangrove on the landward side. About 70% of Nigeria's crude oil and gas production is from the area (Rosenberg, 2011).

1.5 THEORETICAL FRAMEWORK / LITERATURE REVIEW

The Concept of Sustainable Development is equally applicable to this study. The concept of sustainable development is contained in the Brundtland Report of the United Nations Commission on Environment and Development (1987). United Nations Environmental Protection in (2005) defined sustainability as the intensified and sustainable demand for land, water, marine and coastal resources resulting from the expansion of agriculture and uncontrolled urbanization leading to increased degradation of natural resources and promoting their sustainable use in an essential response of the world community to ensure its own survival and well-being.

Development as defined by United Nations Declaration on the Right to Developed in (2007) is a comprehensive economic, cultural and political process, which aims at the constant improvement of the well-being of the entire population and of all individuals on the basis of their active, free and meaningful participation in development and in the fair distribution of benefits resulting there from.

But the most popular definition appears to be contained in the Brundtland Report of the United Nations Commission on Environment and Development in (1987) which defined the concept as, “developments that meet the needs of the present without compromising the ability of future generations to meet their own needs”. In essence, the objectives of the concept of sustainable development include ensuring that there are enough resources for the human population as a whole; that these resources are distributed to benefits as many as possible; and that economics be developed, while protecting the environment for the benefit of all present and future generations.

Indeed, the concept of sustainable development has been expanded to encompass four interpretations as follows:

- a. The need to preserve environmental resources for the benefit of future generations (the principle of intergenerational equity).
- b. The need to exploit environmental resources in a manner, which is sustainable or prudent (the principle of “sustainable use”).
- c. The equitable use of environmental resources by taking into consideration the environmental needs of other people to the use and enjoyment of the scarce or finite environmental resources (the principle of “equitable use” or intergenerational equity).
- d. The need to ensure that environmental activities are integrated into the economics of environmental laws and its attendant effects on development plans, an also the inclusion of development needs in the application of environmental objective. The concept of sustainable development is applicable to this study in that, the legal origin of the concept of sustainable development can be traced to the earliest efforts of man to protect the right of others to the use and enjoyment of environmental resources in the form of property rights or environment. This legal protection is expressed in the maxim, ‘*sic utere tuo at in alienum non leadas*’, which translates as ‘*so use your own as not to harm another*’.

Honarkhah and Caers (2010) observed that complex issues arise in spatial analysis, many of which are neither clearly defined nor completely resolved, but form the basis for further research. They further noted that the most fundamental of such issue is the problem of defining the spatial location of an entity, for example, a study on human health could describe the spatial position of humans with a point located where they live, or with a point located where they work, or by using a line to describe their weekly tips; each choice has dramatic effects on the techniques, which can be used for the analysis and on the conclusion, which can be obtained.

Adebayo (2010) stated that the environment is important to everybody on the earth and geography is a discipline that is seen by everyone as a subject that deals with the aspects of the complex interactions between man and his climatic environment. Thus, environment (natural, physical or man-made features) is very important to human survival. Whatever everyone does to the environment, the environment is equally waiting to do something to everyone. The mutual actions between man and the environment have brought about a lot of environmental changes (Adebayo, 2010).

Environmental law is a complex body of laws made up of global, international, national, state and local statutes, treaties, conventions, regulations and policies which seek to protect the environment and natural resources affected, impacted or endangered by human activities (United Nations Environmental Protection, 2005). Environmental law as a discipline is the field of legal study concerned with the establishment of legal framework for the protection of man's environment. The discipline deals with the law regulating the activity of man, and all other activities in the outer space that may have an impact on the physical environment of man (Abegunde, et al, 2007). The discipline has given us insight on the components of the human environment. The discipline has afforded legislators, legal practitioners and the judiciary at both domestic and international level, a sufficient understanding of the concept of environment with a view of providing the necessary laws to protect the environment. To the legal practitioners, it has given them the deep understanding of the rights' which a man is entitled to in the environment, with a view of redressing the wrongs in the face of the violation of such rights.

1.6 RESEARCH METHODOLOGY

RESEARCH DESIGN

The research design for this study is based on administration of questionnaires and the collection of secondary data on the subjects of the study.

DATA TYPE AND SOURCES

PRIMARY DATA

A total number of one thousand eight hundred (1800) questionnaires were administered in this research; three hundred (300) questionnaire to each of the six states and one hundred (100) questionnaires to each of the three (3) randomly selected Local Government Areas within the six states in the study area, which were on the and one thousand seven hundred and twenty eight (1728) questionnaires were retrieved from the field, making it 96% retrieval rate. A 49-item Questionnaire were administered to elicit useful information from categories of respondents on environmental problems which emanate from the building of houses on erosion and flood prone areas, extraction of crude oil by oil companies, existing road transportation land use pattern, as well as health hazards which emanates from waste dumpsites in the study area.

The total population of each of the selected Local Government Areas from the sixteen Senatorial Districts in the South-South Region of Nigeria was randomly selected. Members of Staff in the Ministries of Environment, Works and Transport, Waste Management Board, Oil Companies, Town Planning Offices and residents in the study area were the targeted group for the study.

A secondary source of data collection was equally employed in this study, through the collection of relevant data on crude oil exploitation and exploration activities in the study area.

The data which were obtained in the study area were subjected to statistical analysis using descriptive and inferential statistical tools and these include the use of maps, tables, charts, and graphs, while the Student's t-test, Analysis of Variance and Spearman Rank Correlation Co-efficient were used as inferential statistical tools to test the stated hypotheses.

1.7 RESULTS AND DISCUSSIONS

1.7.1. This section presents the results of the data analysis in the assessment of the spatial compliance and violation of environmental laws in the extraction and exploitation of crude oil resources in the South-South Region of Nigeria. Furthermore, it deals with the research findings and discussion of the results.

Table.1.Oil Companies As major Contributors to Environmental Pollution in the Study Area.

	Frequency	Percentage
Strongly Agreed	543	31.4
Agreed	285	16.5
Strongly Disagreed	600	34.7
Disagreed	300	17.4
Total	1728	100.0

Table 1 shows that 31.4% of the respondents strongly agreed that oil companies in their area were the major contributors to environmental problems, 16.5% agreed, 34.7% strongly disagreed, 17.4% disagreed. This suggests that though oil companies contribute immensely to environmental pollution in the study area, yet, it is not the major contributor to environmental problems in the area.

Table 2. Outbreak of Oil Explosion and Spillage in the Study Area.

	Frequency	Percentage
Strongly Agreed	498	28.8
Agreed	351	20.3
Strongly Disagreed	600	34.7
Disagreed	279	16.2
Total	1728	100.0

Table 2 shows that 28.8% of the respondents strongly agreed that there have been outbreak of oil explosion and spillage in their area. 20.3% equally agreed, 34.7% of the respondents strongly disagreed, while 16.2% of the respondents disagreed. This implies that the problem of oil explosion and spillage in the area was comparatively high and as such caution should be taken to avoid such occurrence.

Table 3 Activities or Presence of Oil Companies has done more Harm than Good in the Area.

	Frequency	Percentage
Strongly Agreed	234	13.5
Agreed	411	23.8
Strongly Disagreed	756	43.8
Disagreed	327	18.9
Total	1728	100.0

Table 3 shows that 13.5% of the respondents strongly agreed that the activities/presence of oil companies has done more harm than good in their area, 23.8% of the respondents equally agreed, 43.8% of the respondents strongly disagreed, while 18.9% also disagreed. This implies that despite environmental problems which emanate from the activities/presence of oil companies in the study area, the positive impacts of oil companies in the area were equally to be of immense benefit.

Table 4. Pollution of Streams, River and other Water Bodies Majorly Results from Waste Products Produced By Oil Companies.

	Frequency	Percentage
Strongly Agreed	456	26.3
Agreed	243	14.1
Strongly Disagreed	525	30.4
Disagreed	504	29.2
Total	1728	100.0

Table 4 shows that 26.3% of the respondents strongly agreed that the pollution of streams/river and other water bodies in the area majorly results from waste products from oil companies, 14.1% of the respondents equally agreed, 30.4% of the respondents strongly disagreed, while 29.2% of the respondents equally disagreed. This suggest that though there were times when the pollution of river, streams and other water bodies emanated from the waste products from oil companies, yet, there were other sources of pollution of water bodies in the study area.

Table 5. Pipeline Vandalization in the Area

	Frequency	Percentage
Strongly Agreed	498	28.8
Agreed	408	23.6
Strongly Disagreed	561	32.5
Disagreed	261	15.1
Total	1728	100.0

Table 5 shows that 28.8% of the respondents strongly agreed that there were events of pipeline vandalization in the area, 23.6% equally agreed, 32.5% strongly disagreed and 15.1% of the respondents equally disagreed stating that they have not experienced pipeline vandalization in their area. The implication of this is that the problem of pipeline vandalization in the study area is considerably very high resulting into environmental hazards.

Table 6. Spill Prevention Control and Counter Measure Plan of Oil Companies

	Frequency	Percentage
Strongly Agreed	504	29.2
Agreed	468	27.1
Strongly Disagreed	402	23.2
Disagreed	354	20.5
Total	1728	100.0

Table 6 shows that 29.2% of the respondents strongly agreed that facilities of oil companies in their area has spill prevention control and counter measure plan, 27.1% of the respondents equally agreed, 23.2% of the respondents strongly disagreed, and 20.5% of the respondents equally disagreed stating that the facilities of oil companies in their area were without spill prevention control and counter measure plan. This suggests that the availability of spill prevention control and counter measure plan of oil companies in the study area were inadequate and as such there was need for adequate provision of facilities in the area to prevent environmental problems.

BURNT ECOSYSTEM DUE TO OIL EXPLOSION AND SPILLAGE

Oil explosion and spillage was equally discovered in the study area, in-which vast ecosystem was completely burnt as a result of pipeline vandalization, explosion and spillage of petroleum resources in the area.

The spilled petroleum resources was discovered to have equally polluted the aquifer (underground water) and the environment; in-which a large farmland and aquatic species were equally killed as a result of pollution of the nearby river and streams, contamination of natural sources of drinking water, atmospheric pollution, rapid corrosion of roofing sheets (acid rain), gradual extinction and migration of wildlife, general biodiversity destruction and massive rural/urban migration were observed as some of the effects of oil explosion and spillage in the study area.



Plate: 1. Showing a completely burnt ecosystem due to oil explosion and spillage in Delta State.
Source: Fieldwork Report, 2012.

The Problems of Oil Extraction, Exploration, Explosion and Spillage in the South-South Region of Nigeria.

The extraction and exploration of crude oil activities in the South-South Region of Nigeria presents increased potentials for environmental pollution and degradation. Experience has shown that oil spill into the environment holds negative consequences. Apart from the problems of air pollution and vegetation loss experienced in the South-South Region of Nigeria, due to oil explosion and pipeline vandalization, there is also reduction in the use of aquatic resources and soil degradation. See plates 1,2,3,4,5,6,7,8.

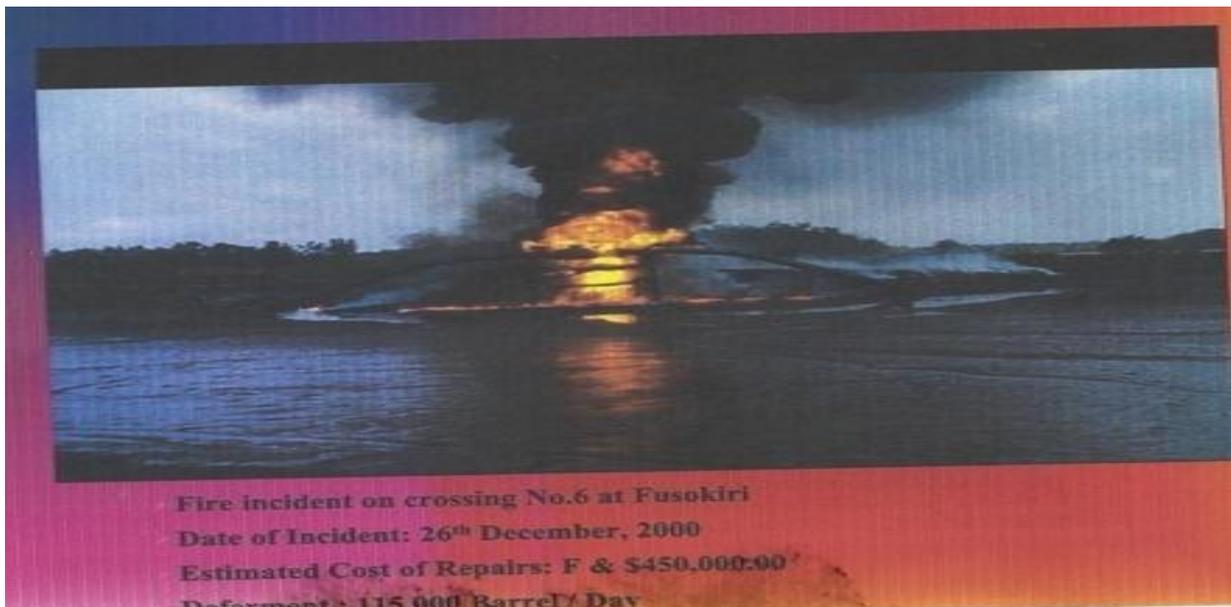


Plate: 2. Showing Oil Spill Explosion and Fire Out-break.

Source: National Oil Spill Detection & Response Agency, (NOSDRA) Abuja.



Plate: 3. Showing Oil Explosion and Fire Out-break on an Ecosystem and Large Water Body.

Source: National Oil Spill Detection & Response Agency,(NOSDRA) Abuja.

The Menace of Illegal Bunkering and Pipeline Vandalization in the South-South Region of Nigeria.

Oil pipeline vandalization occurs through acts of sabotage. Sabotage here relates to various acts that interrupt the production and distribution of petroleum products. Thieves seeking to siphon fuel often locate, target and attack oil pipelines in Nigeria. The spark that results from such an impact has been attributable to the frequent pipeline fire and explosion. According to Johnson (2004), the pipeline fire and explosion has killed hundreds of looters and bystanders.

Oil spill through pipeline vandalism by idle youth in the south-south region of Nigeria has peaked up in the last few decades. Poor implementation of memorandum of understanding (M.O.U) between oil companies and host communities, lack of employment and environmental degradation has been blamed for this trend (Uwhejevwe-Togbola, 2005).

Ojediran and Ndibe (2005) reported that an average of 35,000 barrels of crude oil is stolen per day in circumstances that threaten lives and the environment. Apart from the lost of lives and property through pipeline fire, the run-off from impacted sites usually degraded the quality of the fresh water sources, which serves the domestic rural water supply needs of most communities in Nigeria. See plate 4.19, 4.20, 4.21, 4.22 and 4.23.



Plate 4: Showing a damaged oil pipeline, as a Result of Illegal Bunkery Activities.

Source: National Oil Spill Detection & Response Agency, (NOSDRA) Abuja.

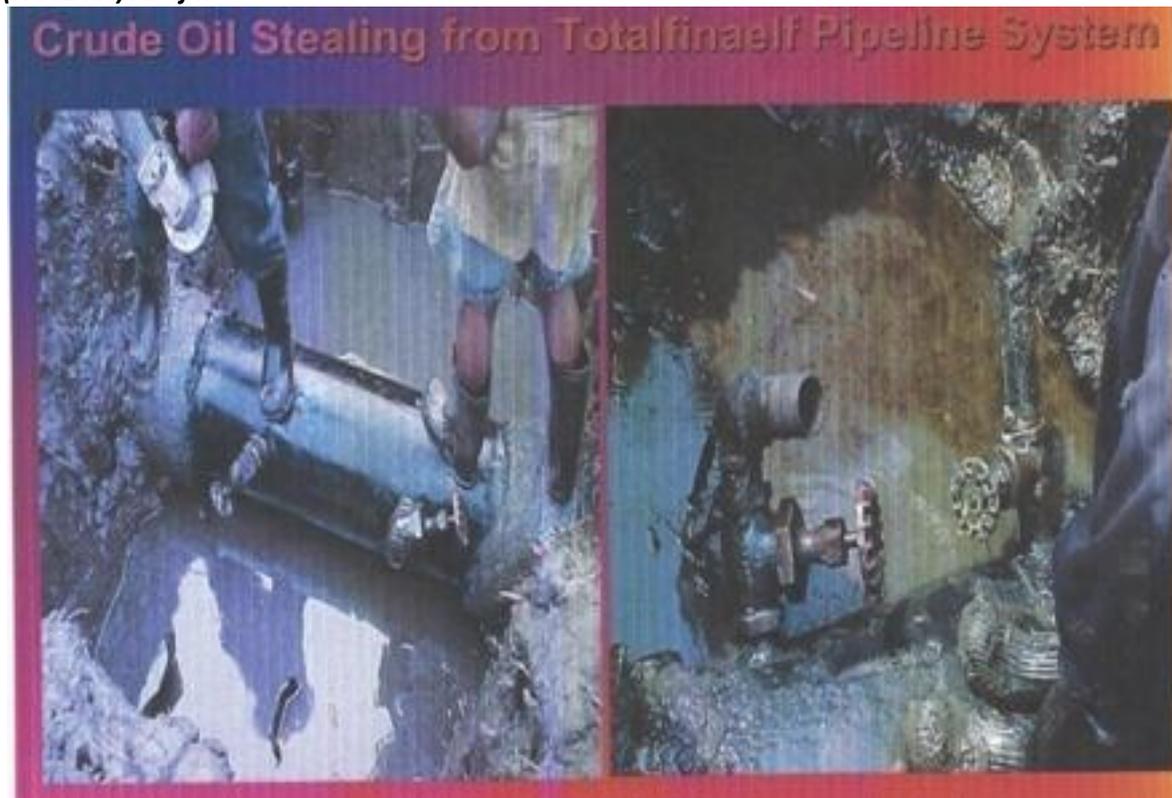


Plate 5: Showing Illegal Bunkers Stealing from Total Finael Pipeline System in Bayelsa State.

Source: National Oil Spill Detection & Response Agency, (NOSDRA) Abuja.

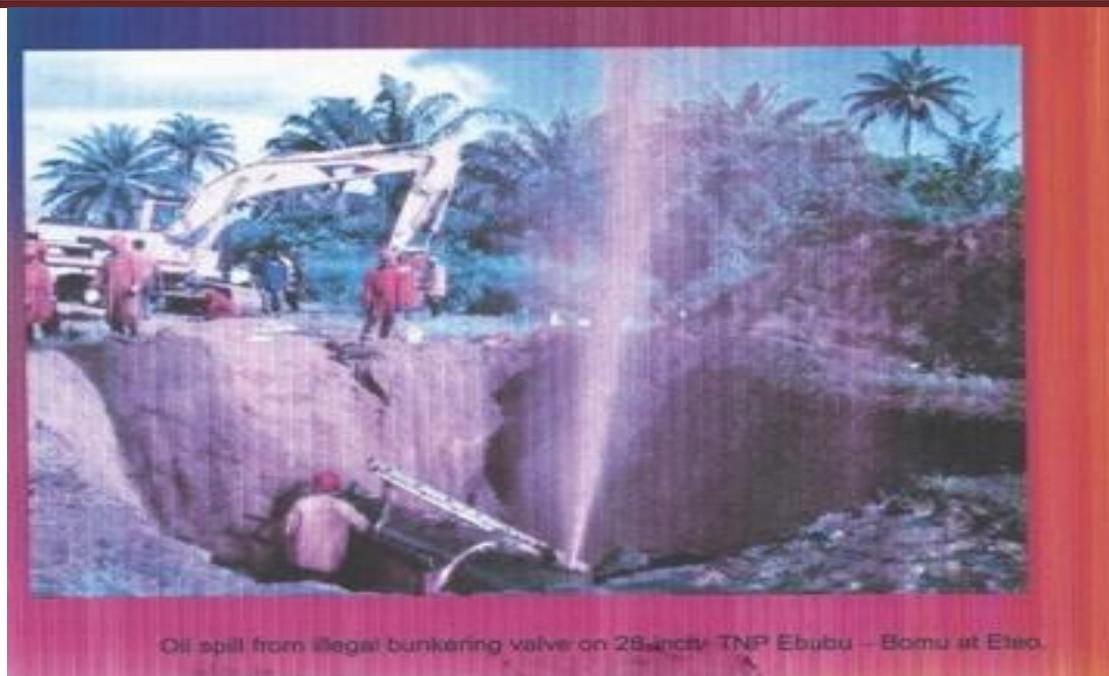


Plate 6: Showing Oil Spill from Illegal Bunkering Valve in Delta State.
Source: National Oil Spill Detection & Response Agency, (NOSDRA) Abuja.



Plate 7: Showing Illegal Bunker, During an Illegal Bunkers Activity.
Source: National Oil Spill Detection & Response Agency, (NOSDRA) Abuja.

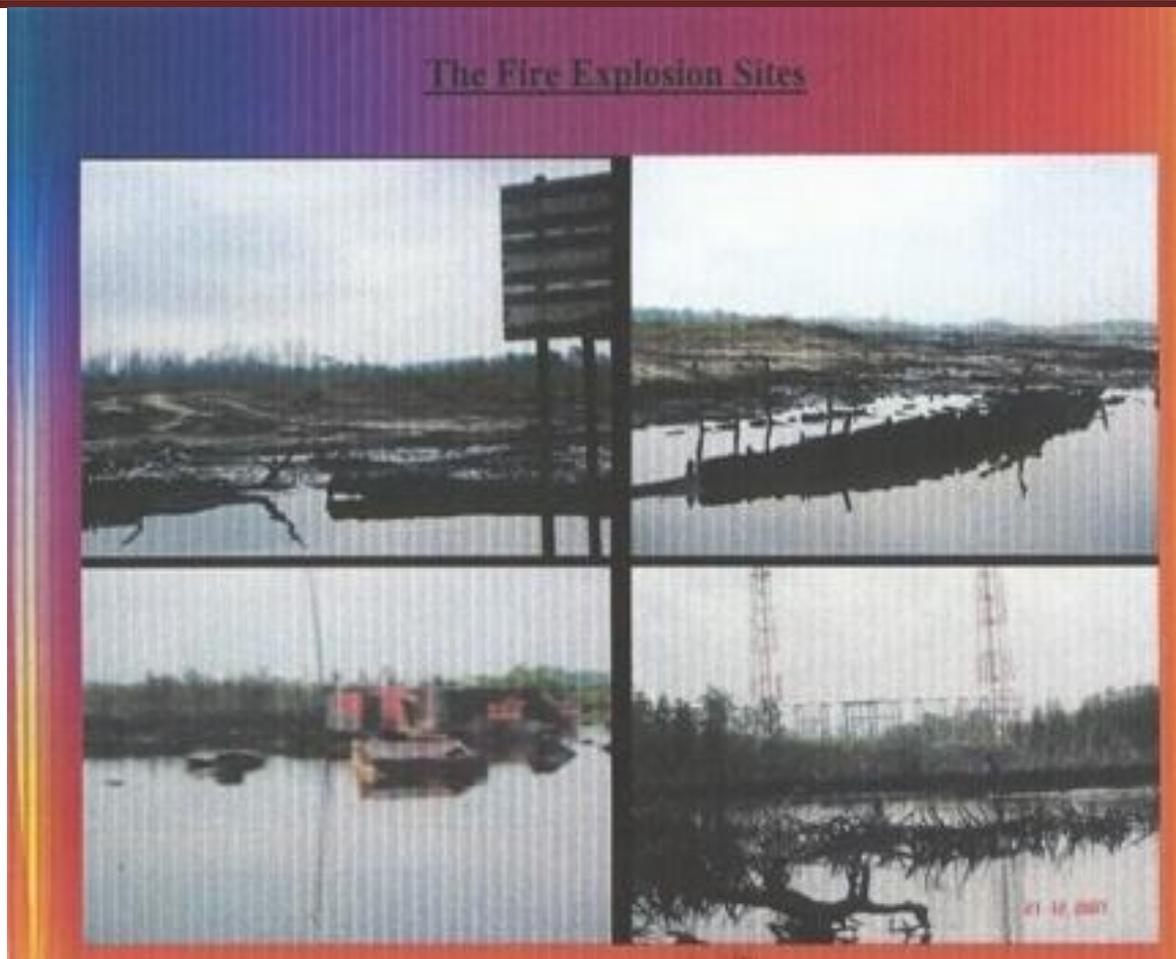


Plate 8: Showing Sites of Crude Oil Explosion, Spillage and Burnt Water Resources.

Source: National Oil Spill Detection & Response Agency, (NOSDRA) Abuja.

1.8. RECOMMENDATIONS

In view of the findings in this study, it will be of great benefits, if the following recommendations are given serious attention and consideration. In our pursuit of a new mechanism for environmental protection, we must strive towards achieving a balance in the benefits we derive from activities that cause environmental pollution and the resultant harm.

Our long range plans must encompass other areas of our national life, such as policy formulations, enforcement of regulations, the reversal of pollution activities, the response to emergencies, the import of machineries for the operation of our industries and the regulation of all such actions.

Agents of pollution should bear the cost and consequences of their pollution. Domestic garbage and toxic industrial waste should be a concern in national legislations, in a way that stringent unambiguous pronouncements are embedded regarding agents of pollution or other environmental damages, liabilities and possible compensation.

There is need to ensure a safe, timely, effective and appropriate response to major or disastrous oil pollution activities in the area.

There is need to identify high-risk and priority areas for environmental protection and clean-up.

There is need to establish environmental mechanism to monitor and assist or, where expedient, direct the response, including mobilizing the necessary resources to save lives, protect threatened environment and clean up to the best practical extent of the impacted areas.

There is need for the provision of support for research and development in the local development of methods, materials and equipment for oil spill detection and response.

There is need to establish agreements with neighbouring states in the South-South Region of Nigeria, regarding the rapid movement of equipment, personnel and supplies into and out of the countries for emergency oil spill response activities and co-operation.

There is need to determine and ensure pre-positioning of vital oil spill combat equipment at most strategic areas for rapid response, among other vital objectives with well spelt-out functions; special functions and specific penalties for oil spillers.

The enforcement mechanism should involve visits to facilities for compliance monitoring, facilities work through, finding-out challenges for non-compliance, examining monitoring records where they exist, undertaking in-situ environmental monitoring of some parameters and discussing findings with the faculty manager and proffer appropriate advice, that could promote compliance or issue warning, where non-compliance is persistent.

1.9. CONCLUSION

The importance of the spatial compliance of environmental laws in the monitoring and enforcement of environmental integrity and sustainable development cannot be over emphasized. For an environmental compliance and enforcement programme to be effective, it must visibly demonstrate to the regulated communities, that environmental laws and standard are enforceable. Stakeholders must be carried along as public acceptance is central to the promotion of compliance, deterrence and enforcement.

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