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Incorporating Environmental Restoration in Compensation Assessment for Contamination of Land in the Niger Delta of Nigeria

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ABSTRACT: During the occurrence of pollution, contamination of the physical environment results in damages to the affected ecosystems. These damages affect economic wellbeing of people whose livelihood is dependent on the affected environmental goods and services, and compensations are assessed and paid to the affected without considerations for the damages caused to nature due to contamination. This study aims to evaluate the necessity of liability assessment for restoration of environmental damages in the compensation process, to create room for sound environmental management. The study examines the compensation process and its justification for equivalence in Degema and Gokana which are two Oil Pollution/contamination prone Local Government Areas in Rivers State, Nigeria. Following a review of relevant literature, questionnaire survey was conducted and it is concluded that statutory provisions does not address compensation for contamination. It is therefore recommended for new regime of compensation practice to be legislated to incorporate environmental restoration through liability assessment.

Keywords: Compensation; Contamination; Environmental goods and services; Liability; Restoration

I. INTRODUCTION

Valuations for Compensation in Nigeria are grouped under statutory valuations, and are so called because they have their procedures and processes determined and regulated by statutory provisions. Compensation valuation is carried out for the determination of values for purposes of compensation in the event of compulsory acquisition of private property through legal authorization for overriding public interest, and also applicable to cases of damage to the environment [1]. The valuation of payable compensation is usually a function of the provisions of the Acts, decrees and other relevant statutory enactments guiding the process, and whose framework usually specifies the basis and methods of assessment, as well as procedures, heads of claim and roles of respective parties. [2].

The legal basis of Oil Pollution Compensation can be found in the Federal constitution and a few other regulatory enactments in addition to the Land Use Act, CAP 202, LFN 2004. The Land Use Act (LUA) serves as the major law governing land tenure in Nigeria, and has provided for compensation payment in respect of Oil pipelines and any matter associated therewith to be assessed in accordance with the provisions of the appropriate regulatory Acts [1]. Furthermore, it was asserted in [1] that the Pipelines Act and the Petroleum Act made it mandatory for adequate compensation to be paid for any damage done. The maxim 'Adequate Compensation' presupposes that the claimant shall be put in exactly the same position he was immediately before the acquisition or prior to the damage complained of, but a critical review of the laws proves that there is no provision for compensation in respect of oil pollution in the petroleum industry in Nigeria. Investigations reveal that ambiguity, clarity, inconsistency in content and interpretation of enabling statutes are partly responsible for inadequate compensation in Nigeria [3].

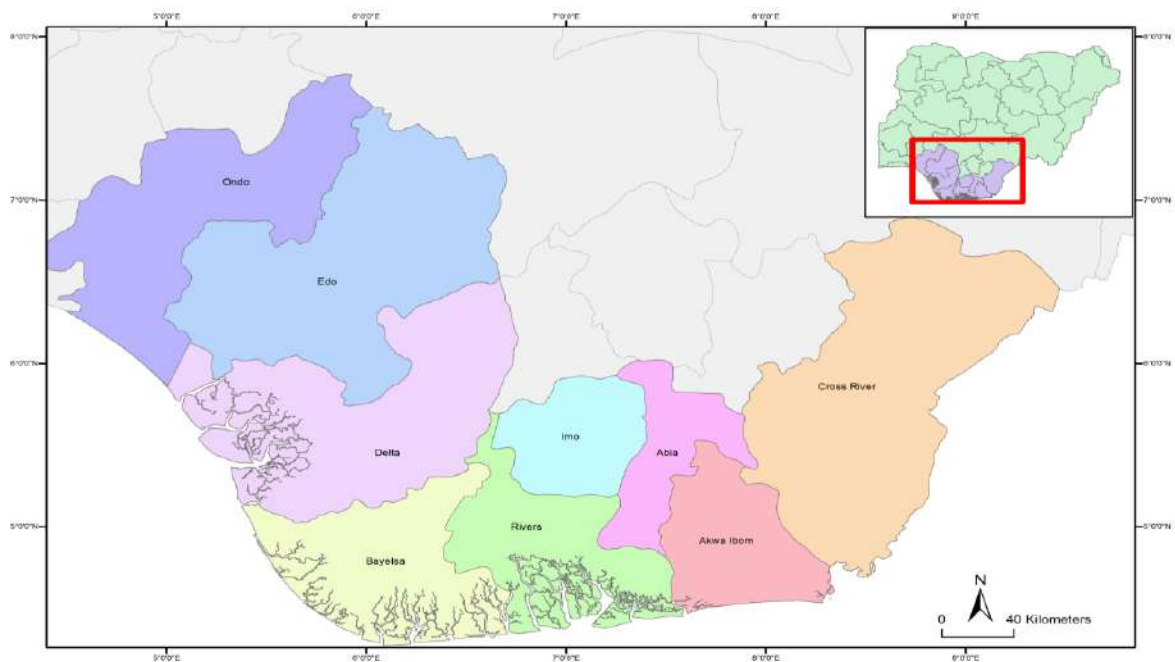
The rural dwellers in the Nigeria's Niger Delta depend on nature for their wellbeing through fishing, hunting, agriculture, local crafts, traditional medicines, and religious and cultural beliefs, most of which are freely gathered by members of the community without anyone laying claim to ownership as they are grouped under public goods. According to [3], the major Oil and Gas related enactment – The Oil Pipelines Act equally provides that compensation should be done in line with the Land Use Act whose provisions addressed only lands and buildings, economic trees and crops. That means that the Legislative provision for compensation does not provide for or address issues of environmental contamination/pollution. The Nigeria's Niger Delta Region is one of the world's largest tertiary delta systems and extremely prolific hydrocarbon provinces..... And the

current production of oil and gas in the country is derived from the region [4]. Environmental contamination and degradation associated with both onshore and offshore petroleum exploration and production operations in the Niger Delta has not yet been properly addressed for the past five decades [5]. The UNEP Report on Ogoniland [6] pointed out that 'oil exploration and production projects may have impacts on the natural environment long before oil is produced. In line with existing enactments, assessment for valuation for compensation does not consider the loss of public goods resulting from contamination/pollution. This has so far resulted in significant ecological catastrophe in the Nigeria's Niger Delta. Concern had been shown in previous researches for the incorporation of socio-economic values in the compensation assessment process [7]

This paper therefore seeks to examine the incorporation of restoration in the assessment and determination of compensation for contamination of land in the Niger Delta. It focuses on the region's natural endowment of environmental goods and services and their susceptibility to the effects of contamination/pollution and after review of relevant literatures carry out survey in the coastal (marine) ecological zone and the fresh water agro ecological zone, both of which constitutes the general ecological characteristics of the Niger Delta in Nigeria. Investigations were carried out with questionnaires, direct observations and interviews to seek the opinions of stakeholders over subject matter in line with international approaches such as the *American Comprehensive Environment Response, Compensation and Liability Act (CERCLA)*, the European Liability Directive (ELD) and the Kenya's Environmental Management and Co-ordination Act No. 8 of 1999 [8,9,10].

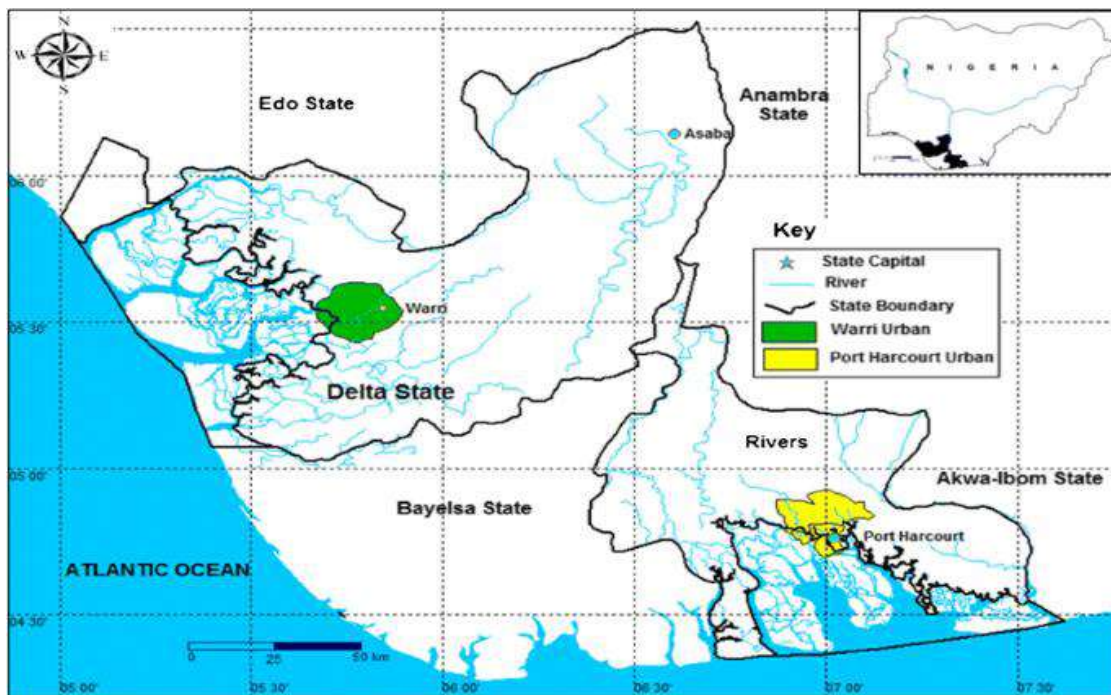
II. THE NIGERIA'S NIGER DELTA

The Niger Delta region is the geographic area forming the fan-shaped flood plain of the south most downstream area of the River Niger in Nigeria where it opens into the Atlantic Ocean through several channels. The Niger Delta Region is described as being situated at the apex of the Gulf of Guinea on the West Coast of Africa (Atlantics) which is the central area of the South-South geopolitical zone of Nigeria [5]. Economic politics of Nigeria have created nomenclature that has distinguished political Niger Delta from geographic Niger Delta. Imperatively, the geographical area that is characteristically of the fan-shaped land form is comprised of just three major states of the Federation namely: Rivers, Bayelsa and Delta with a minute peripheral inclusion of Imo, Abia, Akwa Ibom and Cross River States while the political Niger Delta is made up of the significant oil producing states of Nigeria, amounting to nine (9) states of the Federation namely: Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Ondo, Imo and Rivers, all comprising a total of 185 Local Government Areas. According to [11], the region covers a land mass of over 70,000 km² and extensively installed with oil and gas industrial facilities. The region is the worst hit by oil spillage and gas flaring [7]. The geographical and political area maps are thus as shown below:



Source: Adapted from Okonkwo, Kumar an Taylor (2015)

Fig. 1: Map of the Political Niger Delta Region showing the entire oil bearing states.



Source: limk.spriger.com

Fig. 2 Map of the Geographic Niger Delta of Nigeria

2.1 Ecological Characteristics of the Niger Delta Region

[11] describes the Niger Delta Region of Nigeria as being a composite concept that encompasses natural systems such as rivers, forests and biological species. These are aggregated into two important characteristic features which are:

1. **The region's Ecological Zones**
2. **Biological Diversity.**

2.1.1 The Region's Ecological Zones

According to [12] as cited in [11], the Niger Delta Region has ecological zones grouped into Tropical Rainforests in the Northern reaches and to the South, mangrove forests and swamps in the warm coastlines. The later is characterized by regular salt water inundation as facilitated by tidal movements. [12] further subdivided the coastal area into:

- A salt water riverine area immediately adjoining the coast where the Niger river and its tributaries flows into the sea; and
- A fresh water riverine area which is further inland.

Explaining further, [11] stated that the World Bank (1995) description identified four different ecological zones: freshwater swamp forests, mangroves, lowland rainforests, and barrier island forests and this description seem to be of a fairly specific status. The Region's Ecological Zones can thus be best analyzed under these classifications as follows:

The fresh water Swamp Forests:

Away from the coastal tidal mangrove forest belt into the hinterland of the region is the Fresh Water Swamp Forests belt, covering an area of approximately 11,700 km² (World Bank, 1995) [13]. They are characteristically located within the flood plains and are most extensive in the West and Central Delta but much thinner in the Eastern Delta as a result of higher elevations (altitudes). According to [13], the dominant ecological influence in the zone is seasonal flooding, which results in the collection of flood water in countless swamps and ponds, saturating the soils for at least the rainy season and even beyond, depending on the relief.

Mangroves:

Mangroves are evergreen in nature and can only be distinguished according to species by sizes and colours. Quoting from World Bank [14], (1995), described Nigeria as having the largest mangrove forest in Africa, majority of which are in the Nigeria's Niger Delta Region, covering a total area of about 10, 240 km² of the region and is the third largest in the world. It was asserted in [14] that creeks which are kept open by tidal action and flooding flow throughout the mangrove forests and emphasized further, citing from World Bank (1995) that "the mangrove swamps most importantly, lies at the center of a complex and sensitive ecosystem, which is vital to the fishing industry and the local economy of the Niger Delta people. This is thus the most economically rich amongst the four main zones and accommodates the most important flora and fauna."

The Lowland Rain Forests:

This part of the ecological zone represents the non riverine area, commonly described as the up-land area of the region and covers an area of 7, 400 km². Very little forest remains in this belt as suggested by evidence. The major activity in this belt is basically agriculture, lumbering, hunting and insignificant subsistent fishing. These and other industrial impacts have reduced the content of the forests into oil palm estates and occasional mango trees.

The Barrier Island Forests:

This type of ecological zone (also called 'beach ridge island' forest) is the smallest in the Delta. It consists of freshwater forests found between the coastal beaches and the estuarine mangroves. The forests typically contain a band of rainforest species growing on the inland side of the beach ridges, together with freshwater swamp forests created by the freshwater table. The forests are reported to be degraded in accessible areas [14] as cited in [11], but large areas of high quality forest with high concentrations of biodiversity do remain. An example is the Andoni area in Rivers state, which is still relatively intact.

2.2 Biodiversity of the Niger Delta

Biodiversity is literally a description of the diversity of plant and animal life in a particular habitat or in nature as a whole [15], defined biodiversity as the variation amongst living organisms, which encompasses species diversity (the number of different species), genetic diversity (gene pool variety within species) and ecosystem diversity (the variety of interactions among living things in natural communities). The ecosystem of the area is highly diverse and supportive of numerous species of terrestrial and aquatic fauna and flora as well as human life [16] as cited in [18]. The Niger Delta has been declared as a key zone for the conservation of the western coast of Africa on the basis of its extraordinary biodiversity [17]. According to [19], it is estimated, that there are more than 46,000 plant species in Nigeria, of which about 205 are endemic, and approximately 484 plants in 112 families are threatened with extinction as well as many animal and bird species. Another estimate is that 24 out of 274 mammal, 10 out of 831 birds and 2 out of 114 reptiles known to exist in Nigeria are endangered (WRI, 1992) [23]. It is imperative to state that the larger population of the Niger Delta survive on services provided by the ecosystem; agriculture, industry, fishing, food, drinking water, wood, shelter, medicine, employment and aesthetics.

It is thus relevant to note that non-renewable, renewable and natural resources combine to constitute biodiversity and that the Nigeria's Niger Delta regional geography is immensely supportive to the natural availability of environmental goods and services for the sustenance of nature and have therefore served as the main stay of the people of the region whose socio-economic wellbeing is adapted to the immediate environment.

III. REVIEW OF LITERATURE

3.1 Legal Framework for Compensation in Nigeria

The Legal framework for Compensation payment is a description of the various statutes that provides basis for the payment of compensation in the event of compulsory acquisition of private property through legal authorization, for overriding public interest and also in the cases of damage to the environment. The Department of Petroleum Resources (DPR) identifies more than 31 'principal' and 'subsidiary' legislations [20]. For the scope and purpose of this paper, only the basic foundation legislations for acquisition for public purposes and those related to exploration and production of Oil and Gas are reviewed and they include the followings in their order of enactments:

- The Public Lands Acquisition ordinance (CAP 167, LFN 2004)
- The Public Lands Acquisition (Miscellaneous Provisions). Decree No. 33 of 1986 – Parts A and B.
- State Lands Compensation Decree No 38 of 1968.
- The Petroleum Act (CAP P10, LFN 2004)
- The Land Use Act, 1978 (CAP L5, LFN, 2005).

- The Oil Pipelines Act, (CAP 07, LFN, 2004).
- Nigerian Minerals and Mining Act, 2007.

The history of lands acquisition and compensation dated back to the early days of British colonialism [21]. It is thus imperative to state that the issue of statutory compensation in Nigeria was an outcome of the cessation of Lagos to Queen Victoria of Great Britain and Ireland in 1861.

A critical analysis of the various laws as outlined above shows that compensation assessment in Nigeria as contained in the various enactments and entrenched in the laws of the Federal Republic of Nigeria was primarily borne out of compulsory land acquisition for public purposes. It is to be remarked that none of the statutes as outlined above was designed to address the issue of compensation for contamination as well as restoration of degradations which are the resultant effects of the contamination of the environment. According to [20], the Niger Delta region had been steadily experiencing cases of environmental degradation through spillages since large scale operations in the oil industry began in 1958. Studies have shown that the quantity of oil spilled over 50 years was estimated to at least 9-13 million barrels, which is equivalent to 50 Exxon Valdez spills (18). In the assertion of, (22), issue of valuation for contamination is essentially non statutory.

3.2 The American Comprehensive Environment Response, Compensation and Liability Act (CERCLA) 1980

While enabling laws in Nigeria lacks provisions for treatment of contamination, developed and developing economies have chosen to create a wider consideration in their legislations. In response to growing desire to protect the public from potential harm and which compels the Federal authority to ensure the cleanup of contaminated sites, the US Congress enacted the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA; PL 96 - 510) of 1980 [8]. The Act directs the Environmental Protection Agency (EPA) to maintain a National Priority List (NPL) to identify the most hazardous sites for the purpose of cleanup actions and established a broad liability scheme that holds past and current owners and operators of facilities from which a release occurs, financially responsible for cleanup costs, natural resources damage and the costs of Federal Public Health Studies. The Act thus established the Hazardous Substance Superfund Trust Fund to pay for the cleanup.

Section 107 Of the Act identifies the categories of potentially responsible parties connected with a contamination site who are liable for the costs of response action that is deemed necessary by the Environmental Protection Agency (EPA) to protect human health and the environment. Such parties are also liable for damages from injury to, destruction of or loss of natural resources resulting from the release of a hazardous substance, including the cost of assessing such injury, destruction or loss; and the cost of public health assessment carried out by the ASTDR under section 104 (1) of the Act.

3.3 The European Union's Environmental Liability Directive

The European Union (EU) acted in 2004 to bring a more uniformed regime for the prevention and remediation of environmental damage by adopting 'Directive 2004/35/CE' on environmental liability with regard to the prevention and remedying of environmental damage. This legislation was called the Environmental Liability Directive (ELD) and was an innovation that established for the first time in the European Union (EU), a comprehensive liability regime for damages to the environment, based on 'polluter-pays' principle [9]. The ELD serves to buttress EU legislation designed to maintain natural resources and the services they provide. By linking to the Habitats Directive and Wild Birds Directive, the ELD provides a liability regime to prevent and remedy damage for biodiversity across Europe's nature culminating in its Natura 2000 network of 22 000 sites. The liability regime extends to all water resources in the EU as defined by the Water Framework Directive, as well as all land contamination that risks harming human health.

3.4 Kenya's Environmental Management and Co-ordination Act No 8 of 1999

Section 108 (1), provided under Part ix of the Act ("Issue of Environmental Restoration Orders")

That: Subject to any other provisions of this Act, the Authority may issue and serve on any person in respect of any matter relating to the management of the environment an order in this Part referred to as an environmental restoration order. As contained in paragraph 2 of the same section, an environmental restoration order issued under subsection (1) or section 111 shall be issued to—

- Require the person on whom it is served to restore the environment as near as it may be to the state in which it was before the taking of the action which is the subject of the order;
- Prevent the person on whom it is served from taking any action which would or is reasonably likely to cause harm to the environment;
- Award compensation to be paid by the person on whom it is served to other persons whose environment or livelihood has been harmed by the action which is the subject of the order;

- (d) Levy a charge on the person on whom it is served which in the opinion of the Authority represents a reasonable estimate of the costs of any action taken by an authorised person or organs.

3.5 Environmental Degradation in the Niger Delta and its Effect on the Livelihood of the People

The inhabitants of the Nigeria's Niger Delta have had their livelihood dependent on the resources available in the area through certain occupational activities such as agriculture, fishing, local crafts, harvesting of sea foods, traditional medicines etc. From direct observations, it was observed that prolonged occurrences of spillages have resulted in significant degradation of both agricultural and marine ecosystems. There are several environmental impacts associated with the disturbance of forest and ground surface from related activities such as site clearance, construction of roads, tank farms, brine pits and pipelines, and other land modifications necessary for the drilling of exploration and production wells and construction of production facilities [24,25] as cited in [5]. The poor environmental management practices by the petroleum industries and the failure of Nigeria's environmental regulations have immensely contribute towards environmental contamination with direct consequences on the surrounding populations' socio-economic wellbeing, human health and the environment[5], resulting in significant promotion of human health risks, affecting environmental safety and creating negative socio-economic consequences.

IV METHODOLOGY

The study was carried out in the two Local Government Areas of Degema and Gokana in Rivers State in the Nigeria's Niger Delta, South-South Nigeria, with the Degema Local Government area situated in the marine ecological zone that is characterized with fishing activity, while Gokana lies within the fresh water ecological zone where agricultural activity is dominant.

4.1 Population of Respondents

The accessible population of the study was directed to the Oil Fields of the Degema and Gokana Local Government Areas of Rivers State of Nigeria, which are of coastal and hinterland environmental characteristics.

4.2 Sampling Procedure and Sample Size

The non proportional stratified random sampling was adopted to choose a sample from the accessible population, the 1991 population census figures of the accessible population of the various oil fields were projected to 2019, using the 'Exponential Formula' and result gave a sample size of 228,118. Seven communities from six oilfields of the two Local Government Areas were chosen and their projected populations proportioned. A breakdown of this is as shown in table 3.1 and the application of the Yammane Taro's formula gave a representative sample of 400 with which questionnaires were designed and distributed to the probability sampled participants to the study as shown in Table 1:

Table 1 Questionnaire distribution

S/N	Communities Chosen	Base Population (1991)	Projected Population (2019)	Proportion (%)	Questionnaires Administered
DEGEMA					
1.	Bakana Town	19, 758	50, 383	47%	88
2.	Bille	10, 743	27, 395	25%	47
3.	Bukuma	7, 691	19, 612	18%	34
4.	Ke	4, 155	10, 595	10%	19
	TOTAL	42, 347	107, 985	100	188
GOKANA					
5.	K - Dere	9, 518	24, 271	20%	42
6.	Bodo	21, 642	62, 837	52%	110
7.	Biera	12, 951	33, 025	28%	60
	TOTAL	44, 111	120, 133	100	212

Source: field survey

4.3 Method of Data Collection

The data for this study were collected from both Primary and Secondary sources. The tools for collecting primary data were Questionnaire, oral interviews and site inspections. Secondary data were obtained from published sources such as; books, magazines, newspapers and other relevant documentations and journals from the internet and archives of relevant agencies for oil and gas exploration, production, marketing and regulation.

4.4 Method of Data Analysis

Data obtained from field were analyzed using descriptive and inferential statistics. The descriptive statistics tools included graphs, tables; frequency counts, percentage and mean scores. A 5-point Likert scale ranging from Strongly Agree = 5, Agree = 4, Neither Agree nor Disagree = 3, Disagree = 2, to Strongly Disagree = 1 was used for the inferential survey/analysis, where responses for legislative reforms for the incorporation of restoration in the compensation process were investigated. Others were made relative to the tone of the question in the questionnaire.

IV. RESULTS AND DISCUSSIONS

5.1 Results

Results showed that:

The study area has been subjected to several forms of environmental contaminations, resulting from the activities of the hydrocarbon industry and compensation payments made in accordance with legislative provisions.

The compensations so paid were not adequate as it was not made with the concept of equivalence. This results in the exclusion of rehabilitation of damaged economic activities.

There is a significant abundance of environmental resources upon which socio-economic wellbeing of the inhabitants of the rural settlers depends and these resources are under threat of extinction due to the effects of contamination.

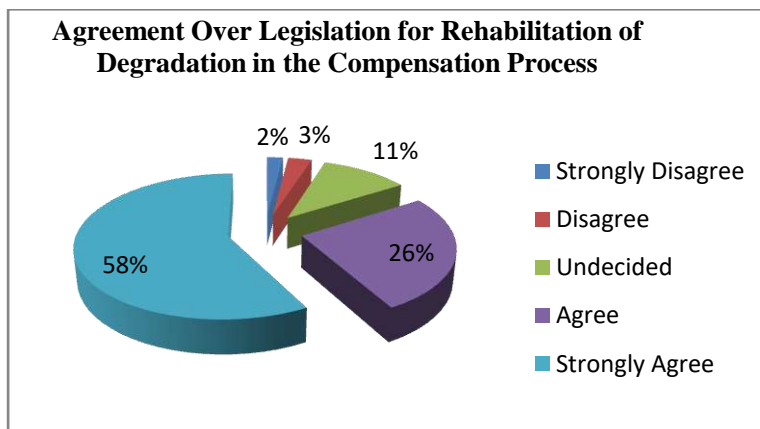
There was a consensus of opinion from respondents for a legislative reform that incorporates restoration into the compensation process, through the policy of 'liability' to address issues of contamination/pollution in the Nigeria's Niger Delta. The presentation of data and analysis of this as the major objective of the study is presented in Table 2:

Table 2: Agreement over the need for Legislative Framework for Compensation that is inclusive of Restoration through liability assessment of Degradations

S/No.	Agreement over Legislative Framework	Frequency		Cumulative frequency	Cumulative Percentage (%)
		GOKANA	DEGEMA		
1.	Strongly Disagree	Nil	5	5	2
2.	Disagree	Nil	9	9	3
3.	Undecided	23	11	34	11
4.	Agree	55	29	84	26
5.	Strongly Agree	110	77	187	58
	Total	188	131	319	100

Source: From Field Data (2019)

The analysis indicated only 2% strong disagreement and 3% disagreement representing cumulative frequencies of 2 and 5 respondents as opposed to 26% agreement and 58% strong agreement, representing cumulative frequencies of 84 and 187 respondents respectively. This shows a significant support for the objective of the study and it's further presented in a pie chart in Figure 3 below:



Source: from Field Records

Fig. 3 Pie Chart Presentation

5.2 Discussion

5.2.1 Statutory Basis for compensation assessment and payment in Nigeria

The basis for valuation for compensation is expected to be 'equivalence. This objective raised about four questions for the survey for the study, commencing with the frequency of pollution activities in the study area and drew conclusion on the efficiency and adequacy of compensations received so far for contaminated land. The review of literature for the study indicated that legal basis of oil pollution compensation is contained in the Federal constitution and several other enactments which includes among others, the Oil Pipeline Act, petroleum Act, NNPC Act, Oil in Navigation Waters Act etc [1]. The study confirmed that these enabling laws have had a faulty basis for compensation valuation of oil pollution and have resulted to the effect of significant environmental degradations in the study area. Statutory provisions for compensation in Nigeria are within the limits of Open Market Value which doesn't address no market goods and services of the environment [26]. This confirms the study's perspective that Liability Assessment for restoration of environmental damages should be part of the compensation process.

5.2.2 Environmental resources for the economic wellbeing of the people in the Niger Delta Region

The survey for the study identified and investigated twelve resources upon which the economic wellbeing of the people of the region depends. All of these resources are very susceptible to environmental contamination and they include: Mangrove products, Sea Foods, Forest Products, Water Resources, Agriculture, Fuel Wood, Wildlife, Artisanal Fishing, Biodiversity, External Ecosystem Support, Cultural Heritage and Traditional Medicine. World Bank (1995) [13] report zoned the Niger Delta Region into the Fresh water Swamps, the Mangroves, the Barrier Island Forests and the Lowland Rain Forests, out of which the mangrove swamps are the most economically rich for its vitality to the fishing industry and the local economy of the people. Environmental services available are ecosystem functioning and ecological services, watershed protection and resource cycling, public health, culture, heritage, arts and crafts, tourism and aesthetic values, research and scientific development, job creation and occupation and climate change mitigation and adaptation. The survey investigated the importance of the various resources outlined for the study and on the average, the importance of every resource was revealed.

5.2.3 Observable significant degradations of the Niger Delta Environment resulting from the operations of Oil and Gas related activities.

The entire Niger Delta area as the center of the Oil and Gas industry in Nigeria have had negative environmental transformation, occasioned by crisscrossing of pipelines for transport of products from extraction points to reservation/sales/refining centers which have created significant ecosystem disturbance. The region covers a land mass of over 70,000 km² and cuts across over 800 oil producing communities with a network of over 900 producing oil wells and several allied facilities. There are about 100 flow stations with over 1,500 km of Trunk lines, 45,000 km of oil and gas flow lines, recording an average of 221 Oil and gas flow lines [11]. (Osuji, 2001) [7] describes the region as the worst hit by oil spillage and gas flaring. In the explanations of [19], it is generally estimated, that there are more than 46,000 plant species in Nigeria, of which about 205 are endemic, and approximately 484 plants in 112 families are threatened with extinction as well as many animal and bird species. Another estimate is that 24 out of 274 mammal, 10 out of 831 birds and 2 out of 114 reptiles known to exist in Nigeria are endangered. It was generally indicated by the survey for the study that the entire Niger Delta region has had a significantly reduced productive capacity.

5.2.4 The need for a Compensation Framework that should address Contamination through Liability Assessment for Restoration

The major challenge of environmental pollution is upon sound environmental management system. Investigations in the study revealed that there has been no significant restoration of the physical environment amidst records of pollutions and attendant compensation payments. The UNEP Report of 2011 on Ogoniland in the Rivers State of Nigeria is a reflection of this fact and has therefore been supportive to the major aim of the study, which is to incorporate restoration in the compensation for contamination of land. The survey on this thus had an overwhelming support and acceptance of the need for liability assessment for restoration in the compensation process.

V. CONCLUSIONS AND RECOMMENDATION

This study brings into focus a major lacuna in the legal framework for the compensation process, particularly in matters concerning contamination of land which is a major effect of Oil and Gas exploration activities in the Nigeria's Niger Delta Region. The basis for compensation valuation which is equivalence is thus defined by the study to justify common law provision which demands that claimants are expected to be kept in the position they were before the damage. The study have also paved the way for new regime of legislation for compensation, which is to be inclusive of restoration to address the ever increasing environmental degradation, and to put in place a sound environmental management in the Niger Delta Region. The study thus created awareness over the inadequacy of the compensation process, emphasizing precisely on and limiting its scope to land contamination which forms part of the damage to the environment and have remained to be a subject of debate as previous researches had been focused on the basic concepts of compensation.

It is therefore recommended that a legislative reform be carried out to create a new regime of compensation that incorporates restoration. The process should be inclusive of a liability assessment clause so the organization responsible for contamination shall be held liable for restoration. To achieve this objective, there should the desire to carry out compensation with international best practice, by following the examples of CERCLA, ELD and the Kenya's Environmental Management and Coordination Act, all of which are of internationally acceptable applications.

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