Emerging Issues in Compensation Valuation for Oil Spillage in the Niger Delta Area of Nigeria

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Abstract: Oil spillage often impacts substantial land area with grave consequences on the vegetation, economic crops/trees, aquatic life, and the entire eco-system. The impact of oil spills is often widespread and could persists for several years with attendant adverse repercussions on both the health and means of livelihood of people living within the impacted area. For this and other reasons, claims arising from oil spillage often run into billions of naira (N) [1US$=N165]. Given the magnitude of the consequential loss and claim, the onus is on the claimant to produce credible evidence to prove that he actually suffered the nature and extent of the injury alleged. This paper reviewed certain fundamental errors that have become commonplace among Nigerian valuers in the discharge of their role of assisting the court to arrive at a just compensation payable for oil spillage in the Niger Delta area of Nigeria. The data used were obtained from valuation reports which the author was privileged to critique as a consultant to a major oil exploration and marketing company in Nigeria. it was found that most of the valuation reports contained flagrant errors and fell short of best practices because less than the required effort is devoted to prosecuting this somewhat complex and highly technical valuation; and more specifically, little attention is paid to the provisions of relevant laws and the standards prescribed by valuation regulatory bodies, which are usually the basis for all statutory valuations.

Keywords: Oil spillage, injurious affection, compensation valuation, Nigeria.

1. INTRODUCTION

By virtue of Decree No. 24 of 1975 (now Cap E13, Laws of Federation of Nigeria 2004), the Estate Surveyors and Valuers (Appraisers) are the sole professionals statutorily recognized in Nigeria to provide advice on the value of pecuniary interests in land or landed property for various purposes including compensation arising from oil spillage. Among others, the Estate Surveyor and Valuer; following both site inspection and market/industry's studies; prepares the valuation upon which the claimant and/or the defendant seek redress and/or prepares his defense, as the case may be. He also prepares the brief or proof of evidence for the claimant or the defendant solicitor; and may also appear as expert witness before a regular court or tribunal or any other jury. His role is to help the court arrive at a just and fair decision on the quantum of compensation that is reasonable and adequate in the circumstance. In Ejamah – Ebube Community v. Royal Dutch/Shell, the learned Judge ruled, inter alia:

> *"I agree entirely with the expert finding of the Valuer. The evidence of this expert Valuer was subjected to rigorous cross–examination and I find this valuer's evidence credible. Accordingly I hereby award in respect of continuing damage to plaintiff's land and vegetation a sum of N540,000 and for trees (timber) and lumbering rights I award ₦1, 744, 390.00. For continuing loss of games and hunting rights including traps, I award ₦660, 000.00 damages. For continuing damage to plaintiff's water supply, I award the sum of ₦20, 000, 000.00 damage" (The Guardian Newspaper, Monday 17 July, 2000: pg. 41).*

Estate Surveyors and Valuers therefore play a pivotal role in adjudication involving compensation for oil spillage which claim often runs into billions of naira. To perform this role creditably, the valuation process and ultimate valuation must be seen by all parties and particularly the court, to be credible, logical, and strongly persuasive such that it leaves room for minimum or no contention. Several cases of compensation for oil spillage which the author was privileged to handle were in courts for more than ten years. For example, the Ejamah – Ebube Community v. Royal Dutch/Shell case, cited above, was in court for over 33 years. While the contention generated by the valuation may not be the sole reason for such delays, experience and available evidences have shown that in majority of the cases, it is often the cause for prolonged hearings because it often forms the basis for the claims awarded by the court. As an old adage says, "Justice delayed, is justice denied".

The objectives of this paper are to remind valuers that valuation for compensation is a statutory valuation which ought to be approached and prepared with due

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regards to the provisions of the enabling laws and relevant practice standards; to show what valuers in the study area have not been doing right regarding valuation for compensation for oil spillage based on 30 valuation reports reviewed; and demonstrate the right approach to valuation for compensation for oil spillage in a manner that would minimize the contention it often generates, including protracted court cases which had denied the aggrieved of timely and adequate compensation in times past. The study also reveals how to identify weaknesses in reports generated by valuers or that are generated against their clients. The study is in three sections. The next section reviews relevant portions of the enabling statutes and other applicable laws including the practice standards prescribed by the valuers' professional body(s). Typical errors found in the reviewed valuation reports were also highlighted. The third section contains the conclusions and recommendations.

2. REVIEW OF LITERATURE

2.1. Oil Spillage and its Effects

Due to one or a combination of corrosion of pipe and storage facilities (internal and external), operation failure (system or human), mechanical failure (construction, material or structural), natural hazards (subsidence, flooding and others) and particularly third party activities (malicious/sabotage incidents and acts of sabotage), a plum of petroleum product may infiltrate the underground water, or be released into the environment (Egbe and Thompson, 2010; Roddewig, 1999).

The harmful effects of oil spill on the environment are many. Crude oil contains more than 200 poisonous substances. Nigerian crude oil is in particular highly toxic (Egbe and Thompson, 2010). When crude oil spills into an aquatic or tidal environment, it flows and masks the surface of the waters, and anything impacted or contaminated may be rendered useless or destroyed. According to Nwilo and Badejo (2005), and Achebe, Nneke and Anisiji (2012), oil spillage kills plants and animals in the estuarine zone. Oil settles on beaches and kills organisms that live there, settles on ocean floor and kills benthic (bottom-dwelling) organisms such as crabs. It also coats birds, impairing their flight or reducing the isolative property of their feathers, thus making the birds more vulnerable to cold. Oil spillage endangers fish hatcheries in coastal waters and also contaminates the flesh of commercially valuable fish. The light components of crude oil evaporates into the air and subsequently descend into the atmosphere in the form of acid rain which does not only pollute fishermen's open dug-out water well, the only source of drinking water in the local communities, but can cause respiratory diseases, among others. Moreover, the heavy components of oil sinks into the bottom of the river from where it continues to emit toxic materials for several years as it is not often easily biodegraded (Achebe *et al*., 2012).

When crude oil spills into waters, fishes and their eggs and fingerlings, as well as the oysters, periwinkles, and mudskipper in the mangrove swamps are killed. Oil poisons algae, disrupts major food chains and decreases the yield of edible crustaceans. Fishing activities may be terminated because there is both surface water pollution and sea bed pollution which may persist for a very long time. Fishing nets are often destroyed or become useless once contaminated with crude oil sleeks because the nets are by-products of crude oil. In a bid to clean oil spills by the use of oil dispersants, serious toxic effects is exerted on plankton thereby poisoning marine animals. This can further lead to food poisoning and loss of lives. In the Nigerian coastal area, large part of the mangrove ecosystem which once served both as a habitat for biodiversity and a source of fuel for the indigenous people, have been destroyed by oil spills (Egbe and Thompson, 2010).

The duration of the environmental impact of oil spillage is directly related to the physical persistence of the oil on the affected property which varies from parcel to parcel, depending on the character of the shoreline, the severity of the initial spillage and the degree and effectiveness of the cleanup. On some heavily oiled shoreline segments, the physical persistence and therefore, the market impact could last as long as 24years (Roddewig, 1999 in Appraisal Institute, 2002).

2.2. Oil Spillage and the Question of Compensation

Valuation for compensation is a statutory valuation enabled by a particular law(s). The valuer should therefore be guided primarily by the provisions of the enabling law, and any other relevant statutes and civil laws. Valuation is a profession; as such, the valuer is also expected to carry out his work within the ambit of the practice standards and ethics prescribed by the relevant professional body(s). In fact, the courts have always looked up to the published standards of professional bodies for judgment guidelines. While failure to comply with these standards does not constitute a breach of the laws as they are not

legislative enactments, the courts have always put these standards into consideration especially in liability cases such as negligence, breach of contract, and fraud (Shampton, Waller & Waller, 1998). In addition, because the Oil Companies responsible for the oil spills are often foreign firms with activities spread all over the world; such valuations, to be credible, must conform, as much as possible, to international standards and best practices. In the emerging globalized world, valuations that would be relied upon internationally can be produced only by a valuation profession that conforms to international standards of professional education, competence and practice (Babawale and Omirin, 2012). Failure to adhere strictly to the provisions of relevant laws/regulations along with best practices, provide loopholes which the defendant may use to discredit claimant's evidences and claims, if the matter becomes a subject of litigation. The universal principle underlying valuation for compensation is to obtain a cash payment that would reasonably restore the claimant to status quo. That is, put the claimant(s) in virtually the same position after as before the oil spill.

To appreciate the nature and extent of errors often committed by valuers in the study area, the next section review pertinent portions of the professional practice standards prescribed for Nigerian valuers; the statutes and civil laws relating to compensation for oil spillage in Nigeria; and the valuation techniques that are conventionally applicable.

3. PROFESSIONAL PRACTICE STANDARDS

In Nigeria, the real estate valuation profession is jointly regulated by the Nigerian Institution of Estate Surveyors and Valuers (NIESV) and Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON), the former being the most prominent. The regulatory functions of these bodies include setting minimum standard for registration as licensed or certified valuers and prescribing mandatory practice standards and ethics. The latest Valuation Standards and Guidance Notes of the Nigerian Institution of Estate Surveyors and Valuers (2006), provides, among others, that valuation report should comply with the Generally Accepted Valuation Principles (GAVP). Specifically, the "Statement of Standards" provides that in carrying out compensation valuation for oil spillage, which is largely a non-market valuation; the valuer shall, among others:

- explain the analytical process undertaken in carrying out the valuation and present meaningful information used in the analysis;
- ensure that the estimate of value is based on data and circumstances appropriate to the assignment;
- ensure that the estimate of value is undertaken using appropriate methods and methodologies;
- provide sufficient information to permit those who read and rely on the report to fully understand its idea, reasoning, analysis, and conclusions;
- describe the scope/extent of the work undertaken and the extent to which the property was inspected;
- state any assumptions and limiting conditions upon which the valuation is based; and
- Fully and completely explain the valuation bases/approaches applied and the reasons for their applications and conclusions.

The "Statement of Standards" further mandated Estate Surveyors and Valuers to comply strictly with the ethics and standards stipulated by the International Valuation Standards Committee(IVSC). Among others, the IVSC provides as follows (IVS, 2011):

(a) On general principle.

- It is essential that the valuation report communicates the information necessary for proper understanding of the valuation. A valuation report shall not be ambiguous or misleading and shall provide the intended reader with a clear understanding of the valuation provided.

(b) On independence and objectivity.

- The process of valuation requires the valuer to make impartial judgment as to the reliance to be given to different factual data or assumptions in arriving at a conclusion.
- For a valuation to be credible, it is important that those judgments can be seen to have been made in an environment that promotes transparency and minimizes the influence of any subjective factors on the process.

(c) On investigations (e.g. site survey, market survey, population survey etc.).

- Investigations made during the course of a valuation assignment must be adequate having

regard to the purpose for which the valuation is required and the basis of value to be reported.

- Sufficient evidence shall be assembled by means such as inspection, inquiry, computation and analysis to ensure that the valuation is properly supported.

- When determining the extent of evidence necessary, professional judgment is required to ensure the information to be obtained is adequate having regard to the purpose of the valuation.

(d) On valuation approach/methodology and reasoning.

- To understand the valuation figure in context, the report shall make reference to the approach or approaches adopted, the key inputs used and the principal reasons for the conclusions reached.

(e) On identification and status of the valuer.

- If the valuer has obtained material assistance from others in relation to any aspect of the assignment, the nature of such assistance and the extent of reliance shall be referenced in the report.

(f) On competence.

- Because valuation requires the exercise of skill and judgment, it is a fundamental expectation that valuations are prepared by an individual or firm having the appropriate technical skills, experience and knowledge of the subject of the valuation, the market in which it trades and the purpose of the valuation.

- For complex or large multi-asset valuations, it is acceptable for the Valuer to seek assistance from specialists in certain aspects of the overall assignment, provided this is disclosed in the scope of work.

This requirement on competence is made more explicit by a similar provision in the Guide Note 8 of the American Appraisal Institute which states that "typical appraiser (valuer) is not technically qualified to detect contamination or the presence of hazardous substances. It has therefore become an accepted practice in the market place to hire a trained and experienced professional to conduct an environmental investigation as to the type of contamination affecting the property, the damage done, the level of cleanup required, the appropriate method of that cleanup, potential environmental risks and the costs".

4. RELEVANT STATUTES AND CIVIL LAWS

While Nigeria has a number of statutes that provide for compensation in matters relating to land or landed property acquisition, only the Oil Pipelines Act Cap 145, LFN, 1990 contains provisions that are directly related to compensation arising from oil spillage. Other statutes such as the Land Use Act (1978), Minerals Act Cap 121 of 1946, and Petroleum Act No. 51 of 1969 now Cap 350 LFN 1990, Mining Act No 24 of 1990, Oil in Navigational Water Act, Cap 337 LFN 1990 (all consolidated in the latest Laws of Federation of Nigeria (LFN, 2010)), make only tangential reference to compensation for oil spillage as they deal primarily with acquisition rather than injurious affection. The latter does not transfer interest in land in any way.

4.1. The Oil Pipelines Act (Cap 145 LFN 1990)

Section 11 (5) of the Oil Pipeline Act provides that the holder of a licence shall pay compensation to any person whose land or interest in land is injuriously affected by the exercise of the right conferred by the licence, for any such injurious affection not otherwise made good; AND any person suffering damage as a consequence of any breakage of or leakage from the pipeline or an ancillary installation, for such damage not otherwise made good. Damages arising from sabotage and malicious acts of third parties are exempted.

Section 11 of the Act further provides that where the amount of such compensation cannot be agreed between any such person and the licensee, it shall be fixed by a court in accordance with the relevant section of the Act. According to Section 20 of the Act, the court may award such compensation as it considers just, having regards to:

a. Any damage done to any buildings, crops, or profitable trees by the holder of the licence;

b. Any disturbance caused by the holder the exercise of such right;

c. Any damage suffered by any person as a consequence of any breakage of or leakage from the pipeline or an ancillary installation; and

d. Loss (if any) in value of the land or interests in land by reason of the exercise as aforesaid.

Furthermore, Section 20 (3) provides that in determining the loss in value of land and or interest in land of a claimant, the court shall assess the value of the land or the interest injuriously affected at the date immediately before the grant of the license and shall access the residual value of the claimant of the same land of interest consequent upon and at the date of the grant of the license and shall determine the loss suffered by the claimant as the difference between the values so found, if such residual value is a lesser sum. Compensation shall not be awarded for unoccupied land as defined in the Land Use Act, except to the extent and in the circumstances specified in the (Act Section 20(4)).

Section 20(5) stipulates that in determining compensation in accordance with the provisions of this section the court shall apply the provisions of the Land Use Act far as they are applicable and not in conflict with anything in the Act as if the land or interests concerned were land or interests acquired by the President for a public purpose.

Section (29) of the Land Use Act provides for calculation of compensation as follows:

(i) For land, an amount equal to the rent, if any, paid by the occupier during the year in which the right of occupancy was revoked;

(ii) For building, installation or improvement thereon, the amount of the replacement cost of the building, installation or improvement, that is to say, such cost may be assessed on the basis of the prescribed method of assessment as determined by the appropriate officer less any depreciation, together with interest at the bank rate for delayed payment of compensation and in respect of any improvement in the nature of reclamation works, being such cost thereof as may be substantiated by documentary evidence and proof to the satisfaction of the appropriate officer;

(iii) For crops on land apart from any building, installation or improvement thereon; an amount equal to the value prescribed and determined by the appropriate officer.

From the foregoing, the law relating to compensation for oil spillage in Nigeria, while providing specific items for compensation, leaves opened a number of crucial issues including the exact 'heads of claim' as well as the basis and the method of valuation applicable. Apparently, the discretion is left to the valuer, and of course, the court, which is the final arbiter.

4.2. Other Relevant Statutes - The Nigerian Evidence Act (Cap 112 of 1990)

Among the provisions of the Nigerian Evidence Act (Cap 112 of 1990) that are germane to this study are the definition of who an expert witness is, the weight of evidence and admissibility of evidence. An expert witness is a person who by a formal and organized training in his chosen profession has acquired a deep knowledge of the area he is called upon to give evidence (Onamade, 2002). An 'expert' is a person, and a natural person for that matter', not a parchment, paper, book, map or plans or any of those materials that come into the description of document. However, expert evidence may be and always include a report or data which must be tendered in evidence before the trial court. An expert opinion is only necessary and relevant when the expert furnishes such scientific or technical detailed information that will convince the court on the correctness of the estimate (Shell Development Co. Ltd. V. Otoko (1990)).

On admissibility, the general rule, according to Section 90 (now s.91) of the Evidence Act Cap. 62, is that statements are not admissible if made by persons 'interested". That the word "interested" in its ordinary etymological meaning could refer to either financial interest or natural interest in the outcome of proceedings cannot be seriously disputed. However, the question has to be considered in each particular statement tendered as evidence under the Act in the light of the particular circumstances of the case relating to that statement.

Admissibility of a piece of evidence is one thing, its cogency or probabitive value is another (Onamade, 2002). That is, evidence, oral or documentary, may not have any probative value or any weight at all, though admissible. (Rapheal Udeze & ors. v. Paul Chidebe & ors (1990). Having admitted an evidence therefore, the court goes further to consider what weight to attach to it in the light of the issues in contention. In estimating the weight, to be attached, Section 92 (1) of the evidence Act provides that, regard shall be had to all the circumstances from which any inference can reasonably be drawn as to the accuracy or otherwise of

the statement, and in particular to the question whether or not the statement was made contemporaneously with the occurrence or existence of the facts stated, and to the question whether or not the maker of the statement had any incentive to conceal or misrepresent facts. Court may therefore not attach much weight to the opinions of an expert if the factual basis of such opinions is not produced before it. For example, where valuer fails to provide evidences upon which his valuation report is based, the opinion of such a valuer may be discountenanced: (Uwa Printer Ltd. V. Investment Trust Ltd. (1988); West Minister Dredging (Nigeria) Ltd. Anor v. Ogun Oyibo & Ors. (1992). This was the case in Bayo Banjo v. Alli Jamal (unreported, 1970) involving conflicting opinions of two experts in respect of the value of the same property. The first expert with high academic qualifications and several years of experience testified and gave the value of the property as £2,500. He however did not give the basis of his evaluation. The second expert, with equally high academic and professional qualifications and years of experience, testified on the value of the same property which he said was over £9,000. But in addition to his testimony, the second expert provided the data he used to arrive at his valuation. The learned trial judge rejected the opinion of the first expert witness while he accepted that of the second witness.

5. VALUATION MODELS FOR ASSESSING THE IMPACT OF CONTAMINATION ON LANDED PROPERTIES

In making valuation for compensation for oil spillage, the ordinary principles of valuation apply except that the valuer is expected to pay due attention to the positions of the parties as provided by relevant statutes and civil laws, among others. Thus, any or a combination of the three conventional valuation models – the income capitalization, the direct market comparison, and the cost methods – could apply. Each of this can be appropriately modified to evaluate a number of the 'heads of claims' in compensation for oil spillage, particularly loss of fishing rights, and loss/damage to fishing equipments/facilities (hooks, nets, traps, canoes etc.). However, evaluating for injurious affection, ecological degradation and other forms of environmental contamination may not be adequately captured by these models.

The Comparative method, otherwise called the market data or sales approach, rests on the principle of substitution, which states that no commodity has a value greater than that for which similar commodity offering similar uses, similar utility, and similar function can be purchased within a reasonable time limits that the buyers' market demands. For the method to produce valid and reliable result both the subject property and the comparables must have at least the potential of a similar/identical, highest and best use. The direct market comparison method is therefore ideal for items presently traded in the primary or secondary market. Examples in this study include hooks, nets, boats, and canoes.

The Cost method is the process by which the replacement cost or reproduction cost of an asset is obtained. The method is particularly suited to specialized item(s) that have no close substitutes and that are rarely brought to the market for sale. That is the size, type, brand, age and the exact number which may need to be authenticated by genuine receipts etc. Since we do not have secondary markets for most of these items often encountered in valuation for oil spillage, it is necessary that the valuer possesses some knowledge of the exact physical state of these items to enable him account for accrued depreciation in the valuation. This method is appropriate for valuation of fishing ponds, fishing traps, and buildings, among others.

The Income capitalization method converts the future benefits of ownership into an expression of present worth. To produce reliable valuation *via* this method demands an accurate estimate of gross income, outgoings and the required yield. The yield which reflects the relative quality of the investment must be determined based on proven macro-economic indices and market evidences. The income capitalization is therefore the method to use for the income producing aspects of the damaged or destroyed assets e. g. loss of fishing rights.

The conventional methods of valuation have been subject of wide and far reaching criticisms. Environmental valuation, no matter the scale, is inherently spatial and therefore requires the use of analytical framework that extends beyond these three traditional neo-classical economic methods of valuation. For instance, though the sale Comparison Approach is often the valuer's most convincing indication of value, in contamination cases; it is very rare to find good, arms-length comparable sale of contaminated properties which are contaminated by a similar pollution, in similar magnitude and in similar manner. Other difficulties include errors of logic and arithmetic, and the implicit nature of yield used in

investment method (Baum and Macgregor, 1992); the uniqueness of individual property and the tendency for sale prices to be influenced to some degree by the special needs of purchasers or vendors (Kondratenko, 2005; Davis, 2010); and the difficulty in accurate quantification of depreciation in existing improvements in Cost Method (Marchitelli, 1992). In particular, contamination and stigma are not adequately captured by these models. Attempts have therefore been made to use some of the contemporary valuation techniques such as the hedonic, contingent, conjoint, multiple regression, and PROBIT to assess the contamination and stigma effects of oil spillage, landfills, nuclear power plant, and hazardous waste sites, among others, on property values, but regrettably with conflicting results (Otegbulu, 2011;Mundy, 1992).

Section 20(3) of the Oil pipelines Act (Cap 145 LFN 1990) prescribed the 'before and after' approach which is a common basis for valuation of environmentally impaired property. The process generally involves three steps as follows:

(i) Estimate the value of the property under a hypothetical condition as if there were no loss of value due to environmental impairment, that is, the unimpaired value;

(ii) Value the property taking into consideration the environmental impairment, that is, the impaired value:

Impaired value = Unimpaired value – Cost effects (remediation and related costs) – use effects (effects on site usability) – Risk effects (environmental risk/stigma);

(iii) Calculating the difference between the two estimates which will produce the loss in value due to the impairment. That is:

Property value diminution = Unimpaired value – Impaired value.

Likewise,

Property value diminution = Cost effects (remediation and related costs) + Use effects (effects on site usability) + risk effects (environmental risk/stigma).

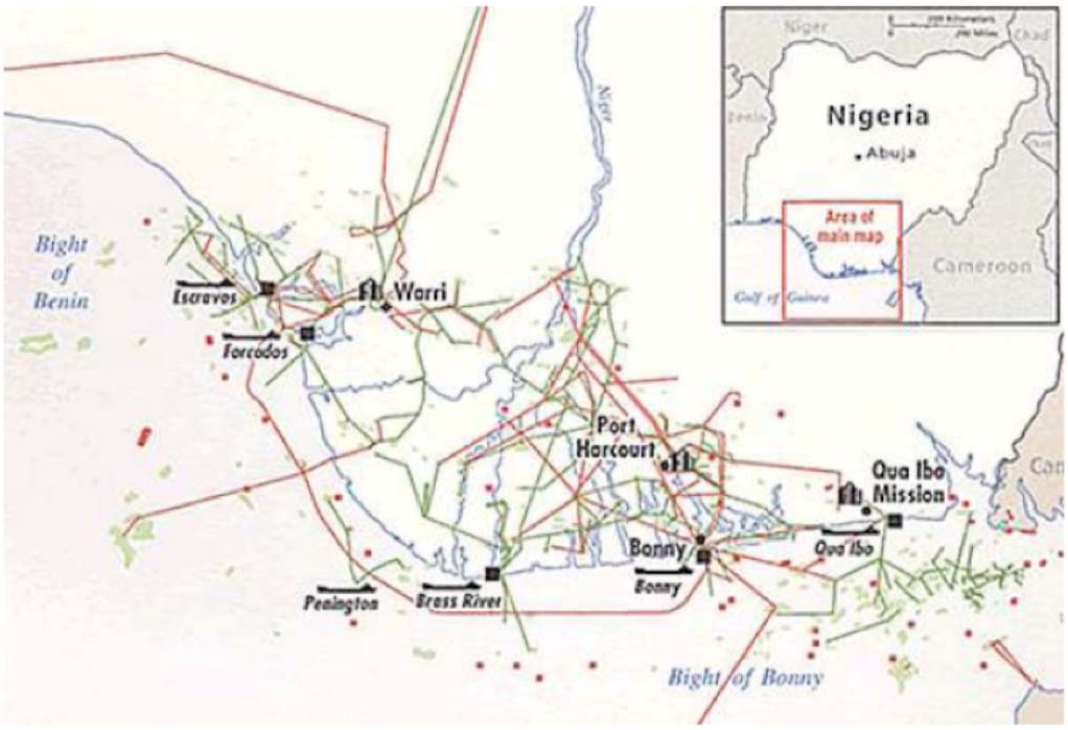
This approach apparently calls for substantial inputs from technical specialists like micro biologists, marine scientists, environmental scientists, medical and health experts, among others. Cost effects are the deductions for what it would cost to remediate a property, which must not just be any cost but such costs recognized by the market. For instance, costs for remediation beyond regulatory requirements would not be recognized by typical market participants.

The insight provided in the celebrated case of 1989 Exxon Valdez should assist valuers in their approach to compensation valuation for oil spillage (Roddewig, 1999 in Appraisal Institute, 2002). It was established, among others, that remediation costs, indemnification, and stigma are critical considerations; that the impact of the oil spill on real estate is temporary; that the impact is to be determined based on land use i.e. on a use-by-use-basis; that the annual loss to the land can be expressed in terms of a lost economic rent; that the degree of economic impairment is a function of the highest and best use of the land prior to the oil spill; and that the economic losses over time are to be discounted to a present value. It was further established that there is no automatic direct correlation between physical persistence of oil and its effects on real estate; that the length and intensity of the cleaning up is the significant factor in determining the length of any potential real estate market impact. However, the actual length of the impact; the highest and best use especially for properties located in a remote or limited real estate market; the categorization of use, acreage, comparables and land values; the length of discount period and the appropriate "discount rate" are variables to be determined on individual case's merit.

6. STUDY AREA

The study area is the Niger Delta area, south southern Nigeria (see Figure **1**). According to Nwilo and Badejo (2005), Nigeria has a coastline of approximately 825 kilometers along the Atlantic Ocean. The terrestrial portion of this zone covers about 28,000 km^2 while the surface area of the continental shelf is 46,300 km^2. Nigeria's coastal area is low lying with heights of not more than 3 meters above sea level and are generally covered by fresh water swamp, mangrove swamp, lagoonal mashes, tidal channel, beach ridges and sand bars. Nigeria coasts is comprised of four distinct geomorphology units – the Barner-lagoon complex; the mud coast; the strand coast; and the Arcuate Niger Delta.

Nigeria is today the largest oil producer in Africa and the sixth largest in the world, and, according to the Oil and Gas Journal, the country as at January 2011



Source: The US Government

Figure 1: Map of Nigeria Showing the Oil-rich Niger Delta Area.

maintained an estimated 37.2 billion barrels of proven oil reserves (Achebe *et al*., 2012). In addition to oil, Nigeria holds the largest gas reserves in Africa. According to the International Monetary Fund (IMF), Nigeria's economy is largely dependent on the oil sector which contributes between 90% and 95% of her export earnings, 20% of GDP and about 40% of government revenues (Nwilo and Badejo, 2005). In 2010, total oil production in Nigeria was rightly over 2.06 million barrels per day, making it the largest close to 2.15 million barrels per day for the year. Recent oil developments combined with the restart of some shut-in on shore production have boosted crude production to an average of 2.17 million barrels for the month of July 2011.

Nigeria's proven oil and gas reserves are to be found largely along the coastal Niger River Delta area and offshore to the Bright of Bonny. The Niger Delta area is world's third largest wetland. It is characterized by significant bio-diversity. Petroleum pipelines conveying natural gas, crude oil and partly and fully refined petroleum products transported from domestic oil production area to seaports or local depots, are to be found in varying sizes throughout the length and breadth of the oil rich Niger Delta region of Nigeria. According to the Nigerian Department of Petroleum Resources (DPR), within the Niger Delta area, there are to be found over 21,000 kilometers of moderate-to-large (152mm – 1,219mm diameters) pipelines; about 606 oil fields in the Niger Delta, of which 355 are on-shore and 251 offshore; about 5,284 oil wells drilled and 527 flow stations for crude oil processing, with more than 7,000 km of oil and gas pipelines traversing the entire area and seven export terminals (DPR, 2010).

Since the discovery of oil in Nigeria in the 1950s, the Niger Delta area has continuously suffered various environmental degradations resulting from oil drilling, oil spills and transportation activities (Achebe *et al*., 2012; Egbe and Thompson, 2010). Major spills include the GOCON's Escravos spill in 1978 involving about 300,000 barrels; SPDC's Forcados Terminal tank failure in 1978 involving about 580,000 barrels; and Texaco blow out at Funiwa-5 offshore station in 1980 involving about 400,000 barrels. Others are those of the Abudu pipe line in 1982 involving about 18,818 barrels; The Jesse Fire Incident which claimed about a thousand lives and the Idoho Oil Spill of January 1998 involving about 40,000 barrels. Nigeria's largest spill was an offshore well-blow out in January 1980 when an estimated 200,000 barrels of oil (8.4million US gallons) spilled into the Atlantic Ocean from an oil industry facility which damaged 340 hectares of mangrove (Nwilo and Badejo, 2005; Egbe and Thompson, 2010).

According to the Department of Petroleum Resources (DPR), between 1976 and 1996 a total of 4647 incidents resulted in the spill of approximately 2,369,470 barrels of oil into the environment (NNPC, 2007). A total of 549,060 barrels of oil representing 23.17% of the total oil spilled into the environment was recovered while an estimated 1,820,410.5 barrels (77%) were lost to the environment. Also, between 1997 and 2001, Nigeria recorded a total number of 2,097 oil spill incidents. In 1998, 40,000 barrels of oil from Mobil platform off the Akwa Ibom coast were spliled into the environment causing severe damage to the coastal environment (NNPC, 2007 in Egbe and Thompson, 2010). Fifty percent (50%) of oil spill in Nigeria is due to corrosion as a result of irregular maintenance of pipelines and storage tanks; 28% to sabotage; 21% to oil production operations; and the remaining 1% to engineering drills, inability to effectively control oil wells, failure of machines, and inadequate care in loading and unloading oil vessels (Egbe and Thompson, 2010; Nwilo and Badejo, 2005).

7. RESEARCH METHODOLOGY

Data for the study were derived principally from 30 valuation reports on compensation for oil spillage prepared by Valuers operating in the study area which the author had the privilege to critique as part of his consultancy services to one of the major oil exploring firms in the study area as well as the author's experience as expert witness in cases that ensued from the critiqued valuation reports. These valuation reports were numbered from 1 to 30 for purpose of referencing and to preserve confidentiality.

Given the sensitive nature of the cases relating to compensation for oil spillage, and the fact that majority of such known cases are still pending in courts, it has been difficult to secure additional valuation reports from any other quarters for the purpose of increasing sample size and making it more representative. For the same reason, it is also virtually impossible to obtain the sample frame of this category of valuation reports for the purpose of determining what should represent a reasonable sample size. However, given that cases for oil spillage occur in between in the area, and given that the errors identified are reasonably widespread among the sampled valuers in the study area, the results may well be considered a reasonable representation of valuation practice standards in the area.

8. DATA ANALYSIS AND DISCUSSION

From Table **1**, all the valuation reports studied were prepared by licensed or certified Estate Surveyors and Valuers. The reports are generally scanty when related to the enormity of the claims. For instance, the number of pages ranges from 6 to 26 (excluding list of claimants) with an average of 10; while the claim

Table 1: Features of the Reviewed Compensation Valuation for Oil Spillage Reports (N=30)

Features	Frequency	Percentage (%)
1.Number that were prepared by professional firms of Estate Surveyors and Valuers (Appraisers).	30	100
2. Volume of the valuation reports		
0 -5 pages	3	10
6 – 10 pages	21	70
11pages and above	6	20
3. Total claims as compensation		
0 – ½ billion	6	20
½ billion – 1billion	8	27
1 billion and above	16	53
4. Heads of claim covered by the reports:		
njurious affection	30	100
Ecological degradation	25	83
Health hazards	18	60
Loss of fishing rights	28	93
Loss (or damage) of fishing traps/nets/ponds/hooks	30	100
Loss of shrine	14	47
General claims	4	13

Table 2: Classified Contents of Reviewed Compensation Valuation for Oil Spillage Reports (N=30)

Contents	Frequency	Percentage (%)
1. Technical specialists' report (s) included		
Land Surveyor (map of impacted area)	9	20
Environmental Scientists	2	7
Health and Safety Experts	0	0
Micro-biologists	0	0
Marine Biologists	0	0
Soil Scientists	0	0
2. Number that reflect/include relevant laws/statutes	11	37
3. Number that reflect/referred to the Nigerian Institution of Estate Surveyors & Valuers' Valuation Standards	0	0
4. Number that reflect/referred to the International Valuation Standard Committee's Valuation Standards	0	0
5. Number that include relevant market and industry data	5	17
6. Number that show/include how the value opinion was built up/calculated.	17	57
7. Number that used one (or more) of the conventional method (s) of valuation –cost, comparative or the investment.	22	73
8. Number that used one (or more) of the non-market method (s) of valuation- contingent, conjoint, regression analysis, hedonic model, PROBIT.	0	0

ranges from over N200 millions to over 37 billion with an average of over N2.5 billion. Report number 17 in particular is only 12 pages for a claim of over N3 billion; while report number 4 covers 26 pages (excluding list of claimants) for a claim of over N37 billion. It is apparent from these results that the valuers generally have not been investing sufficient efforts and resources to justify the huge claims. Also, certain 'heads of claim' are evidently duplicated. For example, 'injurious affection' is expected to cover 'loss of fishing rights' but some of the reports made separate claims for both; while some further included claims for 'general items' on the same items.

Only a negligible proportion of the valuation reports made reference or reflect relevant provisions of the enabling law or other relevant statutes or civil laws; while just seventeen per cent (17%) of the reports included information on the local and national markets and relevant industry data to support the opinion of value. In 57% of the cases, the valuation figures were not supported with any data and it was not shown how the figures were computed. More worrisome is the revelation that only 27% included or reflected the inputs of any technical specialists. None of the report used any of the non-market valuation methods which are particularly relevant to this category of valuation.

8.1. Typical Errors Perpetuated by Valuers

Below are excerpts of misapplied valuation theories and concepts found in some of the valuation reports that were reviewed.

Typical error 1 (Anecdotal evidences).

This category includes valuations that are based on evidences that are trivial and unproven. On the whole seventy two per cent of the valuation reports are guilty in one way or the other of this category of error.

Fishing Water

(i) We observed that the pollution caused massive mortality of the fishes.

(ii) In fact, we were informed by members of Odimodi Federated Community that the said pollution caused a large scale extermination of marine life especially fishes.

(iii) The pollution has contaminated the waters of marine rendering them unfit for human consumption and thereby constitutes health hazards. The pollution had created/caused nuisance/damage to our clients' properties.

(iv) Yields per Hectare of Artisanal fisheries are generally estimated to be about 150kg per

hectare per annum. About 161.672 hectares of water right constitute natural breeding ground for fish of different varieties. Adopting a recovery period of 5 years at current market prices the loss of fishing right is estimated to be N30,313,500.00

Mangrove Swamps

- *The subject pollution has great deleterious effect on the mangrove swamps. Fishes crustaceans, periwinkles, and other sea shells were destroyed and the swaps will remain barren of aquatic life for some years to come as a result of the oil pollution.*
- *The mangrove vegetative suffered serious foliar damage during our field inspection/survey and the vegetation will die off.*

Farmlands

- *The petroleum hydrocarbon has seeped/ percolated into the ground and massively impaired the agricultural land.*
- *The seeping of the hydrocarbon into the ground has rendered the soil sterile and adversely affected its future agricultural productive capacity.*

Economic Trees

- *The lethal harms visited on these trees are clearly manifested in their foliar damage and the vegetation.*
- *These may die off and the environment will be left bare. Such huge loss will have great ecological and economic consequences on the inhabitants.*

Health Hazards

- *There were reported cases of stomach aches, skin diseases and cholera outbreak in Odimodi Federated Community in the period immediately after the Mobil oil spillage, ostensibly as a result of drinking/bathing polluted water.*
- *It is pertinent to point out that with the massive pollution of the community's sources of water, rivers, streams, creeks, lakes etc and the atmosphere by the spillage, the medical expenses of 6,000 adult inhabitants of Odimodi Federated Community substantially increased in the period immediately after the spillage"*

Comments on Typical Error 1

From the preceding comments taken from the reviewed valuation reports, a number of the reports have been prepared on presupposition and flimsy evidences. This is largely due to the failure of valuers to seek the assistance of specialists in certain areas of this highly technical valuation. It is, for instance, outside the purview of a real estate valuer to objectively and adequately assess the impact and cost implications of oil spillage on the eco-system, vegetation, microbes, aquatic lives, and human health without the input of relevant technical specialists. The relevant technical specialists in this case include the Marine Biologists, Soil Scientists, Health and Safety experts, and Micro Biologists. These specialists undertake scientific investigations that help to ascertain the degree of pollution; loss of aquatic lives; loss of economic trees, crops; predict possible recovery period and remediation actions and the cost implications. For instance, the health implications of oil spills should have been described, quantified and translated to monetary figure by a qualified medical practitioner *via* a medical report which should have been attached. It is from the results of such studies/investigations, that the valuer should have calculated the periodic or terminal payments, for instance. In the absence of such scientific reports/inputs, the valuer's estimates could only be speculative and superfluous.

Typical error 2 (Inappropriate valuation bases/methods and laws/regulations):

Typically sixty two per cent of the valuation reports were prepared on bases and methods that are questionable, untested or that are ordinarily inapplicable in the circumstances in which they were employed. Examples include:

The methods of valuation we employed are:

(i) *"Equivalent Reinstatement cost method" of valuation for loss of fishing and farming rights; and loss of drinking, bathing and domestic use of water.*

(ii) *For the assessment of damages to and destruction of economic trees for compensation purposes, we have adopted 'one best of judgment (B.O.J)', comparative open market prices, and 'unit rates.*

(iii) *"The valuation for the economic crops and trees in the polluted swamp and land is based on the*

Oil Companies OPTS Rates per hectare of land as at 1st September, 1997 adjusted to its present value using the formula $(1+i)^n$ " , where i=18.5% and n=9".

Comments on Typical Error 2

The use of "equivalent reinstatement cost method" to value intangibles such as 'fishing rights' and the use of an unconventional method referred to as 'one best judgment' is curious. Here, the US Supreme Court decision in Kumbo Tire (1999) is pertinent. That is, a valuation theory or technique would be unacceptable unless it can be and has been tested; has been subjected to peer review and publication; has a high known or potential rate of error; there are standards to control the operation of the technique; and it enjoys "general acceptance" within the "relevant scientific community. Moreover, the "OPTS Rates" which some of the valuers relied on for the purpose of calculating compensation for loss of economic trees/crops is not recognized by any of the Nigerian laws that provides for compensation - Land Use Act (Decree No 6 of 1978); the Oil Pipeline Act (Cap 145 LFN 1990); or the Minerals and Mining Act No.34 of 1999. The OPTS Rates, at best, is an administrative provision which may be difficult to enforce in law.

Typical Error 3 (Arbitrary or improvised data inputs)

In this segment, we recap how valuers computed for loss or damage to fishing nets, boats, ponds or traps using the cost method, and also compute for injurious affection using the income capitalization method of valuation; in both cases, without providing any explanations on how the various inputs and parameters were derived and/or the sources of the data. Sixty two per cent of the reports fall into this category.

Injurious Affection for the Next 2 Years 9 Months at 50% Loss and 50% Recovery

Estimated Annual Income	₦242,000,000.00
Annual Loss of Income @ 50%	₦121,000,000.00
YP for 2 years 9 months @ 15%	2.12
Capital value of loss income for 2 years 9 months	₦256,520,000.00

Injurious Affection for the Next 3 Years at 20% Loss and 80% Recovery

Estimated Annual Income	₦242,000,000.00
Annual Loss of Income @ 50%	₦48,400,000.00
YP for 3 years @ 13% = 2.13	
	1.63
Capital value of loss income for 2 years 9 months	₦78,892,000.00

Injurious Affection for the Next 3 Years at 20% Loss and 80% Recovery

Estimated Annual Income	₦242,000,000.00
Annual Loss of Income @ 1%	₦2,420,000.00
YP for 4 years @ 10% = 3.17	
PV of ₦1 for 6 years@ 10% = 0.56	
	1.78
	₦4,307,600.00

Specific Losses

Fishing nets 2100 bundles @ N20,000/bundle	₦42,000,000.00
Fishing traps 275 @ ₦*20,000* each	₦5,500,000.00
Fishing Fences 140 (Net of depreciation) @ ₦*5000* each	₦3,600,000.00
Fish Ponds 53 (average size 1500m^2)	₦212,000,000.00
I **E**Palm trees, raphia, mangroves resources 4,500 @ ₦*5,000*	₦22,500,000.00

Comments on Typical Error 3

In several of the valuation reports, the valuers attempted to use, or purportedly used, one or more of the three conventional methods namely: the Comparative method, the Cost Method, and the Income Capitalization method; howbeit in a manner that lack transparency rationality, and consistency - the universal hallmarks of reliable asset pricing. For instance, in using the Cost method the valuer failed to specify the exact physical characteristics such as the age, size, type, capacity, and construction materials for the fish fences, fish traps, fish ponds, and hooks that were valued.

Similarly, in calculating compensation for 'disturbance' and 'injurious affection', the valuers employed the income capitalization approach but failed to justify or substantiate the choice of the number of 'years of recovery'; the breaking of the estimated period of recovery into tranches for purpose of the calculations; the estimates of gross incomes from fishing; the proportion of the total loss that is recoverable per period; the choice of the amount of outgoing; and the choice of both the remunerative and accumulative rates were rather speculative and fictitious.

A particular firm purportedly used the comparative method by adopting what was termed 'international compensation rate' - whereby rates per hectare of impacted area which the valuer claimed were employed to access compensation for oil spillage in Alaska, Japan, Puerto Rico etc., were used as comparables to calculate compensation for oil spillage in Akwa Ibom state in Nigeria. This is misleading and highly contentious. The subject spillage in Nigeria and the comparables employed are not truly comparable in material essence. The amount of oil spillage, the extent of spillage, the actual loss involved, the social and economic implications, the nature and extent of impacted area etc; are likely to be significantly different. Yet the concerned valuer applied the rates from these more affluent and developed economies verbatim, without any form of adjustments. This is like using the price of a 3-bedroom flat in a choice part of a state capital to determine the price of another 3-bedroom flat in a remote village regardless of differences in quality of construction and material specifications, location, facilities provided etc. It is an abuse of the valuation process.

9. CONCLUSION AND RECOMMENDATIONS

The valuation of property affected by oil spillage and other contamination or environmental risk is a relatively new part of the valuation discipline; techniques and methodologies for their impact are therefore just developing (Roddewig, 1999 in Appraisal Institute, 2002). Presently, no local text book, local academic journal or the journal of the Nigerian Institution of Estate Surveyors and Valuers give this area of complex valuation practice the attention it demands. As a result, many Nigerian valuers do not have the education, skill, or experience to properly evaluate the impact of contamination like oil spillage on the eco-system, and especially property values and property markets. Furthermore, court cases involving compensation for oil spillage come up very infrequently in Nigeria. Compensation valuations and litigations arising from oil spillage therefore occur in between. Most of the valuers covered in the study may therefore be first-timers on the assignment and probably have never had any expert witness experience. For a valuer with little, if any, prior experience in this specialized area, or who handles this type of valuation only occasionally, the task could be daunting, especially where, as is often the case, the impact is temporary rather than permanent. To handle valuation for compensation from oil spillage assignment creditably, valuers need adequate experience and should also be acquainted with relevant statute and evolving case laws which provide direction on the appropriate basis and method of valuation as well as the object of valuation or the "heads of claim", among others.

Because a third party's interest is involved and the claims are often substantial, compensation valuation for oil spillage ought to contain adequate and convincing explanatory data, verifiable and incontrovertible evidences, including strong persuasive and compelling supports for all the data inputs as well as the ultimate valuation opinion. Like other type of valuations, it is expected to be consistent with established valuation theory, including practice standards and ethics. Such reports should be sufficiently transparent, traceable and rational. It is transparent when it is easy for a third party to see through the truth; it is traceable where the arguments and reasons that produce the final estimates of costs/values can be easily followed through; and rational where the conclusions are not based on emotion but rather on relevant facts and proven data. Virtually all the thirty (30) reports reviewed in this study failed to satisfy the standards prescribed by relevant regulatory bodies to which the Nigerian valuers belong and subscribe and therefore fall short of best practices. The valuations, with negligible exceptions, were largely arbitrary, speculative and fictitious. The valuers ought to know that, in adjudication relating to any statutory valuation, especially one that entails large penalty like compensation for oil spillage, the court would lean heavily on the provisions of the enabling laws, including established valuation theories and concept, as well as the standards and ethics of the profession as approved by the regulatory body(s). The court would expect valuers to proof the claims of their clients convincingly and transparently in a way that guarantee justice and equity.

The difficulties associated with the valuation of contaminated property generally include finding truly comparable sales or leases of contaminated properties; the need to search for veritable evidence that eliminates or at least minimizes subjectivity in the analysis and conclusion; and the highly case-specific nature of the quantification of lost value. The difficulty is compounded in the study area by the valuers' apparent lack of experience; inept approach; failure to avail themselves with necessary inputs from relevant technical specialists, failure to work within the standards prescribed by valuation regulatory bodies; and claims that are obviously fictitious and baseless. For instance, Valuers' practice standards prescribed,

among others, that valuations are prepared by an individual or firm having the appropriate technical skill, experience and knowledge of the subject of the valuation, the market in which it trades and the purpose of the valuation; and for complex or large multi-asset valuations, it is acceptable for the valuer to seek assistance from specialists in certain aspects of the overall assignment (IVSC, 2011).

To save the profession from further embarrassment, it may be necessary to provide an institutional perspective and official position on the appropriate methodology and approach to compensation valuation for oil spillage - a set of standards based on precedents which the existing valuation standards may have failed to cover. The techniques and solutions developed in such unusual valuation assignment as oil spillage, are essential in assessing the adequacy and practical limitations of traditional valuation techniques and analytical tools as well as the quality of local valuation skill. It will also go a long way to enhancing valuers' skill and professionalism; contribute to devising flexible new tools in the context of basic professional touchstone, foster the development of local standards and benchmarking, and incorporate new insights into valuers' professional practice. In addition, the Nigerian Institution of estate Surveyors and Valuers, as a pressure group, should canvass for more definite and comprehensive statutory provisions for compensation for oil spillage. The existing legal framework is unclear and in some vital areas, contradictory.

This study has only highlighted the grey areas and observed lapses in compensation valuation for oil spillage in the study area. While it provided some insight into possible remedial measures, it does not provide specific alternative methods for compensation valuation for oil spillage. Further study is required to fill this gap.

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