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An Examination of the Procedures for Valuing Contaminated Land in Rivers State, Nigeria

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Abstract: Contamination is a process by which any material or immaterial substance has environmental impact, and this should be taken into consideration when determining land/landed property values. On the other hand, contaminated land is a land that has been polluted as a result of contact with hazardous substances from industrial or commercial operations carried out on and around the site over a period of years. There have been various contamination issues in Nigeria, especially in the oil rich Niger Delta, that required compensation to be paid to the affected persons based on the assessed value of the properties. The focus of this paper is on the procedures adopted in carrying out the valuation of contaminated land in Rivers State. Data collection was primarily by administration of questionnaire to practicing Estate Surveyors and Valuers in Port Harcourt, Rivers State. A total of 120 copies of the questionnaire were administered on the respondents while 80 (66.7%) was retrieved and used for this study. The study unearthed that the procedures involved in the valuation of contaminated land include definition of problem, determining the scope of the land and its resources/use, data collection from scientific investigation and analysis, selection of valuation method and valuation to produce report. The proportion of the respondents that adopted all the stages ranged between 85.9% and 94.4%. The study therefore recommends that respondents yet to adopt the stages should gear up effort in adopting the

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procedures to the yearnings and aspirations of the stakeholders, especially the affected/expropriated land owners.

Keywords: Compensation, Contamination, Land, Valuation, Niger Delta

1.0   Introduction

Valuation is a procedure which starts with defining the problem; it passes through the information gathering stage and ends with the opinion of value presented in a report submitted to the client (Olusegun, 2003). However, there are various kinds of valuations and each requires varying inputs at different stages of the process to ensure reliable and credible value estimates. Kakulu (2014) was of the view that valuation practice is characterized by the interplay of subjectivity which leaves room for extensive manipulation of value estimates and often results in dissatisfaction and litigations. The subjectivity is characterized by the difference in opinion of values provided by different valuers when assigned to a task. Valuations and appraisals, as opined by Akujuru (2014) are the outcome of individual valuer's perceptions and the manner in which he processes data; meanwhile, the processing of real estate data is purely behavioural and requires the decision making ability of the valuer. In carrying out such exercise, the way and manner in which information is processed is prone to errors and the end result may not be entirely credible and reliable. The studies by Babawale (2013) and Bello and Olukolajo (2016) have shown that the processes adopted by practitioners create anomalies that often create contentions amongst claimants

and oil operators. It is therefore expedient that this study examined the procedures that ae employed by estate surveyor and valuers, when carrying out the valuation of contaminated land, with focus on the oil rich sections of Nigeria where there has being continuous oil spills over the years.

2.0   Process of Valuing Contaminated Land

In order to achieve consistency and better results in contamination valuation exercises, Kakulu (2014) advises that following an oil spill, extensive research should be to answer several questions and enable Valuers make informed decisions in connection with ascertaining the opinion of value for compensation payable to the owner or occupier. A credible and reliable valuation opinion averts litigations and conflicts which in turn strengthens the real estate practice. She further opined that presently, negotiations and out-of-court settlements (i.e. alternative dispute resolution) are preferred to compensation arising from valuations due to inconsistencies in the manner of approach to valuations for contaminated land. Therefore, it is very important for the practitioners to ensure compliance with ethical standards and adopt procedures that will give the best results to the satisfaction of the stakeholders. On their part, Ajibola, Oluwunmi, Kabiamaowei, Owolabi,

and Akinwale (2019) identified the stakeholders involved in compensation processes to include the communities/individuals, governments, professional bodies, academic institutions, conservation NGOs as well as consultancy firms. They opined that in situations where the communities within the affected neighbourhoods are to be paid compensation due to environmental impact of a scheme, their involvement is usually limited to the project implementation stage while they are mostly neglected in deciding on the sum of compensation payable. Communities' involvement is an important stage that is grossly ignored. This calls for the services of an Estate Surveyor and Valuer (ESV) who by his training, has a better understanding of the various stages required in the determination of the appropriate/adequate compensation due to the affected person.

This necessitates a look into the procedures that should be adopted while carrying out valuation exercise. According to Ifediora (2003), valuation is an answer to a problem but the path to solving the problem may take different forms; it could be adhoc and uncoordinated or systematic and procedural. But he referred to valuation as a science that requires a systematic process to problem solving. Therefore, he proposed a valuation process made up of four stages:

1. Definition of problem: this covers the identification of the property and its attendant rights, the reason as well as the basis of the appraisal, the scope of appraisal and the determination of the effective date of valuation.

2. Data programme: this encompass all the various forces that might have a conceivable influence on the subject of valuation – the property. These forces could be specific, general or international, but generally all information that will aid the valuation process.

3. Determination of values by applying the methods of valuation: he advocated the adoption of the doctrine of three approaches and correlation which involves the application of three methods of valuation to obtain credible value estimates. The three methods are the income capitalization, market data and the replacement cost.

4. The valuation report: this involves the formal written and presentation of the determined value, the considered and analyzed data, the applied methods, the adopted assumptions and the conclusions reached in concise document.

In the opinion of Ifediora (2003), the adoption of the valuation process/framework as outlined above will greatly reduce the wide variations in approaches to value and the consequent wide differences in the value of the same property as presented by different valuers. In the same vein, Oni, Ajibola, Iroham, and Akinjare (2015) stated that claimants, whose land suffered contamination due to oil spills,

desire adequate compensation which could only be arrived at by the adoption of appropriate procedures in the assessment of the compensation sum. They stated further that to establish good relationship among the claimants and the acquiring authorities, adequate compensation should be determined and paid without any delay. To assess the value of contaminated land, Ajibola, Kabiamaowei, Oluwunmi and Owolabi (2020) stated that the various methods commonly adopted in the valuation of non-natural resources might not be totally acceptable for the valuation of ecosystem resources, especially when dealing with contaminated land. They concluded that the methods adopted for valuating contaminated land include the income capitalization, predetermined compensation rate, sales comparison, market prices and depreciated replacement cost approach.

Considering the welfare of the inhabitants of contaminated communities, Oluwunmi, Akinjare, Ajibola and Oloke (2018) stated that man's quest is to live and enjoy clean and decent environment. But this has not been so in the study area. In order to compensate them for contaminating their lands, compensation sum has to be determined, following appropriate procedures.

Olusegun (2003) stated that the process for real estate assessment could be grouped into five main phases as follows:

1. Identifying the problem: this refers to identifying the real estate and the property rights, the purpose and basis of valuation, the scope of the valuation and ascertaining the effective date of valuation.
2. Initial survey and the valuation design: this is the phase where the Appraiser is required to ascertain the process and the necessary data to carry out the appraisal.
3. Information Gathering: the Appraiser searches for both specific and universal information that will be analyzed to assess the value of the property.
4. Analysis and valuation: here, the data obtained in step three is converted to valuation estimates using three different approaches in order to arrive at reliable value estimates.
5. Correlation of valuation: at this stage, the valuer carefully analyzes and evaluates the different results arrived at in order to ascertain which approach embodies the most relevant factors in the given case. This way, the valuer arrives at a final value rather than averaging the estimates obtained earlier.

The procedures explained above are for the valuation of real estate assets generally; however, the focus here is the procedure adopted for contaminated land valuation which is more technical and requires expertise.

Ajibola's (2012) study on wetland valuation practice for compensation

defined the valuation process as an organized process which an appraiser adopts in order to answer a client's real estate problems regarding value; that is, a combination of the sequential methodology the Valuer adopted to ascertain the value of a real estate. In other words, a valuer is expected to follow certain guiding steps to obtain the required data that will guide his assessment in producing a credible and reliable value opinion. His concept for wetland valuation process comprises the following stages.

1. The first stage which entails the definition of the overall problem or objective. This involves choosing the type of valuation method to adopt based on the problem bein investigated by the Estate Surveyor and Valuer.
2. The second stage relates to the determination of the extent (scope and limit) of wetland which requires defining the area of the wetland and then identifies the resources involved.
3. The third and last stage is collection of data/information. It entails the identification of the source and obtaining information required for the valuation.

Also, Ajibola and Awodiran (2013) identified the processes involved in the valuation of wetland to include choosing applicable method of valuation, defining wetland area, identifying wetland resources, relating wetland resources to use value, collection of data/information,

quantifying economic values and thereafter communicate wetland values. Their study revealed that the respondent Estate Surveyors and Valuers followed all the steps involved in the conduct of valuing wetland resources.

With regards to land contamination, Akujuru (2014) proposed a framework for carrying out valuation for contaminated wetland in the Niger Delta. It comprises four broad stages which include the event of the contamination incidence, the detailed investigation stage, the stage of remediating the contaminated property and the appraisal/valuation stage. He asserted that the above process/framework adopted the logic of resolving problems, beginning with defining the problem and logically selects a combined appraisal technique from both land based and ecosystem based techniques to arrive at an opinion of value.

Expressing concern over the adequacy of the traditional valuation methods, Kakulu (2014) wondered if the investment method as expressed below captures the loss suffered by farmers when land is contaminated:

Capital Value (A) = Net Income (Pre-contamination) x Years Purchase

Diminished Capital Value (B) = Post-contamination Net Income x Years Purchase

Value of Loss (C) =Value (A) minus Value (B)

Compensation Value (D) =Value of Loss (C) plus any other statutory requirements as appropriate.

She suggested that following an oil spill incident, both a Post Impact Assessment (PIA) survey to evaluate the impairment done to the bio-geophysical environment as well as a Socio-economic Survey (SS) to determine the disruption to public health and socioeconomic activities be carried out. The current practice portrays the PIA and SS as two parallel but independent studies leading to the production of two separate reports which did not capture long-term losses particularly in the area of agricultural productivity which is greatly affected by the contamination. A better scenario is for the PIA and SS teams to work together on a single project but in different thematic areas and present a single comprehensive PIA report with inputs from the socio-economic team. Then, the Valuer can utilize inputs from the PIA and SS reports, synthesize these inputs and makes a subjective assessment of the value of loss which then forms the basis of compensation. Therefore, she proposed a Contaminated Land Valuation (CLV) model as shown in fig. 1.
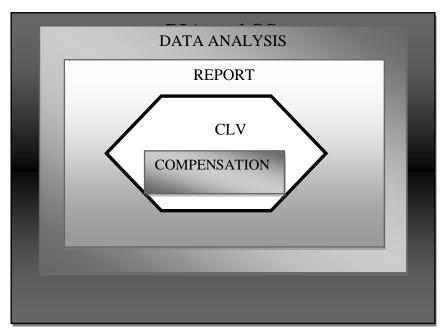

Figure 1:   Contaminated Land Valuation Model/Process

Source: Kakulu (2014)

The process as presented by the model entails five steps commencing from the PIA and the SS teams working together and analyse data to produce a single report, the next stage is the use of the report by the Valuer in carrying out the valuation of the contaminated land to produce an opinion of value. The final stage is the payment of compensation which is believed would be satisfactory to the farm owners due to the socio-economic inputs captured by the SS survey.

She reiterated that the proposed model is expected to be multi-disciplinary in nature as no one profession can claim superior knowledge to or ownership of the process. This means that other experts and professionals are supposed to be involved in the assessment process leading to more credible value estimates. This study agrees with the procedures proposed by Akujuru (2014) and Kakulu (2014) which dealt precisely with the valuation of contaminated land. Both studies agree that valuation for contaminated properties is not the sole preserve of ESVs; hence, the proposed procedures incorporated the input of other professionals while valuing contaminated properties

In practice, the ESV is guided by the Nigerian Institution of Estate Surveyors and Valuers (NIESV) and Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON) and also mandated to strictly conform to the principles and standards set by the International Valuation Standards Committee (IVSC). Despite the statutes and professional standards required for the valuation of contaminated land, the scenario in practice is different. As observed by the findings in Babawale (2013), it is merely an insignificant percentage of the valuation reports that made mention of the requirements of the existing laws or added data on the local and general markets or those from related sectors to back up the value opinion arrived at. The reports did not indicate the use of non-market based models of valuation, while only a few reflected the inputs of any technical experts. This means that the reports revealed a faulty valuation process that is prone to errors; therefore, this study deemed it necessary to examine the procedure that Valuers adopted when engaged to value land contaminated by oil spill in the study area.

The procedure for valuing land contaminated by oil spill is presented in a pictorial form in fig. 2 and followed by the description of the activities involved in each stage in Table 1.
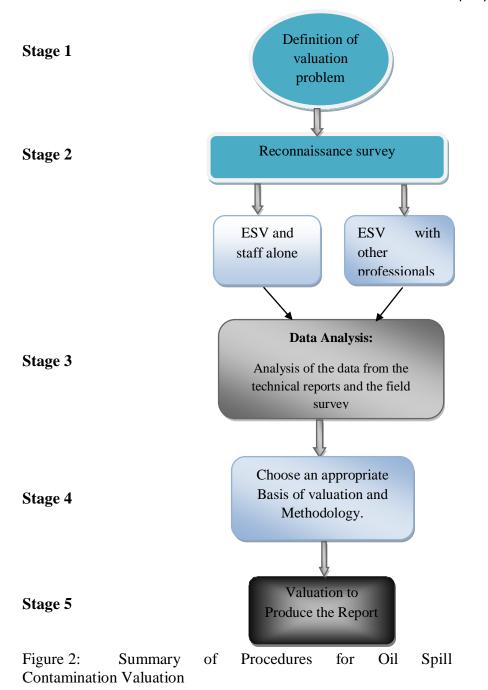
Stage 1

Definition of valuation problem

Stage 2

Reconnaissance survey

ESV and staff alone

ESV with other professionals

Data Analysis:

Analysis of the data from the technical reports and the field survey

Stage 3

Choose an appropriate Basis of valuation and Methodology.

Stage 4

Valuation to Produce the Report

Stage 5

Figure 2:   Summary   of   Procedures   for   Oil   Spill Contamination Valuation

Table 1:   **Summary of Procedures for Valuing Contaminated Land**

S/No.	Procedure	Action
1	Definition of Problem	The ESV defines and identifies the client, subject property, purpose of valuation, effective date of valuation interest to be valued, the value sought and scope of valuation
2	Reconnaissance Survey	Could be done alone or in company of land surveyor or the scientific experts. To define the scope and use of the land/resources before the receipt of the scientific report. The ESV should conduct personal survey to collect historic data alongside data on economic level within the location
3	Data Collection and Analysis	The ESV collects and analyses data from technical report. He should obtain required information from already existing data as well as from the field survey. He should equally ascertain the extent of damage and the recovery period.
4	Choice of Valuation Method	It is incumbent on the ESV to hinge his valuation on the provisions of the law, adopt bases and methods that meet professional guidelines leading to fair compensation values. The data obtained from the survey and technical reports are used to translate the damages into values that produce the opinion of value. Finally he develops an opinion of value.
5	Valuation to Produce the Report	The data obtained from the survey and technical reports are used to translate the damages into values that produce the opinion of value. The information about the property, assumptions, bases, methods, opinion of value and every other information used in the valuation process are communicated on paper (the Valuation Report) which is presented to the client(s).

These findings agree with the general outline/process of valuation as presented by Ifediora (2003) however; there is disparity when compared with the procedure for oil spill contaminated land as presented by Akujuru (2014) and Kakulu (2014). This is as result of the fact that the procedures presented by them included the stages before the valuation proper. However, Akujuru (2014) gave details of the valuation procedure in his fourth stage called the appraisal/valuation process which is similar to the procedure adopted in this work.

3.0   Methodology
In the conduct of real property valuation, generally and in particular valuation of contaminated land, there are different stages involved. This study took time to examine the various procedures and the level of adoption of each stage, by the respondents. While secondary materials used for the literature was sourced from earlier works carried out by researchers, primary data was collected by the administration of questionnaires to Estate Surveyors and Valuers (ESVs) that are employed in real estate firms within the

study area. Information from the 2016 directory of the NIESV revealed that there sixty-six (66) registered firms in Rivers State. On the other hand, information obtained from the State Branch of NIESV indicated that there are one hundred and twenty (120) registered firms in the State. This disparity could be due to some firms registered by ESARBON after the compilation of the 2016 directory. The 120 firms therefore formed the sample size and each firm was proxy by a Valuer. The SPSS tools adopted for analysis include the descriptive such as frequency and percentages to summarise and order the data collected through the questionnaire administered on the respondents.

4.0   Results and Discussion
The study examined the procedures that Estate Surveyors and Valuers adopted in the valuation of contaminated land with main focus on Rivers State. The respondents used for the study are mainly the Estate Surveyors and Valuers employed in real estate firms within the study area. An ESV served as proxy for each of the 120 firms. The data collected was collated, analysed and presented in Tables 2 – 4.

Table 2:   Respondents' Involvement in Valuation of Land Contaminated by Oil Spill

Response	Frequency	Percentage
Yes	71	88.8
No	9	11.2

Table 2 contained information on the involvement of respondents in the valuation of land contaminated by oil

spill. The table shows that 88.8% of the respondents had participated in the valuation of land contaminated by oil spill

while the remaining 11.2% did not participate in such a valuation exercise. The situation could be due to the location of the study area, the core Niger Delta, which has been experiencing continuous

oil spills thereby polluting the land. This has culminated in the call for valuation so as to determine the amount of compensation to be paid to the affected persons.

Table 3:   **Number of Valuations Carried Out**

No. of Valuation	Frequency	Percentage
1 – 5	45	63.5
6 – 10	11	15.5
11 – 15	9	12.7
16 – 20	3	4.2
21 and above	3	4.2

The number of valuations carried out by respondents are shown in Table 3. The analysis revealed that 63.5% of the respondents had carried out between 1 and 5 valuations. 11.5% had done between 6 and 10 valuations. In the same vein, 12.7% had been involved in not less than

11 valuations. Equally, 4.2% of the respondents had carried out valuation of land contaminated by oil spills for 16 – 20 and above 21 respectively. It is evident from the table that the respondent Valuers had carried out a number of valuation assignments due to oil spills.

Table 4:   **Procedure/steps Adopted in Valuing Contaminated Land**

Stages of Valuation Procedure	Yes	No
Definition of Problem	61 (85.9%)	10 (14.1%)

Determine the scope of the land and its resources/use	67 (94.4%)	4 (5.6%)
Data collection from Scientific investigation and analysis	65 (91.5%) 62 (87.3%)	6 (8.5%) 9 (12.7%)
Selection of valuation method	65 (91.5%)	6 (8.5%)
The valuation to produce report Others	19 (26.8%)	52 (73.2%)

Depicted in Table 4 is the analysis of the data collected on the procedures adopted by Estate Surveyors and Valuers in valuing contaminated land in the study area. The table reveals that 85.9% of the respondents defined the problem the valuation was to address. Determining the extent or coverage of the land resources/use was adopted by 94.4%, data collection from scientific investigation and analysis was used by 91.5%. While, the selection of an appropriate valuation method accounted for 87.3% and the production of valuation report accounted for 91.5%. Respondents also indicated other steps to include reconnaissance survey, interaction with victims (stakeholders), post impact assessment and compilation of field data. It was obvious from the analysis that valuers are conversant with all the steps identified in literature as these were adopted in varying proportions as shown in Table 4. The adoption of other procedures by ESVs in the area of study might be as a result of the peculiarity of the job, the location

and also the need to carry out their assignments to the required standards. It can be concluded that generally, valuers in the study area are aware of the steps to take when assessing land contaminated by oil spill.

5.0 Conclusion and Recommendations
This study examined the procedures adopted by Estate Surveyors and Valuers in the valuation of contaminated land, for compensation purposes. Various stages of valuation were identified from literature, models developed for such valuation, as developed by Kakuklu (2014) and Akujuru (2014) came to the fore, especially for the study area. The study discovered that the procedures for valuing land contaminated by oil spills, unlike general or real property valuation (as epitomized in Ifediora, 2003), requires multi-disciplinary approaches. It calls for the assessment of bio-geophysical as well as a socio-economic impact on the environment so as to determine the disruption to public health and

socioeconomic activities in the affected communities. The study also revealed the procedures adopted by ESVs in the study area as definition of problem, determining the scope of the land and its resources/use, data collection and analysis, choice of valuation method and valuation to produce the report. This was summarized in Fig. 1 (as conceptualized by Kakulu, 2014). Arising from the conclusion, the study recommends that ESVs should involve other professionals in the assessment of land contaminated by oil spills. The Valuer can then utilize the inputs from the reports of other professionals synthesize their inputs and come up with a more subjective assessment of the value of loss that will then form the basis of compensation. The study further recommends that to put the profession in a good stead while assessing contaminated land, there should a continuous examination of the procedures for carrying out such technical exercise. The reason for this is that it will help all concerned to offer a better opinion of the institution and an official perspective on the suitable technique and approach to be adopted when assessing oil spill contaminated properties.

References

Ajibola, M. O. (2012). A Study of Wetland Valuation Practice for Compensation in the Niger Delta, Nigeria. A PhD Thesis Submitted to the Department of Estate Management, School of Environmental Sciences, College of Science and Technology in Partial Fulfillment of the requirements for the award of Doctor of Philosophy (PhD) in Estate of Covenant University, Ota, Nigeria

Ajibola, M. O. and Awodiran, O. O. (2013) Assessment of Wetland Valuation Processes for Compensation in the Niger Delta, Nigeria *Ethiopian Journal of Environmental Studies and Management.* Vol. 6, No. 4, pp 398 – 403.

Ajibola, M. O., Oluwunmi, A. O., Kabiamaowei, A. I., Owolabi, D. R. and Akinwale, O. M. (2019) Green Economy: The Role of Estate Surveyors and Valuer. A paper presented at the 3rd International Conference on Science and Sustainable Development (ICSSD 2019), at Centre for Research, Innovation and Discovery, Covenant University, Ota. Ogun State. May 6 – 8, 2019. IOP Conf. Series: Journal of Physics: Conf. Series1299 (2019) 012016IOP Publishing doi:10.1088/1742-6596/1299/1/012016

Ajibola, M. O., Kabiamowei, A. I., Oluwunmi, A. O. and Owolabi D. R. (2020) Assessing the Methods of Valuing Contaminated Land in Rivers State, Nigeria. *Academic Journal of Interdisciplinary Studies.* Vol. 9, No. 2, pp 173 – 181 Doi: 10.36941/ajis-2020-0035

Akujuru, V. (2014). A framework for determining the Compensable Value of Damages due to

Contamination to Wetlands in the Niger Delta of Nigeria. A Thesis submitted in partial fulfilment of the requirements for the award of the Degree of Doctor of Philosophy of the University of Salford, School of the Built Environment.

Babawale, G. K. (2013). Emerging Issues in Compensation Valuation for Oil Spillage in the Niger Delta Area of Nigeria. *Journal of Reviews on Global Economics*, *2*(2), 31–45

Bello, O. M. and Olukolajo, M. A. (2016). Adequate Compensation as a Tool for Conflict Resolution in Oil Rich Wetlands of Niger Delta Region of Nigeria. 3rd International Conference on African Development Issues.CU-ICADI

Ifediora G. S. A (2003) *Appraisal Framework: Lectures on Theory, Principles, Methods and Practice of Property Valuation.* Iwuba Ifediora and Associates, SNAAP Press Limited, Enugu, Nigeria.

Kakulu, I. I. (2014). Post Impact Environmental Assessment Survey and Contaminated Land Valuation for Compensation in Nigeria.*Journal of Nigerian Environmental Society.* (2), 31-41.

Olusegun K. (2003). Principles and Practice of Property Valuation (Volume Two: Statutory and Non-Statutory Valuations). Olusegun Kuye and Associates, C/o Climax Communications Limited, Pent House Suite, Lagos

Oluwunmi, A. O., Akinjare, O. A., Ajibola, M. O., Oloke, O. C. (2018) An Evaluation of the Basic Facility Needs of Private University Students in Ogun State, Nigeria. *International Journal of Civil Engineering and Technology*, Vol. 9, Issue 9 pp 476 – 484

Oni, A. O., Ajibola, M. O., Iroham, O. C. and Akinjare, O. A. (2015) Analysis of Accessibility Impact on Commercial Property Values in Ikeja, Nigeria. Proceedings of the 25th International Business Information Management Association Conference – Innovation Vision 2020: Form Regional Development Sustainability to Global Economic Growth, IBIMA