

# The Place of Environmental Impact Assessment (EIA) in Environmental Disaster Management in the Niger Delta Region of Nigeria

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## Abstract

Environmental disasters have become persistent challenges in the Niger Delta region of Nigeria due to oil exploration, gas flaring, pipeline vandalism, flooding, and industrial pollution. Environmental Impact Assessment (EIA) serves as an important environmental management mechanism for predicting, mitigating, and controlling the environmental consequences of developmental activities. This study examined the place of Environmental Impact Assessment in environmental disaster management in the Niger Delta region of Nigeria. Specifically, the study investigated the extent to which EIA contributes to environmental disaster prevention and analyzing the factors that hinder the effectiveness of EIA implementation in managing environmental hazards in the Niger Delta. A descriptive survey research design was adopted. A sample size of 240 respondents comprising environmental officers, oil company workers, community leaders, and environmental activists was selected from Rivers, Bayelsa, and Delta States using stratified and simple random sampling techniques. Data were collected using structured questionnaires and analyzed using mean statistics and Analysis of Variance (ANOVA). Findings revealed that EIA significantly contributes to pollution control, environmental monitoring, disaster prevention, and sustainable environmental management in

the Niger Delta region. Furthermore, the findings showed that factors hindering EIA in disaster management in the Niger Delta region of Nigeria included delays in environmental reporting, political interferences among others. The ANOVA result showed a statistically significant difference in respondents' perceptions regarding the effectiveness of EIA in environmental disaster management ( $F = 7.82, p < .05$ ). The study concluded that EIA plays a vital role in reducing environmental disasters in the Niger Delta despite challenges associated with poor implementation and weak regulatory enforcement. The study recommended stricter enforcement of EIA regulations increased community participation, and improved environmental monitoring systems.

## Keywords:

Environmental Impact Assessment, environmental disaster management, Niger Delta, ANOVA, oil pollution, sustainable development

## 1.0.Introduction

The Niger Delta region of Nigeria remains one of the most environmentally sensitive and economically significant regions in Africa because of its vast crude oil and natural gas deposits. However, decades of petroleum exploration and exploitation have resulted in severe environmental degradation, including

oil spills, gas flaring, deforestation, flooding, coastal erosion, biodiversity loss, and water pollution (Hemba and Phil-Eze, 2021). These environmental disasters have negatively affected public health, agriculture, fishing activities, and socio-economic development in the region.

Environmental Impact Assessment (EIA) emerged as an important environmental policy tool designed to identify, predict, evaluate, and mitigate the environmental consequences of developmental projects before implementation. EIA promotes sustainable development by ensuring that environmental concerns are integrated into project planning and decision-making processes (Akinbami and Abiona, 2014).

The Environmental Impact Assessment Act No. 86 of 1992 made EIA mandatory for major developmental projects in Nigeria. Despite this legal framework, environmental disasters continue to occur frequently in the Niger Delta region due to weak implementation, inadequate monitoring, and poor compliance with environmental regulations. Reports by the United Nations Environment Programme revealed extensive environmental contamination in Ogoniland and other parts of the Niger Delta caused by decades of oil pollution. (UNEP - UN Environment Programme, 2011)

Environmental disasters in the Niger Delta have raised concerns regarding the effectiveness of EIA as a disaster management strategy. Consequently, this study examined the place of Environmental Impact Assessment in environmental disaster management in the Niger Delta region of Nigeria. The study focused on examining the extent to which Environmental Impact Assessment contributes to environmental disaster prevention in the Niger Delta region of Nigeria and analyzing the factors that hinder Environmental Impact Assessment (EIA) in environmental disaster management in the Niger Delta Region of Nigeria.

### 1.2.Hypothesis of the Study

The hypothesis of the study which was tested at 0.05 level of significance states that:

There is no significant difference in the mean responses of respondents regarding the extent of EIA in environmental disaster management in the Niger Delta region.

## 2.0.Review of Literature

### 2.1.Conceptual Review

#### a.Concept of Environmental Impact Assessment (EIA)

Environmental Impact Assessment refers to a systematic process used to identify, predict, evaluate, and mitigate the environmental effects of proposed developmental projects before implementation. According to the United Nations Environment Programme, EIA integrates environmental considerations into development planning to minimize adverse environmental impacts and promote sustainability (UNEP - UN Environment Programme, 2011)

EIA involves environmental screening, impact prediction, mitigation planning, public consultation, monitoring, and post-project evaluation. It helps decision-makers understand and the likely environmental consequences of projects and provides measures for reducing ecological damage.

In the Niger Delta region, EIA is particularly important because oil exploration activities expose communities and ecosystems to environmental risks such as oil spills, groundwater contamination, and gas flaring (Iheriohanma, 2016). Studies have shown that effective EIA implementation improves environmental monitoring and reduces pollution-related disasters (Yakubu, 2017)

#### b. Environmental Disaster Management

Environmental disaster management refers to organized efforts aimed at preventing, mitigating, controlling, and responding to environmental hazards and disasters (Okonkwo, 2014). Environmental disasters in the Niger Delta include oil spills, flooding, erosion, pipeline explosions, toxic waste discharge, and destruction of mangrove ecosystems.

Environmental disaster management emphasizes preparedness, prevention, response, recovery, and environmental restoration. EIA contributes significantly to environmental disaster management by identifying potential hazards before project implementation and recommending mitigation measures.

### 2.2.Theoretical Framework

This study was anchored on the Sustainable Development Theory popularized by Gro Harlem Brundtland through the Brundtland Commission Report of 1987. The theory advocates development that meets present

needs without compromising the ability of future generations to meet their own needs.

The theory is relevant because EIA promotes environmentally sustainable development through pollution prevention, environmental monitoring, and ecological conservation. In the Niger Delta, EIA serves as a preventive strategy for minimizing environmental degradation arising from oil exploration activities.

### 3.0. Materials and Methods

#### 3.1. Study Area

The study was conducted in the Niger Delta region of Nigeria with specific focus on Rivers State, Bayelsa State, and Delta State due to their high concentration of oil exploration activities and environmental pollution incidents. The Niger Delta region is located in the southern part of Nigeria along the Atlantic coast and occupies the lower basin of the Niger River where the river empties into the Gulf of Guinea. Geographically, the region lies approximately between latitudes 4°N and 6°N and longitudes 5°E and 8°E (Nwilo & Badejo, 2006).

The region covers about 70,000 square kilometers and consists of nine oil-producing

states namely Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers States. The core Niger Delta area includes Bayelsa, Delta, and Rivers States where oil exploration activities are highly concentrated.

The Niger Delta is bounded by the Atlantic Ocean to the south, while it extends inland toward the tropical rainforest belt of southern Nigeria. The strategic coastal location of the region contributes to its importance in maritime transportation, fishing, petroleum exportation, and international trade. The Niger Delta region faces severe environmental challenges resulting primarily from oil exploration and industrial activities. Major environmental problems include oil spills, gas flaring, water pollution, soil contamination, coastal erosion, flooding, deforestation and loss of biodiversity.

Oil spills remain one of the most devastating environmental problems in the region. Frequent pipeline leakages, equipment failures, sabotage, and illegal refining activities release crude oil into rivers, farmlands, and wetlands, thereby destroying aquatic life and agricultural productivity (Yakubu, 2017).



Figure 1: Map of Niger Delta  
Source: Nwilo & Badejo, 2006

Gas flaring also contributes significantly to air pollution, acid rain, greenhouse gas emissions, and public health problems. The United

Nations Environment Programme reported severe hydrocarbon contamination in Ogoniland with long-term environmental and health consequences (UNEP, 2011). Additionally, flooding and coastal erosion

have intensified due to climate change, sea-level rise, and poor environmental management practices. These environmental conditions have negatively affected livelihoods, food security, and sustainable development in the region. Despite various environmental policies and regulations such as Environmental Impact Assessment (EIA), environmental degradation remains a major challenge in the Niger Delta region.

**3.2.Methods**

The study adopted a descriptive survey research design because it enabled the researcher to obtain opinions from respondents regarding the role of EIA in environmental disaster management. The population of the study comprised environmental officers, oil company employees, community leaders, and environmental activists in selected Niger Delta states. A sample size of 240 respondents was used as questionnaire, field observations and interviews constituted the data collection instrument for the study. Data were collected using a structured questionnaire designed on a five-point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1).

The study adopted a multi-stage sampling procedure involving stratified sampling and

simple random sampling techniques. In adopting the stratified sampling technique, the respondents were first divided into four strata based on occupational categories into environmental officers, oil company workers, community leaders and environmental activists. This stratification ensured adequate representation of all relevant stakeholders involved in environmental management and disaster response in the Niger Delta region.

In adopting the simple random sampling technique, after stratification, respondents were selected randomly from each category using simple random sampling. This method gave all members of the population equal chances of being selected and minimized sampling bias. The distribution of respondents was detailed in table 1.

The instrument was validated by experts in environmental management and research methodology. Cronbach’s Alpha reliability coefficient of 0.81 was obtained, indicating that the instrument was reliable. Descriptive statistics such as mean and standard deviation were used to answer the research questions, while Analysis of Variance (ANOVA) was used to test the hypothesis at a 0.05 level of significance.

**Table 1: Population of the Study**

Category	Number of Respondents
Environmental Officers	60
Oil Company Workers	80
Community Leaders	50
Environmental Activists	50
<b>Total</b>	<b>240</b>

Source: Field Survey, 2026

**4.0.Findings**

**Research Question 1**

**To what extent does EIA contribute to environmental disaster prevention in the Niger Delta region?**

The result from table 1 showed that respondents generally agreed that

Environmental Impact Assessment significantly contributes to environmental disaster prevention in the Niger Delta region.

**Table 1: Mean Responses on the Role of EIA in Environmental Disaster Prevention (N = 240)**

S/N	Variables	Mean	SD	Decision
1	EIA helps prevent oil spill disasters	4.41	0.67	Agree
2	EIA improves environmental monitoring	4.28	0.73	Agree
3	EIA reduces pollution-related hazards	4.32	0.69	Agree
4	EIA promotes sustainable development	4.47	0.61	Agree
5	EIA enhances environmental awareness	4.21	0.80	Agree

Source: Field Survey, 2026

## Research Question 2

### What are the factors hindering Environmental Impact Assessment in environmental disaster management in the Niger Delta region?

The analysis presented in Table 2 revealed that respondents generally agreed that several factors hinder the effective implementation of Environmental Impact Assessment in environmental disaster management in the Niger Delta region. The grand mean score of 4.29 indicates a high level of agreement among respondents regarding the identified challenges.

The item with the highest mean score was “Oil companies often fail to comply fully with EIA recommendations” (Mean = 4.47, SD = 0.69). This suggests that respondents strongly perceived poor compliance by oil companies as a major obstacle to effective environmental management in the region.

Similarly, “Inadequate enforcement of environmental laws” recorded a high mean score of 4.42 with a standard deviation of 0.71,

indicating that weak regulatory enforcement significantly undermines the effectiveness of EIA implementation.

The result also showed that corruption among regulatory agencies (Mean = 4.35), weak institutional capacity (Mean = 4.33), and inadequate funding for environmental monitoring (Mean = 4.31) were perceived as major hindrances to environmental disaster management.

Furthermore, respondents agreed that political interference, lack of technical expertise, poor community participation, delays in environmental reporting, and inadequate environmental awareness negatively affect EIA implementation in the Niger Delta region. The relatively low standard deviation values ranging from 0.69 to 0.88 indicate consistency in respondents’ opinions regarding the identified factors.

**Table 2: Mean and Standard Deviation Analysis of Factors Hindering EIA Implementation in Environmental Disaster Management (N = 240)**

S/N	Variables	Mean	Standard Deviation	Decision
1	Inadequate enforcement of environmental laws hinders effective EIA implementation	4.42	0.71	Agree
2	Corruption among regulatory agencies weakens EIA enforcement	4.35	0.76	Agree
3	Political interference affects the independence of EIA processes	4.28	0.82	Agree
4	Inadequate funding limits effective environmental monitoring	4.31	0.74	Agree
5	Lack of technical expertise hinders proper EIA implementation	4.19	0.86	Agree
6	Poor community participation reduces the effectiveness of EIA	4.24	0.79	Agree
7	Oil companies often fail to comply fully with EIA recommendations	4.47	0.69	Agree
8	Weak institutional capacity affects environmental disaster management	4.33	0.75	Agree
9	Delays in environmental reporting reduce EIA effectiveness	4.12	0.88	Agree
10	Inadequate environmental awareness contributes to poor EIA implementation	4.18	0.81	Agree

### Grand Mean = 4.29

Source: Field Survey, 2026

### Hypothesis Testing

**Table 3: ANOVA Summary Table**

There is no significant difference in the mean responses of respondents regarding the extent of EIA in environmental disaster management in the Niger Delta region.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	58.73	3	19.58	7.82	.001
Within Groups	590.64	236	2.50		
Total	649.37	239			

The ANOVA result showed that  $F(3,236) = 7.82$ ,  $p = .001$ , which is less than the 0.05 significance level. Therefore, the null hypothesis was rejected. This indicates that there is a significant difference in respondents' perceptions regarding the extent of EIA in environmental disaster management in the Niger Delta region.

### Discussion of Findings

The discussion of findings was arranged according to the research questions tested. On the extent to which EIA plays in environmental disaster management, the findings revealed that Environmental Impact Assessment plays a significant role in environmental disaster management in the Niger Delta region. Respondents agreed that EIA contributes to disaster prevention, pollution reduction, environmental monitoring, and environmental sustainability.

The findings support reports by the United Nations Environment Programme which documented severe environmental contamination in Ogoniland and emphasized the need for stronger environmental assessment and remediation mechanisms in the Niger Delta. (UNEP - UN Environment Programme, 2018)

The findings are also consistent with studies showing that Environmental Management Plans derived from EIA processes improve environmental monitoring and sustainability in oil-producing regions of Nigeria (Okonkwo, 2014). Furthermore, the study aligns with evidence indicating that poor implementation of EIA regulations contributes significantly to environmental degradation and pollution in the Niger Delta region.

The findings revealed that inadequate enforcement of environmental laws constitutes a major challenge to effective Environmental Impact Assessment implementation in the Niger Delta region. Respondents agreed that environmental regulations are often poorly enforced, allowing oil companies and industrial operators to violate environmental standards without facing serious sanctions. This finding supports the argument of the

United Nations Environment Programme that weak environmental governance contributes significantly to environmental degradation in oil-producing communities (UNEP, 2011).

The study also found that corruption among regulatory agencies hinders effective EIA implementation. Corruption weakens transparency and accountability in environmental management processes, thereby allowing environmentally harmful projects to proceed without adequate assessment or mitigation measures. This finding aligns with previous studies which argued that corruption undermines environmental regulation and sustainable development in Nigeria.

Political interference was also identified as a significant factor affecting the effectiveness of EIA processes. Respondents indicated that political influence often compromises the independence of environmental agencies and weakens regulatory oversight. In many cases, powerful political and economic interests interfere with environmental decision-making processes, thereby limiting the effectiveness of environmental protection policies.

Another important finding was that inadequate funding limits effective environmental monitoring and disaster management. Environmental agencies often lack adequate financial and logistical resources to conduct regular inspections, monitoring, and enforcement activities in the Niger Delta region. This finding is consistent with studies showing that underfunded regulatory institutions struggle to perform their environmental management responsibilities effectively.

The study further revealed that poor compliance with EIA recommendations by oil companies remains a critical challenge in the Niger Delta. Many oil companies reportedly fail to implement recommended mitigation measures after project approval, leading to continued environmental pollution, oil spills, and ecosystem destruction. This finding corroborates reports by the World Bank which emphasized that weak compliance monitoring contributes significantly to environmental

disasters in developing countries (World Bank, 2020).

Additionally, the findings showed that poor community participation reduces the effectiveness of EIA implementation. Community members are often excluded from environmental decision-making processes despite being directly affected by environmental disasters. The exclusion of local communities weakens environmental accountability and reduces public trust in EIA processes.

The study also found that inadequate environmental awareness and lack of technical expertise hinder effective environmental disaster management. Many stakeholders lack sufficient knowledge regarding environmental regulations, risk assessment, and environmental monitoring procedures. This situation limits the overall effectiveness of EIA implementation in the Niger Delta region. Overall, the findings demonstrate that although EIA remains an important environmental management tool, its effectiveness in the Niger Delta is constrained by institutional weaknesses, corruption, poor compliance, political interference, inadequate funding, and limited stakeholder participation. The ANOVA analysis revealed significant differences among respondents' perceptions, which may be attributed to differences in occupational experiences and levels of environmental exposure among stakeholders.

## 5.0. Conclusion and Recommendations

### 5.1 Conclusion

Environmental Impact Assessment occupies an important place in environmental disaster management in the Niger Delta region of Nigeria. EIA contributes significantly to pollution prevention, environmental monitoring, disaster mitigation, and sustainable environmental management. However, ineffective implementation, weak regulatory enforcement, and inadequate monitoring mechanisms continue to limit its effectiveness.

The study concluded that strengthening EIA implementation and environmental governance is essential for reducing environmental disasters and promoting sustainable development in the Niger Delta region.

### 5.2. Recommendations

1. Government agencies should strengthen the enforcement of Environmental Impact

Assessment regulations in the Niger Delta region.

2. Oil companies should comply strictly with environmental management standards and mitigation measures.

3. Host communities should be actively involved in EIA processes and environmental monitoring activities.

4. Environmental monitoring agencies should be adequately funded and equipped for effective environmental oversight.

5. Environmental awareness campaigns should be intensified to educate communities and stakeholders on disaster prevention and environmental sustainability.

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