

# Accomplishment of Environmental Impact Assessment in the Execution of Public Sector Construction Projects in Nigeria

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**Abstract**—*Environmental degradation had been a global concern for long and the greatest culprit identified in most literature is the construction subsector. The earth summit of 1992 in Rio de Janeiro, Brazil identified Environmental Impact Assessment (EIA) as key to curtailing environmental degradation and nations all over the world were, therefore, mandated to embrace the principles of EIA in all their major projects and programmes. EIA identifies, evaluates and describes in appropriate terms, the significance and consequences of a project or programme before it is begun. Nigeria, in obligingness to the Rio de Janeiro mandate, promulgated the EIA Decree No. 86 of 1992, now EIA Act 1992. This study is propelled to investigate the extent to which EIA is accomplished on public sector construction projects in Nigeria. Both structured and unstructured facilities were utilized in sourcing field data and simple statistical tools involving percentage, mean and standard deviation were used in analyzing data. Analysis of data showed that 86% of major stakeholders in public sector construction projects are, astonishingly, unaware of the existence of EIA laws and policies in the country. This mindboggling revelation is attributed to (1) Lukewarm attitude of government in dissemination of its laws and policies and (2) Inadequacy of penalties specified for violation of EIA laws and policies. Therefore, it is recommended that EIA laws and policies be overhauled in the country to avail the injection of stiff, stringent and robust policy guidelines in such areas as dissemination, penalties and public participation.*

**Keywords**—*Environmental Degradation, Environmental Impact Assessment, Construction Industry, Public Sector Construction Projects.*

## I. INTRODUCTION

Loss of natural resources and degradation of the environment has been a major global concern for nearly a century now. Among the culprits indicted for this environmental assault is the construction industry, which is said to be responsible for worldwide contribution of 23% air pollution, 40%

water pollution, 50% of landfill waste, and 50% of climatic change (Author,2022; James, 2017; Younis, 2020). To prove the allegation, some figures pointed to the fact that the worldwide energy usage of the industry stands at 40% (James, 2017) and its raw-material extraction is between 40 to 60% (Schutzenhofer *et al*, 2022). Apart from these, other effects of the Industry on the environment include habitat destruction, desertification, soil erosion, loss of arable land, material waste and loss of biodiversity among others (Tiwari *et al*, 2016). However, in what looks like a bailout to the construction industry, the Earth summit of 3<sup>rd</sup> to 14<sup>th</sup> June, 1992 in Rio de Janeiro, Brazil stated in its Principle 17 (Agenda 21) that: “*Environmental impact Assessment as a national instrument shall be undertaken for proposed activities that are likely to have a significant adverse impacts on the environment and subject to decision of a competent authority*” (Mishra, 2016).

Environmental impact Assessment (EIA) is a process that identifies and assesses the potential environmental impacts of a project before it is begun. In essence, the 179 countries that attended the Rio de Janeiro summit (United Nations [UN], 1992) were mandated to carry out EIA on all their development projects and programmes before they begun (Mishra, 2016; UN, 1992). Currently, the number of countries that practice EIA globally is over 100 including Nigeria (Mishra, 2016). This clearly suggest that, the construction industry is bound to be exonerated from the on-going environmental dilemma if and only if EIA is made to mandatory to every country in the world. Suffice to say that, a new worldwide dawn is imminent for the construction industry.

## II. RESEARCH QUESTIONS

The earth’s physical environment has been in a state of flux ever since the creation of man, due mainly to

natural phenomena and human activities. As humans, we use the resources from physical environment to meet our needs and this in turn, had affected the environment in which we live culminating into its degradation. This degradation had been a global concern for nearly a century now and worldwide fingers seemed to have been pointed accusingly at construction and other human activities that are related to construction. But, the 1992 Earth Summit in Rio de Janeiro, Brazil has identified “Environmental Impact Assessment (EIA)” as key to curtailing environmental degradation and nations all over the world were mandated to embrace the principles of EIA in all their major developmental projects and Nigeria, in obligingness to the mandate, promulgated the EIA Decree No. 86 of 1992, now EIA Act 1992. In addition, Nigeria established supporting statutory agencies at all levels of the government to strengthen the implementation of the law. The two questions that come to the core are:

1. To what extent EIA laws and policies are actually implemented in Nigeria? and
2. What is the extent of accomplishment of EIA on public sector construction projects in the country?

This study is projected to answer these questions. In other words, the study is bent to determine the extent of Nigerian contribution to the control of environmental degradation as mandated in Brazil Earth Summit of 1992.

### III. AIM OF THE STUDY

Just like in other developing countries of the world, the government in Nigeria, according to Aniekwu (2004), accounts for more than 75% of construction output in the country. This huge reliance of the construction industry on government sponsorship is largely manifested in the provision of basic infrastructure like buildings, highways, ports, refineries, industries and power stations. But environmental degradation had been a global concern for long and the construction industry is identified as the greatest culprit (Author, 2022; James, 2017; United Nations [UN], 1992, Younis, 2020). The aim of this study therefore is to determine the level of contribution of public sector construction projects in the control of environmental degradation.

### IV. LITERATURE REVIEW

The 1978 United Nations Environmental Programme (UNEP) defined EIA as a process that identifies,

predicts, evaluates and describes in appropriate terms, both the beneficial and adverse impacts of a proposed development on the environment (Machina, 2006). The International Association for Impact Assessment (IAIA) on the other hand, defines EIA as “the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of developmental proposals prior to major decision being taken and commitments made” (Naser, 1999). However, in what looks like combining the two definitions together, Shell (2020) opined that, EIA is an instrument to identify and assess the potential environmental, social and health impacts of a developmental project, evaluate alternatives to the project or its component parts(s), and design appropriate environmental and social management plan for use during the life-cycle of the project. Adding that, EIA final report represents an integral part of the approval process of the project.

Therefore, EIA is a delineation of the likely pros and cons of undertaking a developmental project or programme while taking into account the surrounding environmental, social-economic, cultural and human-health characteristics of the host community. EIA is a decision support tool that provides information on the likely advantages and disadvantages accruable to the environment should a proposed development be undertaken. The primary goal of EIA is to minimize the likely negative impacts while maximizing the potential benefits of a proposed project so as to adequately inform decision makers in granting consent for the commencement of the project.

The upsurge in industrialization and urbanization in the western countries before the first world war led to rapid loss of natural resources. The situation took global dimension following the end of the second world war in 1945, when most countries began to partake in large scale developmental programmes which resulted in unmeasurable environmental consequences (Ogola, 2007). Here in Nigeria, the 1956 discovery of oil in Oloibiri, Niger Delta had already begun to affect the environment, resources, raw materials and people (Udosen, 2009). Global concern on environmental degradation started gathering momentum in the wake of 1960s when researchers, investors and other people came to realize the anthropogenicity of the situation, leading to the emergence of sporadic pressure groups in parts of the world in the late 1960s, clamoring for the

formation of institutional framework to safeguard the menace. Responding to this call, the USA established the National Environmental Act in 1970 to protect, conserve and preserve the environment within the confine of America. In addition, to accord the agitation a global regality, the United Nations held a conference on the environment in Stockholm, Sweden in 1972 (Ogola, 2007; Echefu & Akpofure, 2010).

Series of international seminars and workshops were held in Nigeria, the consensus of which culminated into the establishment of the Federal Environmental Protection Agency (FEPA, Act No. 58) in 1989, to serve as the overall institutional organ of the government to manage environmental issues in the country (Udosen, 2009; Echefu & Akpofure, 2010). The National Policy on Environment was further passed the same year in pursuant to the FEPA Act. Thereafter, series of Regulations were made to augment the implementation of the Act, including the National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Waste) Regulation of 1991, wherein EIA was made obligatory when demanded by FEPA (Udosen, 2009; Echefu & Akpofure, 2010). To further enhance the protection of the environment, Decree No. 59 of 1992 was promulgated to grant autonomy to state and local governments to operate their own individual Environmental Agencies (Echefu & Akpofure, 2010).

The Federal Government of Nigeria in 1992, through the promulgation of Decree No. 86, acknowledged EIA as an indispensable tool for the protection of the environment. The law made EIA compulsory on all major developmental projects and programmes, formally mandating FEPA to regulate and oversee its enforcement. Pursuant to this mandate, the FEPA had published various sectoral guidelines including the 1995 procedural guidelines (Echefu & Akpofure, 2010). The EIA division of FEPA is responsible for overseeing the EIA functions of the agency and it is charged with the following responsibilities (Federal Ministry of Environment [FME], n.d).

- (1) Regulation of new projects, site verification, project screening/scoping, Terms of Reference (TOR) evaluation, EIA records, etc.
- (2) Maintenance of EIA Public Registry, Management of EIA data bank, etc.

- (3) In-house review of EIA reports, panel and technical review, processing of EIA permits.
- (4) EIA scoping, risk assessment, review of project, co-ordination of review (panel, technical, in-house, public review/display), etc.
- (5) Conducting Impact Measurement and Management (IMM) of approved projects, evaluation & Final EIA reports, Post Approval Amendments (PAAs), etc.

In 1999 however, Environmental Protection Agencies in both Federal and State levels were absorbed and their functions taken over by Ministries of Environment (Aziza, 2019).

EIA and Construction Projects.

The magnitude and nature of impacts of construction projects on the environment, both on and off site, varies from project to project. Not only that, every stage of the construction project life-cycle has its own measurable impact on the environment:

- Transportation of raw materials and equipment into site;
- Use of raw materials and equipment on site;
- Environmental footprints during construction on site;
- The environmental impacts created during operation of the completed project such as waste deposits and pit holes on roads among others roads; and lastly,
- Impacts on the environment due to decommissioning, demolishing or closure of the project after its life span.

All these activities are bound to create effects on the environment. EIA process in construction projects does not only identify and assess environmental impact components and mitigation measures, it also supports their timely and effective implementation throughout the life of the project. In essence, EIA process in construction projects goes in a par with the project life-cycle. Therefore, the need to apprehend the various stages of the life-cycle of a construction project cannot be over emphasized.

Construction Project Life-Cycle

Construction project has a life cycle, which starts with an idea of acquiring the project, going through design, actual execution on site and its completion and handing over, to utilization of the completed project and its demolition at the end of its life span for a new project to take over. However, Machina (2006) points out what is described in Figure 1, that

the life cycle of a construction project consists of three major stages as follows: (i) Pre-contract, (ii) Contract, and (iii) Post-Contract.

(i) Pre-Contract Stage

This stage of the construction project, also called Development Stage (Machina, 2006), comprises four phases, viz: (i) The Conceptual Idea to acquire the project, (ii) Pre-feasibilities Studies, (iii) Feasibilities Studies, and (iv) Designing and Planning of the project to acceptable standard.

(ii) Contract Stage

The contract stage of a construction project, also referred to as Implementation Stage is the actual execution process of the project on site. The stage basically consists of two concurrent sets of activities as (a) Project Execution and (b) Inspection and Monitoring

a. Project Execution

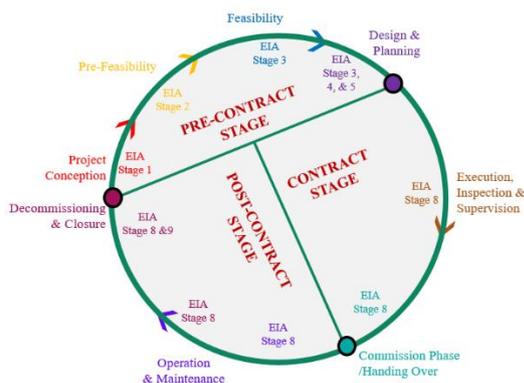
This refers to the different types of standards, methods and practices utilized in physical delivery of the project on site, including providing direction to both skilled and unskilled labour as well as meeting regulatory requirements.

b. Inspection and Supervision

This is the inspection and supervision required to satisfactorily complete the project on time, to required quality, and at the estimated budget. The stage involves constant monitoring of the project progress and effecting control measures as required.

(iii) Post-Contract Stage

The Post-Contract Stage commences as soon as the project is completed and handed over. It has phases as (a) Commissioning Phase and (b) Operation and Maintenance (O & M) Phase. The completed project and equipment therein (if any) are tested in readiness for operation in the Commissioning Phase whereas in the O & M Phase, the tested structure is put into operation and maintained throughout the remaining part of its life span.



Source: Machina (2006)

Figure 1: The life-cycle of a construction project

EIA Process in Public Construction Projects

There is no rigid one-size-fit-all procedure for the accomplishment of EIA process, but every sector of human endeavor has its own similar approaches. The steps involved in the development of an EIA for a typical construction project are given hereafter. How these steps fit into the construction project life-cycle are shown in figure 1. The flow diagram in figure 2 shows the various EIA steps and their corresponding parallel steps in the project life-cycle.

1. Screening

Screening is the process of categorizing the project to determine whether EIA is required and to what extent (Dougherty & Hall, 2005; UN, n.d; EIA Procedure, 2021; IIED, 2021; Drishtilas, 2020).The screening exercise will give birth to a document called the Initial Environmental Examination or Evaluation [IEE] (Ogola, 2007; Dougherty & Hall, 2005). The final conclusion of the IEE is expected to mainly classify the project according to its environmental sensitivity (Dougherty & Hall, 2005). Most countries however, have official legislation containing guidelines for screening of construction projects (Dougherty & Hall, 2005; UN, n.d).

2. Scoping

This is the process of identifying all the potential environmental impacts that are relevant to be assessed on the project (UN, n.d). The success of the scoping stage of an EIA depends to a large extent on mutual consultations and deliberations with concerned resource parties, such as the local population, policy-makers, the scientific community and other key governmental and non-governmental interest groups. People who are affected by the project need to be consulted because their input may have significant bearing on the focus of the EIA (Dougherty & Hall, 2005). The scoping process for construction projects begins at the same time with the pre-feasibility phase of the project cycle, and this allows problems to be pinpointed early enough for mitigating design changes to be prepared before the execution of detailed design (Dougherty & Hall, 2005).

3. Prediction and mitigation

The prediction exercise comes into play immediately after the scoping process is completed. This stage constitutes the nerve center of EIA in construction projects (Dougherty & Hall, 2005). In addition to constant consultation with the public for inputs, each and every beneficial and adverse environmental impact identified in the course of the scoping process is now going to be subjected to prediction exercise to

uncover alternatives to them, and each alternative will be dissected for pros and cons to serve as input for final analysis in the stage. Predictions on beneficial impacts are mainly for enhancement of their benefits, whereas adverse impacts are predicted for negative and positive, reversible and irreversible, and temporary and permanent alternatives (Ogola, 2007; Drishtilas, 2020). Another integral part of this stage is the prediction of alternatives for mitigation measures and their translation into monetary terms. Mitigation measures on adverse impacts should be discarded when their unsuitability is detected or their alternatives are considered to be superior in environmental and economic terms (Dougherty & Hall, 2005). The last option of “without the project” scenario should also be given ‘the benefit of the doubt’ in predictions and analysis process (Dougherty & Hall, 2005).

The main aims of prediction and mitigation stage in EIA is to minimize any adverse impacts and enhance positive impacts. Therefore, there must be both formal and informal link between this stage of the EIA and the feasibility phase of the project cycle so that EIA proposals are taken into account in feasibility studies (Dougherty & Hall, 2005).

#### 4. Environmental Management Plan (EMP).

Once the prediction and mitigation exercise is completed, the planning of management and monitoring strategies commences. It is in this stage that the enhancement and mitigation measures established in the previous stage were set out and an institutional plan of action, better known as Environmental Management Plan (EMP), is formulated specifically for timely and effective execution of the measures during the remaining part of the project life-cycle. In addition to recommendation for action and procedures for execution of developed environmental components and mitigation measures, the EMP must also present these components and measures in clearly defined forms together with their related monetary values (Dougherty & Hall, 2005). However, the part of the EMP which is used during the Contract/Implementation Stage of the project is referred to as Construction Environmental Management Plan [CEMP] (Worldbank, 1999; EMP, 2023; Western, 2023; Lemos, 2022; CEMP, 2024).

#### 5. Environmental Impact Statement

The final EIA report is called the Environmental Impact Statement (EIS), Accomplishment of the EMP signals the preparation of a draft EIS. The draft EIS must receive series of administrative,

professional and/or judiciary reviews before it is eventually transformed into the final EIA report (Ogola, 2007; Dougherty & Hall, 2005).

#### 6. Public hearing

The local community and other stake holders should be accorded the opportunity to express their views on the final EIS. In addition to raising the standard of EIA report and providing inputs for decision making, this level of consultation further integrates all stakeholders into the decision-making process of the project (Ogola, 2007; Dougherty & Hall, 2005).

#### 7. Decision making

The final EIA report and the inputs gathered during public hearing are taken into accounts by decision makers on whether to approve the project or not (Ogola, 2007; Dougherty & Hall, 2005).

#### 8. Monitoring, Compliance and Enforcement

This is to monitor the implementation of the EMP. However, for the monitoring process to be successful, the EMP should be specific in its description of all enhancement, mitigation, and monitoring and control measures. The EMP should also clearly define every assignment of institutional responsibilities, including all formal and informal interfacial communication links. Even though the implementation of the EMP starts about the same time with the contract stage of the project, the EMP is carried beyond the contract stage through to the end of the life span of the project (Ogola, 2007; Dougherty & Hall, 2005; Younis, 2020; Worldbank, 1999; EMP, 2023; Western, 2023; Lemos, 2022; CEMP, 2024). It is therefore considered a useful management axiom to integrate the EMP, particularly the part constituting the CEMP, with the Construction Management Plan (CMP) in construction project execution (Ogola, 2007; Dougherty & Hall, 2005; Younis, 2020; Worldbank, 1999; EMP, 2023; Western, 2023; Lemos, 2022; CEMP, 2024).

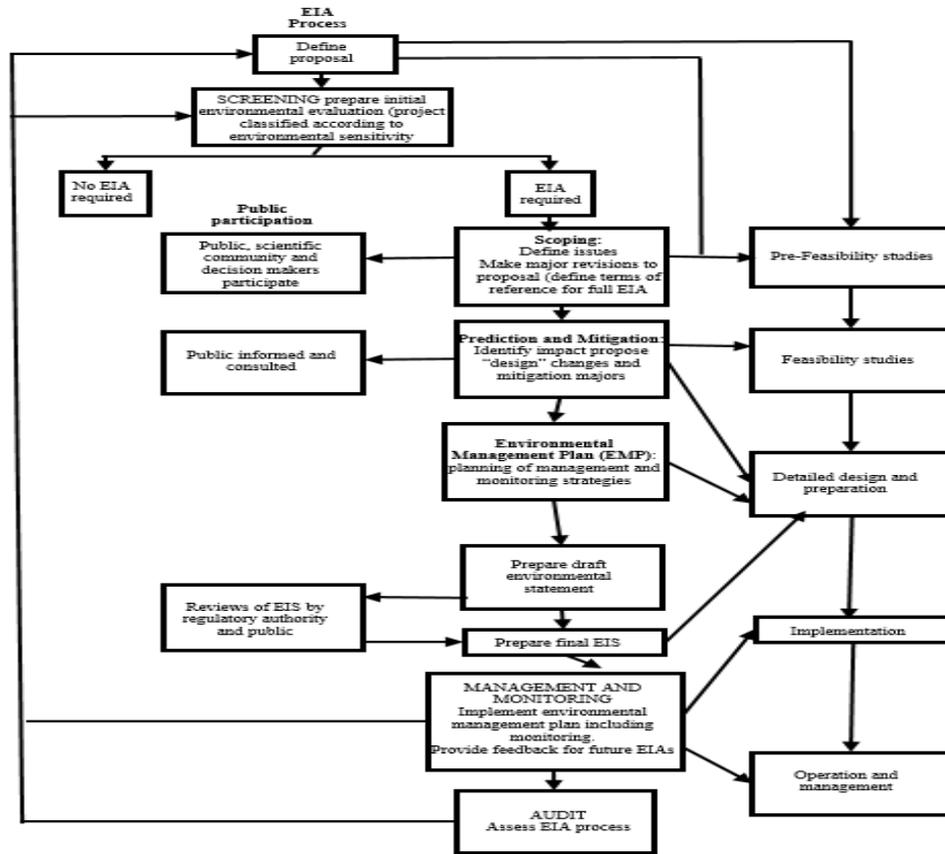
#### 9. Auditing

Ideally, knowledge and experience acquired from one EIA exercise are gainfully utilized in the accomplishment of another EIA. The last stage of an EIA which is simply referred to as Auditing, provides essentially records of all aspects of the assessment. Auditing is basically an analysis of technical, procedural and decision-making aspects of EIA as follows:

- (i) Technical: This is record of analysis on adequacy of the baseline data, reliability of predictions and efficiency of both enhancement and mitigation measures (Dougherty & Hall, 2005).

(ii) Procedural: It is the record of analysis on the efficiency of the EIA procedure, which include level of coordination of responsibilities and degree of involvement of public and other stakeholders (Dougherty & Hall, 2005).

(iii) Decision Making: it is the record of analysis on decision making procedures and requirements. It also gives a record of efficiency and fairness of the decision making process (Dougherty & Hall, 2005).



Source: Dougherty & Hall (2005)

Figure 2: A flow diagram of EIA stages with corresponding parallel stages in construction project life-cycle

**Significance of EIA in Public Construction Projects:**  
 The purpose of an EIA is to determine the potential environmental, social and health beneficial and adverse effects of a proposed development (Environmental Impact Assessment, 2024). The emphasis here is to provide relevant information on the pros and cons of the intended development. Therefore, EIA is not a procedure for preventing proposed projects with adverse effects from happening. Rather, it is an emporium of information on proposed projects to facilitate informed decision making before the project is begun. The following are some of the significances of EIA in construction projects.

1. Mitigation.

Basically, decision made on proposed projects whose adverse impact are mitigated can easily be justified, and one of the cardinal objectives of EIA is to establish such measures and their associated cost

implications (in appropriate form) to decision makers (Environmental Impact Assessment, 2024).

2. Environmental Quality of Life.

EIA in construction projects should not be seen as just a mere technical report. It is wholly a means of protection and improvement of environmental quality of life (Environmental Impact Assessment, 2024).

3. Interdisciplinary Approach.

Glasson *et al*, (2023) claimed that, although construction professionals normally assess the impact of developments on the environment but definitely not in the systematic and multidisciplinary way done in EIA. Principally, EIA identifies and evaluates the impacts of human activities on the natural and social environment, and this is accomplished through multidisciplinary approach ((Environmental Impact Assessment, 2024; Younis, 2020).

#### 4. Public Involvement.

Since public sector construction projects have significant impacts on the community, direct consultation with the people in the EIA process allows legitimate issues to be heard; curtails the incidence of conflict and instability; and gives the people some sense of involvement in decision making process of the project (Ogola, 2007).

#### 5. Project design cost

The feedback received from the EIA team during pre-contract stage of the project could lead to design changes that may be very costly to make at a later stage in the project life-cycle (Younis, 2020).

#### 6. Time and cost of project implementation

Some of the areas identified and planned for in the EIA process could be sources of modifications and variations during project implementation which may result in cost variation and delay in project delivery (Younis, 2020).

#### 7. Project performance

The CEMP is implemented side to side with the Project Construction Plan (PCP). This means all enhancement and mitigation measures developed in the EIA process are presented to the project manager first-hand and on timely basis, resulting in enhanced project performance (Younis, 2020).

#### 8. Future-proofing Assets.

EIA is geared toward protecting and improving the natural and social environment in order to conserve and preserve it for future generations. Because environmental degradation affects the values of lands and construction structures, and poses risk to human health, protecting and improving the environment is an assurance of the future of construction assets (Younis, 2020).

#### 9. Return on Investment (ROI) and property value.

EIA helps prevent degradation of the environment around a construction structure with resultant positive effect of increased value to the structure. In addition, EIA provide clean, protected and improved environment around properties, such as hotels, residential estates and commercial edifices, thereby enhancing their Return on Investment (Younis, 2020).

#### 10. Overall cost Saving.

There are some environmental risks that can pose life threatening danger to a project. EIA detects such risks early enough for environmental plan to be prepared against them, and this could result in substantial cost savings to the project. For examples, making an environmental plan early enough for land erosion

could substantially save the overall cost of a construction project (Younis, 2020).

#### 11. Laws and Regulations.

EIA acknowledges and respects environmental and construction laws and regulations in a society and, to avoid impact with them and their violation, it always purveys for such laws and regulations in all its plans (Environmental Impact Assessment, 2024).

#### 12. Project acceptance

The involvement of the public and other stakeholders in the process of EIA will result in the accomplishment of a project which is acceptable to all (Environmental Impact Assessment, 2024).

#### 13. Clean-up cost

The aftermath of most construction projects is dirty surrounding, which sometime results in visual nuisance. EIA improves and prevents dirty environments and this curtails clean-up cost on completed projects.

## V. STUDY METHODOLOGY

### Data Collection

The threshold field data for the study were sourced through structured and unstructured statistical facilities. While the structured facility capitalized on questionnaires administered to respondents, the unstructured tool was by means of face-to-face encounter with respondents. The target respondents in both sources of data collection were Chief Executives and Directors in those public organizations that are charged with overall statutory responsibilities of delivering public construction projects. The public organization that were considered for the study include:

- i. State offices of the Federal Ministry of Works and Housing
- ii. State Ministries of Housing
- iii. State Ministries of Works and Transport
- iv. State Housing Corporations
- v. Local Government Works Departments
- vi. Works Departments in tertiary institutions
- vii. Works Departments in Extra-ministerial organizations such as Teaching Hospitals, Medical Centers, Basin Authorities, etc.

As the idea of conducting EIA on construction projects could sound alien to some respondents, efforts were made to explain the meaning of the assessment in both the structured and unstructured field facilities. The two key areas of field investigation were:

- i. To ascertain the desirability of undertaking EIA before the execution of public construction projects, and
- ii. To ascertain whether or not EIAs were undertaken before the commencement of construction projects in the various organizations considered for investigation.

However, considering the present unprecedentedly vicious economic and security situation in the country, only public organizations in Borno, Yobe, Plateau, Kaduna, Katsina, Niger, Bauchi, Adamawa, Gombe, Kano and Jigawa states were contacted for sampling data. Notwithstanding, all established concept in the study can equally be applied to other

public organizations in the country with little or no modifications.

A total of fifty-five (55) public organizations were contacted for the study and they include: Thirty-eight (38) Works Departments in Local Government Areas and other organizations, Eleven (11) State Ministries of Housing/Works and Transport, and Six (6) state offices of the Federal Ministry of Works and Housing. On the whole, a total of 60 questionnaires were distributed to respondents as shown on table 1. Data obtained from the field were analyzed using simple statistical tools such as measures of central tendency and dispersion.

TABLE 1: DISTRIBUTION OF QUESTIONNAIRES TO RESPONDENTS

S/No	STATE	NO. OF RESPONDENTS CONTACTED			
		STATE MINISTRIES OF HOUSING/WORKS	L.G WORKS DEPTS.	WORKS DEPTS. IN OTHER ORGANIZATIONS	STATE OFFICES OF FED. MIN. OF HOU
1	Borno	2	3	1	1
2	Yobe	2	6	1	1
3	Plateau	1	1	1	-
4	Kaduna	2	3	1	1
5	Katsina	1	3	1	1
6	Niger	1	-	-	-
7	Bauchi	2	4	1	1
8	Adamawa	1	2	1	-
9	Gombe	2	3	1	-
10	Kano	1	2	-	-
11	Jigawa	1	3	-	1
TOTAL		16	30	8	6

#### Data Presentation

An investigation was conducted to determine if any government policy on EIA existed as well as extent of accomplishment of such policies, in the various organizations contacted. The number of questionnaires returned from respondents stood at 42, representing 70% of the total number administered in the field. This percentage representation can be considered adequate enough for further statistical analysis in view of Moser and Kalton's (2007) testimony, that the result of a statistical data tends to be bias and therefore of little value if its return rate happened to be less than 30-40%.

The results obtained on the existence of any EIA policies in the organization contacted were quite surprising. This is because majority of the respondents contacted, as indicated on table 2, were not aware that EIA policies ever existed in the country, insinuating that EIAs were never conducted on most public sector construction projects. This therefore necessitated a second round of investigation on the desirability of EIA principles and objectives. This second round of investigation was accomplished after painstakingly explaining these EIA principles and objectives to respondents. However, 42 responses were also coincidentally retrieved in the second round. The data obtained in both the first and second rounds of investigation are shown in table 2.

Table 2: Presentation of data on the existence of EIA policies and its desirability

S/N	TYPE OF RESPONSE	NO. OF RESPONSE		REMARK
		Existence of EIA policies (1 <sup>st</sup> Round of investigation)	Disability of EIA Principles and objectives (2 <sup>nd</sup> Round of Investigation)	
1	No Response	1	1	
2	Yes	5	40	
3.	No	36	1	
TOTAL		42	42	

VI. DATA ANALYSIS

Data Analysis on Existence of EIA policies

The data given under existence of EIA policies on table 1 were analyzed and presented on table 3.

Table 3: Analysis of data on existence of EIA policies.

S/N	Response	Value (X)	Frequency (f)	Percentage	Valid Percentage	Cum Percentage
1	No Response	0	1	2	2	2
2	Yes	1	36	86	86	88
3	No	2	5	12	12	100

Mean (m) =  $\Sigma fx / \Sigma f = 46/42 = 1.500$

Standard Deviation =  $\sqrt{\Sigma fd^2 / \Sigma f} = \sqrt{5.766/42} = 0.370$

Where d = x-m

Data Analysis on Desirability of EIA Principles and Objectives

The data given under desirability of EIA principles and objectives on table 1 were analyzed and presented on Table 4:

Table 4: Analysis of data on Desirability of EIA Principles and Objectives.

S/N	Response	Value (X)	Frequency (f)	Percentage	Valid Percentage	Cum Percentage
1	No Response	0	0	0	0	0
2	Yes	2	41	98	98	98
3	No	1	1	2	2	100

Mean (m) =  $\Sigma fx / \Sigma f = 83/42 = 1.980$

Standard Deviation =  $\sqrt{\Sigma fd^2 / \Sigma f} = \sqrt{0.976/42} = 0.152$

Where d = x-m

VII. RESULTS AND DISCUSSION

The analysis presented on table 3 indicates that Eighty-six percent (86%) of Chief Executives and Directors of public institutions contacted testified their lack of knowledge on the existence of any government policies regarding EIA on public projects and programmes. The table shows that, only 12% of respondents claimed awareness of EIA policies. This clearly posits lukewarm attitude of the Nigerian government in the area of dissemination of its laws and policies. The Environmental Impact Assessment Act was passed into law since 1992 and yet the Nigerian society, particularly the public service enclave, is not yet fully informed on the policy. Ngu (1998) said “an uninformed society is indeed a lost society”. Suffice to say that the Nigerian

society is a ‘lost society’ in that 32 years after passing into law of a fundamental act (the EIA Decree No. 86 of 1992, now EIA Act 1992), major stakeholders in the accomplishment of the act are not yet adequately informed on its principles and objectives. This corroborates Obaji’s (2022) claim, that it is a common practice in Nigeria for development projects of national importance to commence without any Environmental Impact Assessment on them.

The analysis on the desirability of carrying out EIA before the execution of construction projects as presented on table 4 indicated that, Ninety-six percent (96%) of respondents were satisfied with the idea of conducting EIAs before undertaking any major public construction projects. However, this near-unanimous level of acceptance may not be

unconnected with the efforts made in explaining the virtues of EIA in the course of the Study.

Sadly however, Nigeria had been witnessing quite a number of anthropogenic environmental disasters for long, ranging from oil spillage that adversely affected local agricultural and fishing activities to toxic and other waste disposal, desertification, habitat destruction, material waste, soil erosion, flooding, water, air and noise pollution, and loss of biodiversity and arable land, all of which can be rooted to construction and other human activities that are related to construction. Series of laws and regulations were also put in place with supporting statutory agencies at all levels of the government to safeguard the environment in Nigeria, and yet the issue of environmental catastrophes is treated with levity by the citizenry in the country. Aziza (2019) said; *“Most people always take environmental issue lightly as there are little or no environmental education by administrators to the Nigerian citizens”*. But Obaji (2022) viewed the problem from the perspective of penalties for non-compliance of the law, stating that *“The prescribed monetary penalty is grossly inadequate. Offending individuals are liable to fine of 100,000 naira (about US\$238). Firms or Corporations can be fined between 50,000 naira (about \$119) and one million naira (about\$2,384)”*. Adding that, *“Not only are the penalties too low to compel compliance, they are hardly ever imposed on offenders”*.

#### VIII. CONCLUSION

Results and Discussion in the study have revealed that the issue of EIA laws and policies are treated with levity in Nigeria and yet the citizenry is desirous of strict implementation of the assessment. The nonchalant attitude of government in the implementation of EIA posits that, Nigeria is not in control of degradation of its environment and therefore, it is no longer a reliable trustee of the Rio de Janeiro convention. Notwithstanding, to realize the full potentials of EIA and to reclaim its lost position as trusted ally in the comity of nations, Nigeria must bring the implementation of EIA to the level of international principles and practice. However, as the construction industry is indicted as the greatest culprit of environmental degradation and the government in Nigeria commands lion share of activities in the industry, all hands must be on deck

to revitalize the implementation of EIA on public sector construction projects in the country.

#### IX. RECOMMENDATIONS

To bring the implementation of EIA in the construction sub-sector of the Nigerian economy to the same level of international best principles and practice, it is hereby recommended as follows:

1. Sensitization Policy: There should be robust sensitization policy for the dissemination and popularization of EIA aims, objectives, benefits, uses, techniques, and procedures. This sensitization campaign should be stretched to encompass every nook and cranny in the country.
2. Stringent Penalty: There should be a sturdy policy that imposes stringent penalty on violators of EIA laws. Penalties should include such terms as imprisonment of individuals, outright expulsion of public servants, and sanction (or even proscription) of organizations from professional practice.
3. Infusion of EIA into Project Documents: A deliberate stiff policy should be put in place to make it mandatory on project proponents to infuse every EIA into the planning process of construction projects. This will galvanize the EIS into the project design to become an integral part of the project document.
4. Standard EIA Procedure: All professional bodies in the Construction Industry should come together and establish a standard procedure for the preparation of EIA on construction projects. This procedure should be incorporated into the curriculum of all construction courses in institutions of higher learning.
5. Establishment of EIA Agencies: Statutory agencies capable of enforcing EIA laws and policies should be established at all levels of government. These agencies should be run by construction professionals, lawyers, medical doctors, and all other professionals that matter. In addition to the overall responsibilities of policing the implementation of EIA, the agencies should also be empowered with outright prosecution of violators of EIA laws and policies.

6. **Public Participation:** The level and nature of public participation in EIA process leaves much to be desired (Obaji, 2022). The national assembly should revisit EIA laws in the country, and such areas like hiking the influence of the public in decision making process of projects and programmes should be accorded higher priority.

#### REFERENCES

- [1] Aniekwu N. (2004). *GOVERNMENT ROLE IN DEVELOPING THE CONSTRUCTION INDUSTRY IN NIGERIA*. Researchgate. [https://www.researchgate.net/publication/267026082\\_GOVERNMENT\\_ROLE\\_IN\\_DEVELOPING\\_THE\\_CONSTRUCTION\\_INDUSTRY\\_IN\\_NIGERIA](https://www.researchgate.net/publication/267026082_GOVERNMENT_ROLE_IN_DEVELOPING_THE_CONSTRUCTION_INDUSTRY_IN_NIGERIA)
- [2] Author, G (2022). *Environmental Impact Assessment in Construction*. Gharpedia. <https://gharpedia.com>blpg>environment>
- [3] Aziza G. (2019). *History of Environmental Laws in Nigeria*. Aziza. <https://www.aziza.com.ng/read/2019/10/history-of-environmental-law-in-nigeria>
- [4] CEMP (2024). *Construction Environmental Management Plan (CEMP)*. EPA. [https://www.epa.sa.gov.au/12330\\_guide\\_cemp.pdf](https://www.epa.sa.gov.au/12330_guide_cemp.pdf)
- [5] Drishtilas I.A.S. (2020). *Environmental Impact Assessment*. Drishtilas. <https://www.drishtilas.com/to-the-points/paper3/environmental-impact-assessment-1>
- [6] Dougherty T. C. and Hall A. W. (2005). Chapter 3: EIA Process. In H. R. Wallingford (Ed), *Environmental Impact Assessment of Irrigation and Drainage Projects* (pp. 345-361). Food and Agricultural Organisation, United Nations, Viale delle Termedi Caracalla, 00100 Rome, Italy. M56. ISBN 92-5-10371-0. <https://www.fao.org/4/V8350E/v8350e06.htm>
- [7] Echefu N. and Akpofure E. (2010). *“Environmental Impact Assessment in Nigeria”*: Regulatory Background and Procedural Framework. International Association for Impact Assessment. Iaia <https://www.iaia.org>pdf>
- [8] EIA (2022). *Environmental Impact Assessment (EIA)*. Mygov.scot. <https://www.mygov.scot/eia>
- [9] EIA Procedure (2021). *EIA Procedure*. Elaw. <https://www.elaw.org.>eia-procedure>
- [10] EMP (2023). *Environmental Management Plan (EMP)*. Keystone Environment. <https://keystoneenvironmental.ca/services/biology/environmental-management-plan-emp/>
- [11] FME (n.d). *Federal Ministry of Environment, Office of Environmental Assessment Department*. Environmental Assessment Division. <https://ead.gov.ng>environmentalimpactassessment>
- [12] Glasson J., Therivel R. and Chandnwick A. (2003) *Introduction to Environmental Impact Assessment (Second Edition)* VCL Press Limited, 11 New Fetter lane, London EC4P 4EE.
- [13] IIED (2021). *“Environmental Impact Assessment (EIA)”*: Profiles of Tools and Tactics for Environmental Mainstreaming. International Institute for Environmental Development (IIED). <https://www.environment-mainstreaming.org>.
- [14] James H. (2017). *How Does Construction Impact the Environment?* Gocontractors. <https://gcontractor.com>blog>environment>
- [15] Lemos G. (2022). *Construction Management Plan*. Designing Buildings Wiki. <https://www.designingbuildings.co.uk/wiki/construction%20environmental%20management%20plan>
- [16] Mishra G. (2016). *“Environmental Impact assessment of Construction Projects”*: Concept and Guidelines. THECONTRACTOR. <https://thecontractor.org/environmental-impact-assessment-construction/13057/>
- [17] Machina M A (2006). *An Appraisal of Current Practice in the Development and Implementation of Public Sector Construction Projects: A Case Study of Selected states*. [Unpublished PhD dissertation. Ahmadu Bello University, Zaria].
- [18] Machina M A (2024). Elements of Construction Projects. In I. Mbamali (Ed), *Introduction to Building: A Compilation of the Department of Building*,

- University of Maiduguri. [Unpublished Manuscript].
- [19] Moser C. A. and Kalton G. (2007) *Survey methods in social investigation*. Heinemann Educational United Kingdom.
- [20] Naser H. A. (1999). *Principle of Environmental Impact Assessment Best Practice*. Association for Impact Assessment. <https://www.scrip.org/reference/referencespapers?referenceid=398170>
- [21] Ngu, S. M. (1998). Sociology of the Nigerian Administration: An Analysis of Administrative Principles, Process, Behaviour and their Effects on Nigerian 1998 Administrative Reforms: In: S. M. Ngu, Abdulsalami and J. B. Longe (Eds.). *Evaluation of Nigerian Civil Service: The 1998 Reform*. Pp 11 Gaskiya Corporation Limited, Zaria, Nigeria. June.
- [22] Obaji S. (2022). *Environmental Impact Assessments don't work in Nigeria: here's why*. THE CONVERSATION. <https://theconversation.com/environmentalimpactassessment>
- [23] Udosen C. (2009). Fifty Years of Oil Exploration in Nigeria: A Paradox of Plenty. *Global Journal of Social Sciences*, 8(2), 37-47. [https://www.ajol-file\\_132\\_articles\\_79416\\_submission\\_proof\\_79416\\_1573-186462-1-10-20120723.pdf](https://www.ajol-file_132_articles_79416_submission_proof_79416_1573-186462-1-10-20120723.pdf)
- [24] Ogola P. F. A. (2007). "Environmental Impact Assessment": General Procedure. Orkustofnun. <https://orkustofnun.is/gogn>
- [25] Schutzenhofer S., Kovacic I., Rechberger H. and Mack S. (2022, Sept). *Improvement of Environmental Sustainability and Circular Economy through Construction Waste Management Material Reuse*. Mdpi <https://doi.org/10.3390/su141711087>
- [26] Shell (2020). *Environmental Impact Assessment Report*. Shell [https://www.shell.com.ng/sustainability/environment/environment-impact-assessments\\_html](https://www.shell.com.ng/sustainability/environment/environment-impact-assessments_html)
- [27] Tiwari V. K., Verma A., Kumar A., and Gupta M. (2016). *A review on Environmental Impact Assessment of Construction Projects*. IOSRJOURNAL. <https://www.iosrjournals.org/iosr-jestft/papers/vol10-issue1/version-1/E010112125.pdf>
- [28] U.N (1992, June 3-4). "United Nations": *United Nations Conference on Environment and Development, Rio Janeiro, Brazil. 3<sup>rd</sup> to 14<sup>th</sup> June, 1992*. UNITEDNATIONS. <https://www.un.org/en/conference/environment/rio1992>
- [29] UN (n.d). *What is Impact Assessment?* United Nations Environment Programme. Impact Assessment. <https://cbd.int/impact/whatis>
- [30] Western H. (2023). *Environmental Management Plan (EMP)*. Gov.uk. [https://assets.publishing.service.gov.uk/6.10\\_-\\_Construction\\_Environmental\\_Management\\_Plan\\_-\\_Checked.pdf](https://assets.publishing.service.gov.uk/6.10_-_Construction_Environmental_Management_Plan_-_Checked.pdf)
- [31] Environmental Impact Assessment (2024). Wikipedia. [https://en.wikipedia.org/wiki/environmental\\_impact\\_assessment](https://en.wikipedia.org/wiki/environmental_impact_assessment)
- [32] Worldbank (1999). *Environmental Management Plan*. World Bank. [https://web.worldbank.org/OP-4-01-Annex-C-Environmental-Management-Plan\\_pdf](https://web.worldbank.org/OP-4-01-Annex-C-Environmental-Management-Plan_pdf)
- [33] Younis J. (2020, 20 April). *Construction Environmental Management Plan (CEMP)*. Alpinme. <https://www.alpinme.com/construction-environment-management-plan/>