EVALUATING THE ENVIRONMENTAL IMPACT OF THE CARGO AIRPORT PROJECT IN UMUERI AND NTEJE COMMUNITIES, ANAMBRA STATE

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TITLE PAGE

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CERTIFICATION

OJIAKO, AUGUSTA OBIANUJU, REG. NO. MA/PG/14/67423, a post-graduate student in the Department of ARCHAEOLOGY AND TOURISM has satisfactorily completed the requirements for the Degree of Master of Arts (M.A.) in ARCHAEOLOGY AND TOURISM. The research work embodied in this thesis is original and has not been submitted in part or in full for any other diploma or degree of this or any other University.

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EXTERNAL EXAMINER

Date_____

DEDICATION

… Unto the King eternal, immortal, invisible, the only wise God, be honour and glory forever and ever. Amen. (1 Timothy 1:17).

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ABSTRACT

This study, 'evaluating the environmental impact of the cargo airport project in Umueri and Nteje community, Anambra State', was conceived out of the need to ascertain sustainability of the project, its environmental impacts and mitigating measures as well as its historical and archaeological potentials. Significantly, the study objectives are particularly (1) to identify and examine the impacts of the project on the physical and biological environment, health, socio-cultural and socio-economic wellbeing of the Umueri and Nteje communities, (2) to locate and examine historical and archaeological resources affected by the project, (3) to examine and foster the community involvement, participation and awareness towards supporting environmental impact assessment in Nigeria. Three research questions provided the guiding principle from which our framework was structured and addressed. Research data were collected through qualitative and quantitative measures, thus, hundred questionnaires were distributed randomly to respondents in the study area, while ethnographic instruments used were in-depth (semi-structured) interviews. Also, field observations were carried out. Ten key informants from various social statuses within the study area were selected to represent the communities involved while official information were collected from the construction companies and from Personal Assistances to the Commissioner of Ministry of Works and Transportation, Anambra-State. Data were presented descriptively, in tables, charts, in pictorial forms and in figures, hence, data analysis were conducted quantitatively and qualitatively using Special Package for the Social Sciences (SPSS) and descriptive comparison respectively. Actual and potential impacts of the cargo airport construction were identified and evaluated such that the various themes outlined had pessimistic impact, which ranges from loss of communal farmland, loss of communal water points, total deforestation, destruction of medicinal plants, loss of both medicinal and other species of animals, reduction of lumbering activities, exposure to toxic substances in the air, loss of concentration due to noise, hampered social cohesion, and destructions of historical and archaeological resources except socio-economic standard which tend to had increased positively as a result of the income generated from construction activities. The need for community involvement and participation were highlighted and fostered during the course of the field research to ensure proper contributions from the host communities which invariably would result to sustainable development.

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CHAPTER ONE

INTRODUCTION

1.0 Overview

Although there is a pressing need for economic development, jobs and revenue generation at the local, state and national levels which are perceived as an overriding consideration for approving projects and technological advancements in the nation. Nevertheless, the consequences of destructions on the environment, leaving much homeless, jobless and posing pollution to people's health as well as terminating their accessibility to their original cultural activities, should equally be considered. To this effect, evaluating the impact assessment of any proposed project must be considered essential, since impact assessment has been mapped out as a tool for providing models, measures and planning for preventing destruction on the environment, historical and archaeological heritages on the proposed site as well as mitigating the damages in the natural, socio-cultural, health and economical wellbeing of the community where projects are proposed and constructed for national development (Stakeholder's Guide, 2003). For effective use of this tool, a proper understanding of the predictions of impacts must be considered, and if not effectively implemented and used would affect the supposed beneficiaries of the project.

This study explains that Umueri and Nteje, where the cargo airport project is located, is a known area for cultural endowments, Igbo historical background and efficient economic activities (indigenous knowledge) (Oguagha, 1988). The people basically depend on their environment for survival, therefore, the cargo airport that linked from Umueri and Nteje roads and hills valley is evaluated for impacts assessment to ensure that resources of the communities are well mitigated and preserved. Individuals and communities' opinion, views and expectations were evaluated and highlighted to ensure that the beneficiaries of the projects are in concordance with the government provisions. Literatures on ethnographic research, archaeological research, legislative regulations and environmental impact assessment were reviewed to evaluate and validate the needs for protecting such environmental resources from the destruction that is inevitable during execution of such projects.

To this end, this study is aimed at identifying and studying the areas in the communities that are affected by the proposed project, with concentration on evaluating the impacts of the proposed project on the natural, socio-cultural, health and economic environment of the communities under study. Also, the research located and examined historical and archaeological resources affected by the project and finally, provided recommendations based on the research for the protection of the cultural, historical heritage of the area and improving the general wellbeing of the host communities as a mitigating factor for those damages.

The research employed series of methods to actualise its aim. Ethnographic technique was adopted for data collection. With ethnographic technique, the socio-cultural, socio-political, economic activities as well as historical background were generated. Also, direct observation (reconnaissance survey inclusive) and in depth interview (structured and unstructured) would also be conducted to examine individual and collective impacts, opinion and expectations of the people to be studied. Finally, qualitative method would be applied in analyses of data, whereas quantitative distribution and presentation was employed.

1.1 Statement of the Problem

The research sought to identify and examine the environmental impact of the cargo airport project in the Umueri and Nteje communities of Anambra State and evaluate the mitigating factors proposed for the affected individuals as well as the communities involved. Thus, the decision to route the cargo airport road through Nenyi-Umueri, Ifite-Umueri and part of Nteje hill, constituted the single largest human imprint on the local landscape since it was first settled supposedly three millennia ago. The presence of lightening along the road in addition to the headlights of traffic will entirely transform the immediate area around the road and almost certainly, the view across the valley itself by night. The existing physical connection between the hills of Umueri and Nteje, the network of field boundaries which crosses the Anambra-basin, will be broken and large areas of the boundaries and water bodies themselves destroyed. Other than the direct impacts on those sites already discovered to be directly in the path of construction, this would have an impact on the archaeological landscape heritage (considered in its wider sense) of the entire valley by entirely transforming the setting from a rural environment to that of the decidedly less rural setting for one of modern cargo airport project.

This may in turn encourage further development which will further alter the setting and backdrop to the existing monuments. The proposed route to the airport was mapped from Nenyi-Umueri, Ifite-Umueri, and Nteje communal and extended family farmlands, community streams that provide drinking water. Also previous linkages for erosion were naturally located on those lands. The inhabitants of these communities depend solely on their environment for survival; their farm, means of fishing, source of lumbering and firewood were outlined as the best linkage to the airport. Cultural materials collected during archaeological reconnaissance show that there were regular activities between the people and the environment. More so, the farmland around the link road has been flooded and their means of survival has been truncated. Historical, cultural and archaeological information buried beneath the grounds which were mostly destroyed during the constructions, as were evidently discovered on the land, are basically revealing of the impacts that were neglected by the stakeholders.

Although, environmental assessment were carried out, the locals were not fully allowed to participate; for creation of awareness, for preparedness and for proper compensation and regularities. Apart from local participation, most of the legislative regulations supporting Environmental Impact Assessment were not reviewed and implemented; neither were most host communities aware of the cultural and archaeological regulations. The original owners of the linkage road were not prepared at all to lose their land and to face erosion which presently (as at the time of the report) poses danger to their farm. The farmers, however, lamented over the unexpected destructions and damages they are facing which could lead to famine and hunger while waiting for government compensations. Furthermore, if cautions are not taken appropriately, the host communities will suffer adversely and morbidity may increase due to homelessness, scarcity of drinking water, hunger, scarcity of herbs and imbalance nutrition.

Consequently, all these aspect of living have been neglected to serious damage and destructions, although they could be mitigated adequately in accordance with the legislative regulations of the nation for environmental impact assessment, provision of pipe-borne water, employments and relocation of the victims to a more comfortable area. The need to also preserve the subsequent cultural, historical and archaeological materials on the site during construction is of paramount importance to ensure its sustainability for posterity. Moreover, local participation should be ensured, provision of pipe-borne water, employment, good drainage system

constructed and governmental grants and compensation to ensure that beneficiaries of the cargo airport were taken care of. Buildings on the link road that were affected should receive immediate attention and compensation for favorable relocations. Indispensable legislative measures and plans for preventing destructions of historical and archaeological heritages on the proposed site as well as mitigating the damages in the physical, socio-cultural, health, biological and economical wellbeing of the community where projects are proposed and constructed for national development must be reviewed and implemented adequately.

Works have been done on the environmental impact of projects designed by government and individuals, but it appears that literature on the environmental of the Cargo Airport project in Umueri and Nteje community are not available. There is the need to systematically study the environmental impact of the project in order to provide insights into the measures that need to be taken to mitigate the effect on the beneficiaries.

1.2 Research Questions

Research questions are basically derived from the problem statement of every research work. As a researcher prepares to go to the field to gather data that could help in finding solution to the problems, there is need to have a set of well-defined research questions that serve as guide for the research (Iweka, 2009; 13-14). Based on the vacuum above the researcher was guided by the following questions:

1. What are the various impacts of the cargo airport project on the physical, socio-cultural, health, biological as well as the economic environment on the individual communities that were affected?
2. Are there evidences of historical and archaeological resources affected by the project?
3. How can environmental impact assessment in Nigeria be improved for the benefit of the host communities?

1.3 Research Objectives

Every academic endeavour is aimed at solving a problem or filling in a gap in an existing system and this research work is not an exception, hence, to effectively address the problems and the questions raised above, the objectives of this study are summarized as follows:

1.3.1 General objectives

The general objective of this research is to evaluate the environmental impact of the cargo airport project in Umueri and Nteje, the study area.

1.3.2 Specific Objectives

1. To identify and examine the impacts of the project on the physical and biological environment, health, socio-cultural, as well as the socio-economic well-being of the host communities.
2. To locate and examine historical and archaeological resources affected by the project.
3. To examine and foster the community involvement, participation and awareness towards supporting environmental impact assessment in Nigeria.
4. Based on the research, to make recommendations aimed at protecting the cultural heritage of the area and improving the general well-being of the host communities as a mitigating factor for any possible damage.

1.4 Research Methodology

Data for this study included those collected from both primary and secondary sources; the first comprises direct observations, including reconnaissance survey of the area and in-depth interview as well as distribution of questionnaires for quantitative survey. The secondary sources include online materials, published and unpublished works. For data presentation, descriptive techniques and statistical representations of data were used to present both qualitative and quantitative data. Also, tables were used to present tabulated information. In addition, photographs, charts, maps and graphic presentations were used for illustrations and to show structural forms and relations among the people of the study areas. Data analyses were done qualitatively using Special Package for the Social Science (SPSS) to extract the cumulative mean and percentages. Analyses of findings from quantitative distributions were ascertained to map out each of the impacts, community involvement and expectations.

The field research commenced on 16th of September, 2015; with reconnaissance, direct observations, ethnographic studies and meeting with locals and engineers on the field to create awareness, get familiar with the terrain and ensure a friendly correlation for the main research. Thus, the first stage lasted for 5 days, then, the second stage and the main research took place

from 12th to 26th November, 2015. This stage involved taking coordinates of places and prominent features, distribution and collection of questionnaires, conducting in-depth interviews with the local, field engineers and Personal Assistance to the Commissioner, Ministry of Works and Transportation, Anambra-State.

1.4.1 The Study Area and Scope

The cargo airport project basically impacted on some part of Umueri and Nteje communities; thus, the three link roads to the airport were constructed through Nenyi-Umueri, Ifite-Umueri and Ifite-Nteje hills. Although, mega construction projects are being awarded throughout the nation, there are three basic reasons that motivated our choice of the Anambra International cargo airport project and the communities involved for this study. Firstly, the cargo airport was situated in Umueri-Nteje, and historically this place is the first place known for the cradle of Igbo-history.

Secondly, these two communities have several archaeological and cultural endowments which were already researched on and documented. Thirdly, the impacts as perceived from the project on the locals, land, environment and water are evidently too alarming to be overlooked. Apart from all outlined above, the people of the affected communities have efficient economic activities (indigenous knowledge) and they basically depend on their environment for survival.

Purposefully, the major concentration of this study concerns, Ifite-Umueri, Nenyi-Umueri and Ifite-Nteje out of the major areas that are affected by the project, consequently Ifite-Umueri and Nteje, as at the time this study was conducted, were the most affected and the kind of data needed for study would be easily got from the place. It is eminent to point out that, Umueri and Aguleri (a town sharing a closed boundary with Umueri,) share almost the same historical background from Igbo origin. Since late 1920s, archaeological survey and excavations were carried out to rescue artifacts which supported the connections of the Igbos and Isreali, which is located in the house of Gad (Obugad). In Umueri-Aguleri, the historical tree “trinity tree” located at the burial place of Eri (the son of Gad) still exists today. The three trees are united and share a single tap root (the trees represents the three sons of Eri). Nteje and Umueri are Igbo communities, although, located at different Local Government Areas, and purportedly share the early history of Igbo migration.

Owing to the fact, that those early emigrants might have pre-settled in the proposed project area before getting to their destinations, there should be provision for an intensive environmental mitigation and supervision to salvage the remaining resources available for proofs about the Igbo-Origin. Nteje is like a giant offshoot of the descendants of the history spread around the Umueri and Nteje, with his own cultural and archaeological resources untapped. And if the project must continue at the proposed areas, proper Environmental Impact Assessment must be carried out to ensure safety of both actual and potential cultural, historical and archaeological materials as well as the natural, socio-cultural, health and socio-economical wellbeing of the communities involved and the state at large. In Nteje community, properties were added to the destructive impact of the projects, the link road passed through peoples' residential houses and properties, these impacts, evidently, needed to be mitigated appropriately.

1.4.2 Study Design and Population

Semi-structural interview guides were distributed to solicit for the perceived and induced impact of the project on the communities involved. Strategically, the Umuakpolom kindred from Umuatuolu village was selected from Ifite-Umueri while Ivite-Umuefi Village, was also selected from the Nteje communities, since the whole communities involved may not be covered within the time frame available for the research. Umueri has 942,000.00 Population approximately, out of which the Umuakpolom-Umuatuolu were stratified as survey sample to ascertain the individual opinions, impacts and expectations. While the Nteje community population is approximately 902,000.00; the Ivite-Umuefi group who was greatly affected was used as our major sample survey from that axis.

However, the populations from the areas involved were found not to be homogenous because the populations comprise different categories of individuals and professionals public servants, school teachers, petty traders, healthcare practitioners (indigenous and medical), traders and cottage workers, etc. Efforts were made to address the representation of each group in this study. Random sampling techniques were used to collect of data from the communities involved.

Informants (key respondents) from the various study area. Umuakpolom-Ifite-Umueri, Ivite-Nteje, Nenyi-Umueri and diverse social group represented were interviewed by purposive sampling. This study captures the individual and collective impacts, and the magnitude as perceived by the 5 key respondents, and 50 other respondents from each of the randomly chosen

study area. Therefore, in whole, there were 100 respondents and 10 key informants that were interviewed for this study. Purposefully, information was solicited randomly to ensure even representation of social class present in the communities. Four (4) others were interviewed from the Construction Company and Ministry of Works and Transport, Anambra State.

1.4.3 Research Instrument and Data Collection Techniques

Since the process is a fact finding one, the tools for data collection include questionnaire, interview, observation and reading. Essentially the research must ensure that the instrument chosen is valid and reliable (Annum, 2015). This study utilized questionnaire guide instrument for data collection. The semi-structured questionnaire guides were distributed and information on their data including age, occupation and demographic data were noted. This structured questionnaire gave guidance for short answer, requiring the respondent to provide an (strongly disagree, disagree, neither agree nor disagree, agree and strongly agree) answer. More so, unstructured questionnaire were also administered for a face-to-face interview to ensure uniformity in the interpretation of concepts as well as the recording of responses and gestures. This guide served as unrestricted type of questionnaire which called for free response in the respondents own words. It also constituted questions which gave the respondent's the opportunities to express their opinions. Also, spaces where provided for respondents to make their inputs in writing.

Consequently, in-depth interview was an indispensable tool used for data collection in this study; it was an interaction in which oral questions were posed by the researcher to identify potential source of information and the interactions were structured in a manner that brought out relevant information in respect of the project induced impacts, opinions, sources of impact and their expectations, as well as measures for mitigating those impacts. Cordial atmosphere was created to ensure that the whole respondents saw the need to be recorded while speaking. The aim was to capture the viewpoints and reflect on the subtle opinions and ideas of the knowledgeable segments of the population (Okpoko, 2000; 13). The assistance of some indigenes was employed for guide and research assistance; this was done to actualize the objectives of this study in creating awareness of public involvement in environmental impact assessment. On-site observations were conducted evidently with pictures of damage.

Archaeological reconnaissance was also carried out to support the need to protect such cultural and historical materials through environmental impact assessment.

1.4.4 Method of Data Analysis

Since the research used a triangulation method to collect data, this method also affected the analysis of data. Data collected through in-depth interview, direct observation on the project site and documentary materials were analysed and used for qualitative interpretation. Data sourced with quantitative method were analysed with the aid of Statistical Package for the Social Science (SPSS). Simple percentages, chart representations, maps, diagrams and frequency tables were adapted to group and illustrate information from semi-structured questionnaire collected from the study area. The findings were finally linked with some existing literatures used as review.

1.5 Significance of the Study

Environmental impact assessment has generated much interest among scholars and academics, and world-wide. Basically, in Nigeria, it is a statutory requirement for all categories of Petroleum Exploration and Production (E&P) projects as well as some non oil and gas projects (Stakeholder's Guide, 2003) in order to secure and mitigate supposed or actual damages accrued from establishing the project. The cargo airport project in the Umueri and Nteje is a mega project, which would have either positively or negatively impacted on the cultural, health and ecological wellbeing of the people of the community. It is therefore, necessary that scholarly insights are provided into these impacts and how they can be mitigated.

More so, Umueri and Nteje hosts notable historical, cultural and archaeological heritage that are connected to Igbo history, early dynasty and migrations. Recent archaeological discoveries with the help of oral traditions have proven the fact that there are still valuable facts buried beyond; and such resources stand the chance to be lost outrightly to destruction if proper assessment were not carried out on the project site. This research work is basically a study to evaluate the environmental impact assessment of the cargo airport project to the communities involved.

Importantly, this study has been geared towards awakening public involvement and participation at the grass root level and the state. Also this study is evidently significant to various organs of government in shaping their involvement and legislations, such as:

- Urban and Regional Planning in Nigeria
- Ministry of Works and Transportation
- Association for Environmental Impact Associations of Nigeria (AEIAN)
- Federal Ministry of Environment (FMENV)
- National Environment standards and Regulations Enforcement Agency (NESREA)
- National Commission for Museums and Monuments (NCMM)
- National Council on Tourism and Culture (NCTC)ministry of Petroleum Resources (MPR)
- Ministry of Mines and Steel Development (MNSD)
- Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN)
- Federal Environmental Protection Agency
- World Igbo Environmental Foundation
- Anambra State Ministry of Environment, Mineral Resources, Science & Technology
- Anambra State Environmental Protection Agency

  The research serve as a guide for redesigning projects on construction sites with salient features as well as a guideline for public participation and environmental protectiveness in the country.

1.6 Limitation of the Study

This research was certainly not without its attendant limitations; majority of the respondents were too reluctant to share their views, as they were expecting instant remuneration from the researcher. The indigenous technocrats on the site were too careful to reveal their own feelings. Thus, they were more open at their homes, making the interviewer to go extra mile in order to collect data.

Also, data from the construction company were uneasy to lay hands on, they termed them official and directed the researcher to visit Ministry of Works to get the information needed to complete the research. This event posed a limitation to the study. Security personnel on the site restricted the researcher from collecting crucial photographs needed for elaborate illustration especially on the collapsed fish farm at Nteje axis. Sourcing for material for this study was not

really easy because most of the document needed were official documents that were not meant for public consumption. The researcher had limited time and limited fund to produce the expected results. Finally, the seasonal rain posed a limitation. The workers had to stop working because of the intensive rain and it became too difficult to meet people for interview.

1.7 Clarification of Key Concepts

Evaluation: This is an act of assessing the value of something in order to know its quality, importance, extent or condition. The basic items in evaluation include reliability of data, relationship of changes in the study goal, identification and examination of changes in study goal, integration of ancillary data, identification and discussion of perceived impacts and relevance of other substantives of concern. Environmental evaluation is concerned with an already impacted environment in relation to an existing project or activity. Environmental Umeh and Uchegbu (1997: 11) opined that evaluation report serves as an important tool which enables policy makers know the state of the impacted environment of those actions not subjected to Environmental impact assessment at the pre- planning stage, so as to decide and design strategies for protection and restoration of the particular environment.

Environmental Inventory: Refers to the variables that represent the characteristics of the environment as it exists in an area where a particular proposed project or activity is being considered. Umeh and Uchegbu (1997: 8) argues that computation of inventory is done from a checklist of descriptors common to the physical, biological, social economic and cultural aspects of the environment. For example, descriptors for the physical aspects of the environment include such major areas as geology, topography, climate, surface water and groundwater resources, water quality and air quality. A common checklist helps to avoid over-looking any important inventory factor that could be affected by the proposed actions. Compilation of the environmental inventory represents one of the initial steps in environmental impact assessment process. It serves as the basis for evaluating the potential adverse and beneficial impacts of a proposed action.

Environmental Impact or Effect: Implies those actions and inactions of man that cause environmental effects which can be positive or negative from the point of view of desirability. According to Munn (1979: 1) environmental impacts denote harmful or beneficial consequences in an environment, while man-induced change is often called effects. Since the environment is

subject to natural and man-made changes, these changes are to be observed to determine their results on the environment whether negative or positive.

Environmental Impact Assessment (EIA): Refers to the assessment of impact of projects on the natural, health, social and economic environment, (Stakeholder's Guide, 2003). The first major thrust in dealing with the issue of environment quality was made in the USA in 1969. It is a critical tool in managing and clarifying the complex interrelationships between development and the environment. It is essential for the process that provides for an examination of the environmental consequences of development action in a systematic, holistic and multidisciplinary way (DECLG, 2013). Environmental degradation connotes the deterioration of the physical environment through the activities of man by the displacement of natural landmarks and the introduction of pollutants, which in turn foul the air, water and land, endangering the life of organisms including human lives. EIA was sequel to two disaster, the first was the disintegration of "Torrey Canyon" oil tanker loaded with some 120 tonnes of oil, the incident happened in England in 1967.

The second disaster was the accidental striking of oil by an off-shore drilling crew in the region of California in January 1969. Both disasters caused large spillages which in turn led to unprecedented damages to aquatic and marine life. The unfortunate events necessitated the setting up of Environmental Policy Organisation by the United State government (Umeh and Uchegbu, 1997: 8). The organisation was charged with the responsibility of advising the US Congress on matters concerning the environment as they relate to its planning, aesthetics design and protection, among others. Subsequently, the National Environmental Policy Act (NEPA) was passed in 1969, which became effective in January 1970, (Umeh and Uchegbu, 1997: 1-2).

The American development soon caught the attention of the rest of world with the result that the United Nations sponsored conference on the human environment in Stockhon in 1972. This led to the establishment of governing council for environmental programme known as United Nations Environmental Programme (UNEP). UNEP has a global jurisdiction with the headquarters in Nairobi, Kenya. Since inception in 1980, it has provided guidance on the environmental assessment of development proposals and supported research on environmental issues (CEMP, 1995).

Environmental Impact Assessment Process: This is a step to step procedure to determine the likely effects of a project on the surrounding environment as well as the health and social wellbeing of the communities in the project area. The environmental impact assessment process ensures that measures are put in place that assist in the reduction of negative effects and enhancement of positive effects on the ecology, health and social wellbeing of the communities in the project area (Stakeholder's Guide, 2003).

Mitigating Measures: Refers to a design or operational features of a project that can be used to minimize the magnitude of environmental impact, hence, the key approach is to revise the design as needed in order to reduce the environmental impacts expected to be induced by project activities. Mitigation measures constantly applied in EIA are basically, prevention, reductions and compensation (Umeh and Uchegbu, 1997: 8).

Cultural Resources: This relates to the areas of ecological, scientific or geological importance, etc. that has cultural relevance. They could be in material or non material forms, and such should be preserved for posterity. Cultural resource management is the conservation of materials that are essentially resources of our cultural heritages, including settlement patterns, buildings, standing stone, archaeological sites, museum objects, oral traditions, folklores, myths, songs and legends (Eze-uzomaka, Lectures 2015).

Archaeological Resources: Archeological resources are tools and cultural evidences used, discarded and discovered by archaeologists about the extinct cultural activities. These resources which could be discovered through planned or accidental excavation are used to reconstruct those activities of the past generations' and their relationship with their environment (Gibbon, 2007). These resources can appear as metal tools, wooden tools, bones, cowries, beads, stones etc. The archaeological heritage is a finite non-renewable physical and material resource. Their value lies in the information, which can be derived from them and in their importance as a social resource for the host community. All large-scale development works, notably road schemes, involve the inevitable destruction of at least some of the country's archaeological heritage. According to Gibbon's report, archaeological remains are finite resources, they decay over time as a result of natural processes and any form of excavation tends to completely destroy them. Their value lies in the information, which can be derived from them and in their importance as a social resource for the host community (Gibbon, 2007).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is aimed at bringing the reader up-to-date with current literature on the study topic and forms the basis for justification for future research in the area (Hart, 1998). Hence, at this point the need to review relevant research done by scholars in this area is paramount. Thus, this chapter is broadly divided into three sections namely, theoretical review, empirical literature and theoretical orientation:

2.1 Theoretical Review

Theory is an important issue for consideration in environmental impact assessment, and it serves as basis for research practice and application. It serves both as a tool and as a goal of delineating solution to outlined problem (Marx, 1963: Igbo and Okpoko, 2006: 11). Theoretical review started in 1928 by Tucson Marxist-Leninist's collections as a bi-monthly journal of theory, politics and cultural criticism. It sought to make what it observed as Mahor theoretical contributions to Marxism by Loius Althusser, Charlse Bettelheim, Nico Poulantiac and Antonio Gramsci accessible and usable to activist in the New Communist Movement (Schaeffer, 2006). From this period till date, theoretical reviews have been adopted richly by scholars to ensure strength and to serve as guide to the research analysis and also to infer interpretations.

The research employed some basic theories that are invaluable for the discussion. The theories are broadly delineated into four;

- Environmental theories
- Dependency theory
- Behavioural theories
- Community attachment theory

Environmental Theories

The environment in the normal sense simply refers to the physical and social conditions, where people live (Offiong, 2011). Considering that, the environment is made up of both the biophysical and socio-economic features such as land, air, water, plants and animals and other man-modified features which constitute the totality of our surroundings. Environmental

problems cannot be considered new in the World, it exists in both developing and developed World. Hence, it is stated that environmental problems originated in the first century B.C when the drinking water of Rome was polluted due to developmental projects at hand (Stabler, 1997 in Mihalic n.d). According to Tse and Raymond (2001), environmental theory is concerned with quality control of the environment and its resources. However, the deterioration of the natural environment is as a result of the unchecked activities of many industries using natural resources. The natural environment is endowed with high quality air, water, beach, forest with diverse wildlife, etc. Furthermore, environmental theories cut across the provisions spelt out in the environment to protect and preserve sustainability in the environment. Meanwhile, the Law of Diminishing Destination Yields is applied while setting development limits (Igbo and Okpoko, 2006: 26). Thus, the Law of Diminishing Destination Yields is employed to explain disgruntled results gotten from a planned project that was invented to produce a more fruitful yield.

A number of factors could be summarised as the basic problems that result to negative impact in Nigeria. These mostly include the consequences of rapid urbanization, industrialization and job creation which led to the demand for varieties of goods and services resulting to construction of roads, houses, industrial building and airports which have constituted negative impacts on our locality, state and at the national level (Dragulanescu, 2009). Environmental impact assessment is a critical tool for managing and clarifying the complex inter-relationship between development and the environment. Thus, the proceeds from nature should be injected into environmental preservation and protection to ensure sustainability of projects and developments (Miiller and Flugel, 1999; 53).

Neo-classical growth theory

Environmental protection is an important issue throughout the world (Tse and Raymond, 2001). For the environmental growth theories, the neo-classical sustainability of the growth would be reviewed, this attribute of the growth theory are based on the neo-liberal policies and maximization of its goal of welfare. Varian (1990: 505) in Dragulanescu (2009) identifies the willingness to offer to the widest number of peoples' greater opportunities for development. The neoclassical theory of growth (or develop`pment) considers increase in production and disposable income in higher level of consumption as a solution to poverty, for progress and development.

According to Tietenberg (2006:8),

> *The theory is also based on the assumption that the capacity for self regulation of free markets and not bond, and technological advances are able to ensure capacity of substitution, endless between the various forms of capital project and mitigating, that constraints aiming from the possible scarcity of resources, allows sustainable growth, a level consumption does decrease over time*.

This theoretical perception should not be drawn in deception, however, the confidence in the market by the classics stood only in a short-term context. In the long term, the economy would still be found in stationary state coinciding with the mere subsistence level by all (Tietenbergb, 2006). The reason for this negative view was full awareness of natural resources as scarce and limited entity, or as a finite set of elements. Economic growth in the long term would have reached the limit of the set of natural resources, causing a brake on growth. The point of "pessimistic" view of the classics in the long term is well expressed in the studies of Thomas Malthus and David Ricardo. Malthus and Ricardo watched the constraints imposed by the environment in terms of scarcity of fertile land for cultivation (Dragulanescu, 2009).

In considering the growth theories as answer in tackling environmental impacts and degradations as a result of development, the concept of sustainable development should be employed, as a way forward to ensure the implementation of economically and environmentally acceptable projects that satisfied both government and the local (beneficiary) of the project (Dragulanescu, 2009). However, this theory ensures safeguarding of the environmental factors that are supposed to be protected in the course of the development, thus, ensuring that the project maintains quality output for its beneficiaries.

Dependency theory

Dependency theories hopefully are suitable in analyzing the relationship between city developers, project managers, government and the host communities. Invariably, scholars have basically attributed this theory to the underdevelopment theory; a set of theoretical explanations concerned with the tendency of a national economy to rely on a foreign economy for growth and survival. Igbo and Okpoko (2007) argues that:

> *It is a situation where a national economy is inextricably linked to and driven by, a more advanced economy. The more advanced economies, dictate the major happenings in the local economies to suit their own whim and caprices.*
>
> .

These are often executed through trade agreements and the injection of foreign capital and foreign technology. Dependency theory is simply saying that the underdeveloped countries are underdeveloped to the extent to which they rely on the West economically, socially, culturally, militarily and technologically (Igbo and Okpoko, 2006: 23). Categorically, governments, project managers, city developers as well as foreign NGOs do not consider the exploitation being melted out to the host communities, most at times after the host communities have lost out greatly to the said development, and little or no compensation is what they receive at last. Communities with oil that attracts oil explorer lose their land outrightly for the production as well as their health (acoustic and hale) to dangerous gaseous and noisy impact which does not deserve the mitigating measures been released and contributed by the project. Striking a balance between understanding the tendencies of negative to positive impact would help not to fall prey association dependency theories and characteristics (Mihalic, n.d).

Instead of been exploited socially, culturally, economically (reducing the availability of their natural raw materials to their cottage industries), there should be adequate awareness, involvement and participation of the locals at any level involved; thus, evenly representation should also be adopted to ascertain a first class opinion, expectation and recommendation from the host people. Finally, infrastructure should be made available to every community without good roads, good hospitals or good school. Invariably, the host communities may not really need a cargo airport at a starting point of development. Those basic amenities should be put in place to increase their efficiency, awareness and employment opportunities before such a project would be related to them.

Behavioural theories

Environmental impact assessment cannot perform appropriately without these theories, because they attribute to ethical positioning and understanding. This approach sees the absence of environmental social ethics as the main reason for environmental damage. The other reasons

are human ignorance and absence of social, cultural, economic and environmental ethics (Igbo and Okpoko, 2006). Behavioural theory implies that while much was known about individual, group and cultural processes, perception, cognition, preferences, values, attitudes, social norms, semantic structures, cultural differences, and so on – little was known about the relation of these social understandings to the physical environment (Gary, 2006). Individual understanding about the environment and environmental resources helps to ensure better reaction to the environment owing to the fact that one cannot do without his environment. Ethics generally deals with the issues of right and wrong and more obligations. Environmental ethics refer to the standards and principles regulating the behavior of individuals or group of individuals (Rue and Ryars, 1986; 71) in relation to their environment. Government should ensure public participation, awareness and total involvement at all cost if sustainable development is aimed at any level.

Also, the 'Global Code of Ethics' on environmental impact assessment since 1962 addresses issues of environmental degradation and general negative impacts. At the national level, Nigeria ethics of conduct has been coated into laws and regulation since 1992 to ensure basically environmental friendly projects and recycling of waste. More so, at the state and local levels the case is not really the same, less attention is given to the Federal Environmental Protection Agency Act and the Environmental Impact Assessment Act, this could have been so due to lethargy, implementation of duties by environmental agencies and lack of regular workshops and seminars to the beneficiaries of the environment and development. Thus, people do not know their rights or obligations towards their environment, as well as demanding for their right to ensure total involvement and appropriate mitigation of their affected environment and this invariably expose them to high rate of morbidity and mortality.

More so, environmental principles should be regulated in the demand and supply of any development. Miiller and Flugel (1999: 53) in Igbo and Okpoko (2007) states that "human beings possess the will to react in an environmentally friendly information and know- how are availably". In as much as moral and illiteracy level is high in the country especially at the rural areas, government should discern a better means of disseminating knowledge or make education affordable and available for both young and old. Thus, this theory explains that environmental disaster occurs if there is a lack of understanding and information to the public. More so, prevention also depends on factors like environmental ethics must be obeyed to ensure sustainable environmental development.

Community Attachment Theory

Attachment theory is the joint work of John Bowlby and Mary Ainsworth (Ainsworth and Bowlby, 1991). Drawing on concepts from ethnology, cybernetics, information processing, developmental psychology, and psychoanalysis, John Bowlby formulated the basic tenets of the theory. He thereby revolutionized our thinking about a child's tie to the mother and its disruption through separation, deprivation, and bereavement. Mary Ainsworth's innovative methodology not only made it possible to test some of Bowlby's ideas empirically but helped expand the theory itself and is responsible for some of the new directions it is now taking. Ainsworth contributed the concept of the attachment figure as a secure base from which an infant can explore the world. In addition, she formulated the concept of maternal sensitivity to infant signals and its role in the development of infant-mother attachment patterns. The ideas now guiding attachment theory have a long developmental history (Ainsworth & Bowlby, 1991).

Long, Perdue, and Allen (1990) looked at this theory from the perspective of community relationship to their environment and economic revitalization. "An important tourism policy objective is to sustain local values, culture and quality of life". Yet, faced with a decline in traditional industries such as mining, agriculture and forestry, many rural communities turn to tourism as a source of economic revitalization (Long, *et al*. 1990). Often, the culture and identity of these communities are bound up in the very industries being lost (Cuba and Hummon, 1993). In short, successful economic development depends on the cooperation of local communities (Allen, Long, Perdue, and Kieselbach, 1988; 1993; Lankford, 1994; Murphy, 1985). The nature and strength of attachment to community, and to surrounding landscapes, may influence how residents perceive potential impacts of a growing tourism industry for economic development and may be important determinants of successful coexistence between residents and their environment (Sheldon and Var, 1984; Um and Crompton, 1987; McCool and Martin, 1994). Attachment has been measured differently across the few studies that have looked at its relationship to attitudes toward development and economic revitalization. It has observed that lifelong residents were more sensitive to the socio-cultural impacts of developments than were short-term residents.

Um and Crompton (1987) combined length of residency with birthplace and heritage to create a Guttman scale of community attachment. Their findings indicate that the greater the

level of attachment, the less positively residents perceive the impacts of tourism on their community. McCool and Martin (1994) produced mixed results when they compared measures of community sentiment (sorrow to leave and preference for community over all others) and length of residency. Planners can ease the impacts of development by considering the nature of ties to community. One way to accomplish this is to develop an inventory of the places in the community that residents hold most dear and develop zoning and other strategies to protect these places, or on the other hand involve them in the developmental planning. Their opinion, expectations and other contributions can reveal measures of community attachment and this can help to facilitate efforts to identify places that should and should not be protected from any development.

2.2 Framework for Environmental Protection Programmes

Legislations and policies are legally enacted principles passed into bills and must be implemented by citizens of the state concerned. Various legislations and policies guiding environmental impact assessment and community involvement were reviewed in this study. Those legislations relate to both national and international authorities and their administrative activities with respect to the study area. Laws regulating the environment are broadly classified into international law, national laws and municipal laws. These laws should be adequately enforced to tackle the environmental challenges and ensure total participation of the locals.

International Administration and their Policies

In the field of law, the evolution of international environmental law stands out as fast-paced with chequered and tumultuous history, experiencing dramatic changes in emphasis and contents. These international legal regimes are contained in various bilateral and multilateral treaties, declarations and guidelines adopted and practised by the contracting states. International environmental law develop rules and principles governing multilateral treaties expressing common global concern as well as those governing trans-boundary relationships involving two or more neighboring states (Ezeabasili, 2009). Some of the international laws/treaties are:

(i) Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal, 1989.

(ii) Convention for Co-operation in the Protection and Development of the Marine and Coastal Environments of West and Central Africa.

(iii) Convention for Long Range Trans-boundary Air Pollution.

(iv) Protocol to the Framework Convention on Climate Change, Kyoto, Japan.

(v) Rio Declaration, 1992.

(vi) Stockholm Declaration, 1972.

(vii) The Convention of the High Sea, 1958.

(viii) Montreal Protocol on Substances that Deplete the Ozone Layer, 1987.

(ix) International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (as amended).

(x) International Convention on Civil and Political Rights, 1966 (Ezeabasili, 2009).

The first major thrust in dealing with the issue of environment quality was made in USA in 1969. This was sequel to two disaster, the first was the disintegration of "Torrey Canyon" oil tanker loaded with some 120 tonnes of oil, the incident happened in England in 1967. The second disaster was incident to the accidental striking of oil by an off- shore drilling crew in the region of California in January 1969. Both disasters caused large spillages which in turn led to unprecedented damages to aquatic and marine life. The unfortunate events necessitated the setting up of Environmental Policy Organisation by the United State government. The organization was charged with the responsibility of advising the US congress on matters concerning the environment as they relate to its planning, aesthetics design and protection, among others. Subsequently, the National Environmental Policy Act (NEPA) was passed in 1969, which became effective in January 1970 (Umeh and Uchegbu, 1997; 1-2).

Administrative Activities (awareness and public involvement)

On the recognition of the need for an international synthesis of EIA methods and practices, the Scientific Committee on Problems of the Environment (SCOPE) organised a workshop on EIA at Victoria Harbour and Canada in February 1974. The co-sponsors of the workshop were; the Canadian National Committee for SCOPE, Environment Canada, UNEP and UNESCO, while participants were drawn from all continents and from diverse disciplines. The outcome of the workshop was the publication in 1975 of SCOPE 5: Environmental Impact assessment; Principles and Procedures, edited by R. E. Munn. In the same vein, the Centre for Environmental Management and Planning (CEMP), established in Aberdreen in 1972, has organised more than 15 annual International Seminars on Environmental Assessment and Management sponsored by WHO and UNDP. The participants so far, numbering more than

2500, have been drawn from both developed and developing countries (CEMP, 1995; Umeh and Uchegbu, 1997; 2-3).

Since 1975, many countries and other jurisdiction have continued to adopt an EIA process in decision making. However, national responses to the concern about environmental impacts of development or the operation of EIA vary from country to country. In the European Union for example, EIA procedures are not formalised in one (passed into law) as in United State rather, the impacts of proposed developments are considered under a wide range of procedure which can be categorized into planning controls and pollution controls. It is not likely that there will be new legislation in the European Union formally requiring EIA's. Some of this Planning Acts were pointed out vehemently in the preceding section. The probability is that advances in impact analysis will be adopted within the existing European Union Legislation and Procedure. For such other countries like Australia, Japan and Canada, the United State for example, was a major factor in stimulating the introduction of EIA. However, the operation of EIA in these countries differs from the US model owing to differences in the political and institutional framework.

National Administration and their Policies

In Nigeria, the new- found awareness on environmental quality led to the establishment of the Federal Environment Protection Agency (FEPA) in 1988, charged with the responsibility for the protection and development of the Nigerian environment including policy initiation in relation to environmental research and technology. In 1989 FEPA's responsibilities were translated into the National Policy on Environment (Umeh and Uchegbu 1997; 3). In this regard, the Federal Government of Nigeria has promulgated various laws and regulations to safeguard the Nigerian environment.

These include:

(A) Federal Environmental Protection Agency Act of 1988 (FEPA Act) repealed by the National Environmental Standards Regulation Agency (NESREA) Act 2007:

The following Regulations were made pursuant to the FEPA Act:

- National Environmental Protection (Effluent Limitation) Regulations:
- National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, and

- National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations.

The National Environmental Standards Regulation Agency (NESREA) has the responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources, environmental technology, including coordination and liaison with relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards, regulations, rules, laws, policies and guidelines. Other regulatory agencies with oversight functions and responsibility over specific industries have also issued guidelines to regulate the impact of such industries on the environment such as the Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN) 2002 as published by the Department of Petroleum Resources (DPR). The NESREA Act allows each State and Local Government in the country to set up its own agency for the protection and improvement of the environment within the State. Each State is also empowered to make laws to protect the environment within its jurisdiction.

(B) Environmental Impact Assessment Act of 1992 Decree No. 86 (EIA Act):

The basis of environmental policy in Nigeria is contained in the 1999 Constitution of the Federal Republic of Nigeria. Pursuant to section 20 of the Constitution, the State is empowered to protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria. In addition to this, section 2 of the Environmental Impact Assessment Act of 1992 (EIA Act) provides that the public or private sector of the economy shall not undertake or embark on, or authorize projects or activities without prior consideration of the effect on the environment.

(C)The Urban and Regional Planning Decree No. 88 of 1992:

To ensure more qualitative environmental issues in the country, the Urban and Regional Planning Decree No. 88 of 1992 was promulgated. Apart from the general and specific guidelines for development, paying heed to the quality of environment, section 33 of the decree provides that a developer shall submit application for development to the Development Control Department together with a detailed EIA for an application for the following:

a. A residential land in excess of 2 hectares
b. Permission to build or expand a factory or for construction of an office building in excess of four floor or 5000 square metres of lettable space; and

c. Permission for a major recreational development, sequel to the provision a project can be approved, rejected or delayed if the conditions are not met.

(D) National Commission for Museums and Monuments (NCMM) Decree No. 77 of 1979:

The establishment of this commission took place on 28th September, 1979 by the Federal Military Government with the promulgation of Decree No. 77 of 1979 and the basic function of this commission is detailed in Section (3) sub section (1) and (2), viz:

(A) To administer national museums, antiquities and monuments

(B) To establish and maintain national museums and other outlets for or in connection with, but not restricted only to the following:

i. Antiquities,

ii. Science and technology,

iii. Warfare,

iv. African, black and other antiquities,

v. Arts and crafts,

vi. Architecture,

vii. Natural history, and

viii. Educational services;

(C) To make recommendations to any State Government or other person or authority concerning the establishment and management of museums and the preservation of antiquities and monuments, not being national museums or antiquities and monuments declared to be national antiquities and monuments; and

(D) To approve any museum, which is privately established and maintained, for the purposes of this Decree and at any time withdraw such approval.

(2) For the purposes of the proper discharge of its function under this decree, the commission:

(A) Shall have power to acquire and dispose of any interests in land or other property; and
(B) May be by agreement of the owner of any antiquity undertake or make arrangements for the maintenance of any such antiquity on such terms and conditions as may be approved by the commission (Adapted from NCMM Decree 77 of 1979: 506).

Also, special powers were given to the commission by the decree to declare an antiquity as a national monument and to preserve and protect (conservation) those antiquities. These special powers were detailed in Section (12) to section (15) also in section (32) of the 1979 decree. Description and interpretation were given to antiquity, monuments and national monuments to ensure that any development project do not affect their existence; hence, they should be secured in the museums or be gazetted by the commission on behalf of the national and state government.

6) The Nigerian Conservation Foundation (NCF) of 1982:

The Nigerian Conservation Foundation (NCF) is an NGO that was formed in 1980 and registered as a charitable trust (No. 1917) in 1982. NCF's primary aim is the promotion of nature conservation and maintenance of ecological processes in Nigeria. Its patron is the President and Commander-in- Chief of the Armed Forces of the Federal Republic of Nigeria. NCF advocates and lobbies for legislations and policy initiatives that promote nature conservation with the ultimate aim of building a future in which humans live in harmony with nature in Nigeria. The vision of NCF is to catalyse contributions in which Nigeria will prosper amidst abundant and rich forest, clean air, rivers and stream, healthy oceans and coast, savannah and arid zones, all with biodiversity and biological functions intact (NCF: 2002).

7) Harmful Wastes (Special Criminal Provisions etc.) Act of 1988 (Harmful Wastes Act).

The decree prohibits the carrying, depositing and dumping of harmful waste on any land, territorial water, and contiguous zone. Exclusive Economic zone of Nigeria or its inland Water ways, and prescribes severe penalties for any person found guilty of any crime relating thereto.

8) Land Use Decree 1978

Section 1 of the Land Use Act provides that:

> *States in the Federation are vested in the governor of the state and such land shall be held in trust and administered for the use and common benefit of Nigerians in accordance with the provision of the Act.*

Also, Sections 28 and 29 spell out that the:

> *"Power of the state government to revoke rights of occupancy; (4) the Governor shall revoke a right of occupancy in the event of the issue of a notice by or on behalf of the president if such notice declares such land to be required by the government for public purposes".*
>
> *"Compensation payable on revocation of right of occupancy by state governor in certain cases; (3) if the holder or occupier entitled to compensation under this section is a community the Governor may direct that any compensation payable to it shall be paid to the community or person involved"*

The promulgation of the Land Use Decree 1978 was an exercise to redirect the general philosophies of pre-existing land tenure systems in our society through the application of a uniform statutory regulation of ownership and control of land rights and to stimulate easier access to land for greater economic development as well as promote national social cohesion (Muhammed, 2004; 4). Although, the illiterate locals are to be educated basically to understand these provisions guiding land reforms in the Nation and follow suite when affected.

State and Local Orientations and Involvement since 1992

Just as it is at the National level, the states have also tried to promulgate environmental laws within the limits of the powers conferred on them by the Constitution. All the states have environmental agencies and state laws, for instance in Lagos, Anambra, Akwa Ibom, Abuja, there exist laws guiding state affairs, although the national law surpassed any other in the country. The Federal Capital Territory issued the Abuja Environmental Protection Board (Solid Waste Control/Environmental Monitoring) Regulations 2005 also referred to as "the Abuja Environmental Protection Board Regulations" which principally governs solid waste control in Abuja.

Also, in Anambra State, the regulatory board in-charge of environmental protection is Anambra State Ministry of Environment, Mineral Resources, Science & Technology, Anambra State Environmental Protection Agency, and Anambra State Ministry of Land and Survey. Also, the Board of Anambra State Sanitation and Environment Protection Agency (ANSEPA) are charged with the following responsibilities:

1. Removal, collection and disposal of domestic commercial and industrial generated waste.
2. Cleaning and maintenance of Public drainage facilities
3. Cleaning streets of Awka, Onitsha and Nnewi.
4. Removal and disposal of abandoned Scrapped vehicles
5. Streets sweeping of major roads (Otti, 2010).

On the other hand, the Anambra State Ministry of Environment, Mineral Resources, Science and Technology were established to maximized usage of the natural materials. Recently, they held workshops during which the Commissioner conducted students and unemployed youths around the state as at the time of carrying this research. Mr. Obi Nwankwo the Commissioner encouraged unemployed Anambrarians and Nigerians to transform natural resources into finished goods and services and also encouraged empowerment of talents and promotion of enterprise and industrialization (Emeka, 2015).

As part of proactive measures by the government to preserve the environment and protect its inhabitants from hazardous waste and nuisance, the federal government, through the state therein, has established these government authorised agencies in the states to ensure efficient and effective mode of waste and land management. Thus, the natural environment should also be protected through pro-active farming systems, avoidance of bush burning that could lead to wild fire and conservation of forest reserves. The environmental impact assessment is a veritable tool that would guarantee sustainable development if effectively complied with. Nigeria still needs to develop the technical, administrative and legislative framework for effective integration of environmental concerns. More so, the public is expected to be aware of the need to protect the environment from harmful impact and request for compensation when necessary.

2.3 Empirical Literature

This section discussed the basic case study literatures and documented information that are available in the study of the area and the research topic. These include:

2.3.1 Environmental Impact Evaluation on Construction Study

Samenah, Mehdi, Javier, Azwuddin, and Masoud (2012), in their paper titled "*Environmental Impacts Assessment on Construction Sites"*, discussed the frequency and

severity of the environmental impacts in the Malaysian construction industry. Their paper aims to assess the most common environmental impacts due to the construction process in Malaysia. Their aim was achieved through the aid of a structured interview, which was conducted with an expert panel group in Malaysia. It was found that transportation resource, noise pollution and dust generation with construction machinery are the greatest environmental impacts in Malaysia respectively. The results of this study are useful for construction managers and other participants in construction sites to become aware of construction processes impacts on the environment. They opined that since construction is considered as one of the main sources of environmental pollution in the world, the level of knowledge and awareness of project participants, especially project managers, with regards to environmental impacts of construction processes, need to be enhanced. They argued that the prediction of the correlated environmental impacts of construction before the construction stage will lead to improvements in the environmental performance of construction projects and sites. The determination of major environmental impacts will assist to consider a range of on-site measures in order to mitigate them (Gangolells, Casals, Gassó, Forcada, Roca and Fuertes, 2011).

The environmental impacts as the categorized items fall across ecosystems impact, natural resources impact, and public impact (socio-cultural).

Ecosystems Impact: The accumulated amount of adverse environmental impacts like waste, noise, dust, and hazardous emissions still occur during the construction process which cause serious damages to humans and ecosystems (Chen and Hong, 2004). The results of this research can be an influential assessment tool to assist construction practitioners in improving the on-site environmental performance. Air pollution may be caused by contamination gases or particles or combination of these.

Thus, the basic determinant of the air pollution effects are the concentration or quality of material, and the time of exposure or the persistence of given concentration level of a pollutant; of recent importance is the focus on “air toxics” or hazardous air pollutants. Air toxics are a class of compounds which may be present in the atmosphere and exhibit potentially toxic effects not only to humans but also to the overall ecosystem (Canter, 1996; 146). However, the awareness and knowledge are the main factors to intensify the sustainability movement (Zainul, 2010). With the rise in the number of construction of new buildings, the impact of constructions

has become an important issue. According to this study, the ecosystem impact has the greatest impact on the environment (67.5% of total impacts).

Natural Resources: Various natural resources, namely energy, vegetation, land, materials and water are used during the typical construction process (Shen, Lu, Yao and Wu, 2005).

Several constructions require large landmass which leads to massive destruction of vegetations, scenic areas, water bodies, monuments and archaeological materials beneath the ground. Deforestation leads to increased human encroachment upon wild areas, increased resource extraction, threats to biodiversity, soil degradation and extinction of species. More so, equipment operations involve consumption of natural resources, such as electricity and diesel fuel. The building industry is responsible for using a high volume of natural resources and generation of a great amount of pollution as a result of energy consumption during extraction and transportation of raw materials (Li, Zhu, and Zhang, 2010; Morel, Mesbah, Oggero, and Walker, 2001). Thus, all these posed dangerous impacts on the natural resources in the environment. The statistical figure from the natural resources impact accounts for 21%.

Public Impact (socio-cultural): According to Li et al. (2010), since most construction projects are located in a densely populated area, therefore, people who live at or close to construction sites are prone to harmful effects on their health because of dust, vibration and noise due to certain construction activities such as excavation.

However, it also has economic benefit; economic standard and income generation for the state and locals. Samenah et al (2012) study showed a great magnitude of public impact; thus, when the socio-cultural is reducing and the socio-economic is increasing, locals tend to forget the negativity easily. Public impact consists of only 11.5% (negative). Samenah et al, (2012) concluded that there is potential decrease in the impact of construction on its environment by applying advanced technologies or changing construction equipment. The outcome of this study can help organisations and managers prepare proper sustainability plans, and also increase the knowledge of partners in construction sites through training and awareness programs.

2.3.2 Archaeological Reconnaissance of Umueri and Nteje

According to Okpoko (1988) the first systematic set of archaeological work in the Umueri and Nteje was conducted in 1979 by Anozie, Okpoko and Nzewunwa at the two abandoned settlement (Okpuno Igala and Okpuno Nri) and Ekpe Umueri (Umueri earthwork). The Okpuno Igala is located at Umuekete village in Aguleri. It has a ditch and a wall around it.

The northern two-thirds of the site are sub-rectangular with the southern third semi-circular in shape. The measurements of the site are about 800m length and about 500m width. Although the wall was already destroyed but traces of the bank were visible, thus the centre of the enclosed area, a mound, was about 1m high and 30m across. Oral traditions collected from Umuekete describe the mound as ukpo-eze (King's Dias). Discoveries from the excavation were iron slag, clay nozzles (tunyere), parts of furnace walls, stone (including iron stones), glass and bones (including horse bone) and plenty of potsherds.

Analysis of the cultural materials done by Okpoko (1988) suggested that two phases of activities were represented at the mound site. One phase (upper phase) is marked by iron smelting or smiting, while the other (lower phase) is without evidence of iron smelting or smiting. Five dates were obtained from the site but the dates were not precise in sequence; they fall within the same time range, which reads 13th-17th centuries A.D tentatively (it could date earlier). This shows that it was a recent occupational event. Thus, discoveries include smoking pipes, potsherds, earthworks, and lithics. More so, archaeologists who studied the Umueri and Nteje tend to establish that there were contacts between the Umueri and Nteje and Niger-Benue people. Thus there were strong similarities like pottery attributes, decorative motif/techniques, surface burnishing, vessel form which belong to the same date range supporting that contact view. Although, it was not clear in their studies what diffused from where to where but there were contacts.

More so, archaeological survey was carried out in the areas of Anambra-basin. These places include Aguleri, Umueri, Agulu, Nri, Enugu-ukwu, Igboukwu, Oraeri and others to ascertain the connectivity of the Igbo Origin and the Isreali. Earlier date (9^{th} Century A.D) was gotten from Igboukwu archaeological discoveries. With this we can state tentatively that Umueri and Nteje had an earlier civilization and unique technologies more than we may imagine. Also, to strengthen the ancestral ties of Gad- Eri as Igbo ancestor, the discoveries and the proof range from the bronze pots, King David star, onyx stone, several beads, clay pots and many others were excavated from the area especially the supposed grave of Eri, the still-existing Trinity tree with one tap root in Aguleri and many other evidences (Ikeanyibe, 2006; Eyisi, 2010). Thus, oral tradition from the Umueri and Nteje also shows that there is more beneath the ground that needed to be guarded for posterity.

2.3.3 EIA in Archaeological and Historical Sites: A Path Way for Sustainable Development

Gibbon (2007) in his report, titled "*Environmental Impact Assessment, Sustainability and Archaeology: A*n EIA report on Sustainable Development Evaluation of Road Infrastructure", studied construction process of the National Road Scheme Programmes in Ireland by identifying, avoiding and mitigating the effect on single archaeological monuments and sites. To ensure environmental sustainability, he aimed at:

- Minimizing the destruction of archaeological resources to the greatest degree possible by avoiding damage to known archaeological features and detecting the presence of and preventing the destruction of previously unknown archaeological resources.
- Maintaining the broader cultural value of the archaeological heritage of the area by minimizing interference with definable archaeological landscapes and retaining access to and use of areas of cultural value on the part of local stakeholders against both immediate effects of development and from likely later development.

The impact assessment focused on the direct impact of road construction on known monuments. Desktop studying and strategic observation methodology were utilized on the field test trenching and topographical and geophysical surveys to establish archaeological significance to preservation by record and full excavation. The specific choice of the preferred route through the Tara-Skreen valley for the section of the M3 was studied in detail as an example of the process at work in a controversial case, and these processes focuses on archaeological or cultural impact assessment.

Also, Gibbon reported that there was direct visual impact of the preferred route (Blue 2) on the Hill of the monuments at Skreen and Tara as illustrated on the NRA Tara CD. These impacts appear to be less than those of Orange Route One which passed west of the valley but would have dominated the view westwards from the hill. The wider significance of transforming what had been a rural setting, featuring a small, albeit busy, road does not appear to have been considered relevant from an archaeological or historical perspective. According to him, the monuments around Tara cannot be viewed in isolation, or as individual sites, but must be seen in the context of intact archaeological landscape, which should not under any circumstance, be disturbed. As a result of the crossed routes, the archaeologically rich plateau around Tara and Skreen was disturbed, and probably new archaeological monuments will be discovered during the course of further construction'.

The mitigation measures included a recommendation that potential archaeological sites should be avoided if possible. Where some impact were inevitable, the report recommended a process of aerial survey along the route, topographical and geophysical survey, as well as trial trenching of specific sites to determine their precise nature, followed by full excavation if they turn out to be archaeologically significant. In addition to this, a general programme of topsoil stripping in a herringbone pattern was also recommended along the length of the route prior to construction and to maximise the chance of detecting any further sites.

The monitoring archaeologists were directed to pay close attention to topsoil changes as discoveries were already made of two Bronze Age artifacts, with a metal detector survey to bring more findings to light (Gibbon, 2007). He further suggested that, in evaluating the environmental impacts of any project, the state should fulfill its obligations of protecting the National Archaeological Heritage, and maximize its value to the community as a sustainable resource into the future, owing that most of the archaeological resources are irreplaceable when destroyed.

2.3.4 Evaluating Community Involvement in Environmental Impact Assessment

Agaja (2013), in his work, "*Public Participation in Environmental Impact Assessment (EIA) Reports*: *The Nigerian Experience"*, pointed out the need for effective community involvement during EIA. Community involvement variously refers to as public participation, citizen involvement or community participation. It is an attempt to involve the various publics in the decision making process so that a wider acceptability and support for the particular action can be obtained. The making is to promote productive use of imputes from private citizens and public interest groups in order to improve the quality of the environment (Umeh and Uchegbu, 1997).

He opined that EIA process in Nigeria should recognise the importance of the views and concerns of stakeholders, especially the affected population, in the successful implementation of development projects. This explains why public consultation and participation are central to the EIA process in Nigeria. According to him, the objective of such consultation and participation of affected stakeholders is to identify, early in the EIA process, their concerns about the impact of the proposed project in order to address such issues during the actual study and to reflect such comments in the EIA report. To further demonstrate the importance of public consultation and

participation in Nigeria, the consultation process constitutes a key component of the EIA law in Nigeria (Ojesina, 1999 in Agaja, 2013).

Additionally, Public participation is enshrined in the laws of the Federation of Nigeria EIA Act No. 86 sections 7 and 12 of 1992. Before FMENV takes decision on an activity to which an environmental assessment has been produced, the agency shall give opportunity to government agencies, members of the public, experts in relevant disciplines and interested groups to make comments on environmental impact assessment of the activity. The act clearly recognises public concerns in the EIA review process and spells out the procedure for notifying the public of this action and the modalities for filing comments. In addition, the act details the stages of review where the public can be involved, such as public display, mediation and review panel. Since 1995, Nigerian legislation has provided for stakeholder consultation by way of a continuous programme of public participation, public forums, the public display and review of documents and public attendance at panel reviews (FEPA, 1995a in Agaja, 2013).

The objective of public participation and consultation is to achieve the following:

(i) Ensure public and community participation in the definition of environmental policy objectives and decision making.

(ii) Ensure public confidence in the administration of the environment by demonstrating the resolve of government to enforce the environmental stewardship of government agencies and organs, corporate citizens and elite organizations; and

(iii) Grant the citizenry access to environmental information and data, thereby promoting the quality of environmental management and compliance monitoring (Agaja, 2013).

Also, the SPDC, in their effort to ensure effective and efficient public involvement in EIA process, have organised various workshops and seminars to enlighten people and educate them on the need to be fully involved in any project of EIA, thus, ensuring sustainable development. As outlined by the SPDC policies, to improve the quality of life in its communities, they shall:

- Establish a community development programme which applies world standards of practice to serve its host communities;
- Work in partnership with host communities and where appropriate, with government, donor and non-governmental organizations, community-based groups and other stakeholders;

- Encourage the full participation of its communities in project planning, implementation and monitoring;
- Maintain communication with all social segments of host communities in order to address their needs;
- Focus community development assistance on activities having high impact and broad benefits for the host population;
- Pay special attention to the most economically disadvantaged social group.

Nigeria's public participation and consultation has been a weak aspect of the EIA process in national, state and grassroots levels. There are many factors responsible for this, these include: lack of relevant skills and experience in Public participation by the EIA team, negative perception of the public process by regulators, and poor funding of EIA process by project proponents (Agaja, 2013). Thus, this provision is basically to encourage community involvement and participation in project EIA process that would be carried out by this firm (SPDC). Apart from this effort, the solid waste management that takes place in the various state and municipals of the federation needs the support of the public to ensure safety in the nation. Mitigating measures also should not be decided without the involvement and relation of the host communities, thus, enlightenment by Government and NGOs are necessary to create awareness to the citizen at every level.

2.4 Reasons for Environmental Impact Assessment or Evaluation

EIA is an aid to decision making, ideally on a par with cost-benefit analysis technical evaluation of development projects. It is not the purpose of EIA, to impede economic development rather to serve as the principal means for preserving undisturbed natural settings. EIA is designed to alert the decision maker, the regulatory agencies and the public of the environmental consequences of projects, so that those projects can be modified, if need be, to prevent environmental deterioration, to avoid construction errors and to forestall economic losses caused by negative side effects.

Similarly, if EIA delays or stops a project, it is because environmental costs far outweigh economic or technical benefits, and not just because certain environmental impacts will occur, for example, EIA might recommend the cancellation of a forestry project if this project will inevitably destroy the spawning grounds that support a commercial fishery that yields more

revenue and employs more people over a longer period of time than the forestry project. The calculation given above becomes, of course, more difficult if the fishery is a subsistence one for which there are no revenue figures, or if the trade-off is between a forestry project and the risk of losing plant and animal species that have at present no commercial value (FAO Documents, 2000). It must be stressed, therefore, that EIA, and especially decision making based on impact reports, inevitably places a premium on judgment, vision and often statesmanship.

2.5 Theoretical Orientation

Theoretical orientation is an indispensible tool in guiding a researcher on the field. It guides the researcher on the appropriate use of term and it also exposes what should be done on the field. This study anchors its theoretical orientation on all the theories reviewed.

According Tse and Raymound (2001), environmental theory is concerned with quality control of the environment and its resources. The deterioration of the natural environment is as a result of the unchecked activities of many industries using natural resources. To avoid environmental consequences, some of the proceeds from nature should be injected into environmental preservation and protection to ensure its sustainability (Okpoko and Igbo in Okpoko, 2006). Environmental theories serve as checks and balances for environmental activities and implementation of policies at every level to ensure appropriate returns on the environment. The extent of environmental degradation in the past decades is posing bias on the need for development.

Basically, every given development is rooted in the environment, thus, leaving it either better or worse after the “development project”. In dealing with a critical tool for managing the inter relationship between a given developmental project and environmental impacts, the laws of Diminishing Returns on Yield must be considered and employed, while setting developmental limits. Thus, the original ownership, use, benefits and recycling systems and mode of the environmental characteristics must be considered to ascertain if the developmental project in the process of expecting pretty result would be harmful to the host who supposedly should be the beneficiaries.

The cargo airport project, being a mega development rooted in the environment, must observe every possible scrutiny and inquiry, and must follow EIA procedures appropriately to

ensure that the public goods are well preserved and protected. More so, the carrying capacity of the project area should also be considered to avoid diminishing returns on the land.

On the other hand, the Neo-classical growth theory looks at natural capital and resources utilization in the environment. Thus, crucial assumption underlying this theory is the perfect sustainability between natural capital (including both renewable and non-renewable resources) and other forms of capital (project development). The maximization of well-being of affected inhabitants has obscured almost completely the study of long-term and short term effects, thus, eliminating, any pessimistic consideration typical of classical studies. Considering these theoretical attributes, these must be striking off balances between the ongoing project, its impact and benefit to the host communities, their environmental resources and their opinion. EIA must consider these neoclassical sustainability of growth theory, understand the perceived or assumed impact at every stage and strike balance to ensure sustainable development.

Dependency theory, hopefully, is suitable in analyzing the relationship between city developers, project managers, government and the host communities. Dependency theory explains a situation where a national economy is inextricably linked to and driven by, a more advanced economy. The more advanced economies dictate the major happenings in the local economies to suit their own whim and caprices *(*Igbo and Okpoko, 2006*).* Dependency theory, is simply saying that the underdeveloped countries are underdeveloped to the extent to which they rely on the West economically, socially, culturally, militarily and technologically (Igbo and Okpoko, 2006; 23).

Definitely, governments, project managers, city developers as well as foreign NGOs do not consider the exploitation being thawed out to the host community, most at times after the host communities have lost out greatly to the said development. As we pointed out earlier, those communities with oil that attracts oil explorers lose their land outrightly to the production as well as their health (acoustic and hale) to dangerous gaseous and noisy impact which do not deserve the mitigating measures been released and contributed by the project.

Considering the issues at hand, construction of Cargo airport is a mega project that involves a lot of processes which invariably would pose problems to the society involved, thus, the understanding of dependency theory would enable the stakeholders to curtail and avoid preventable impacts of the construction process and mitigate where necessary. Instead of exploiting the locals socially, culturally, economically (reducing the availability of their natural

raw material to their cottage industries), there should be planned EIA procedure which must be executed to ensure sustainability. Thus, to achieve this, adequate awareness, involvement and participation of the locals at any level involved is needed. Finally, infrastructure should be made available at every level of communities without good roads, good hospitals nor good schools. Invariably, the host communities may not really need a cargo airport at a starting point of development. Those basic amenities should be put in place to increase their efficiency, awareness and employment opportunities before such project would be related to them.

Also, behavioural theories see the absence of environmental social ethics as the main reason for environmental damage. The other reasons are human ignorance and absence of social, cultural, economic and environmental ethics (Igbo and Okpoko, 2006). Behavioural theory as we have discussed earlier, implies the concern that while such was known about individual, group and cultural processes, perception, cognition, preferences, values, attitudes, social norms, semantic structures, cultural differences, and so on – little was known about the relation of these social understandings to the physical environment (Gary, 2006). People should be morally groomed to do what is right; the project stakeholders should be guided properly by the procedures and laid down guidelines for effective and efficient result.

The 'Global Code of Ethics' on environmental impact assessment since 1962 addresses issues of environmental degradation and general negative impacts. At the national level, Nigeria ethics of conduct have been coded into laws and regulation since 1992 to ensure, basically, environmental friendly projects and recycling of waste. However, the 'Global Code of Ethics' on environmental impact assessment and sustainable development must be enforced and implemented on the cargo airport area both by the locals and stakeholders. For instance, if air pollution is an unavoidable impact and must be managed, stakeholders should provide face mask for the local to reduce the level of negative impacts and morbidity. Hence, people do not know their rights or obligations towards their environment, as well as demanding for their rights to ensure total involvement and appropriate mitigation of their affected environment and this invariably exposes them to high rate of morbidity and mortality.

Having known that some of the direct impacts are recyclable (solid waste), while some are not (precipitation), EIA must be conducted to checkmate and balance the impacts from the development projects to the environment exploitation and mitigate for impacts appropriately.

More so, EIA must ensure that the locals are involved in the process as to determine a better response and results, thus, all the agencies, government and project managers should work in harmony to ensure that the project is environment friendly, acceptable to the host community, economical to the government for revenue generation, appropriate to the next generation to stimulate sustainable development.

Community attachment has been measured differently across the few studies that have looked at its relationship to attitudes toward development and economic revitalization. It has observed that lifelong residents were more sensitive to the socio-cultural impacts of developments than were short-term residents. Um and Crompton (1987) as stated above combined length of residency with birthplace and heritage to create a Guttman scale of community attachment. Their findings indicated that the greater the level of attachment, the less positively residents perceive the impacts of tourism on their community. Area of attachment to communities are basically areas with historical, cultural, natural or survival importance for them, this can include river (which serve as drinking water and source of protein), ritual sites, shrines, hills, seismic features, monuments and places of archaeological evidence of their history.

In EIA evaluation like this, public involvement and participation is highly important, their involvement would help to indicate area of historical or natural importance to them that would not need to be used for the project. EIA Planners can ease the impacts of development by considering the nature of ties to community. One way to accomplish this is to develop an inventory of the places in the community that residents hold most dear and develop zoning and other strategies to protect these places, on the other hand involve them in the developmental planning. Their opinion, expectations and views can be improved, measures of community attachment can help facilitate efforts to identify places that should and should not be protected from any development. In situations where these community attachments have been impacted negatively, the people should also be involved in decisions making for continuation of project and mitigation. Thus, the host communities need to understand the need for their participation to ensure smooth EIA process and result. Consequently, if these assertion discussed above is adequately followed, EIA operational aim would be achieved at any level of development.

CHAPTER THREE

CULTURAL STRUCTURES, ENVIRONMENTAL SETTING AND NATURE OF PROJECTS

3.0 Introduction

It would be pertinent to discuss the cultural structures of the area studied, therefore, this section tossed into that in detail. The geographical information was collected with the aid of Global Positioning System (GPS), documented materials and observations. Since the two communities, although from different LGAs, have almost common features and history from Eri their proginetor, so the historical information below covers for the two communities, Umueri and Nteje. On the other hand, environmental settings and nature of projects were also covered in this section.

3.1 Geographical Location of Umueri and Nteje

Umueri, also known and sometimes pronounced as Umuleri, is a town located in Anambra State, Southeastern Nigeria. The people of Umueri town belong to an Igbo ethnic group and have an estimated population of 942,000.00 and located within Umueri and Nteje. Its geographical coordinates are $06^0$18’0’’ north on the latitude and $06^0$52’0’’east on the longitude. It is located within the Anambra-east, bordered by Anambra River (Omabala River) and Anam communities in the north, Nteje to the south, Aguleri and Nando in the east and Nsugbe in the western flank. Umueri is broadly divided into 3 clans; **Ezi, Ikenga, Ivite**. The clans are further divided into villages and sub-villages. But with the advent of colonialism and modernization, the towns have consciously grown and are governed just like other Igbo Communities.

Nteje is the headquarters of Oyi Local Government Area of Anambra state, Southeast Nigeria. It is situated about 25 kilometres north-east of Onitsha by land route. It is located on the map along the longitude $06^0$55’23”E and the latitude 06^0 16’20’’N. The land is fairly low, about 500 feet above sea level. It is bounded by Nkwelle-Ezunaka to the west (Oyi LGA), Awkuzu and Umunya to the South (both in Oyi LGA), Ukwulu to the East (Dunukofia LGA), Umuleri and Nando to the North (Anambra East LGA) subdivisions like most towns in the Eri-Awka axis. The town, like Umueri, is divided into three parts; **Ezi, Ivite and Ikenga.**

3.2 Historical Background of Umueri and Nteje

The origin of Umueri is surrounded in myths and legend, as it is in other ancient Igbo communities. However, there are generally acceptable oral story of origin which was passed from generation to generation, which emphasised the area as the first area of human settlement east of the Niger. Therefore, the origin of Umueri, which literally means "Children of Eri", can be traced back to ancient Eri Kingdom, which dates back to the 9th Century. The Nri Town in Anambra State is a also descendant of Eri. The people migrated to the present place from Omabala River Valley. According to oral tradition, Eri was a great warrior, hunter and polygamist. He had a lot of children and wives. The most famous of the daughter was Iguedo who presumably returned from where she married to, the lineage of Ogiso (Bini) who was amongst the crowd of migrants at that time. She was also mother to the founders of Ogbunike, Awkuzu, Umueri and Nando and a daughter who was amongst the founders of Oboli Quarters of Onitsha (this explains the relationship between Umueri and Onitsha and other Iguedo clans). Eri due to his influence was said to have snatched (re- married) Iguedo from Nnamenyi, another of the migrants and she bore him Dabawor who founded modern Umueri clan. At the demise of Eri, she remarried again to Iru, a hunter and herbalist who was said to be part of Eri Company.

Ntejes were not left behind in the Igbo history; hence, they also traced their history to their progenitor Eri. According to oral tradition, the Nteje community is from the Umu-Iguedo clan; Iguedo is the only daughter of Nneamaku the first wife of Eri. Iguedo begot Ogbunike, Awkuzu (Okuzu), Nando, Umueri and Nteje. The Nteje fought with their brother Awkuzu, who at one point in time wanted to pursue them out of their land. Many people migrated down to Asaba area and other part of Igboland looking for greener pasture. Consequently, the communities under Umueri and Nteje, as Igbo believed, are the dispersed children of the Igbo ancestors. It was founded around 900AD by the progenitor, Eri, the son of Gad, according to biblical accounts. Gad then begot Eri, who later formed a clan known as Erites vide Genesis Chapter 30 verse 9; 46 verse 16 and Numbers chapter 26 verses 15-19.

During the Exodus, which marked the beginning of the mass movement of the tribes of Israel, the tribe of Eri was amongst the tribe that left Egypt following the injunction from God to the Israelites (see Deuteronomy chapter 28 verses 58 – 68). Some of these tribes founded settlements in the southern part of Sudan, where they established the “Nok” culture, which is

similar to that of other (sun Cult) culture, like Nri, Fiji, Samoa, and Jukun in the Northern part of Nigeria and elsewhere. But others who could not remain in the Southern Sudan traveled further south, some branched off to Jukun, in Northern part of Nigeria, others continued and arrived at the confluence of River Niger and Anambara known as "Ezu-na-Ọmambala" and settled there, while some veered off to the Island of Fiji in the South Pacific Ocean. An intelligence report notes that the Fijians have the same sun culture with the people of Nri of the Umueri and Nteje. When Eri arrived at the confluence of "Ezu-na-Ọmambala", he had two wives, namely Nneamakụ and Oboli, Nneamakụ begot five children, namely:

(a) Nrifikwuaṇim-Menri being the first son (b) Agụlụ (c) Ogbodudu (d) Onogu and (e) Iguedo the only daughter. Oboli begot Ọnọja, the only son who founded the Ịgala Kingdom in Kogi State. Meanwhile, Nri-Ifikwuaṇim begot Agụkwu Nri, Enugwu-Ukwu, Enugwu-Agidi, Nọfịa, and Amọbia, while his brother Ogbodudu who later became Nrinaoke N'Ogbodudu had founded the Diodo Dynasty, while his brother Ezikannebo founded Akamkpịsị and Amanuke. Onogu Begot Ịgbariam, while Iguedo, the only daughter, begot Ogbunike, Awkuzu, Nando, Ụmụleri, and Nteje, Known today as Ụmụ-Iguedo clan, while the former are better known as Ụmụ-Nri clan.

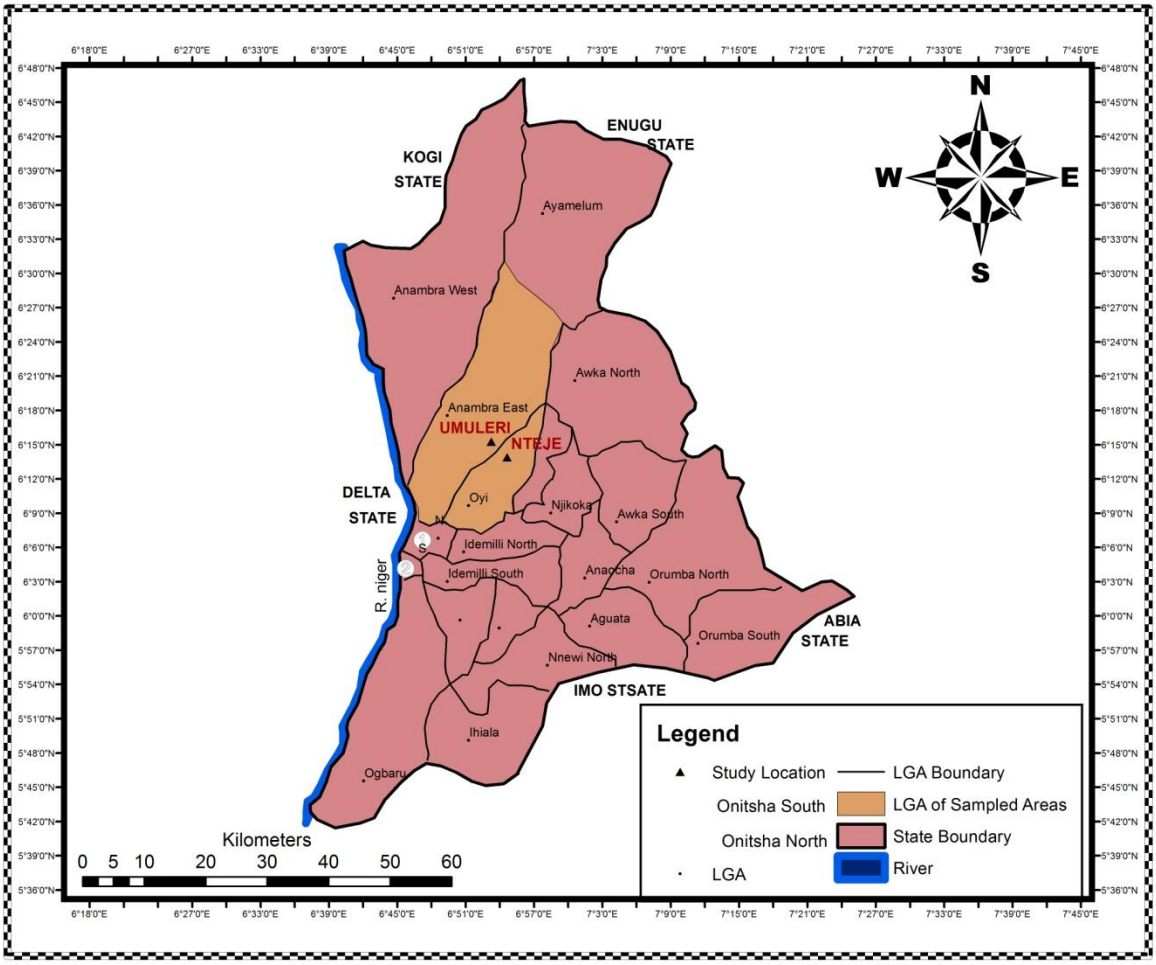


Figure 1: Map of Anambra-State showing all the LGAs in the State
(Source; Ministry of Survey,Anambra-State)

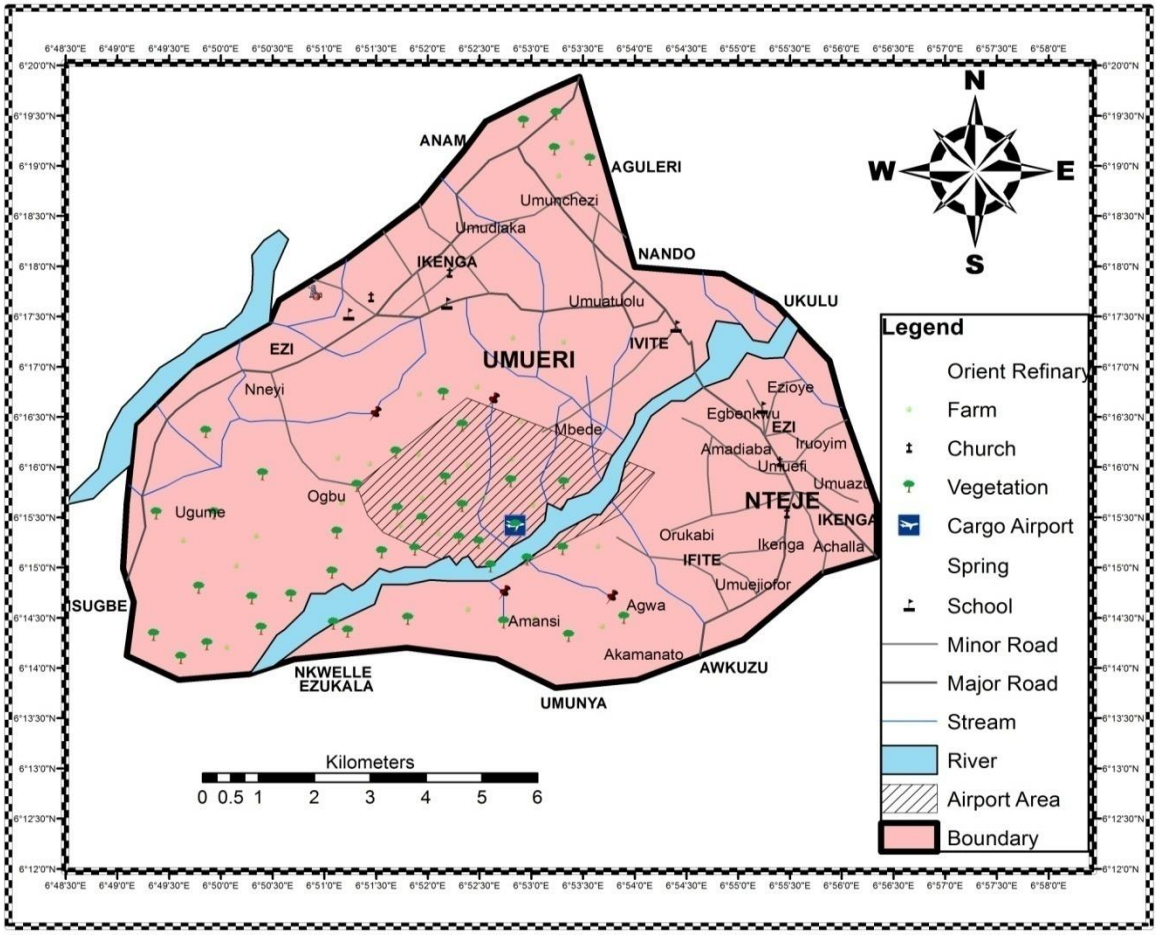


Figure 2: Map of Umueri and Nteje Showing Towns and Potential Features

(Source; Ministry of Urban and Regional Planning, Anambra-State)

3.3 Drainage in Umueri and Nteje

Succinctly put, Umueri and Nteje has a conglomeration of villages and clans with numerous lakes, creeks and streams, where aquatic resources are exploited intensively to meet the growing demand for the scarce commodity and the growing population. However, the most important drainage system of Umueri and Nteje are the Iyi Oji, which flow from north to south, and serves as boundary between the Umueri and Nteje. The Kpeke stream connects from Umueri to Omabala, Ezu-ebenebe which flows in westerly direction from a tributary with Omambala. There is also the Ezichi River which flows Southwest through Igala-land in Kogi State and empties into Anambra River (Omambala) at Otuocha. The River Niger which flows southeast covers variably the other part of north Anambra valley (Onitsha). Additionally, there are more streams than lake in the two areas. Some of the lakes are used for fish production.

3.4 Climate, Soil, Vegetation and Topography of Umueri and Nteje

The land surface is dominated by plain over 200 metres above sea level. The characteristic trend of the topography is that of gradual ascent from the bank of Iyi oji in the southwest to Omambala River. It is characterised by a tropical climate with average temperature of 28^0 C. These communities share climatic characteristics with any other West African tropical humid climate which is, however, modified by the town's high altitude. It has two distinct seasons; the dry and wet season, brought about by two major air masses of southeast (tropical maritime) which blows the Atlantic Ocean bringing rainfall and northeast (tropical continental) air mass which blows through the Sahara desert bringing the dry season and harmattan.

The rainy season starts in April and last till October. There is, however, a spell of harmattan weather condition, between the month of November and February, while the dry season last from November to March. The highest amount of rainfall is recorded in the Month of June and July with an average rainfall of about 6 degrees between April and November. Although, annual rainfall is high in Umueri and Nteje, ranging from 1,400mm in the north to 2,500mm in the south, it is concentrated in one season, with about four months of dryness, November to February.

Consequently, the natural vegetation in the greater part of Umueri and Nteje is tropical dry or deciduous forest, which, in its original form, comprised tall trees with thick under growth and numerous climbers. The typical trees (silk cotton, iroko and oil bean) are deciduous, shedding their leaves in the dry season. Also, there is the natural vegetation marginally in the tropical rainforest type on the hill axis. Because of the high population density in the area, most of the forests have been cleared for settlement and cultivation. What exists now is forest savannah mosaic, where the oil palm is predominant, together with selectively preserved economic trees. Relics of the original vegetation may, however, be found in some shrines or some inaccessible areas.

Three soil types can be recognized in Umueri and Nteje. They are:

(i) alluvial soils,

(ii) hydromorphic soils, and

(iii) ferallitic soils.

The alluvia deposits are obtainable around the valley area and stream banks, thus, the vegetation of Umueri and Nteje could be described as derived from savannah, brought about by human agencies of deforestation, bush burning and soil cultivation over the centuries. However, the patches of forest lie mainly along water courses signifying the existence of tropical rainforest in time past. Hence, this tropical rainforest was reduced to a secondary plant cover, best described as parkland so that large part of landmass may be termed "oil palm" bush, due to the dominance of oil palm *Elaeis guineensis (nkwu)* in protected reserves and in some uncultivated patches between crop farms. The forest section of the Umueri and Nteje is characterised by the abundance of plant species sometimes exceeding 150 different species per hectare. The stratification of plant species tends to become more pronounced in relation to the degree of disturbance by man. Complementing the forest floor are numerous creeping plants known as undergrowth, plants of intermediate height (10-35 meters) are presented by trees like *Chrisophylum africana* (*udala,) Pentaclethra macrophylla (ukpaka),* and *Irivingia gabonieensis* (*ugiri).* While at the highest level 50-80 metre occur crown of veritable forest giants like Iroko, *Chlopora excelsa* (Oji) and silk cotton tree *Celba pentrendra* (*akpu*). Climber pants like edible *Gongronema latifolium (utazi*) are obtained from the area.

Plate 1: Topographical setting of the Study Area

3.5 Community Structure and Leadership Arrangement

The two communities studied, namely Umueri and Nteje have some known structure and leadership similarities. The two study areas have the same settlement pattern; compounds with families living very close to each other. Thus, the people lived in close nucleation with houses

grouped into compounds, their totality of the houses are made up of the patrilineal affinity setting. Both communities involved are particularly fast growing into urban areas with several developments in the place. Generally, in the Umueri and Nteje there are also individuals carrying the title Onowu and Igwe, indicating a special degree of influence and power, though not independent of the person and, especially, the wealth it could mobilize.

Secondly, it is striking to observe that the two communities bear the same clan names: Ezi, Ikenga, and Ifite, only that in Nteje, Ifite clan is pronounced as Ivite. During the field work, the researcher observed that the Eze-nri leadership is not recognised in Umueri and Nteje. Their traditional loyalty belongs to their Onowu at present. The Onowu supposedly assists the Igwe but ever since the last Igwe died, there is no replacement yet in the two communities, consequently, Chief Mike Ekwuonu and Chief Echemeta Ugonabo are the Onowu in Umueri and Nteje respectively.

The stirring archaeological findings at Igbo-Ukwu (a town close to Umueri and Nteje) which seem to suggest, the existence of a one thousand year-old tradition of Nri sacral kingship and 'hegemony' over large parts of Igboland (Adegbulu, 2011). This implies that some of the communities in the Anambra-basin (Umueri and Nteje inclusive) must have had a long time technological civilization, earlier before the coming of the whites.

3.6 Socio-political Activities in Umueri and Nteje

The pre-colonial Umueri and Nteje is believed to have an administrative head who serve as leader before many migrated from the areas to other areas in Igboland. This is said to be known as the Eze -Nri. Thus, modern administration since colonization relegated this system and enthroned the Igwe and Onowu Dynasty which is a prevalent Institution till date in those communities. Some other writers like Nwoye (2011) opined that politically and socially, the traditional Igbo society has no centralised form of government. Political groupings are based upon the agnate group or Umunna (Ekwunife, 1990). The agnate *(Umunna)* group system is based on the patrilineal or matrilineal organization of the village. The agnate *(Umunna)* is organised into three levels.

At the primary level is the family, centred on the Obi of the pater-families, and in his absence, the Okpala (the eldest son) takes over. This process gives rise to the need for the *Ibam*

n'obi ceremony. At the higher level is the Ebo (village) lineage group with the most senior Okpala of the village group as the leader. Finally, at the highest level is the town, the aggregate of all Ogbe or village lineages, where there would be preceding Igwe, Elders and Onowu in charge.

Generally, among the Igbo, leadership of the community falls on age grades. Age grade associations are important in Igbo social organization and among many Umueri and Nteje villages and clan groups. These are highly developed and in each case constitute a part of the administrative machinery. Age grade associations are composed of age companies, which are formed triennially among boys beginning from the ages of thirteen and fifteen years. Members of a particular age company elect their leader and choose a name by which to be known by other citizens of the village and town.

About two or three age companies are then merged together to form an age grade association. But as the boys grow to manhood, their companies are periodically upgraded through successive age grades until they reach the ranks of the elders, which is the highest age grade. The younger age grades engage in manual labour such as cleaning of pathways and village squares. The older age grades are responsible for the construction of markets and bridges, as well as the legislative and executive aspect and defense of the village or community (Oguagha, 1989). While the agnate group (Umunna) system encourages equality, communalism and egalitarianism at all levels, the title associations promote individualism with the prestige, power and authority attached to solid personal and material achievements.

Additionally, there are *Ozo* title groups, which are open to any freeborn citizen who is capable of paying the requisite fees and possesses an upright character. This means that among the people of Umueri and Nteje, probity of character is a basic requirement for admission into the ozo title society and in this way; the title is a mark of respectability. Among such names are: *Akunna* (father's wealth), *Akunne* (mother's wealth), and *Akukalia* (abundance of wealth) and *Ogbuanyinya* (Horse killer), *Ide* (the pillar, holding the house), *Ivijioku*, *Amanwulu*, *Oba* and *Nze-Nze* (a significant elder).

These facts are necessary for an understanding of the meaning and significance of ritual agents and privileges conferred on a high ranking elder at the point of his death. The paraphernalia of these titles include: red cap (*okpu ododo*), anklet, *Ngwuagiliga* (title scepter),

Akpa ewu (goat skin bag) and *Nzu* (white chalk) and a medium sized bell, ankle cords tied on feet (*owu ozo*), an iron staff (*alo*), and a cow or horsetail (*nza*). *Ozo* title holders are, in addition, expected to take praise names.

3.7 Socio-cultural Attributes in Umueri and Nteje

Traditional Titles

There are seven traditional sacraments for men only; *Ozo, Ogbuevi, Ivijioku, Amanwulu, Oba,* and *Nze Nze* which is the highest of these titles and is mostly taken by the elderly in the study areas. The paraphernalia of these titles include: red cap *(okpu ododo)*, anklet, *Ngwuagiliga or alo* (title scepter), *Akpa ewu* (goat skin bag) and *Nzu* (white chalk) and a medium sized bell. *Uvio* and *Nchachaa* are the musical instruments for the titled men`s dirge in Umueri. Non titled men are not allowed to partake in this *Uvio* dance and defaulters are heavily fined. *Nze* which is the highest of these titles is highly revered and the deseased members are buried in a special cemetery *(oli-nze)* designated for men of the *Nze* society at midnight by their members. Most of these practices started diminishing with the advent of Christianity in the Umueri and Nteje axis.

- **Ijele Masquerade**

This known biggest masquerade in Sub-Saharan Africa is a special intangible heritage that belongs to the Igbo People of Nigeria and was listed in UNESCO Archives as intangible cultural element in need of urgent safeguarding. In many communities in the state of Umueri and Nteje in South-Eastern Nigeria, celebrations, burial ceremonies and other special occasions during the dry season to evoke fertility and a bountiful harvest feature the performance of the *Ijele* masquerade. *Ijele* originated from Anambra State in Nigeria many centuries ago. The origin of *Ijele* masquerade is believed to come from a dance group called *Akunechenyi* from Umueri and Aguleri communities along the eastern tributaries of the River Niger in Anambra State. It was originally intended to intimidate and scare away the early missionaries as well as celebrate royalty and greatness in Igboland.

However, the origin of *Ijele,* according to available oral tradition, emanated from *Akwunechenyi* dance group belonging to *Umudiana* Village of Ikenga Umueri. It was this very group that performed the first "*izi egwu ijele*"(introduction of the Mask) to other communities. The first Village to be introduced was Umuatuolu Village of Umueri, subsequently followed by

Igboezunu Aguleri, Nsugbe, Nteje, Nneyi-Umueri, Nando, Awkuzu. In recognizing the roles played by Umueri in the Origin of *Ijele*, the Old Anambra State Government unanimously selected Umueri Ijele Cultural troupe to represent the State in Festival of Art & Culture known as FESTAC 1977, where the groups won various Awards and accolades for excellence from the Federal Government in 1977.

Ijele is a special masquerade in Umueri and Nteje; it is the king of all masquerades and as such has 45 different other masquerades perform on top of it in the olden days. Presently, the 45 masquerades are represented by the 45 figurines seen on top of Ijele. The myth and size of Ijele is wholesome as every aspect of life is depicted on Ijele. It is the climax of all masquerades, hence, performs alone and most times. Ijele is a family of 4: the mother; father; police and palm wine taper which will be discussed under the Ijele family below.

Ijele Mirror: This mysterious mirror picks and sees anyone with charm or destructive weapons, the mirror magnetises the person to Ijele for punishment. This mirror is reflective and creates an aesthetic beauty.

Ijele Python: This is a big snake signifying royalty and mightiness of Ijele.

Ijele Fabrics: Ijele fabrics popularly known as Ododo are expensive, colorful velvety materials. Ijele has all colors but yellow, black and red are pronounced. Ijele appears in form of trees, animals, white men, carved human. Thus, almost every aspect of human activities is depicted on Ijele masquerade to signify wholesomeness.

The Societal Impact and Significance of Ijele

Ijele has political, spiritual, social, psychological and recreational significance in Umueri and Nteje and entire Igboland, thus these significances is responsible for its continuity.

Spiritual and Social significance: *Ijele* performs at the burial ceremonies of great and powerful kings or special men and women in Igboland. It also performs at the burial ceremony of any member of the *Ijele* family or at the death of the oldest man in the community. Ijele mostly performs during the dry season to mark fertility and annual bountiful harvest. It can equally perform at special festivals and occasions.

Political: *Ijele* gives the people the opportunity to re-affirm their loyalty. This affirmation comes in different ways; for example, dancing alongside the *Ijele* as it pays homage to a Chief or King, shows ones total loyalty, it is said if *Ijele* can bow, who else can not bow.

Recreational: The appearance depicts a high tone of events when different facet of Igbo recreational activities is displayed. Though, in some communities in Umueri and Nteje, it is restricted to young boys and girls singing and dancing to the tune of *Akunechenyi* music, which features very prominently during this session. It is worthy or note that *Ijele* will never step out to perform unless Seven (7) Cannon gunshot are released to the air alongside the sound of its royal music. Therefore, it would be nice to sum it up that *Ijele* is a spiritual bond between a range of communities in Umueri and Nteje which is harbinger of peace, amity, dialogue and a high sense of communality.

Ijele Family Structure

Nne Ijele meaning "Mother of *Ijele*" is a usually beautiful lady masquerade that holds a big ox tail with a carved enamel plate. It dances to flute and soft music. *Ijele* Father called "*Onuku"* has a big face and dresses in chieftaincy regalia. *Ijele* Police are usually six. Their duty is to ensure that the people do not encroach on *Ijele* Father or Mother. *Ijele* palm wine tapper accompanies *Ijele* for the sole purpose of picking its rear as it performs. Another significant personality is the *Ijele* fan carrier or *Akupe* carrier. It is not really a masquerade but it plays crucial role of leading the *Ijele* with its symbolic powerful fan called *Akupe*. Once the *Ijele* loses sight of the fan and its carrier, it gets lost and it signifies danger. *Ijele* moves when the fan carrier moves and also stops when he stops.

Plate 2: Ijele in His Regalia

- **Igu-Aro Festival (Proclaiming New Year)**

According to Chiokwe, our respondent, Igu-aro is the major kingship festival among the Umueri, Anaku, and Aguleri. According to him, Nteje practised this festival in pre-colonial period. Igụ-Arọ is an annual festival observed in the communities of Anambra-valley. It is during this festival that Igwe or Onowu proclaims New Year to all the Igbo communities under his jurisdiction (Umueri and Nteje), and then announces the new calendar to the people.

The calendar is made up of thirteen (13) Lunar months namely:

(1) Ọnwa Mbụ (1st moon) starts from 3rd week in February each year.

(2) Ọnwa Abụa (2nd moon) March to April, (clearing and farming).

(3) Ọnwa Ife Eke (3rd moon) April to May (Uganị or hunger period)

(4) Ọnwa Ana (4th moon) May to June (planting seed yams).

(5) Ọnwa Agwụ (5th moon) Ịgọchi and mmanwụ (Adult Masquerades) June-July.

(6) Ọnwa Ifejiọkụ (6th moon) Yam Ritual (Ifejiọkụ) July –August.

(7) Ọnwa Alọm Chi (7th moon) Yam Harvest, which comes up August to early September.

(8) Ọnwa Ilo Mmụọ (8th moon) Ọnwa Asatọ festival (September ending).

(9) Ọnwa Ana (9th moon) Ana Ritual comes up in October.

(10) Ọnwa Okike (10th moon) Okike ritual takes place in early November.

(11) Ọnwa Ajana (11th moon) Okike ritual takes place in November ending.

(12) Ọnwa Ede Ajana (12th moon) comes up in ending of November to early December.

(13) Ọnwa Ụzọ Alụsị (13th moon) offering to Alụsị (early January to early February).

The Lunar system of calculating the year with a system of adjustment was known to the priests of Alụsị Arọ and the knowledge of the movement of heavenly bodies were employed in the calculation of the lunar year. *Nze-nze* (elders) among the communities in the Umueri and Nteje had clear knowledge of these stars and others which helped them in calculating the intervals between each lunar period and finding their directions during their sojourn from one Igbo village to another in both the semi – forest and the forest zones.

3.8 Economic Activities in Umueri and Nteje

This section traces the economic activities as practiced and still in practice by the people of the Umueri and Nteje. We already know that the major economic activities in the area is agro-based activities like fishery and farming activities which ranges from cultivation of yam, cassava, cocoyam, vegetables and cash crops, as well as land cultivated for pasturing and animal husbandry. Thus, their topographic features and nature of soil must have pioneered these activities especially on areas described as an isthmus. This contributed to the fact that Anambra State has the lowest poverty rate in Nigeria.

3.8.1 Farming Activities and Agricultural Production

The people of Umueri and Nteje, as we already stated, are Igbo people residing close to the river. Therefore, they are mainly farmers who engage in various agricultural activities. They cultivate food crops such as cassava, maize, yam, beans, pepper, cocoyam, groundnut, potatoes, banana, plantain, melon, etc at subsistence and commercial levels. More so, they grow cash crops or economic trees which also yield income to them. These economic trees include oil palm, African pear, mango tree, orange tree, cocoa, vitex *(oha*), *uturukpa*, kola, oil bean, breadfruit, and many others. Yam cultivation is the chief traditional source of wealth, the importance of yam is seen in the ritualisation of yam culture called *IFEJIOKU*.

Farming is done in two periods of the year; January to April and June to August. The harvest also takes two periods; August/September and in November/ December. Farming methods employed by these people are mixed cropping, slash and burn method of bush clearing and natural fallow system. There is a kind of division of labour initiative in their activities, thus, men are predominantly second part of artisanal fishermen and women are fish processors. The communities have good access roads linking them to *Nkwo-Nenyi* Umueri and *Eke* Nteje which are the major markets for captured fish. The dwellers are close to the river and on the other side of the road are swampy parcels of land for farming during the dry season when fishing intensity is very low.

3.8.2 Indigenous Knowledge in Umueri and Nteje

Few of the aspects of indigenous knowledge known about these areas are highlighted below. These include activities obtainable during the pre-colonial period and at present;

Medium of Exchange

According to oral tradition by Nnaa Ugo, clans and villages residing in Nteje, and Umueri as well as every other Igbo communities at some time ago used the cowrie currency (*Ego ayo*) before the coming of the whites, and a sophisticated system of using cowrie as a medium of exchange and valuation was developed in the Igbo cultural area. The system of calculation and the table of conversion used around these study areas in the late Nineteenth century are as follows:

1 *Mkpụlụ Ego* = 1 Cowrie

6 Mkpụlụ Ego = 6 Cowries = *1 Isi ego*

10 Isi Ego = 60 Cowries = *1 Ukwu*

20 Ukwu = 1,200 Cowries = *1 Afịa*

20 Afịa = 2,400 cowries = *1 Akpa ego or ili Afịa*

10 Akpa (bags) = 240,000 cowries = *Nnu Afịa.*

Fowls and bags were valued in *Ukwu*; goats and sheep in *Afịa*; cows, slaves and land in *ili Afịa*. Bride wealth was negotiated in *Nnu,* never to exceed four *Nnu Afịa*. Iron bars and rods,

copper bars and rods and manilas were valued in terms of cowries. In order to facilitate carrying them around for transaction, cowries were strung together in rows of six and sewn permanently on mats in bundles of 6, 1,200, 24,000, and 240,000. The mats were rolled; loose ones were tied in bags of 24,000 called *akpa*.

According to Onwuejeogwu (1981), reporting the conversion of cowries to British currencies, at the beginning of the 19th century, the British introduced the pound, shillings and pence, and other currency systems. This new system was resisted in various ways. First a dual currency system was developed; traditional goods were sold in cowries and European goods in British currency. Later cowries could buy British currency and British currency could buy cowries. By a system of haggling, the exchange rate varied and was determined by several factors. As more European goods began to penetrate without replacement, the British currency backed by law, became dominant. In 1925, the following rate of exchange was still operational in many rural markets.

10 cowries = 1/2d (Half Penny)

20 cowries = 1d (One Penny)

60 cowries = 3d (Three Pence)

120 cowries = 6d (Six Pence)

240 cowries = 1/- (one shilling)

1200 cowries = 5/-(Five Shillings)

1400 cowries = £1 (one pound)

24,000 cowries = £5 (Five Pounds)

120,000 cowries = £25 (Twenty five pounds)

Arts and Crafts

At present, the locals of these communities engage in agriculture, they are known for production of yam, maize, melon, cocoyam and cassava through subsistence farming. These agricultural and other indigenous activities have in recent time suffered a setback due to massive out-migration of the youths to the urban centres, thereby resulting in increase in food scarcity

and overpopulation in urban environment. Although the people are fundamentally an agro-based community, few undertake smiting, orthodox orthopedic, carving, pottery and cicatrisation as full time occupation. Presently, however, a good majority of Umueri and Nteje sons and daughters are involved in business merchandise and white-collar jobs all over Nigeria and beyond (Animalu, 1990). Villages in Umueri and Nteje also observe the four market days known to the Igbos, namely *Eke, Orie, Afor and Nkwo.*

3.9 Ethnographic Study of Umueri and Nteje

Ethnography is the study of cultural items of extant societies. These include natural and landscape features; shrines, monuments, traditional buildings useful for understanding traditional technology, present day workshops like smiting, art and craft, carving and the object produced as well as oral traditions which includes folklores, songs, myth, title taking, marriage ceremonies as well as other festivals and traditional ceremonies that are relevant to the cultural history of the people (Okpoko, 2000 in Agu, 2008). Ethnographic techniques was used by the researcher to grasp the proper meanings of actions and words to the host communities themselves, and then employ their own indigenous categories or oral traditions in the culturally appropriate terms to state events and interactions as they would be understood within the culture of the people under study (Obikeze, 1990:75 in Okpoko and Ezeh 2006:48). With ethnographic technique, the socio-cultural, socio-political, economic activities as well as historical background were collected. Thus, this section treated briefly specific ethnographic attributes known to the study area;

3.9.1 Natural Attractions in Umueri and Nteje

- **Agbanagbo Ezu-na-Omambala (View of the confluence of River Ezu and Anambra-River) at Otuocha, Umueri**

The Ezu-na-Omambala, Ezu and Omabala rivers are the umbrella river goddesses that flood their bank and have a confluence with each other. Thus, they are female powerful deities that have the traditional reputation for cleansing. The confluence of Ezu and Omambala serve as a historical remembrance for the triumphant landing of Eri, the progenitor and head of Igbo race at the bank of the river. Thus, when Eri group ended their journey on this confluence of River Ezu and Anambra River, where it settled in Obu-Gad (meaning Gad's Palace, in honour of his father) and founded the Agulu-Eri community. Olili biabia Eri festival is also celebrated in

honour of the success through the river. These rivers serve as source of aquatic animal for communities in the Umueri and Nteje and others on that axis. The view of the Y-shaped confluence of the River Ezu and Anambra-River is a beautiful tourist's attraction that attracts many tourists all over the World.

Plate 3: Omambala River and Olili biabia Festival

- **Kpeke Stream at Umueri**

The kpeke Stream is a small stream located at Umueri, which serves as a source of drinking water and getting aquatic animal for the people. The people are highly attached to this stream, thus, this stream enables them to learn the fishing games and swimming. The Kpeke stream has connection with the Omambala River. This river also has a priest who officiates and takes care of the river to ensure that people do not desecrate the water. However, some issues can result from the desecrating of the water. These include murdering around the river, if such happens; such an individual is excommunicated from coming to the stream. The people also have more cultural and ritual attachments to the stream, the kpeke groove is located behind the stream.

Plate 4: Part of Kpeke Stream before the Construction

- **Iyi Oji (boundary of Nteje and Umueri)**

Iyi Oji flows from Nteje boundary through Umueri valley and empties into the Omambala River. The stream has bridge constructed across it enable accessibility through the road. The water is a good source of drinking water and fishing for the people, both the Nteje and Umueri own the stream depending on which part of it. Although at Nenyi-Umueri, the Oji (deity for Iyi) is situated with the priestess who officiates the deity, People visit Iyi Oji on regular basis for religious purposes.

- **Ogbo Ama Urukabi (Iroko) at Nteje**

Located in Nteje is a unique natural phenomenon, a 200-year-old mysterious Iroko tree. The place boasts of a 200-year-old mysterious Iroko tree. Although, there are five Iroko trees in one place housing the moribund water project by the Anambra State Agricultural Development Programme, they are regarded as one. The tree bears many local names. At times, it is called Ogbo, Okwolo. Other times, it is Okpo Ama Urukabi. The tree has many mysterious tales surrounding it. Among other things, it is reputed for sweeping its surrounding unaided. Indigenes of Nteje also believe that if a woman wants a child, the mysterious Okpo tree is capable of giving her.

To guard the 200-year-old tree is its custodian, the over 130-year-old chief priest, who is also the oldest man in Nteje, Chief Samuel Ikefuna Okafor. The priest calls it Ogbo rather than Okwolo. On the day the researcher met him at his abode near the tree, he spoke passionately about the many myths surrounding the tree. Okafor, who feeds the land of Ogbo (Iroko), was a well-known welder in Port Harcourt, Rivers State before he returned home. According to the priest “You can never see any branch or leaf of the Iroko tree fall on the road”. He also disclosed that the Ogbo eats land food to survive. His duty is to pray in the traditional way to live a good life. According to him, “If anybody do evil and it is reported to us, we will urge the person to go and appease Ogbo but if the person refuses, then the person will die mysteriously”.

Also, Okafor said that “the Iroko helped us very well during the war; this fact is celebrated among our people. Nobody will consider cutting the Ogbo. The Nteje people believed that if anybody tries it, Ogbo will hang a rope on his neck”. They also believe that the trinity trees do not allow laziness; so, people do not stay there in the morning except in the evening or

during meetings and full moon. It is the oldest tree in Nteje and it has a rich history and lots of merits. Story has it that when Nteje was at war with Awkuzu, they engaged the services of the white men with guns while the Nteje people engaged the services of Ada people from Uzuakoli. During the war, all the women and their children were housed on the Iroko tree for protection while the men and Ada engaged the enemies. They later prevailed in that war. People from all over come there to drink and unwind. They discuss all kinds of gossips from 8:00 pm at Okwolo. “It is a sacred ground for Ifite that our forefathers and our people have continued to hold it in the same awe”. It is strategic because whoever passes by that arena is known and monitored.

Plate 5: The Ogbo Ama Urukabi (Iroko) at Nteje

Other cultural sites in Umueri and Nteje are:

- Ugwumazu,
- Ofia Nengo
- Ofia Iyiokwa m
- Udo Okpo
- Ofia Ojukwuagu existing Deity land
- Nwampo existing Deity land

Natural Resources at the Umueri and Nteje Axis

Umueri and Nteje communities are rich in natural resources like crude oil, bauxite, ceramic, aluminium, uranium, clay, coal, natural reserve forest, and has an almost 100 percent arable soil. In the year 2006, foundation laying ceremony for the first Nigerian private refinery, Orient Petroleum Refinery (OPR) was done at Aguleri, where clusters of these resources were discovered in higher quantities. The Orient Petroleum Resource Ltd (OPRL) owners of OPR, was licensed in June 2002 by the Federal Government to construct a private refinery with a capacity of 55,000 barrels per day. The surrounding communities also have measures of these natural resources.

3.9.2 Land Holding and Land Tenure System in Umueri and Nteje

Land is held in high esteem by most African societies, especially those whose livelihood is dependent on farming. In such societies, land is not just a natural heritage; it is also a sacred property. It is, therefore, not just a natural heritage; it is also a sacred property, which is held in trust by the oldest member of the communities. This trusteeship authority means that the land must continually be apportioned by the elders to every member of the community who needs it. They are also not to allocate it to non-members (Okpoko, 2007). Before the advent of colonialism in Igboland, inheritance among the people of Umueri and Nteje communities was in the male lineal descendants.

According to Anyaora, our respondent, landed properties are inherited by families through their father then, by the sons through their mothers (due to polygamous rate) essentially for agricultural purposes and residential purposes *("obiri"* or *"ovu"*) for himself, his wives' huts, barns and kitchen (*ulo okuko, obaji, mkpuke*). Land was shared among the sons of the deceased with the first son taking the *ukwu oji* (the choicest piece of land), then other sons of the family share from the remaining pieces of land, but, the system, however, changed during the colonial era. Land was now inherited by the sons directly from the father's possession and no longer through their mothers. The first son still maintains the inheritance of the choicest piece of land (*igwu onu*) and the others share equally among the male siblings. Ownership was for perpetuity and it was difficult for land to be sold outrightly. The ideal practice was land pledging.

Land in these areas was only sold to strangers or to other members of the extended family under extreme economic need with the consent of members of the family. Communal land was

shared among the people. No single individual owned communal land but the fruits were harvested by selected groups on a shared basis and the money used for community development. Presently in the study communities, every first son automatically inherits his deceased father's house immediately after his death. Although, the prevailing practices in the study area is one where the first son decides to leave his father's compound for another plot of land so that his younger brother will inherit and make use of their father's abode. This happens often when the first son has acquired enough wealth to build himself another house. Sale of land is no longer difficult. An individual now has the right to dispose off his inherited land in exchange for money if he so wishes.

More so, ownership of land by deities in these communities is as old as the communities themselves. At present, land dedicated and owned by deities are in abundance and people are restricted from entering such places. These lands include '*ajo-ofia*' or 'evil forest', *'okwu muo*' or 'sacred grove', and '*ana nso*' or 'sacred land'. Ownership of an evil forest by any deity arose where someone who committed an offence against a deity died from retribution and the corpse deposited on the deity's land thereby converting the land into an *'ajo-ofia*'. Examples of such land in Umueri and Nteje are:

- Ugwumazu at Nteje
- Oguadah at Umueri (early settlement area)
- Ofia Nengo at Nteje
- Ofia Iyiokwa at Nteje
- Iyiomi at Umueri
- Udo Okpo at Nteje
- Odah at Umueri
- Ofia Ojukwuagu at Nteje
- Nwampo at Nteje
- Ajiegwu at Umueri
- Odini at Umueri (early settlement area)

Most Umueri and Nteje villages have these deity lands. In some instances, one may find privately owned sacred groves where the owners worshipped their gods in the traditional Igbo manner. The *'okwu muo*' owned by each of the communities is protected by the local

people for centuries for their cultural beliefs that deities reside in them and protect the villagers from different calamities (source; field survey).

3.9.3 Social Infrastructures and Services in and around Umueri and Nteje

From field observations, the two focus areas are not well developed, roads that are tarred are only the major ones, leaving other street link roads untarred and flooded. Also, the basic infrastructures in the area are built by individual communities, entrepreneurs, NGO's; only very few are built by governments. The available infrastructures range from few schools, few hospitals, hotels, one bank, few markets, motherless babies' homes and government quarters. Also, government constructed good roads which are of enormous economic and strategic importance to Umueri and Nteje, as they open up direct access to the food basins of the state, are the 5.7km Nteje-Umunya Road, Ifite-Umueri-St Monica College Road, the 4.2km, the 13km Umueri-Oil Rig Road, the 42km Aguieri-Umueri Uno-Oil Rig Road and others. To this effect, access to good roads and easy transportation of passengers, goods and services are ensured averagely on the major road.

In the same vein, infrastructure like electricity is distributed from the Enugu Electricity Distribution Company (EEDC) to the area, although some part of Umueri and Nteje (*Odah and Ekpo Ugwa area*) are not fully electrified. Banking industry is scarcely established in the Umueri and Nteje, only one bank (First bank) along Aguleri-Umueri road unlike their Onitsha areas and Igbariam counterparts which are better equipped in that respect, supposedly because of the market and school, establishments in them. The hospitality industry consists the recreational gardens and hotels, which include Omashi Hotels, Umueri Recreational Club, Ukwu Abwa Hotels, Umueri and other few restaurants.

Both private and public health care and clinics are situated in the area. Also, educationalcenters such as colleges, post primary and primary schools are established around the area. Ever since the oil was found in large quantity on the bank of Aguleri town and has been commissioned, the operational office of Orient Petroleum and housing estate is about to be sited in the place by the Orient Petroleum Resources Plc. This development would foster more development in the neighboring areas like Umueri and Nteje. Others are also other fueling stations and pipe borne water drilled by private individuals and for commercial purposes.

Finally, the standard of living is low range; the government is still working to improve the income generation of the area through establishment of cargo airport, bridges and good roads.

3.10 The Nature of the Proposed Project

The proposed project is an international cargo airport. ICAO Doc. 9569c described air cargo operations as the provision of logistics in facilitating the carriage of goods by air. In essence, it entails making available the right and necessary expertise with equipment to perform the right task in a timely, safe, secure and cost effective manner. Air cargo business undergoes a process of acceptance, packaging, documentation and shipment by air after due process of compliance with international statutory requirements. In Nigeria, the Nigeria Aviation Handling co. (NAHCo) and Skypower Handling Co. Ltd (SAHCoL) are the two handling companies. Hence, the Federal Airport Authority of Nigeria (FAAN) also has a responsibility of enhancing facilitation at the airports. FAAN provides the needed infrastructures to support a safe and secure air transport operation. Airport cargo has immeasurable advantages to shipping, such include; timeliness, maintenance of quality of the product, and movement of cargo from origin to destination is traceable (Ajigbotosho, 2006).

Construction of cargo airport is a type that would require large landmass, sandy and stony ground features, hence, soil investigations on liquid limits and plastic limits were carried out on the land before the project commenced. The choice of the best route was determined by the kind of ground particles and Ifite-Umueri borrow pit directly adjacent the Ifite-Umueri link road. The proposed project has a geographic limit of 4.5km from Ifite-Umueri, 4km from Nteje axis, 4.5km from the Nenyi-Umueri road and 4km at the propose airport base, from the available land mass in the area. Thus, the airport is at the center of the three roads.

According to the information from the office of the Commissioner, Ministry of Works and Transportation of Anambra-State, Awka represented by his Special Advisers Engr. Eze, Obiodu and Engr. Iwuoba Chike on 24-11-2015, the project was awarded by the present Governor, Chief, Wilie Obiano through the Ministry, and contracted to Consolidated Construction Company (CCC) and Kanubeen Construction Ltd (with a project No; FA/299). The link-road and the airport would operationally include a walkway and carriageway by the two sides, traffic light, good drainage, beautiful tree and median at the middle. At a cross view, the proposed four stages of construction by the Ministry involved:

A. At 60mm—Binder and 40mm Wearing Course
B. At 200mm—Thick Stone Base
C. At 200mm—Sub-Base Course
D. Lastly---approved Laterite fill

These four stages are applicable to the airport road for its construction, thus, at every 50m interval, there would always be concrete cutes.

Simplified Handling Process Flow for the Cargo Airport (Proposed)

i. **Acceptance:** The airport would adopt a variety of security measures for the acceptance of various categories of cargo e.g. perishable, valuable, vulnerable and general cargo, etc. However, following is a basic guideline: Advance arrangement would be made with the shipper and consignee for acceptance and delivery, taking into account the need to minimize delivery and holding times at origin and destination. The shipment would travel as booked cargo. Strict attention must be paid to packaging. The cargo would be subjected to screening and security by the various governmental agencies, especially the Customs, Quarantine, NDLEA, etc. before acceptance into a sterile area for storage.

ii. **Documentation:** The airway bill must show a true description of the content and the special nature of the cargo indicated e.g. 'VAL', 'HUM', 'PER', etc in the 'Nature and quantity of goods' box. Accurate weights and package dimensions are mandatory.

iii. **Packaging and Labelling:** All packages must be carefully examined at the time of acceptance for any signs of defect. The packaging must conform to international standards, adequate as well as correct label affixed to enable proper care in handling.

iv. **Handling and Loading:** Handling is done according to the nature of the cargo. There are specific standards to be noted when various cargo are sorted out before consolidating into the unit load devices. The idea is to ensure safety and security of the cargo.

Responsibility of Cargo Airport Handling Company

- Ensure compliance with both local and international regulations.
- Segregation of cargo in compliance with compatibility rules.
- Safe, secure and timely handling of cargo.
- Proper documentation
- Compliance to Airlines specific standards (Adapted from Ajigbotosho, 2006).

3.11 Operational Benefits of the Project

Air cargo is a trade facilitator that contributes to the global economic development and creates millions of jobs. The global economy depends on the ability to deliver high quality products at competitive prices to consumers worldwide. Air cargo transports over US$6.4 trillion worth of goods, approximately 35% of world trade by value. Though the project is just being constructed, it is affecting positively the lives of the locals of Umueri and Nteje as well as other neighboring communities. Obviously, there is a striking economic growth in the area, with the creation of employment opportunities and investment enterprise around the area. Small business ventures like fast food and petty trading of snacks, cigarettes, drinks and fruits are predominant around the construction area.

Since cargo airport is faster in transporting goods than their sea counterpart, this would enable faster business internationally and domestically. This kind of project is such that promote tourism, thus 60% of tourist transport is through air into the country and 20% within the country. Therefore, if the project is well established, it would increase tourist activities in the area. One thing leads to the other, the cargo airport will promote series of investment in the study area. Succinctly put, cargo airport is a key economic indicator of international trade as well as catalyst for national and global economic growth.

The logic is simple, as people become more productive, they become richer. As they become richer, they demand more consumer goods. The supply chain and logistics industry exist to connect manufacturers with suppliers and middlemen shippers with the end customer. The airport would transport people and cargo goods including oil from Aguleri axis, hence, the cargo would be less expensive, owing to the fact that there is availability of oil around the area. Goods and passengers from the business cities in the state and the nation would be cargoed in and out of Anambra area. Hopefully, small scale industries can as well export their goods and import raw materials.

3.12 Motivational Factors for the Project

The motivating factor for the project in the Umueri and Nteje is basically for massive economic gain, to develop business environment and increase the standard of living of the

people. Major places in the study area have become characterised by inadequate and deteriorated road networks, walkways, unregulated building patterns, sanitation, chaotic transport systems, joblessness, and totally undeveloped, making so many youths to migrate to urban cities in search of greener life.

The regime of the present Governor, Chief Willie Obiano adopted development of rural areas, thus, provision of necessary social amenities such as access roads, pipe-borne water, electricity, hospitals and gardens. Also, creation of job opportunities for every level and social class are part of the initiatives, hoping that these development would encourage business opportunities, rural investment and efficiency, which would definitely result to increase in standard of living of the citizen. Finally, Internal Revenue Generation (IRG) would be encouraged. Since fuel and petrol would be available, there would be maximum income generation.

CHAPTER FOUR

DATA PRESENTATION

4.0 Introduction

This section considers, in detail, the various impacts (effects) incurred on and around Umueri and Nteje due to the on-going project activities. The evaluation was an extensive survey and examination of the individual and collective effects of the desired development of the state on the Umueri and Nteje. For any proposal for construction or development, there must be the usual EIA practice, both from the standpoint of environment, societal wellbeing, engineering and economics, to preparing an analysis of the need for the development and the relationship between its effects, costs and environmental benefits. This section discussed these impacts in themes and sub themes, extracting the communal and individual view points towards the on-going development. Data collected through indepth interview were in consonance with the satellite view extracted from the map. Thus, the study included a follow-up investigation with a structured questionnaire to extract the individual opinion, impacts and expectations. Statistical Package for the Social Science (SPSS) was used to analyse the qualitative responses, hence, the mean, standard deviation and percentages were calculated, see appendices for detailed workings.

4.1 Data Presentation: Baseline Condition of the Study Area Before the Project

The study area covered 7km radius (a rectangular km^2 length of 15km and width 6km) and it is an abandoned hilly settlement by the Umueri and Nteje communities. According to Mrs. Udoka and Mr. Chiokwe, the study area is supposedly an early settlement, where their ancestors lived before some continued the movement to other areas while others settled. Overtime, after series of wars and battles with some other communities that wanted to take their land, they decided to settle on the lower area, where they live till present. Their houses and worship places turned to grooves and seismic areas. From time to time head of clan visits there for one ritual activities and the other. Although, at present there are economic buildings like Brewery Company, fish lakes and few residential houses located around the study area.

The study area before the project commenced was a dense forest vegetation with wild and herbal plants such as *iba chorop, okwuma, agbara, ihaba ofia, anuebe, edemmuo*, *amuma*, although, part of which was used as farmland and farm houses. It also houses whole lot of

animals such as monkey (*Erythrocebus patas*), bat (*Scotophilus dinganii*) *umuede*, bush pig (*Phacochoerus aethiopicus*), monitor lizard *(Veranus salvator),* elephant *((Loxodonta africana) igbodo*, grooves (*Oguadah, Odini, Ugwumazu, Ofia Nengo, Ofia Iyiokwa, Iyiomi, Udo Okpo, Ofia Ojukwuagu, Nwampo).* Also drainage channels and tributaries such as lake and streams (*Kpeke River, Oyi-oji, Ogene-oji, Oguadah pond)* are spread around the area, and the locals visit them for their water, fishes and swimming. More so, the area possessed coarse sandy soil and large parent rock at coordinate 06^0 16' 53.6" E, 06^0 54' 33.6" N and 59m above sea level at the chosen borrow pit. Habitually, the dense vegetation or forest provides medicinal herbs and medicinal animals used by the indigenous herbalists in preparation of traditional medicines and mixtures and the groves also houses major deities known in the area.

The Umueri and Nteje communities are known to have great attachments to their environment for sustenance, ceremony and possession. Thus, the three link roads (airport road) from Ifite-Umueri originally belong to the Umuatuolus', the link road at Nenyi-Umueri belongs to the Aguekwes', while the road at Nteje belongs to the Obokos' kindred. These kindreds operate on it communally; they apportion portions of the land among married males of the kindred, who use them for farming purposes. Members of the kindred, who are not staying within the village, lease their portion to outsiders who cultivate the land for an agreed period.

A satellite map showing the environmental setting as at 2012 was reviewed to extract the original environmental features of the area. Thus, the qualitative results on the map shows that there was a built-up area of 8.6%, water bodies covered 9.29%, shrubs and farmland covered 38.2%, thick forest was at 43.9% and bare-land was at 0.01%, thus stand unnoticed. As at 2012, the water capacity was vehemently greater than the built area and this could have been as a result of the 2012 flood. More so, the study area been in the valley, underwent flood that year. Consequently, the built-up capacity, which was less when compared to other places, may have motivated the choice of the proposed area for the cargo airport construction.

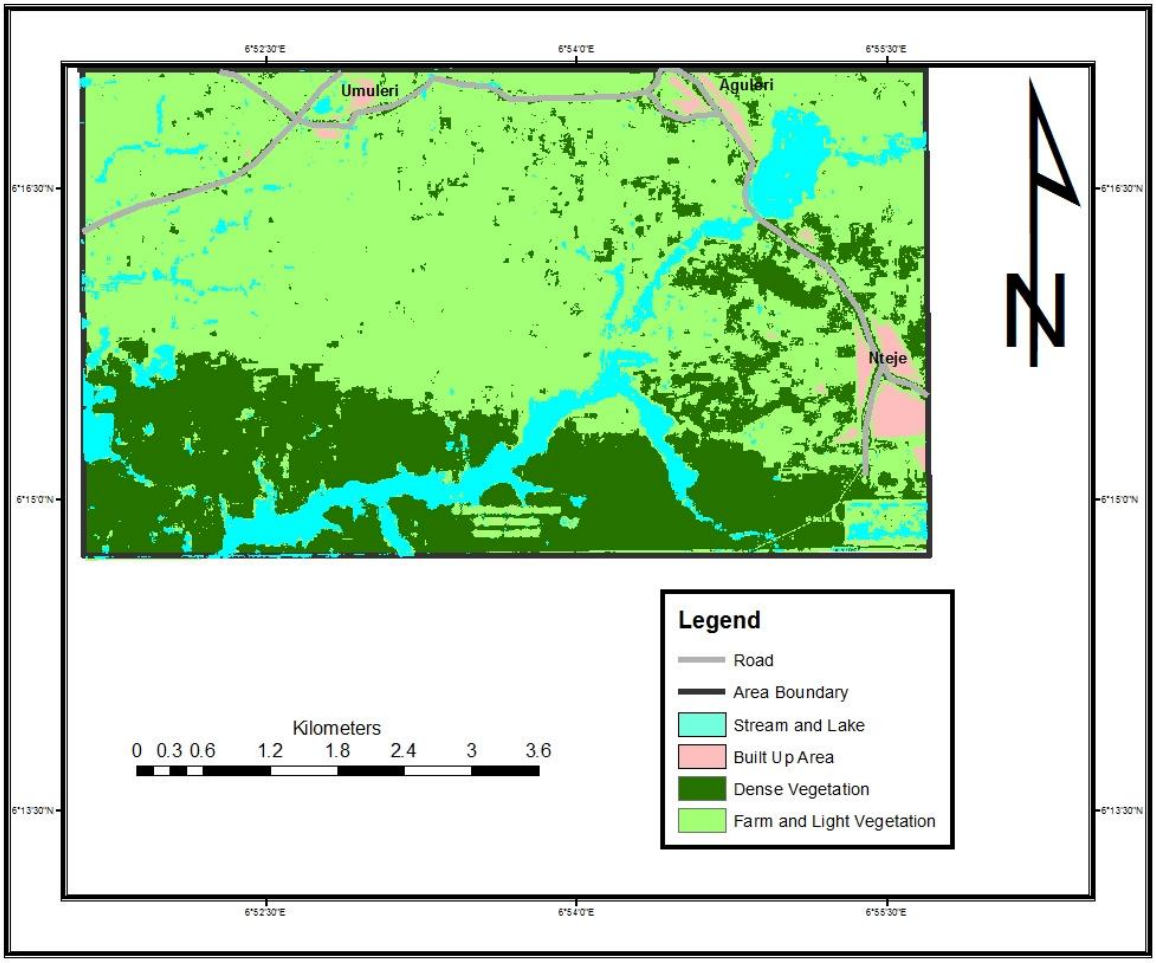


Figure 3: A Satellite Map Showing the Initial Environmental Setting before the Project (Source: www.Googlesatelliteimage.com, 2012)

4.2 Environmental Impact Evaluation of the Cargo Airport Project in Umueri and Nteje

The on-going cargo airport project at the Umueri and Nteje has contributed greatly to the environmental changes in the area at present. These changes range from negative to positive rationales. Results from research conducted in the study area are outlined below. Thus, the study revealed that the region is experiencing a lot of environmental impact as a result of the on-going project. The airport link road occupied 4.5km, 4.5km and 4km respectively from the airport base while the proposed airport area is assumed at $4km^2$, consequently, the study radius covered 7km of the affected area. Apart from qualitative and quantitative information got from the study area, the current satellite map was extracted to ensure accuracy of data, to get a pictorial view and the statistical record of the environmental changes.

The illustration below shows the environmental satellite map as at 2015 (as the construction has commenced). It recorded pronounced environmental changes which occurred on and around the project area; the built-up area slightly decreased to 8.5%, water bodies decreased to 9.2%, the shrub and farmland decreased to 37.4%, the thick forest decreased to 42.1%, while the bare-land increased to 2.71%. Consequently, built-area decreased owing to the fact that residential and business buildings were demolished for the on-going construction. Owing to the evaluation, the land which originally was a communal farmland and was covered with dense vegetation on the other side, houses streams and lakes with their deities and grooves. The evaluations comprise systematic identification of the actual and potential impacts accrued to the physical and biological environment, health, socio-cultural and socio-economic wellbeing of the people in the Umueri and Nteje.

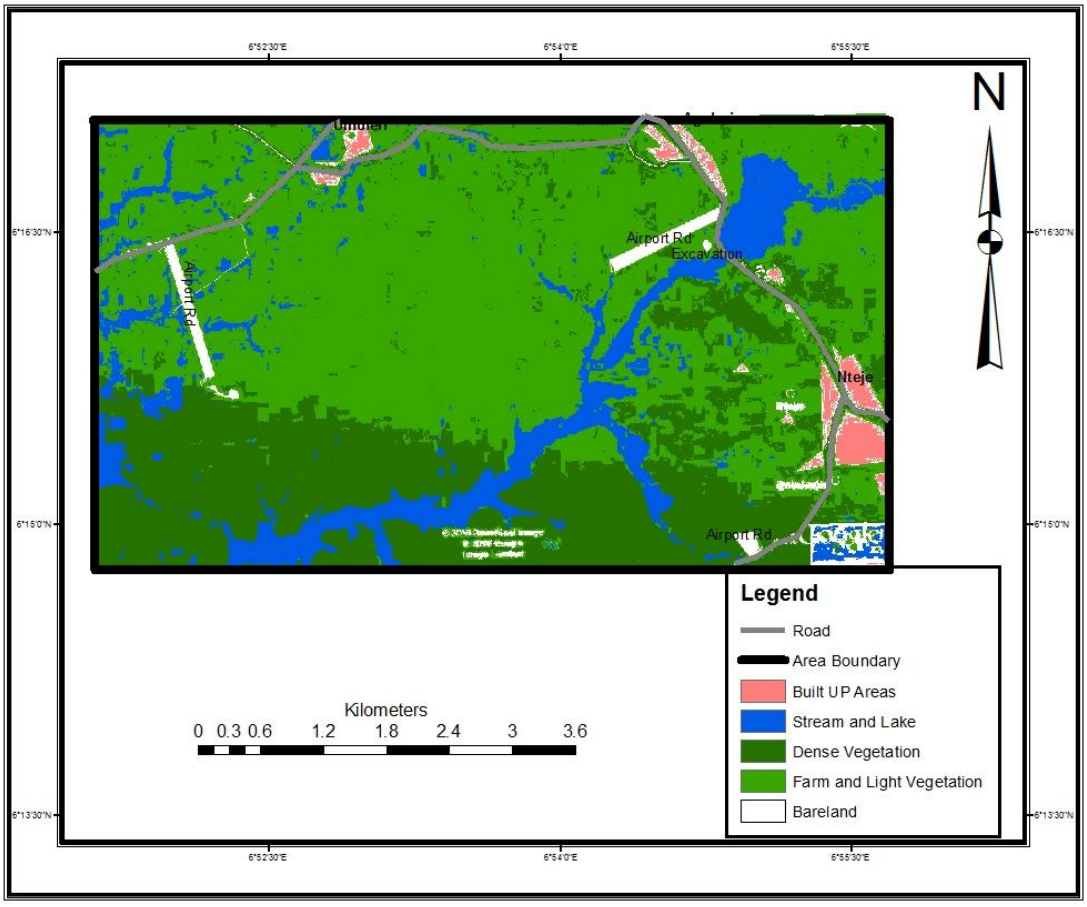


Figure 4: A Satellite Map Showing the On-going Environmental Changes on the Project Area (Source: www.googlesatelliteimage.com, 2015)

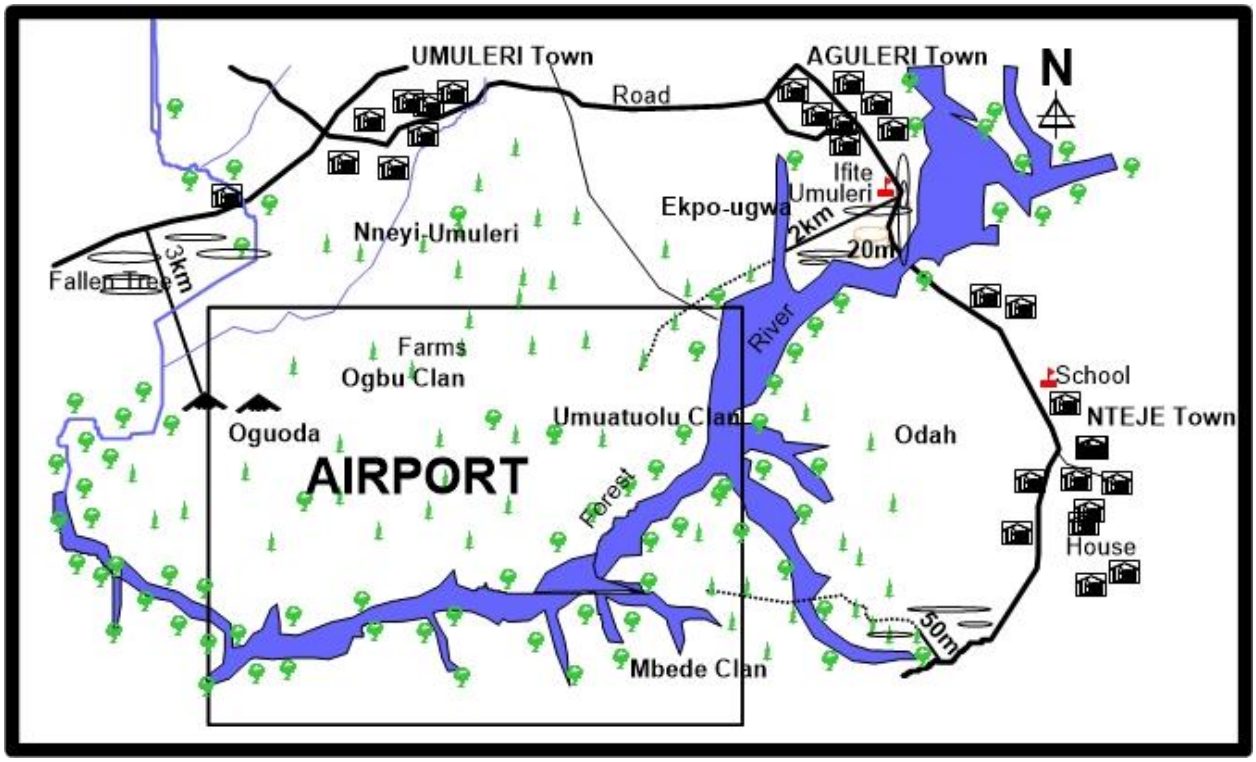


Figure 5: Site Plan of the Study Area **(Source; Ojiako, 2016)**

Plate 6: Changes on the Study Area Due to on-going Construction

4.2.1 Perceived Impacts on Physical Environment (Land and Water)

The physical environment comprises the physical characteristics obtainable from the environment. Those physical components of the environment are held in high esteem by the society. Thus, many depend on them for livelihood (farming, vegetables, fishing and lumbering). In the study area, physical environmental properties are not just a natural heritage; they are also regarded as sacred properties. Physical environment are, therefore, usually a communal property, which is held in trust by the oldest members of the communities. This trusteeship authority means that the land must continually be apportioned by the elders to every member of the community who needs it. The level of effect and degradation that ravaged the physical environment is on the average, and is characterized by the land and water impacts.

Land impacts

The available land mass 2.71% was used for the project. Thus, large quantity of land was lost to the airport road and development. The land impacts comprise the destruction of the top layer nutrient, archaeological remains, seismic areas, landscape features and parent rock in the process of the on-going construction. Hence, at coordinate 06^0 16’ 53.6” E, 06^0 54’ 33.6” N, the original 59m above sea level was reduced to 10m above sea level due to excavation made on the borrow pit which was selected adjacent to the project area. They excavated coarse sand particles and strong parent rock from the borrow-pit to fill the water points and construct the link roads and for the construction of the airport itself. Obviously, buried archaeological materials, original soil components and parental materials were destroyed beyond measure while excavating from the borrow-pit to fill the lakes, streams and the grading of the link roads.

Apart from the destruction done through the borrow pit, the road construction processes exposed many archaeological materials and agricultural resources to destructions; pieces of potsherds and wood craft were scattered around the study area, especially, on the road and abandoned settlement sites; Oguadah, Mbede, Odah and Odini area. The potsherd ranges from the body, pedestals, rimsherds with beautiful decorative techniques and motifs. A piece of wooden craft was discovered, although the makeup was not known. These discoveries have valuable information to unveil about the past and present descendants of the study area. Also, the land that is supposedly meant for communal farming, hunting, lumbering and community developmental purposes was lost to the on-going project.

Oguadah abandoned settlement ($06^0$15’57.7”N, $06^0$50’40.2”E and at 92m above sea level) was the early settlement site located directly on the proposed airport base. Potsherds were collected from Oguadah since the site is yet unhampered. Respondents at Umueri and Nteje communities complained that they have lost valuable land to the on-going construction. More so, areas known to inhabit medicinal plants, game ground, sacred areas and animals used by traditional medicine men were demolished and graded. More so, there is drainage problem (flooding) at the study area. Since the construction project commenced, some lakes and streams on the link road were filled up, and the erosion had to break available land for passage. Therefore, the surviving farmlands around the project area are exposed to leaching because of the erosion problem. In totality, there is indeed a huge environmental changes and loss of original topographic feature in the study area.

These affected places were identified and examined during the evaluation of the study area. The magnitude of the impact accrued on the land was calculated with SPSS. Qualitative data collected from the study area and the rate amounted to 9.8% impact. Invariably, the statistical analysis depicts a low impact rate, in spite of the lamentations of the locals. Some of the people are still expecting more compensation from the government for all these damage, while some denied collecting compensation at all. But the interview with the Commissioner of Works and Transportation of the state reveals that compensation has been paid to the victims of the project.

Plate 7: Link Road and the Borrow Pit at Ifite-Umueri Axis

Plate 8: Mrs. Udoka, Lamenting on the Impact of Erosion on Her Farmland beside the Project Area

Water impacts

The water bodies in the study area, especially the streams, were previously used as source for drinking water, source for cooking water, source of fishing, enchantment area (because some of these has deities attached to them), and place for swimming. Incidentally, water bodies apart from the derivable benefits which have been identified earlier are also sacred and cultural possessions, which must not be desecrated (Okpoko, 2007; 41-42). Like land, water bodies were also affected negatively: Kpeke streams, Iyi ogene stream, and Oguadah lakes were filled up to construct the link roads to the airport. Thus, all the aquatic animals in the water were destroyed in the process of filling up these water bodies. Unfortunately, some of the waters bodies are known culturally around the area as where sacrifices and request and even celebration of festivals take place. For instance, the Iyi ogene across the Nenyi link road and the Oguadah Lake serve historical remembrance for the triumphant show of their ancestors over their various enemies, when they settled on the hill side.

Thus, *Olili biabia* festival for Umueri is celebrated in honour of the success through the river. Iyi ogene in Nenyi axis of Umueri, Oguadah pond within the airport base area and Kpeke stream at the Ifite axis of Umueri and the Iyi oji that bounded the Nteje and the Umueri have a common tributary to Omambala and then River Niger. Thus, that original drainage movement has been hampered and affected negatively. Consequently, erosion lost its original channel and

broke through the only surviving Iyi oji. Since these water bodies have virtually similarities that attracts people to them, it is believed that the water bodies have the ability to communicate the mind of the spirits to the people, many who worship them and had several religious attributes to the locals because the people are highly attached to them. Thus, these streams enable them to learn the fishing games and swimming. There are also ancient trees (*Ochi ngbo, uturukpa*) preserved at the Iyi ogene banks and the people honor the long existence of these trees.

Plate 9: Destruction of Iyi Ogene at Nenyi axis in Umueri and Kpeke Stream at Ifite Axis of Umueri; the Community Source of Water

The priestesses officiate and take care of these streams and ensure that people do not desecrate the water, and they attend to people at their arrival. The Kpeke stream, Iyi oji, and Iyi ogene have rules and regulations guiding them, and the locals respect these rules, and if someone desecrates the water, such individual is excommunicated from coming to the stream. Since, the water bodies are destroyed for the first time in history, leaving the deities to stand alone due to the on-going construction, thus, exposing the communities to calamities that could face them as a result of tampering with the spirits residing in the waters. More so, other channels of water drainage due to the on-going changes on the surface setting caused flooding and erosion on the farmlands and family compounds around the project area. But at present, since the channel is disturbed, water pollution is inevitable to the survived water bodies, thus, aquatic life are in threat. The flood finds its way to farmland, destroying the labour of the farmers in the study area. The sacred beings that inhabit the water are hindered and disturbed such as fishes, crocodile and other water animals. Unfortunately, the consequences would still befall the communities if proper precautions and necessary sacrifices were not taken.

Using SPSS to calculate the statistical parameters of the water impact from the qualitative survey deduced from respondents on the parameters for water impacts, it was observed that the level of destruction accrued is 10.8%. Thus, it is still on a lighter note. But it is far greater than the land impacts.

Table 1: Descriptive Statistics for physical impacts on study area

	N	Mean	Std. Deviation
Physical (land)	100	9.8800	1.81063
Physical (water)	100	10.8200	1.88765

(Source: Field Calculations) see appendices for working details

However, as Okpoko ascertained Saro-Wiwa's observation among the Niger-Delta on oil exploration, "apart from loosing valuable fertile land and reducing the duration of fallow period, that oil production brought about increased loss of valuable sacred asset, water and farms that supposed to increase agricultural yield in his study area" (Okpoko, 2007; 66). This assertion could also be confirmed with the Umueri and Nteje experience, whose valuables were affected in the process of community development.

4.2.2 Perceived Impacts on Biological Environment (Plants and Animals)

Impacts on biological environment are paramount theme for discussion in this study, owing to its makeup in the environment. It is a known fact that the earth is the only planet where both plant and animals are seen and relate in their environment. As opined by Okpoko (2007:89), the environment provides vital sources of food supply to the locals; it provides economic support and has social and medicinal value it portrays in any given community. Biological environment involves the description of the flora and fauna which-make up the biological environment in their geographical distributions. The flora components include all species of plant; medicinal, economic trees and other wild plant in the area. The plants have suffered indelible deforestation because of the project activities: the cutting down of trees that serve as medicines and herbs for treatment of various diseases and cleansing of taboos, without replacement for these communities. While the fauna components of the area include amphibians, reptiles, naiads, fishes, birds, mammal and rare fauna species, apart from providing important economic base and a veritable source of animal protein, some serve medicinal purposes as well.

According to Canter (1996), an ecosystem is a stable interacting gathering of living organisms in their nonliving environment, which is unified by a circular flow of energy and

nutrients. Each ecosystem is bound together by the bio-geochemical cycles through which living organism use energy from the sun to obtain, or fix non-living element as carbon, oxygen and hydrogen from their environment. This is applicable to the ecosystem of the Umueri and Nteje. The impacts of the on-going developmental project on plants and animals in the study area are discussed below:

Impact on Plants

The vegetal resources, which include mostly leaves, fruits, medicinal bark, spices, timber, non timber products and roots are used as food, medicines, arts, crafts, building materials, electric poles and for other cultural purpose (Singh, Moffat and Linden 1995b). Most of these activities generate economic benefits and sustenance for the locals. Data collected from our study area shows that the communities lost enormous vegetal resources: the plants used for food, medicines, arts, crafts, building materials, electric pole and cultural purposes were cut down, leaving the area completely dried up. As we sated earlier, the dense forest houses whole lot of roots and herbs used for medicinal purposes. Speaking with Onochie (traditional medicine man), he submits that getting herbs and roots used for the preparation of some mixtures are difficult now. Because, the ones located closer to the communities are now destroyed, thus, they had to travel to far communities in search of those plant species. Hence, younger ones among them who try to sort for alternative on the survived area are still on sorting process. Consequently, the cost of traditional medicines for treating diseases like *Nhi, Iba-ochgana anya, Nsi, Eze mgbu,* are high now because of high cost of getting the raw materials.

Secondly, timbers and artisans are also lamenting bitterly about the decrease in the source of their raw materials and goods. For the timber men, the kind of timber on demand are such gotten from dense forest area like Oguadah but since the demolition came, they bought all from the stakeholders without hope to get such from the study area. Thus, this project has reduced their activities and raised the prices of the woods they sell in the market. The artisans who depend solely on the timber men in the communities for their raw materials complained of increase in the cost of raw materials. These occurrences alone pose serious discouragement to some of the local artisans. So, many of them are looking for other profitable ventures to embark on at the expense of continuing indigenous knowledge and practices.

More so, some local dishes such as *Agidi, Ukpo ogede, Ukpaka, Okpa, Ogiri* and others that are covered with leaves, and are more enjoyable in that form stand the chance of being

packaged in nylon. Food vendors who majorly faced these challenges are lamenting profusely. They had to travel farther to neighboring communities to get those leaves for their business. However, the people were encouraged during the field survey to replant those valued plants in their farms and other forests in the community.

Plate 10: Deforestation of Forest and Destruction of Medicinal (*ihaba ofia*) Plants on the Project Area

Impacts on Animals

As we discussed in the preceding section that the shrubs and farmland area as at 2012 was 38.2% and dense forest 42.4% making the total area covered by vegetation 80.6%, but as at 2015, at the commencement of the project the total vegetation reduced to70.8% leaving up to 2.71% bare. Evidently, animal species that inhabited that portion of the bare-land at present must have moved inside to the deeper part of the forest to take succor from destruction. We should note that some of the known animals notable in the Umueri and Nteje include squirrels, gorilla, bush pig, bush-tailed porcupine, python, viper, giant rat, cane rats, monkeys, varieties of birds and fishes which are rare fauna species. These varieties of animals are noticed and observed around the valley by the residents, they hunt them for meat and medicinal values, with the use of local traps set with arrows or poison to hit and kill the animal. Apart from providing important economic base and a veritable source of animal protein, some serve medicinal purposes (see table 2).

Table 2: Utilization of Wildlife in Traditional Medicine from Project Site

Animal	**Body Part used**	**Medicinal Value**
Gorilla	Bones	Against witchcraft
Bush-pig	Head	Good luck for traders and businessmen
Bush-tailed porcupine	Whole animal	Easy childbirth in women
Monkey	Anus	For treating poison
Big snails	Whole body	Use as blood revitalization
African civet	Anus	Prevention of convulsion in children
Bush fowl	Whole animal	Procuring evil thing for one's enemies
Snake	Body	Wet dreams
Parrot	Red tail feathers	Success in undertakings
Peacock	Egg	For potency
Giant	Head	Personal protections
Python	Fats	For skin infection
Cane rat	Hair	For general healing

(Source, Ojiako, 2016)

The local lifestyle had also evolved around hunting and fishing from the bushes and water bodies in the Umueri and Nteje. Thus, a good number of these animals have their homes in the drier areas of the Umueri and Nteje within which the project area is located. Some others inhabit the mangrove swamps of the region. It is important to note that animals tend to move away from the sound coming from the on-going construction equipments and cutting down of trees as they could be exposed to their predators. Consequently, hunting and fishing activities have reduced greatly in the area. So, loss of wildlife is predominant as a result of the movement of fauna species.

Table 3: Descriptive Statistics of Responses from Respondent on Biological Impacts

	N	Mean	Std. Deviation
Biological (plants)	100	10.6400	1.53426
Biological (animals)	100	10.9700	1.08670

(Source: Field Calculations) see appendices for working details

As shown in table 3, the on-going construction of the cargo airport in the Umueri and Nteje had almost the same biological impact in terms of plants (*M* = 10.64, *SD* = 1.53) and in terms of animals (*M* = 10. 97, *SD* = 1.09). Although those kinds of impacts lie on the short term, the respondents hope to see more organised environment at the end of the airport construction. The responses exhibit high negative impacts from both variables.

Plate 11: Researcher with Mr. Egwuonwu from Umueri

4.2.3 Perceived Impacts on Health of the Community (Noise and Air Pollution)

A component of environmental impact assessment dealing specifically with impact on human health is often called "Environmental Health Impact Assessment" (EHIA). It is widely held that EHIA offers unique opportunities for the protection and promotion of human health. In the World Health Organization's (WHO's) "Health for All" program, the target environmental health management calls for EHIA. Practical approaches to EHIA were described by WHO, the Asian Development Bank, the National Health and Medical Research Council in Australia and others" (Fehr, 1999). A mega development like the cargo airport is vulnerable to contributions of various negative health impacts to the communities around, thus, making health one of the commonly discussed issues in EIA.

Environmental pollution and degradation associated with the project activities, such as, emission of gases from construction machines, noise pollutions and raising of dust from the movement of the machines around the project area cause serious impact to health, although most of these impacts are basically a short term impact, as such, it is expected to end at the closure of the project activities. Airport projects have long term health impacts especially on gases emitting and noise which out rightly affects the hearing ability of the people around the area. In order to identify and address the health impacts of the cargo airport construction in the study area, we sought for community opinions and perception of the perceived health impact of the ongoing activities. Therefore, this sub-theme would handle the air and noise impact variables as they affect the locality.

Air Impacts

The study revealed a temporal negative effect to health of the workers and locals exposed to the activity area. The schools located at a close range to the project area are lamenting over the dusty environment the project activities have generated. From the responses collected from the area, the air impact is on a high degree, being that the exploration from the measurement of the current emission indicates that it tend to be harmful. However, at a long exposure to these toxic substances (Carbon monoxide, Dichloromethane Concentrate and Hydrogen Sulfide Concentrate and other chemicals) and dust generated from the construction machineries, the victim may suffer from chronic respiratory diseases such as lung cancer and silicosis. The gaseous emission, even though they emits in small quantities, are still not good for the health of the inhalers.

Table 4: Summary of Environmental Damages by Air Pollution

Pollutant	**Source**	**Impact on Human**	**Impacts on Vegetal resources**	**Materials**
Sulphur oxides	Diesel engines (trucks and vessels)	Inadequate oxygen supply; heart, circulatory, nervous system		
Carbon monoxide (CO)	Combustion of diesel engines (trucks and vessels)	Inadequate oxygen supply; heart, circulatory, nervous system		

Particulates	Incomplete combustion, road dust	Respiratory damage, various toxic content	Reduced assimilation	Dirt
Nitrogen oxides (NOx)	Oxidation of N2 and N-compounds in fuels	Respiratory Irritation and other problems.	Acidification of soil and water, over fertilizing	Weathering, Erosion
Soot (diesel)	Incomplete Combustion	Carcinogenic		Dirt
Dichloromethane Concentrate	Burning of waste	Respiratory Irritation and other problems.		Ashes and dirt
Hydrogen Sulfide Concentrate	Construction chemicals	Respiratory and irritation		Dirt

(Source, Ojiako, 2016)

Noise Impacts

Any sound, which by reason of its intensity interferes with speech, is damaging to hearing or otherwise is undesirable due to its adverse effects on human beings and their environment including land, structures, domestic animals, wild life and ecosystems (Umeh and Uchegbu, 1997: 81). Additional effects of noise include disruption of sleep and rest, reduction in work performance, property devaluation resulting from sonic booms, and interference with normal pattern of behavior of domestic and wild animal (Umeh and Uchegbu, 1997; 81). Saro-Wiwa (1992:67) says:

> *There is perpetual high-pit noise from all heavy vibrating machines, trucks and rig-heads. The deafening effects of the cumulative frequencies of all such noise can besides being alarming, are very serious. We have all turned shouter, hooter and howlers not speakers.*

In ranking the cause of noise in the society, construction activities are ranked high amongst other land exploration and oil exploiting activities. Owing to this, construction companies have been blamed for an increased noise, disturbed sleep, and loss of concentration. Thus, prolonged exposure to the noise from the construction activities at the study area could result to severe health challenge for the people at 7km radius around the area, and using SPSS to

calculate the qualitative responses from the study area, it amounted to 8%. Although, the result is still on its low level, but as construction gets concluded, the study area tends to have a long term noise impact due to the kind of developmental project involved, as we pointed out in the preceding section about the effects of noise and continuous illumination of forests on biotic life. More so, the consequences of both short and long term noise impact could result to delicate issues and diseases. Apart from the adverse effect of profound noise on the mental, sensory and nervous system of man, it also greatly hampers student's concentrations, owing to the fact that there are schools located beside the study area. Additionally, Okpoko also X-rayed similar impact from Western Delta where he studied socio-cultural impact of oil operation in relation to the same magnitude. From collected responses from his study area, he asserted that at Ekpan Grammar School could not relocate to its permanent site due to the noise and dust particles emanating from Nigercat, a nearby construction company.

The Health Impact Evaluation in this study also gathered similar experiences at Ifite-Umueri and Nteje where Post-Primary Schools (Umueri Community Secondary School and Nteje Boys College) were located less than 2.9km and 4km respectively to the study area. The students, teachers and non-academic staff complained that the loss of concentration and prolonged disturbances from the construction activities during the working hours of Kanubeen Construction Company are becoming alarming. Thus, they fear greatly how the permanent cargo airport activities would be like at completion of the airport construction. The responses got from both qualitative interviews and quantitative survey implies that the height of noise coming from the project area affects the people living around the site. Apart from the schools, at Ifite-Umueri, residential houses around and across the road, police check point, kiosks and private clinics are adversely affected with noise pollutions. At Nteje axis, the Centre for Women Empowerment Nteje, a brewery and chains of residential houses around were whining for the kind of noise coming from the project site. Thus, this calls for reduction and sorting for alternatives to replace the noisy equipments.

Table 5: Descriptive Statistics of Variables from Health impact

	N	Mean	Std. Deviation
Health (air)	100	10.5800	1.11174
Health (noise)	100	8.0808	1.77670

As shown in the table above, the ongoing cargo airport in the Umueri and Nteje had greater health impact in terms of air (M = 10.58, SD = 1.11) than in terms of noise (M = 8. 08, SD = 1.78). Thus, dust particles were obviously noticed at every corner; therefore, leading to air pollution on the area, and this is always shown by the dusty colors and particles on the aluminum roof of buildings around the project area. However, the magnitude of the noise is still at a reduced range, except for the respondent from the school area who maintained that the noise is really unbearable. Mr. Anayo and Mr Ifenna were interviewed at the community school and they lamented that the height of the dust and gaseous impacts has contributed to a reduced air quality.

4.2.4 Perceived Impacts on the Socio-cultural Wellbeing in Umueri and Nteje

Most construction projects are located in a densely populated area. Thus, people who live at or close to construction sites are prone to harmful effects on their health because of dust, vibration and noise due to certain construction activities such as excavation (Li et al., 2010). Plans of relocation could affect their socio-cultural or socio-economic lifestyle. Anthropologists and sociologists have provided numerous definitions of *culture*. According to Tylor's definition, culture can be seen as 'that complex whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of society. Another definition of culture is 'the totality of learned, socially transmitted customs, knowledge, material objects, and behavior,' including 'the ideas, values, customs, and artifacts of groups of people. Cultures exist in societies to provide guidelines for conduct and raise a standard to be upheld in communities.

Despite the introduction of new religious beliefs, traditional cultural values remain important to the local of Umueri and Nteje, for instance, banning harmful agricultural or social practices such as the cutting of trees, burning of land or conflict between communities in a certain area, reinforcing mutual respect among community members and for their environment in totality. Consequently, Culture and customs that should be upheld in the course of the on-going development contributed to more discriminatory impact on social cohesion. This was as a result of irregularities that occurred in the sharing and settling of the compensation paid to the communities by government.

In the words of Egwuonwu during an interview, “our people who were employed to work as labourers at the construction site do not find time to attend community meetings and dialogues and they still complain of not being carried along by the stakeholders”. This issue could build memorable bridge from one generation to another as story would be transferred with history. Although, governments’ expectation is to instill sense of social identity, and positively impact the members of the clans and communities involved. Notwithstanding such challenges, significant social events such as births, marriages, anniversaries and funerals celebrated in Umueri and Nteje communities still take place in harmony.

4.2.5 Perceived Impacts on the Socio-economic Wellbeing in Umueri and Nteje Communities

As we highlighted earlier, the pressing need for economic developments, jobs and revenue generation in the local government areas and the state has been perceived as an overriding consideration for approving projects. Thus, the socio-economic consideration is made when initiating project actions in any given environment. This is because many activities impact either directly or indirectly on the socio-economic life of the population (Okpoko, 2007). It is also a shared belief among Social Impact Assessment (SIA) practitioners that project actions may cost livelihood system; create resettlement or compensation problems resulting from loss of housing and other economic resources. It may cause residential, commercial or industrial areas to develop along the technology corridors, thereby encouraging the inflow of visitors (Umeh and Uchegbu, 1997).

The project has impact on community and households, beneficial to the position of any one with “cooking skill” from the locals. Thus, household behavior is improved in all ramifications. There are changes in the rise of direct and indirect economic impact in the local and state level. Thus, the project employed technocrats from the locals, establishments of small scale businesses around the project area. Additionally, at completion of the project, government would be expecting high demand of export licensing, reports and registration of firms that would be established beside the airport areas. Training and massive training of the locals into the industry at completion tends to stimulate a high and a long term socio-economic impact on the locals. Also, taxation, import duties, and other means of income generation are much welcome development for the State Government. In as much as the impacts are at a minimal level now, the

project would open more market access and concentration, especially for the indigenous crafts and arts, small scale businesses and resuscitate the unserious ones around.

Cultural and natural attraction located at Umueri and Nteje could also be developed and improved to an international standard for tourist outings and national development. Thus, the heritage of the people could be packaged and be exhibited on occasions. More so, many of the indigenes would be trained as pilots and engineers that would take over from the foreigner experts by the time they entrust the airport to the state. Internal Revenue Generation (IRG) would be encouraged; since fueling would be available, there would be maximum income generation. An interview with Mr. John Egwuonwu and Engr. Mike Obiano on the operational motivation of choosing the area revealed an economic orientation attached to it. Thus, government in conjunction with the Orient Oil are developing their quarters, oil company, refinery and other outlets for business and productivity at the discovery of crude oil and other natural minerals around the Umueri and Aguleri axis. Consequently, investment opportunities are available for the community developers around the area.

Plate 12: The Researcher with Mr. Chike Iwuoba at Min. of Works Anambra State

More so, the development is viable revenue and good access for easy transportation of goods, services and local passengers from Umueri to any part of the world as fast as possible, instead of a long travel to Enugu, Lagos, Port Harcourt, Abuja, etc. Anambra State would also enjoy more internal revenue. Federal Aviation Authority of Nigeria (FAAN) would also generate licensing and landing permit from any landing aircraft to the airport. Compensation paid to the locals can set up small-scale businesses for them. Exploration and utilization of local raw

resources for goods and services would be encouraged. The physical attributes of Umueri and Nteje: street light, good road and good drainage system would be tantamount to psychological and economical reshaping of the people aimed at eradicating poverty from the local area, state and the national.

Table 6: Descriptive Statistics on Social Wellbeing

	N	Mean	Std. Deviation
Socio-cultural	100	21.7500	1.17529
Socio-economic	100	14.2000	1.57634

(Source: Field Calculations) see appendices for working details

As shown in the table above, the ongoing cargo airport in the Umueri and Nteje had far negative socio-cultural impact (M = 21.75, SD = 1.18) than in terms of socio-economic (M = 14. 20, SD = 1.58) using SPSS. Consequently, the socio-economic standards were highly improved and still stand the chance of a long term economic improvement due to the cargo airport establishment. Social cohesions were highly affected, thus, increasing the rate of negative impacts on socio-cultural wellbeing.

4.2.6 Perceived Impacts of Project on the Historical and Archaeological Heritages (actual and potential)

Many project components have a potential impact on archaeological sites, building complexes; architecture, monumental sculpture, painting, inscriptions and physical remains left by previous human inhabitants and considered parts of a country's cultural heritage… (Okpoko, 2007: 101). This study tends to unveil series of archaeological and historical potentials that have been destroyed or reshaped by the on-going construction. Thus Okpoko, 2007 pointed out vividly the assertions from the World Bank Statement (1991: 120) "that cultural resources are part of the base, and it is therefore important that development options… are screened for potential impacts on cultural properties. Consequently, many archaeological and historical resources here are vulnerable to being defaced, destroyed and lost for posterity. More so, there is need for cultural impact statement to precede project action, to enable assessor take proper steps from the report and decision making on the stakeholders meetings".

`The portion to be selected should involve the decisions of the locals involved. Thus, they know the areas that are highly secluded and protected for them. At a global level, impact assessment has become an integral part of the development process. Many countries now adopt EIA regulation in project development to ensure that the environment, socio-economic and socio-cultural issues are given appropriate consideration (Okpoko, 2007; 101). The World Bank and the major oversea donor agencies require EIAs, a mandatory aspect of any major project they fund and impact statement on cultural property is a matter of course. In Nigeria, constitutional guidelines like EIA Decree of 1992 and National Commission for Museums and Monuments (NCMM) Decree of 1979 placed demand for proper EIA of the cultural environment. The World Bank (1992:121) warns:

> *A hydropower project may result in the inundation of cultural sites unless mitigation measures are implemented or relocation of the project is undertaken. A new road adjacent to an archaeological site or historic building may facilitate access and therefore increase the cultural property's vulnerability. Construction work near archaeological or historical remains may cause damaging vibrations and disturbances. The location of a new industrial facility may bring cultural resources into contact with airborne pollutant.*

With regards to the fact that the study area had a living history that encompassed the whole of Igbo land, the progenitor of Ibos is believed to have settled on some parts of the valley. Therefore, material remains and abandoned historical settlements that lie on the project area might be lost in the process of development of the cargo airport. Since, constructing the cargo airport would require large hectares of land from the area which some of this potential historical features and archaeological resources would be lost to the development. Information collected from the project area, originally owned by three different clans: Ogbu, Mbede, and Umuatuolu from Nteje and other two from Umueri, shows that a huge number of archaeological potentials and historical resources are prominent in these communities. Direct observation at Oguada and Odini abandoned settlement located at Umueri axis and Odah at Nteje axis, for instance, are forests or grooves designated for sacred activities.

Although people still farm on the land but the dense forests were still set apart for sacred activities. Thus, movement is highly prohibited and these grooves have deities attached to them. These places are regarded as homes of their gods and goddesses and are, therefore, not expected to be disturbed. More so, ancient burial grounds must have been located there as trees are planted after each burial for identification and remembrance. Thus, those trees grow into huge trees and groove. As we discussed earlier on the land ownership, those places owned by deities are more or less historical sites and places, and they are highly prohibited from people's movement.

Pieces of potsherds were found scattered all over the site, and they were collected randomly particularly around the Oguadah (abandoned settlement) and pieces of wood craft at Odini (early settlement) cluster for analysis and interpretation. Potsherds can give indepth information about a settlement and the period of occupation because of its durability. Presently, the use of clay ware has been replaced by metal and other storage materials due to modernization. Such discoveries depict a more agrarian culture that depends on their environment for survival. The locals believed that the potsherds must have been there for years, when their ancestors stayed in the hill area, but the ages of the potsherds were not known yet. The physical attributes of the potteries in form, decoration motifs, thickness and manufacturing techniques show vividly an outstanding relationship between the locals, their environment, religion and skill expositions.

Other indigenous craft and technologies around the area were not exposed during reconnaissance but during interviews Mr. John Egwuonwu from Umueri explains that the people of the Umueri and Nteje had basically ritual experts who had wide religious and cultural influences. Thus, they travelled so widely in the past around the Igbo community to perform their functions. More so, the time depth, the range and the complexity of tradition may differ from one people to another but the existence and continuity of tradition is a lowest common denominator of all human societies (Ifemesia, 1980). Thus, it is important that developers understand and appreciate the values of cultural property to enable them take necessary steps to ensure that they survive; the historical information is not lost and that mitigation measures are taken where necessary.

In conducting the impact assessment, the sites found are listed and assessed for the identified potential impacts. It is vital to assess the importance of each site "based on its

uniqueness, research potentials and state of preservation". A recommendation of preservation, mitigation or destruction is then made (Waarden, 1991: 831). Excavations, documentations or publication are also required to ensure proper Cultural Resources Management (CRM). Then, the artifacts can be washed, sorted, grouped, regrouped, analysed and conserved in Museum or cultural centers around or handed over to developers and government agencies concerned. More so, archaeologists, anthropologists, ethnographers or other social workers are supposed to be involved since they are professionals in CRM. Thus, they may be contracted to conduct a proper Archaeological Impact Assessment (AIA) and Historical Environment Impact Assessment (HEIA). Be it AIA or HEIA, the essential aim is to ensure that project developers recognised the need to assess the implications of their action on the cultural environment (Okpoko, 2007: 102).

Plate 13: Potsherds and Wood found at Oguadah and the Researcher in front of Oguadah Grove

Plate 14: Researcher with Engineers from Kanubeen Construction Company

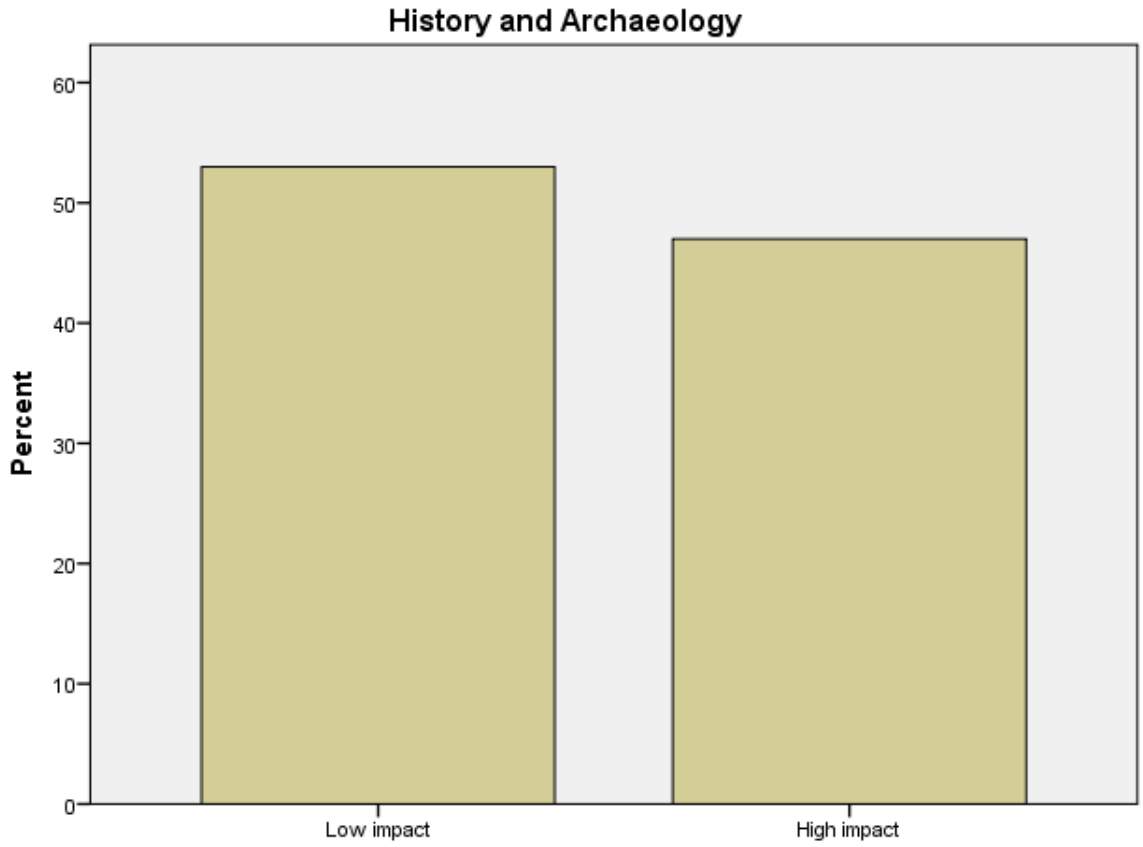


Figure 6: Bar Chart Showing History and Archaeological Impact

(Source: Field Calculations) see appendices for working details

Figure above is a bar chart showing the history and archaeological impact of the on-going cargo airport construction in the Umueri and Nteje. The environment used both low impact and high impact magnitude; hence, lower impacts represented resources with minimal negative impact while high impact represented resources already at the verge destruction. Consequently, the perceived non-pressing parameters on historical and archaeological impacts amount to 53%, while the more pressing parameters on historical and archaeological impact amount to 47%.

Owing to the request and recommendations made by two great archaeologists, Okpoko and Oguagha in '*West African Journal of Archaeology'* publications of (1988; 112), "there are still need however, for much archaeological research in the Umueri and Nteje and related areas in order to establish among other things the earliest date of its occupation and beginning of food

production and iron/bronze working". The earliest date (2555 B. C and 9th Century B.C) obtained so far from a near-by site around Old Anambra State came from the University of Nigeria Nsukka and Igboukwu archaeological sites. This study can also use relative dating for its findings. Apart from the few observations and findings through archaeological reconnaissance, additional resources of historical and cultural heritages are believed to be buried deep there on the ground, and most of them are vulnerable to destruction and damage due to construction activities.

Table 7: Archaeological sites and dates in Umueri and Nteje

Site name	Site type	Locations	Discoveries	Dates	Year conducted	Courtesy (Archaeologists)
Okpuno Nri	Settlement site	Ekpe-Umueri	Potsherds, Baked earth, Bones, cowries	1240 A.D-1625 A.D	1979	Anozie
Umueri site	Settlement Site	Umueri	Kernel, Baked earth, Cowries. Potsherds	N/A	1980s	Oguagha
Oguadah	Abandoned settlement site	Umueri	Potsherds , grove Stream	N/A	2015	Field survey
Odini	Ritual site	Umueri	Kernels and potsherds	N/A	2015	Field survey
Mbede	Sacred site	Nteje	Kernels and potsherds	N/A	2015	Field survey
Odah	Abandoned settlement site	Umueri	Pieces of Wood	N/A	2015	Field survey
Ugwumazu	Industrial/farm site	Nteje	Kernels and potsherds	N/A	2015	Field survey
Iyiokwa	Farm site	Nteje	Kernels, bones and potsherds	N/A	2015	Field survey
Udo	Sacred site	Nteje	Kernels and potsherds	N/A	2015	Field survey
Ofia ojukwuagu	Sacred site	Nteje	Kernels, pieces of wood, and potsherds	N/A	2015	Field survey
Nwampo	Sacred site	Nteje	Kernels and potsherds	N/A	2015	Field survey

4.3 Evaluating Community Involvement, Awareness and Expectations

The Environmental Impact Assessment (EIA) process in Nigeria recognises the importance of the views and concerns of stakeholders, especially the affected population, in the successful implementation of development projects. This explains why public consultation and participation are central to the EIA process in Nigeria (Agaja, 2013). The objective of such consultation and participation of affected stakeholders is to identify, early in the EIA process, their concerns about the impact of the proposed project in order to address such issues during the actual study and to reflect such comments in the EIA report. To further demonstrate the importance of public consultation and participation in Nigeria, the consultation process constitutes a key component of the EIA law in Nigeria (Ojesina, 1999; Agaja, 2013). Public participation is enshrined in the laws of the Federation of Nigeria EIA Act No. 86 sections 7 and 12 of 1992 before the agency, Federal Ministry of Environment (FMENV), gives a decision on an activity to which an environmental assessment has been produced. The Agency shall give opportunity to government agencies, members of the public, experts in relevant disciplines and interested groups to make comments on environmental impact assessment of the activity.

Initially, before the project was awarded, the locals said they were carried along. At first, they were asked to collect sand samples from three areas from their individual communities, which they did and they were paid for that, even before the main EIA commenced. But subsequent decisions were taken behind them. Locals during the interview complained about low community involvement. They lamented how the community representatives gave them what they call “change” from what they expected that state governor gave them. Thus, they said that N300, 000 for plots of land collected from them was not worth anything. At Ministry of Works, the Personal Assistant to the commissioner stated that EIA was carried out and the communities were fully involved in the project planning before they commenced. More so, from the qualitative data collected, one of our respondents revealed that at the first instance, they had meetings with government officials from Awka where they were asked to fill soil samples in labeled cement bags from specific areas, which they did and submitted to their community delegates who later became the stakeholders. Consequently, the government did compensate them for their land and environmental resources they tampered with the cargo airport construction. Stakeholders were selected from the communities to meet with government delegates and project managers to get informed about EIA process and need to encourage them

to participate in decision making. Community participations go beyond grants and compensation, thus, local management of environmental aspect are needed to ensure sustainable development. More so, promises of mitigation and grants like pipe-borne water, health centres, scholarships, business grants, etc. made to the locals by the state government are yet to be put in place.

Thus, the people understand their environment better, and their involvement would help to indicate area of historical or natural importance to them that would not need to be used for the project. All these and other environmental impacts would have been averted if the communities were fully carried along. EIA planners can ease the impacts of development by considering the nature of ties to community. One way to accomplish this is to develop an inventory of the places in the community that residents hold most dear and develop zoning and other strategies to protect those places, and also involve them in the developmental planning. Their opinion, expectations and contributions can improve and help facilitate efforts to identify places that should and should not be protected from any development. Since 'public participation' is a continuous two way communicating process which involves promoting full public understanding of the process and mechanism, through which environmental problems and needs are investigated and solved by the responsible agency (Canter, 1996;587). Simply put, public participation in EIA requires adequate feed forward and feedback processes, which allow communication to flow from the public officials to locals concerning public policy and the later, from citizens to public officials regarding public policy. Community involvement and participations were also themes evaluated in the course of this study.

4.4 Migrants Compensation and Remittance

Identified beneficiaries of the cargo airport constructions in the Umueri and Nteje are majorly the Umueri and part of Nteje since Umueri contributed approximately 4/5 portion of the land for the project, while Nteje had the remaining. Apart from the communal land, the family land involved belongs to the Ogbu, Mbede and Umatuolu kindred. At Mbede-Nteje, residential and business buildings were demolished, although compensated according to the information got from the locals working on the field. Economic activities of the migrants were halted by the Ministry of works which sent them notice of relocation which they accepted with the compensation given to them. The communities involved were compensated by the government

immensely, although some of our respondents denied collecting their share, others opined that they were still expecting more in accordance with the agreement reached with government representatives during the stakeholders involvement, while another group expressed satisfaction that they have received all adequately.

According to one of our respondents, some of these clans already had plans of developing their community with their own share of the compensation, although this development plan raised serious disagreement among the kinsmen. More so, another respondent from Ifite-Umueri said that he could now sell his land that is spared very close to the airport road, which before now he could not dream of selling. Pressures to get the exact amount paid as compensation and the basis of payment were abortive, although one of our respondent Echezona (youth) from Nteje made mention of N300, 000 as the first collection, but subsequent ones she could not explain. The migrant's new settlements were not revealed as at the time of this work. At Ministry of Work, Awka, our respondents highlighted that compensations have been paid. In as much as government owned all the state land that does not mean government should start working on someone's land without proper negotiations and specific compensations. He also gave instances where stakeholder delayed compensation and the people protested against the government. Therefore, in absence of any pronounced agitation, we believed that government of Anambra State compensated the families, clans, and communities involved.

CHAPTER FIVE

DATA ANALYSIS, INTERPRERTATIONS AND CONCLUSION

5.0 Introduction

This section does analysis, infers interpretation and highlights recommendations for the ongoing environmental impacts incurred from the construction of the cargo airport in the Nteje and Umueri communities. In addressing the problems of economic growth, the nation has adopted legal strategies that attempt to meet the competing demands of urbanization, pollution and protection of the environment. The question confronting sustainable development is whether non-renewable natural resources should be put in jeopardy by economic growth? It has been suggested that where natural resources are in jeopardy, economic growth should prohibit protecting the environment. This suggestion could hold sway in developed countries but not in developing countries like in Nigeria, where economic development is *sine qua non* to human existence. Rather than prohibit economic development, laws protecting the environment should be enacted and existing ones reinvigorated, and compliance ensured to achieve environmental sustainability (Samenah et al, 2012).

5.1 Appraisal of Identified Impacts on Nteje and Umueri Communities

Environmental Impact covers highways, train lines, airports, industrial plants, waste disposal facilities, and many other development projects. "The environmental impact assessment will identify, describe and assess the direct and indirect effects of a project on the following factors: human beings, fauna and flora, soil, water, air, climate and the landscape, the interrelationship between the factors, environmental settings, material assets and the cultural heritage" (Samenah et al, 2012). Accordingly, there were six (6) themes and ten (10) impact sub themes discussed in this study and restricted to the environs of the site under examination. They include; impacts on physical and biological environment, impacts on historical and archaeological remains, health and societal wellbeing as well as community involvement in EIA and the development generally. Each of the themes was reduced to sub-theme to enable elaborative discussions on them.

Physical environment which include the land and the water impacts; water and land are environmental recourses outlined and discussed. Thus, there are changes in the environmental settings which are tantamount to adverse implications amongst the locals of Nteje and Umueri communities. This changes that occurred affected their daily activities and their way of life some of these are:

- Water bodies were hauled from their deities
- Water was destroyed, exposing the community to calamities
- Flooding and erosion on the farmlands and buildings around the project area,
- Water pollution and flowing to the spared water bodies.
- Destruction of farmland
- Destruction of medicinal plants
- Destruction of sacred animals, rare aquatic species
- Destruction of source of drinking water

Below shows the presentation of the qualitative survey of respondents on the physical environment impacts. Thus, the negative water impact supersedes the land impacts. This could be as a result of communal attachment to their waters (fishing and getting drinking water) apart from losing valuable fertile land and reducing the duration of fallow period which recent activities have brought about increased loss of valuable sacred asset and farms that are supposed to increase agricultural yield in the valley. Impact assessment on water and land are of vital importance as to ensure such impacts are still mitigated for appropriately. The Ministry of Urban and Regional Planning must be involved to collaborate with Ministry of Environment and Ministry of Works to ensure that decisions regarding the mitigation of the damages incurred by the project are implemented.

Biological environment was also evaluated in this study. The project area, as we discussed, the shrubs and farmland area as at 2012 was 38.2% and dense forest 42.4% making the total area covered by vegetation 80.6%, but as at 2015, at the commencement of the project, the total vegetation reduced to 70.8%, leaving up to 2.71% bare. Evidently, animal species that inhabited that portion of the bare-land at present must have moved inside to the deeper part of the forest to take succour from destruction. It is observed that many trees of medicinal and economic importance was destroyed which were homes for birds and animals. Consequently, this has led to changes in the biological environment such that if cautions are not taken would

severely affect the activities of the people. In comparing the two variables (plants and animals) used at biological impact study, they have almost the same rating. Therefore, the variables need urgent mitigation. Impact assessment is highly needed in the project in this regard to mitigate for the damage being done to the plants in the environment.

The health and societal welfare were also discussed in detail. The health changes around the project area were contributed by the air impacts and noise impacts. Those impacts are health parameters that could lead to short, medium or long term adverse effects on the communities involved. Construction is considered as one of the main sources of environmental pollution in the world today. Consequently, this study revealed an increase in the rate of environmental degradation, posed health challenges which eventually might result to long-term chronic diseases. It is found that impacts like hazardous gaseous emissions, dust generation, noise pollution, transportation resources, solid, liquid wastes, etc, were perceived as treats to humans and ecosystems in and around the project area. However, the level of knowledge and awareness of project participants, especially project managers, and the host communities with regards to these various health impacts incurred from the construction processes are still low, within short time. It is also found that the air pollution had greater impact on the local than the noise impact because dust generations were mostly pointed out by our respondents.

More so, apart from the much outlined above, societal wellbeing was also examined. On socio-cultural wellbeing of the locals, 19% respondent supported a minimised interference on the societal cohesions of the kinsmen, while the other 24% affirm the negative effect of the project activities. The implication is that in as much as the people needed development, their societal unity and value were affected. Also, the socio-economic activities of the area were left untouched, although this was found to have both negative and positive perceived impacts on the project area. Purportedly, their lands which were previously used for farming, fish pond, growing of medicinal plants and other economic activities were demolished and graded for the construction activities. Comparing the socio-cultural and socio-economic wellbeing of the people, socio-economic variables were rated to support the positive impacts incurred so far from the construction activities.

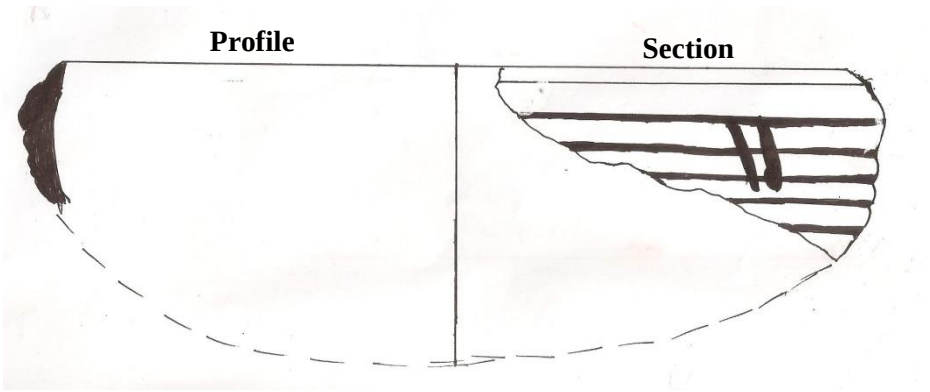
Archaeological and historical actual and potential resources in and around the project site were affected negatively since proper environmental setting were not documented nor excavation

conducted on the site. Thus, valuable information of the past activities that took place on the project area would be lost.

Figure 7: Drawing A-E: Reconstruction of Potsherds from Oguadah Abandoned Settlement (Proposed Airport Base)

RIMSHERD

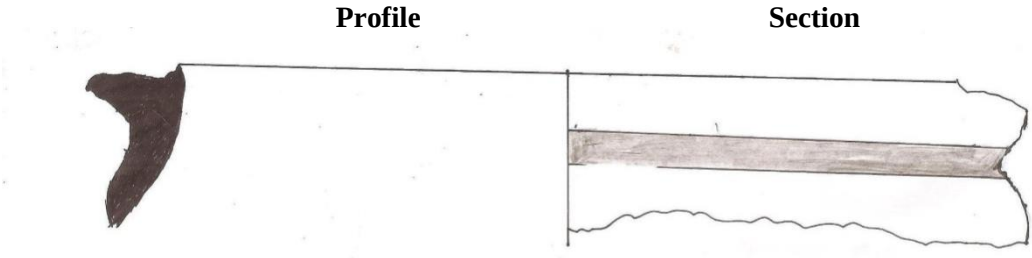
A



Thickness	-1.4cm
Width	-20cm
Motif of decoration	- Excised grooves
Rim type	- Everted
Vessel type	- Plate
Tempering Material	- Quartz

RIMSHERD

B

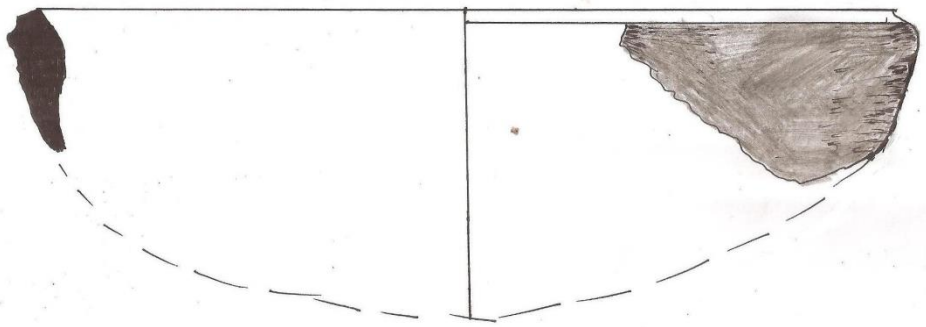


Thickness	-2.3cm
Width	-20cm
Motif of decoration	- Burnished
Rim type	- Undefined
Vessel type	- Pot
Tempering Material	- Quartz and Ash

RIMSHERD

C

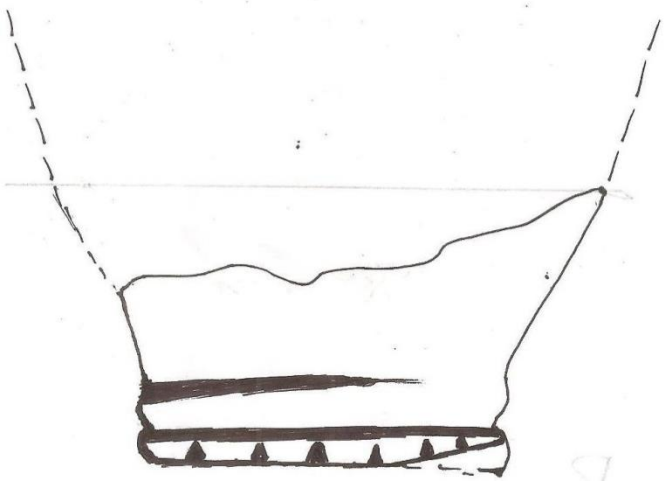
Profile **Section**



Thickness	-1.9cm
Width	-22cm
Motif of decoration	- Unburnished
Rim type	- Straight
Vessel type	- Bowl
Tempering Material	- Quartz

D

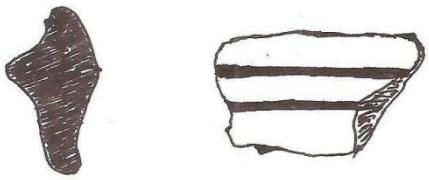
PEDESTAL



Width	-7cm
Motif of decoration	- Horizontal and dotted excissed line
Vessel type	- Pot
Tempering Material	- Quartz and Ash

E

BODY SHERD



Width	-1.7cm
Motif of decoration	- Horizontal line impression
Vessel type	- Undefined
Tempering Material	- Quartz and Ash

Places like Oguadah, Mbede, Odini and Odah, supposedly, were lived by the ancestors of the host communities. So, it is possible their remains, either cultural, industrial or bones are preserved in the grooves in that region. Also, with the scattered potsherds discovered on the surface, such depict that there might be more cultural information buried deep down the ground. The discoveries were majorly potsherds (rims, body and pedestal sherds). The table below has the physical attributes analysed:

Table 8: The Physical Attributes of Oguadah Potsherds

S/N	Sherd Type	Base measurement (cm)	Temp materials	Surface treatment	Decoration motif	Colour	Rim type	Vessel type
A	Rim	20	Quartz	Impression	Excised grooves	Brown	Everted	Plate
B	Rim	20	Quartz and ash	Impression	Burnished	Brown	Undefined	Pot
C	Rim	22	Quartz	Plain	Unburnished	Brown	Straight	Bowl
D	Pedestal	7	Quartz and ash	Impression	Horizontal and dotted excised line	Brown	--	Pot
E	Body	1.7	Quartz and ash	Impression	Horizontal line impression	Brown	--	--

(Source; Ojiako, 2016)

The classification of potsherds from Oguadah abandoned settlement site is aimed at describing the artifact types, the type of clay used in the manufacturing of the wares and the relationship of man and his intermediate environment. The archaeological importance of pottery is enormous. It helps archaeologists in dating using thermoluminesence. It helps to understand the gradual complexity of pottery making and the decoration and forms on pots excavated. It is also used to trace the feminist participation in the past cultural activities and can help us to trace the diffusion from one community to another.

Community involvements were also evaluated during the study using low and high rating. Few of the respondents supported low community involvement by the government, while others affirmed high community involvement. Thus, some steps that the host communities expected the government to have taken were not taken in the EIA process of the cargo airport. Consequently, this could have contributed to the ripple effect of the activities. Low community

involvement is said to have attracted other environmental impact to the area. Peradventure the locals were carried along fully, they would have suggested ways of avoiding or reducing the other incurred impact on the entire community.

Proper mitigations are advised to be administered to each and every impacts incurred on the project area to ensure a sustainable development. Recommendations are made on how to 'reduce the reducible, avoid the avoidable, replace the replaceable and use'. As for emission and exposure reduction, inactive surface areas of the disposal site should be sealed as early as possible; monitoring measures should include the amounts and concentrations of gaseous dumpsite emissions of survived stream, and creek water; and of the health status of local population and field workers. Finally, the locals should be involved fully in the subsequent activities on the project area so as to enable them make their suggestions and opinions for appropriate selections to ensure sustainable development.

Table 9: Table showing Statistical Analysis of the Impact in the Umueri and Nteje

ENVIRONMENTAL IMPACTS		**MINIMAL PARAMETERS (positive)**	**MAXIMUN PARAMETRE (negative)**	**MEAN**	**STANDARAD DEVIATION**
Theme	Sub-themes				
Physical Environmental	Land	5.00	14.00	9.8800	1.81063
	Water	5.00	14.00	10.8200	1.88765
Biological Environmental	Plants	7.00	14.00	10.6400	1.53426
	Animals	9.00	13.00	10.9700	1.08670
Health	Air	9.00	13.00	10.5800	1.11174
	Noise	6.00	12.00	8.0808	1.77670
Societal Wellbeing	Socio-cultural	19.00	24.00	21.7500	1.17529
	Socio-economic	14.200	10.00	14.2000	1.57634
Historical and Archaeological remains	-	.4700 (53%)	.50161 (47%)	.00	1.00
Community Involvement	-	.4400 (56%)	.49889 (44%)	.00	1.00

(Source: Field Calculations) see appendices for working details

The results of this study are useful for construction managers, government and the locals as well as other participants in construction sites to become aware of evaluation of construction processes, and impacts of activities on the environment.

5.2 Discussion (Impact Evaluation)

This section is concerned with striking relationships between the objectives, research question, theoretical orientation, empirical and data collected from the project area. Prediction levels are compared with some level of caution, to trace similar occurrences, changes and simulation over the years by the project developers and how the impacts were generally handled. Thus, at the end of the discussion, the study created a clear picture of EIA activities in the country and guidelines to improve its abysmal state.

This study underwent the identification and examination of various environmental impacts and wellbeing of the locals in the Umueri and Nteje, hence, the impacts include the identified negative and positive effects on physical and biological environment, health, socio-cultural, as well as the socio-economic well-being. Coincidentally, one of the reviewed literatures, Samenah, et al., (2012) discussed in detail environmental impact of construction in Malaysia, and they differentiated those impacts classes into ecosystem impacts, natural resources, and public impact. For ecosystem impacts, physical environmental impacts were concentrated on. They opined that majority of the casualty agent for physical environmental pollution is due to construction processes, uncontrolled use of plants, reservoir, and additional specific pollutants that render unsuitable substance to the environment.

Short term impacts could cause flooding, erosion, temporal leaching while long term impacts cause changes in hydrological cycle and water pollution, loss of original environmental setting and animal species. Their study also pointed out that noise impact should be evaluated by scholars during EIA. Thus, it has more adverse effect on the atmosphere, plants, animal and humans. Therefore, proper EIA should be encouraged. They outlined salient steps to be followed in identifying the environmental impacts that should enable one embark on proper environmental evaluation or assessment for any given construction or oil exploration:

- Identify the type of impact
- Anticipate various alternatives
- Assess the extent of the impact on the variable
- Classify and evaluate the impact anticipated from the alternative
- Anticipated mitigation measures should be applied to the environment

The steps were applied to this evaluation study. Although various impacts were identified through respondent opinions, alternatives for the impacts were mentioned in the study, followed by recommendations for mitigating the impacts. More so, for Sameneh et al. (2012), construction is considered as one of the main sources of environmental pollution in the world. The accumulated amount of adverse environmental impacts like waste, noise, dust, and hazardous emissions still occur during the construction processes which cause serious damages to humans and ecosystems as found through his research. According to Sameneh et al. (2012), the ecosystem impact has the greatest impact in the evaluation (67.5% of total impacts).

Given that several constructions require large landmass, destructions of vegetations, scenic areas, water bodies, monuments and archaeological materials beneath the ground, the ecosystem or natural environmental harm are unavoidable, hence, the statistical figure from the natural resources impact accounts for 21%. Environmental impacts resulting from construction are such that have ripple effects such as increase in economic standard and income generation for the state and locals. Thus, public impact consists of only 11.5% showing that the negative impact on social cohesion is reduced drastically. This could be as a result of increase in economic activities and income generations.

From this study, various impacts were identified and evaluated. They include the physical and biological environment, health, socio-cultural, as well as the socio-economic well-being of the Umueri and Nteje locals. These are also similar in occurrences with Samenahs' study in Malaysia. Physical impacts and biological impacts on the environment were obvious, but not up to the Samenahs'. Thus, there are obvious changes in environmental settings by mere observation. Hence, statistically, they maintained minimal impacts (5-14%) and (7-14%) which was possible because the landmass affected was minimal. Specifically, for the water impacts, mitigation measures should be outlined for them as soon as possible. Moreover, the health related impacts which include the noise and health impacts had low impacts (6-13%). Thus, as we stated earlier the health related impacts are still on their short-term effect, which could be reduced as quick as the project is completed.

Additionally, socio-cultural and socio-economic wellbeing of the Umueri and Nteje were also affected both negatively and positively respectively. Extrapolating from the respondent's information, the social cohesion and the level of participation on cultural related matters have reduced with the increase in the standard of living accrued from compensation, grants and wages

on the project site. Also, attendance to town meetings had been affected. Perpetually, looking at the related literatures used in this study, these impacts are inevitable and are such that occur at any record of this kind of development.

In essence, every given development is rooted in the environment, therefore, leaving it either better or worse after the development project. Environmental and behavioural theories should serve as checks and balances for environmental activities and implementation of policies at every level to ensure appropriate returns on the environment. Thus, environmental and development policies should accrue from the Global Code of Ethics of behavioural theories to address the issues of human scruples of environmental activities to ensure developmental outputs in the encompassing project, which would result to sustainable environmental yield and improved economy within the boundaries of the host communities.

Secondly, the study located and examined historical and archaeological resources affected by the project. Comparing literatures, Gibbon (2007) reported that the archaeological assessment was focused on direct impact on known monuments, thus, there was a direct visual impact of the preferred route (Blue 2) on the hill and on the chains of monuments at Skreen and Tara, as all the routes cross the archaeologically rich plateau around Tara and Skreen. Thus, it is highly probable that new archaeological monuments were discovered during the course of construction. Also, in the process of the construction in Ireland, two Bronze Age artifacts were discovered. Therefore, Gibbon recommended that potential archaeological sites should be avoided if possible and where impacts are inevitable, the report recommends a process of aerial survey along the route, topographical and geophysical survey as well as trial trenching of specific sites to determine their precise nature and followed by full excavation if they turn out to be archaeologically significant.

Correspondingly, apart from the seismic landscape and historical environmental setting that has been tampered due to the project at hand, archaeological artifacts were retrieved from the project area. At Oguadah, the proposed airport base yet to be constructed between Umueri and Nteje, there were scattered potsherds on the site. Umueri and Nteje are believed to have valuable information of the origin of Igbo-tribe of Nigeria. Because of so many archaeological studies that have been conducted there, archaeological and historical valuables could be lying beneath the ground. Simply put areas with seismic landscape and historical potentials are

vulnerable to losing exotic features and potentials if appropriate measures are not taken about the preservation and protection of such valuable materials.

Hence, community attachment theory delineated measures to avoid archaeological and historical impact of any community attachment. EIA planners can avoid the impacts of development by considering the nature of area ties to community. One way to accomplish this is to develop an inventory of the places in the community that residents hold most dearly. If possible, develop zoning and other strategies to protect these places. On the other hand involve them in the developmental planning. Doing this would enable the stakeholders to avoid and protect those sites of attachment to the community.

In the course of the study, the researcher was able to examine and foster community involvement, participation and awareness towards supporting environmental impact assessment in the study areas. In EIA processes, public involvement and participation is highly important. Locals' involvement would help to indicate areas of historical or natural importance that need protection and also understand the locals' view and opinion. According to Agaja (2013), the objective of public participation and consultation is to achieve the followings:

(i) Ensure public and community participation in the definition of environmental policy objectives and decision making.

(ii) Ensure public confidence in the administration of the environment by demonstrating the resolve of government to enforce the environmental stewardship of government agencies and organs, corporate citizens and elite organisations.

(iii) Grant the citizenry access to environmental information and data, thereby promoting the quality of environmental management and compliance monitoring (Agaja, 2013). Unfortunately, these objectives are usually not met during EIA in most developmental projects done in rural regions of the nation.

In the same vein, the quantitative estimate discussed in analysis section of this study shows that community participation and involvement in EIA conducted in proposed project areas before the construction commenced is relatively low. Notably, through in-depth interview conducted with locals, we found that the locals still have biased minds over the development; they expected more compensation from the government. Thus, alternatives or replacement for the damages the community incurred are yet to be put in place. For example, lost streams and destroyed herbal vegetation for good pipe borne water and health centers.

Considering neo-classical growth theory as a way of attacking the impacts, the project stakeholders were enlightened to ensure maximization of the well-being of affected inhabitants, bridging the gap between the ongoing project, its impacts and benefits to the host communities. The stakeholders should bear in mind that the locals' view and opinions are essential in EIA. To achieve neoclassical sustainability of growth in EIA, the project participants should understand the perceived or incurred impacts at every stage and allow locals take part in each decision making as well as allow them voice their opinions to ensure sustainable development.

Succinctly put, this can be done by comparing the predicted impact to the actual situation. For example, by establishing specific monitoring procedures and continually evaluating the state of the environment as well as human exposures, social cohesions and health outcomes till the project is completed.

5.3 Community Expectations

Compensation involves understanding measures to replace lost or adversely impacted environmental values that should have similar functions and equally existing environmental values. Kuiper (1997) talked about compensation interims of "creation of new values, which are equal to the lost value". Umueri and Nteje as we have already discussed in the preceding chapters are basically hodge-podge of agricultural communities lying close to the bank of the Omambala and Niger rivers: thus, overflowing of river banks spread alluvia soil and manure from the river to the entire land, making the area enriched for agricultural yield. Unfortunately, the host locals hoped for a greater yield in this season from their farm cultivations before the project construction came and destabilized their activities. Their farms were demolished and cleared as at the first week when the construction commenced and the people lamented bitterly that they were not yet prepared for the project.

Extrapolating Okpoko (2007) studies as he made confirmatory observations from Niger Delta, "there is widespread of dissatisfaction in the study area regarding the inputs of the oil company and government in community development". A great majority of the respondents as we discussed in the preceding section, complained that the locals were consulted but the way the home-stakeholders went about the money sharing, they had expected government to supervise the sharing. Also, they were not consulted on their needs or priorities: thus, most of their

decision makers were not directly affected like those whose farms and buildings were demolished, so they did not understand the pains they are into. Most especially, the farmers whose parcel of land were part of the airport land lamented profusely that government offered what they think would be nice to them, but invariably they expected something beyond that. ₦300, 000 for more than three (3) plots of land, to them it is exploitation. Also, the alternative replacements needed for the displacements incurred through the development are not yet in place. Thus, some of our respondents wish to have one-on-one discussion with the government delegates but this was not forthcoming.

More so, the locals are hoping intensively that the project would bring huge development to their standard of living; there would be creation of more tourist facilities in their place, training of their indigenes as pilots, engineers, and many others for the various units in the airport premises, provision of grants and scholarships to their people. They also do wish that government would fastrack the project activities within few years to encourage more private investors to invest and stimulate the creation of job opportunities in the area. Owing to the fact that private developers are waiting to follow suit, that hopefully will give the place a more urbanised outlook that would resuscitate the environment for the good of the locals.

5.4 Mitigation Measures for Impacts

Mitigations are measures envisaged in order to eliminate or reduce negative environmental impacts of the project activities. Mitigating for adverse impact of construction of cargo airport involves fully a deliberate action that is taken to alleviate adverse effects, whether by controlling the sources of impacts or the exposure of receptors to them (Treweek, 1996). Mitigation options should generally be considered in the following order of preferences:

- Avoidance of impacts altogether
- Reduction of impact where unavoidable
- Restoration of habitant to their original site
- Relocation of affected species or habitats
- Compensation of any residual, unavoidable damage

The project managers are advised to strategise measures to avoid environmental impacts. These include identification of alternatives, using sensitive design to secure the biodiversity,

environmental sustainable technologies and machineries for the project work. More so, specific areas with community attachment like rivers, streams, lake, grooves, sacred places, etc. should be avoided or sustainable alternatives like pipe borne water should be available to replace them for the sustenance of the community. Other literatures also suggested mitigation on specific themes. For instance, there is a potential decrease of their impacts by applying advanced technologies or changing construction equipment. Exhaust ventilation systems, wet dust suppression, use of personal protective equipment are common ways to reduce dust exposure in the construction industry (Nij, Hilhorst, Spee, Spierings, Steffens, Lumens. and Heederik, 2003). To control the noise along the path, the noise source should be moved far from the receiver. It also can be performed by construction of a barrier (e.g. wall) between noise source and receiver (Barron, 2003). The noise control at receiver could be performed using protective tools such as ear plug or canal cap (Barron, 2003).

Table 10: Various Impacts (Actual and Potentials) with the Suggested Mitigation Measures

Project activities	**Type of impact**	**Potential impact**	**Location**	**Magnitude of impacts**	**Suggested mitigation measures**	**Anticipated cost**	**Institution responsible**	**Remark**
Sourcing for coarse sand	Loss of parental rock	Erosion, nutrient loss, loss of plasticity of the soil	Ifite-Umueri (Borrow pit)	High	Source for alternative borrow pit far from the project area	N/A	Geology and geographers	Needs urgent attention
Construction of the airport	Destruction of cultural remains	Loss valuable information about the past	Oguada, Mbede, Odah	High	Proper documentations and excavation	N/A	Archaeologist and anthropologist	Needs urgent attention
Construction of airport road	Filling up of water bodies	Loss of original environmental setting and sources of water	Oyii, Kpeke, Mbede	High	Documentation of environmental settings, alternatives for water supply	N/A	Geology and geographers	Needs urgent attention
Construction activities	Loss of endangered species	Reduction on hunting and fishing	Oguadah groove	Moderate	Domestication should be encourage	N/A	Zoologist and Animal scientist	Setting up of wildlife reserve urgently
Construction of airport road	Deforestation	Economic loss of plants	Link Roads	Moderate	Planting of new trees	N/A	Botanist, crop scientist	Needs urgent attention
Construction activities	Loss of medicinal plants	Loss of cure to specific diseases	Ifite-Umueri	High	Replacement of those species	N/A	Botanist and crop scientist	Needs urgent attention
Construction activities	Dust generation	Gaseous emissions	7km radius around the project area	High	Wet dust suppressor	N/A	Health workers	Needs urgent attention
Construction activities	Noise pollution	Long-term noise pollution	7km radius around the project area	Moderate	Use protective tool	N/A	Health workers	Noise evaluation
Construction activities	Demolition of business and residential buildings	Replacement and relocations	Nteje axis	Moderates	Compensation and resettlement	N/A	Civil engineers	Needs urgent attention

(Source; Field Report)

5.5 Recommendations

Considering, the ineffaceable mark these impacts confer on the victims of environmental changes, recommendations for a more friendly development should be encouraged, consultation and involvement of the local is eminent for sustainable development. Appropriate mitigations should be provided and administered on the various impacts incurred already. As a result, this section details the various ways to recommend a more sustainable development that would survive posterity.

- More environmental friendly project should be encouraged
- Government are requested to organize EIA seminars and workshops to sensitize the locals, stakeholders, contractors and governmental parastatals on EIA policies and values
- Consultation and involvement of the local is eminent for sustainable development
- Appropriate mitigations should be provided and administered on the various impacts incurred already
- Public archaeology should be encourage to reduce the altitude of destructions to national heritage

5.5.1 Highlights to an Environmental Friendly Projects

The central goal of this study is fundamentally tilted towards encouraging environmental friendly project; thus, sustainable development at the local, state and national levels. The people expected more environment friendly projects considering the relationship between the locals and their environment, their survival, their sustenance and basic activities. But, the lackadaisical attitude of some project managers over constructions activities made most of them not to imbibe the ideals of consultation, community awareness, community participation and mitigation when necessary. Consequently, this attitude has made void the idea of a sustainable development. Sustainable development is fundamentally influenced by the idea of eco-friendly projects. To operationalise any conception of sustainable development, the project interview must establish an appropriate and management framework, indicators could also be outlined to serve as checkmating and monitoring agents to the environment throughout the development planning and accomplishment of the project.

Furthermore, the economy of the local, environmental setting, social and cultural criteria should be used as indicators to determine whether the original goals are being achieved and

implement remedial action taken if necessary. Environmental safety measures should be adopted and the locals should be trained on how to manage them appropriately. Hence, a project assessed to have more adverse effects on the locals and their environment should make appropriate mitigation ready for damages that could not be avoided: setting up of pipe-borne water, establishment of hospitals, giving out grants or loans to the locals, creating awareness to the locals to get prepared for expected occurrences, etc. This could be achieved with series of workshops and seminars during EIA to ensure total preparedness.

5.5.2 Measures for Environmental Impact Assessment and Sustainable Development in Nigeria

To achieve a sustainable development in the nation, the following measures must be considered and implemented effectively.

- Read through to understand the basic procedures and processes of EIA guidelines and regulations in Nigeria.
- Carry out environmental impact assessment and environmental evaluation review in relation to all aspects of the natural and social environment that may affect, or may be affected by its activities.
- Identify any such interface for the complete life cycle of both new and existing facilities and operations.
- Enhance positive effects and prevent intolerable impacts from occurring.
- Limit the nature and extent of any residual negative impacts, however caused, such that they are as low as practicable.
- Consult relevant stakeholders.
- Develop and maintain effective long term relationships.
- Assure that the EIA process leads to the development and implementation of community participation.
- Leave the environment at the end of the useful life of any operation in a condition suitable for future use.
- Routinely monitor the environmental status of each operation and take corrective action as necessary. (Adapted from Stakeholder's Guide, 2003).

Most Nigerian's project developers are yet to understand the processes and guidelines, and the need to activate them effectively. The EIA is a developing technology, the host communities who are vulnerable to several impacts from the environmental changes should be involved, prepared and allowed to participate in decision making as well as beneficial effects. Project managers and developers, both from private and public sector should be more responsive to environmental changes and mitigate properly when necessary. Also EIA workshops and seminars should be actively conducted throughout the local levels and severe supervision should be carried out to ensure proper EIA practices in the nation.

The government should also encourage eco-friendly projects to entice more developers to participate in that. EIA must be implemented to ensure sustainable development, owing to the fact that EIA is the key to identifying and quantifying the potential impacts of proposed developments, thus, adverse effects could be drastically avoided or reduced. Therefore, all hands must be on deck in implementation, supervision and updating of EIA guidelines in the nation. Development which does not respect the environment and its inhabitants, let alone future generation, cannot be sustainable.

5.5.3 Mitigating Measures for the Potential Archaeological and Cultural Heritages in the Project Site

A possible major concern for many actions is the potential impact on cultural resources, which include architectural, historical and archaeological sites as well as areas of unique importance because of their ecological, scientific or geological information (Canter, 1996:435). The sphere of cultural resources includes not only the precise limits of the project area, but all surrounding land on which the project may have a reasonably direct impact by modifying land-use patterns or by opening areas for agriculture or for public use, thus, increasing potential vandalism (McGimsey, 1973; Canter, 1996: 435). The potential and actual impacts on archaeological and cultural heritage include inundation, destruction, disruption, interference or disturbance from the construction activities.

Areas observed to have had adverse effects should undergo Archaeological Impact Assessment (AIA) or Historical Environment Impact Assessment (HEIA), which is aimed at ensuring project developers recognise their actions, the need to assess the implications of their actions on cultural environment. To achieve the assessment, the developers must appreciate the

values of cultural property to enable them take proper steps to ensure that they preserve and protect the historical information for posterity. Thus, already done damage should be mitigated appropriately by professionals in Cultural Resource Management (CRM) like archaeologists, anthropologist, national museums and other cultural resource managers to excavate, document, publish the discovery, conserve and exhibit the findings in the museum for the public.

Saro-Wiwa (1992:46) argues that:

> *The life of an ancestor begins in the verdant of tropical forest where he/she is laid to rest. Though 'dead', they have not become impotent. They maintain their capacity to act and continue to work with the 'living' for the continuity of life. The burials are the meeting ground of remembrance, protection and liberation. The forest and the people are one, the past and future are one, the living and the dead are one.*

Saro-Wiwa, maintained that the destruction of sacred assets: rivers, streams, ancient burial grounds, grooves incurs the wrath of the people. Cultural property and lifestyle are the two important spheres that have received serious destruction from the constructions. Thus, direct observations from the Oguada, Mbede Odini and Odah, shows the evidence of historical and archaeological properties. The environmental setting of the area has not been documented, neither excavations nor safeguarding of those archaeological remains and historical land marks. Documentation and excavation of the study area should be encouraged to salvage the valuable information lying beneath the ground.

According to Canter (1996), the six basic steps for mitigation for archaeological and historic properties are as follows:

- Identify and consider the cultural overview of the area, including the prehistoric and historical patterns of the area.
- Identify the potential cultural resources in the area of interest.
- Determine significance of known and potential cultural resources relative to locals, regional and national concerns.

- Delineate possible impacts of alternatives on known and potential cultural resources in the area of interest. Impacts should be determined for preconstruction, construction, operation and post operation phases.
- Depending on findings of step 3 and 4 above, either (a) proceed with the selection of one proposed action from the alternatives and then proceed with selection of the proposed action. Following selection of the proposed action, conduct a detailed reconnaissance of the pertinent project area and develop mitigation measures for impact minimization and cultural-resources preservation. If appropriate, develop historic-resource-management plans for the study.
- Develop procedures that will be used during the construction phase in the case of discovery of previously unidentified cultural resources.

Thus, the above steps should be applied to identify impacts of cultural property around the project area as prompt as possible.

5.5.4 Suggestions for Further Research

This research revealed a whole lot of damages done on Umueri and Nteje communities through the construction activities of the cargo airport. Reportedly, EIA was conducted on the site; although all the attempts made to lay hold on the EIA report of the site was unsuccessful. But, with the data collected for this study, the research recommends that subsequent researchers should look into documentations and excavation of actual and potential archaeological materials around the project area so as to bridge the vacuum, which this study could not cover. Thus, this study suggests more areas of research on the site before more damages would be done to the save resources on the project area. The mitigations outlined should be implemented adequately. Finally, government and stakeholders should encourage community awareness and participation workshop and seminars in subsequent developmental project at the local, state and national levels, so that the citizens will be properly educated.

5.6 Conclusion

This study aimed at evaluating the environmental impact of the cargo airport project on the Umueri and Nteje in Anambra State. The study involved basically qualitative and quantitative survey of the area. The study fundamentally covered 7km radius around the project

area for the perceived impact of the construction project, although, the study on social structures covers the entire communities; Umueri and Nteje. Both international and local literatures were reviewed for proper understanding and orientation of the topic of interest. Data for the study were presented in descriptive form, tables and illustrations to elaborate appropriately on the findings and analysis from the project area. In the course of the study, the researcher observed that human ideas and activities in the name of development tilts towards to environmental exploitation, hence, many industries have been developed in the country at the expense of the environment and the wellbeing of the host communities.

Remedially, preparedness for any action is the only way to minimise several adverse impacts, be it for biological and physical environment, health, socio-cultural and socio-economic wellbeing of the host community as well as archaeological and historical impacts where developmental project is proposed. The outcome of this study is geared towards helping organisations and managers prepare proper sustainability plans and also to increase the knowledge of partners in construction sites through training and awareness programs. The nation should devise more strategies on how the proceeds from nature should be injected into environmental preservation and protection to ensure sustainability of projects and developments. Therefore, the results of this research can be an influential assessment tool to assist construction practitioners to improve the on-site environmental performance. The construction practitioners will be able to achieve a comprehensive perception of the environmental impacts of construction processes during the pre-construction stage.

Furthermore, as Nigerian Government embarks on more investments and infrastructural development in various regions of the nation, it is essential that the government, through Ministries like Federal Ministry of Environment, Ministry of Works and Transportation, Federal Ministry of Urban and Regional Planning, Federal Ministry of Culture and Tourism and National Commission for Museums and Monuments (NCMM) should educate and enlighten the project managers and the host communities on the need to protect their environment and promote a beneficiary effect on EIA and sustainable development as well as establishing a functional forum for stakeholders in the industry to complement the efforts of the locals.

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APPENDICES

Interview Guide for Cargo Airport in Umueri and Nteje

For Project Stakeholders

1. What is the nature of this project?
2. What was the actual measurement of the project site before the project was proposed?
3. What is the present measurement of the site now?
4. Can you identify the factors that motivated the project construction?
5. When was the project awarded and who awarded the project?
6. Which construction company got the award of contract for the project?
7. What stage is the project now?
8. Do you have teams that are assigned to inspect the project?
9. Before the project commenced was impact assessment proposed, implemented and by who?
10. Operationally, how was the project site before the site was proposed
    - Natural environment
    - Aquatic habitat and games
    - Commercial activities
    - Official activities
    - Communities around
11. What are the perceived negative impacts of this project to the communities or areas 5km radius around the project site:
    - Towards community lives
    - Towards business and commercial activities
    - Towards landscape
    - Towards vegetation
    - Towards aquatic life and game generally
    - Historical features
    - Monument and archaeological features
12. What are the perceived positive impacts of the project to the community and Anambra state generally?
13. Can you identify the communities 15km radius around this project site and their contributions on the site?
14. For the people affected, were there any kind of compensation by the government to them; grants, relocations, remittance of any kind?
15. Please how do we reach the obi or any person that could be of importance in getting information on the historical information of these communities?

For the Locals

1. What is your name?
2. How old are you?
3. What is your occupation?
4. What is the name of your village and community?
5. Can you tell us any story about the history of this community?
6. Please, tell us about the festivals and ceremonies as they are being observed in this community?
7. What are the natural resources known in this community?
8. What are the basic occupations of men in this community?
9. What are the basic occupations for women in this village?
10. Tell us of any indigenous knowledge that still dominate at present?
11. How do you own land in this community?
12. Are there deities attached to the water, land or the grove in this community?
13. What can you tell us about the on-going cargo airport project in this community?
14. Do your community have abandoned settlement site around the project area?
15. Your people are known for rich heritages and cultural resources?
16. Are there sites of importance that tell about the history of your place?
17. Are those sites of importance are located close to the project area?
18. Tell us how you are been affected both the positive and negative impacts?
19. Were there serious disagreements over the land for the project?
20. Are there places of historical importance that are been affected by the on-going project?
21. Are there residential houses or business structures that were destroyed for the project?
22. Are there any consequence for the groves, streams, and ponds that are been destroyed due to the project?
23. Have you been compensated?
24. Are there more expectations you want from the Government over the development?
25. Is the project a welcomed development for you?

RESEARCH QUESTIONAIRE

Dear respondent,

I am a postgraduate student of the aforementioned department, and I am conducting on a research themed: EVALUATING THE ENVIRONMENTAL IMPACT ASSESMENT OF THE CARGO ARIPORT PROJECT IN UMUERI AND NTEJE COMMUNITIES, ANAMBRA-STATE. This study tends to examine the probable impact that the cargo airport in Umueri and Nteje communities would have on the people of that area under construction. Therefore, the questionnaire which you are requested to complete is meant to gain more understanding of such impact. Please, you are expected to read carefully the information contained in each of the sections and respond frankly to them as they apply to you. This is purely an academic exercise and all responses made will be handled confidentially. Participation is strictly voluntary and no monetary reward would be given for participation.

For enquiries call: 07037228844

Section A

Kindly provide the following information about yourself: **Gender**: male [ ] female [ ] **Age**: [ ] **Marital status**: single [ ] married [ ] **Highest educational qualification**: First School Leaving Certificate [ ] WASSC or equivalent [ ] OND/NCE [ ] HND/Bachelor Degree [ ] Postgraduate Degree [ ] other? Specify [ ]
Occupation: civil service [ ] trader [ ] farmer [ ] student [ ]

Section B: Instruction: Below are several items with which you may agree or disagree. Please choose the alternative that best applies to you by putting a tick [√] mark on the appropriate option to the right of each item: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*.

To identify and examine the impacts of the project on the physical and biological environment, health, socio-cultural, as well as the socio-economic well-being of the communities in Anambra-valley.

Themes	**Stron Agree**	**Disagr**	**Neither agreed non disagree**	**Agreed**	**Strongly Agreed**
Physical (land)					
The land affected is communal land					
There is increase in loss of land that could otherwise be used for housing, community facilities and the likes					
Land meant for agricultural purposes is being lost					
Physical (water) Ponds/streams are being destroyed					
There has been rise in water pollution					
There are deity/deities attached to the water					
Biological (plants) Destruction of scenic hedge is now common					

Loss of roots and herbs for traditional medicine					
There are increase in falling of matures trees and groves					
Biological (animals) Animals moving towards or away from the sound coming from the on-going constructions are being exposed to predators					
Hunting activity is reduced					
There is habitat loss of animals					
Health (air) There is air pollution everywhere					
There is loss of medicinal plants that cures respiratory diseases					
Dust has increase					
Health (noise) Noise from the airport construction site is causing loss of concentration					
Noise from the airport construction site is causing sleep disturbance for people in the area.					
Prolonged exposure to the noise from the airport construction site is causing health problem for people in the area					
Socio-cultural Community coherence has reduced					
There are evidence of settlement in the project area					
Celebration of festivals has reduced					
There has been undue interference in the culture of the					

people due to the on-going construction					
Employees in the airport now work long hours which leaves them with no time to participate in community activities					
Religious visit to the affected streams has affected the cultural life of the people					
Socio-economic Building materials is now weathering faster					
Residential houses and business buildings are been collapsed for the project					
There are more work opportunities for the people around the construction area					
The standard of living in the area has increased					
Alternatives provisions were made for water and source for protein					
The cargo airport is a welcomed development for you					
Historical and archaeological impacts Historical stories of the project were not documented					
Deities and their houses were destroyed on the project site					
Abandoned houses and workshops were destroyed					
Historical festivals performed on the filled ponds has stopped					
Archaeological debris has been tampered due to the on-going project					
The vibrations from the equipment used in the construction of the airport is affecting the structure of heritage assets in Anambra-valley					
Visits to the ponds and its deities has reduced					
There are communal consequences for detaching the					

pond from its deity					
Rescue archaeology were not allowed on the project area					
Historical symbols were destroyed					
Community involvement The project imbed Environmental impact assessment before its commencement					
The owners of the land were contacted before the land was approved					
Soil from the area were collected for analysis by Ministry of Works					
The meeting with governor delegates over the land went successfully					
The community accepted to give out the land for the project					
Governor promised to compensate the community for the land					
These compensation have been paid					
The community were involved in choice of area for the project					
Representatives were selected to represent the community					
The cargo airport is a welcomed development for you					

RESULTS

Statistical results of the respondent's demography for quantitative survey were computed using SPSS and presented below;

Variables		**N**	**%**	**Mean**	**SD**
Gender	Male	52	52.0	.48	.50
	Female	48	48.0		
Age		30	30.0	36.58	15.99
		25	25.0		
		15	15.0		
		20	20.0		
		8	8.0		
		2	2.0		
Marital status	Single	34	34.0	.66	.48
	Married	66	66.0		
Education	FSLC	27	27.0	1.94	1.20
	WASSC or Equivalent	33	33.0		
	OND/NCE	16	16.0		
	HND/Bachelor Degree	12	12.0		
	Postgraduate Degree	1	1.0		
	Others	11	11.0		
Occupation	Civil Servants	20	20.0	2.59	1.08
	Traders	27	27.0		
	Farmers	27	27.0		
	Students	26	26.0		

Table: Table showing statistical reports of the demographic characteristics of the participants in the study

The demographic composition of the participants as shown in Table 1 is as follows: in terms of gender, they comprise of 52(52.0 percent) male and 48(48.0 percent) females. The largest group of the participants were between the ages of 15 to 25 (30.0 percent), followed by 26 to 36 (25.0 percent), 48 to 58 (20.0 percent), 37 to 47 (15.0 percent), 59 to 69 (8.0 percent), and lastly 70 to 80 (2.0 percent). Of these participants, 34(34.0 percent) were single while 66(66.0 percent) were married. Regarding their educational qualification, 27(27.0 percent) had First School Leaving

Certificate (FSLC), 33(33.0 percent) had West African Senior Secondary School Certificate (SSC) or equivalent, 16(16.0 percent) had Ordinary National Diploma (OND)/National Certificate of Education (NCE), 12(12.0 percent) had Highest National Diploma (HND)/Bachelor degree, 1(1 percent) Postgraduate degree and 11(11.0 percent) did not specify their educational qualification. Their occupation includes 20(20.0percent) civil servants, 27(27.0 percent) traders, 27(27 percent) farmers, and 26(26 percent) students.

Demographic Variables

Statistics

		Gender	Age	Marital status	Education	Occupation
N	Valid	100	100	100	100	100
	Missing	0	0	0	0	0
Mean		.4800	36.5800	.6600	1.9400	2.5900
Std. Deviation		.50212	15.98875	.47610	1.20454	1.08334
Minimum		.00	15.00	.00	.00	1.00
Maximum		1.00	75.00	1.00	5.00	4.00

Frequency Table

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	52	52.0	52.0	52.0
	female	48	48.0	48.0	100.0
	Total	100	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15.00	3	3.0	3.0	3.0
	16.00	4	4.0	4.0	7.0
	17.00	7	7.0	7.0	14.0
	18.00	7	7.0	7.0	21.0
	19.00	1	1.0	1.0	22.0
	20.00	1	1.0	1.0	23.0
	21.00	1	1.0	1.0	24.0
	22.00	1	1.0	1.0	25.0
	23.00	1	1.0	1.0	26.0
	24.00	1	1.0	1.0	27.0
	25.00	3	3.0	3.0	30.0
	26.00	4	4.0	4.0	34.0

	27.00	2	2.0	2.0	36.0
	28.00	3	3.0	3.0	39.0
	29.00	1	1.0	1.0	40.0
	30.00	3	3.0	3.0	43.0
	32.00	2	2.0	2.0	45.0
	34.00	3	3.0	3.0	48.0
	35.00	4	4.0	4.0	52.0
	36.00	3	3.0	3.0	55.0
	37.00	2	2.0	2.0	57.0
	38.00	2	2.0	2.0	59.0
	39.00	1	1.0	1.0	60.0
	40.00	1	1.0	1.0	61.0
	42.00	3	3.0	3.0	64.0
	44.00	2	2.0	2.0	66.0
	45.00	3	3.0	3.0	69.0
	46.00	1	1.0	1.0	70.0
	48.00	3	3.0	3.0	73.0
	49.00	2	2.0	2.0	75.0
	51.00	3	3.0	3.0	78.0
	52.00	2	2.0	2.0	80.0
	53.00	1	1.0	1.0	81.0
	54.00	4	4.0	4.0	85.0
	55.00	4	4.0	4.0	89.0
	57.00	1	1.0	1.0	90.0
	60.00	2	2.0	2.0	92.0
	63.00	3	3.0	3.0	95.0
	65.00	1	1.0	1.0	96.0
	67.00	1	1.0	1.0	97.0
	68.00	1	1.0	1.0	98.0
	72.00	1	1.0	1.0	99.0
	75.00	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	single	34	34.0	34.0	34.0
	married	66	66.0	66.0	100.0
	Total	100	100.0	100.0	

Education

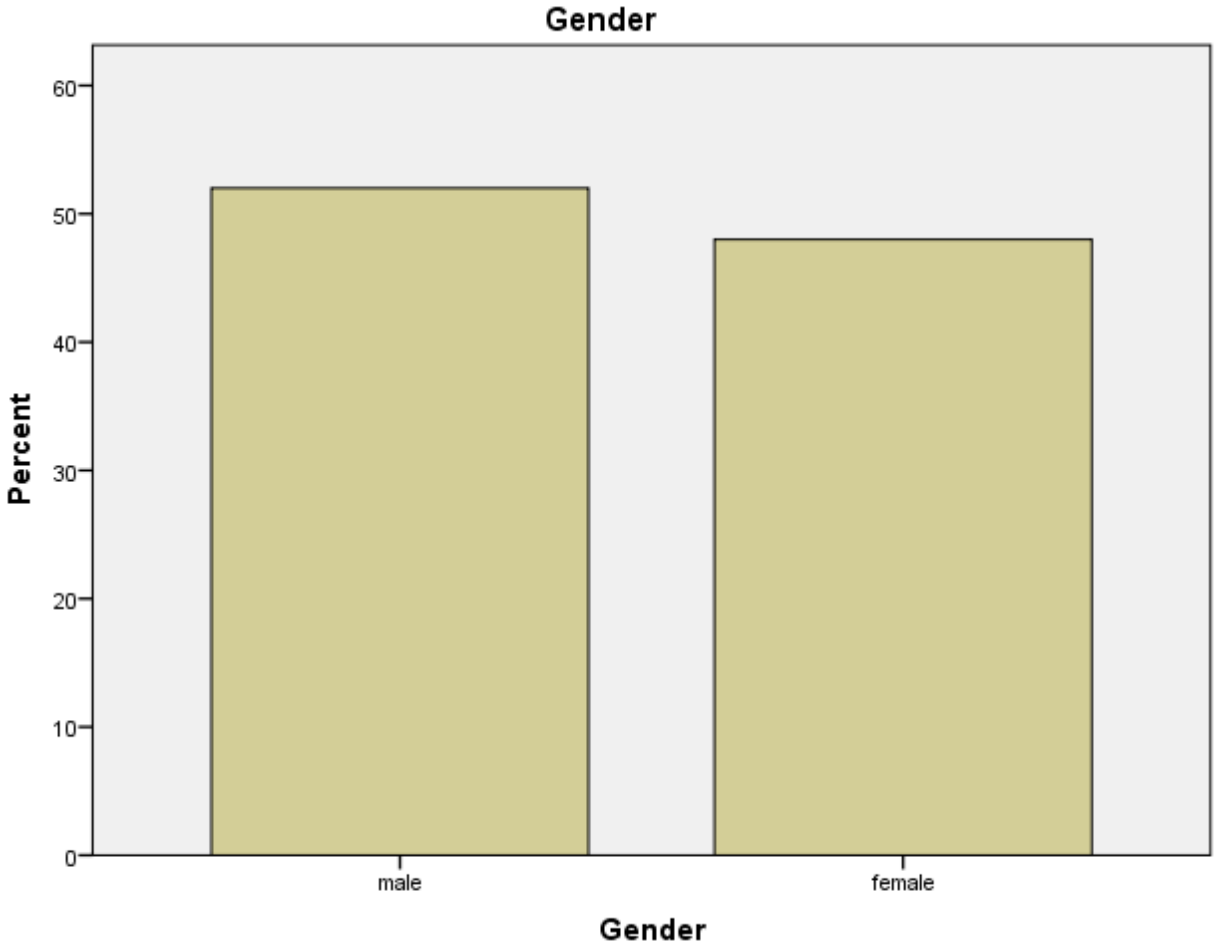
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	others	11	11.0	11.0	11.0
	FSLC	27	27.0	27.0	38.0
	WASSC or equivalent	33	33.0	33.0	71.0
	OND/NCE	16	16.0	16.0	87.0
	HND/Bachelor	12	12.0	12.0	99.0

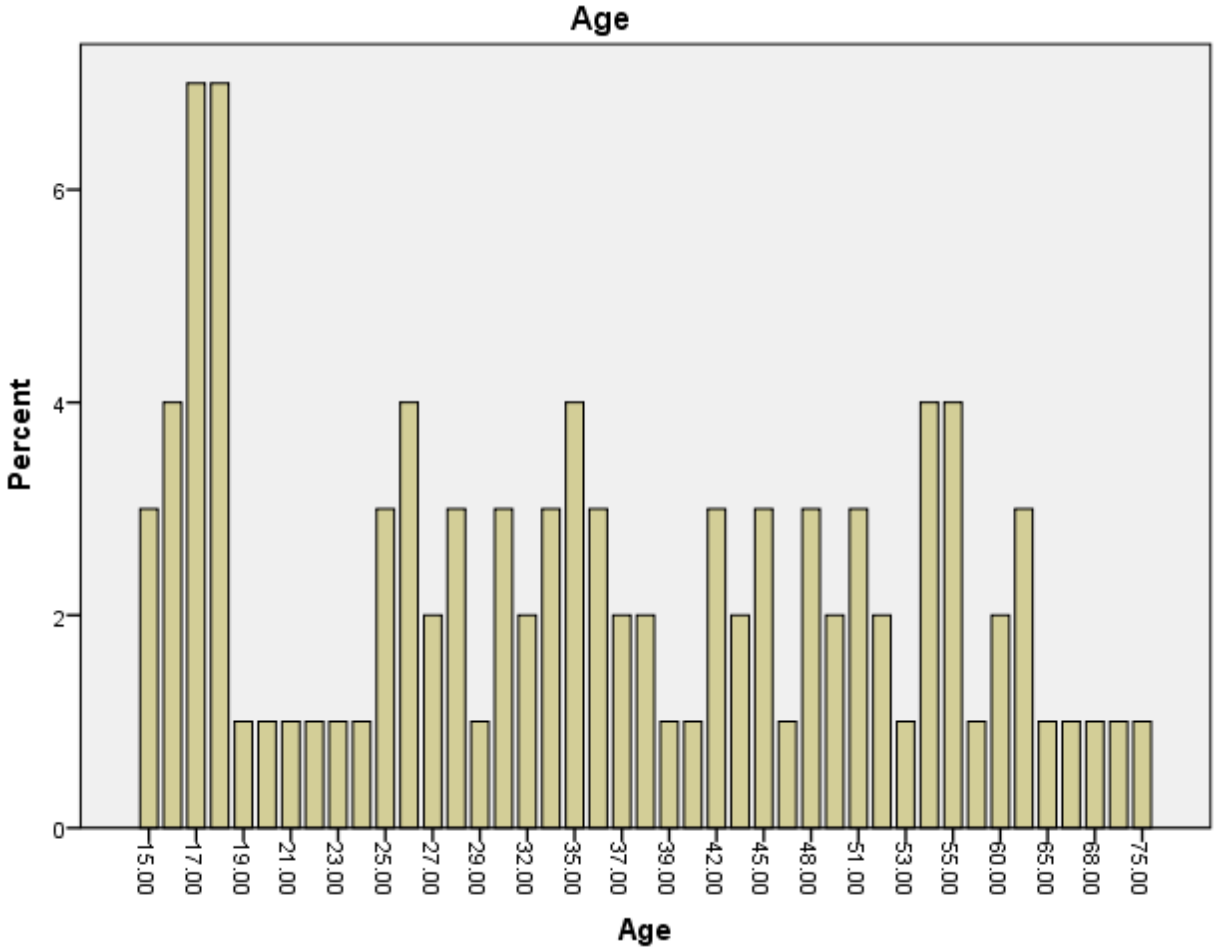
	Postgraduate degree	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	civil service	20	20.0	20.0	20.0
	trader	27	27.0	27.0	47.0
	farmer	27	27.0	27.0	74.0
	student	26	26.0	26.0	100.0
	Total	100	100.0	100.0	

Bar Chart




Age
Percent
0
2
4
6
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
32.00
35.00
37.00
39.00
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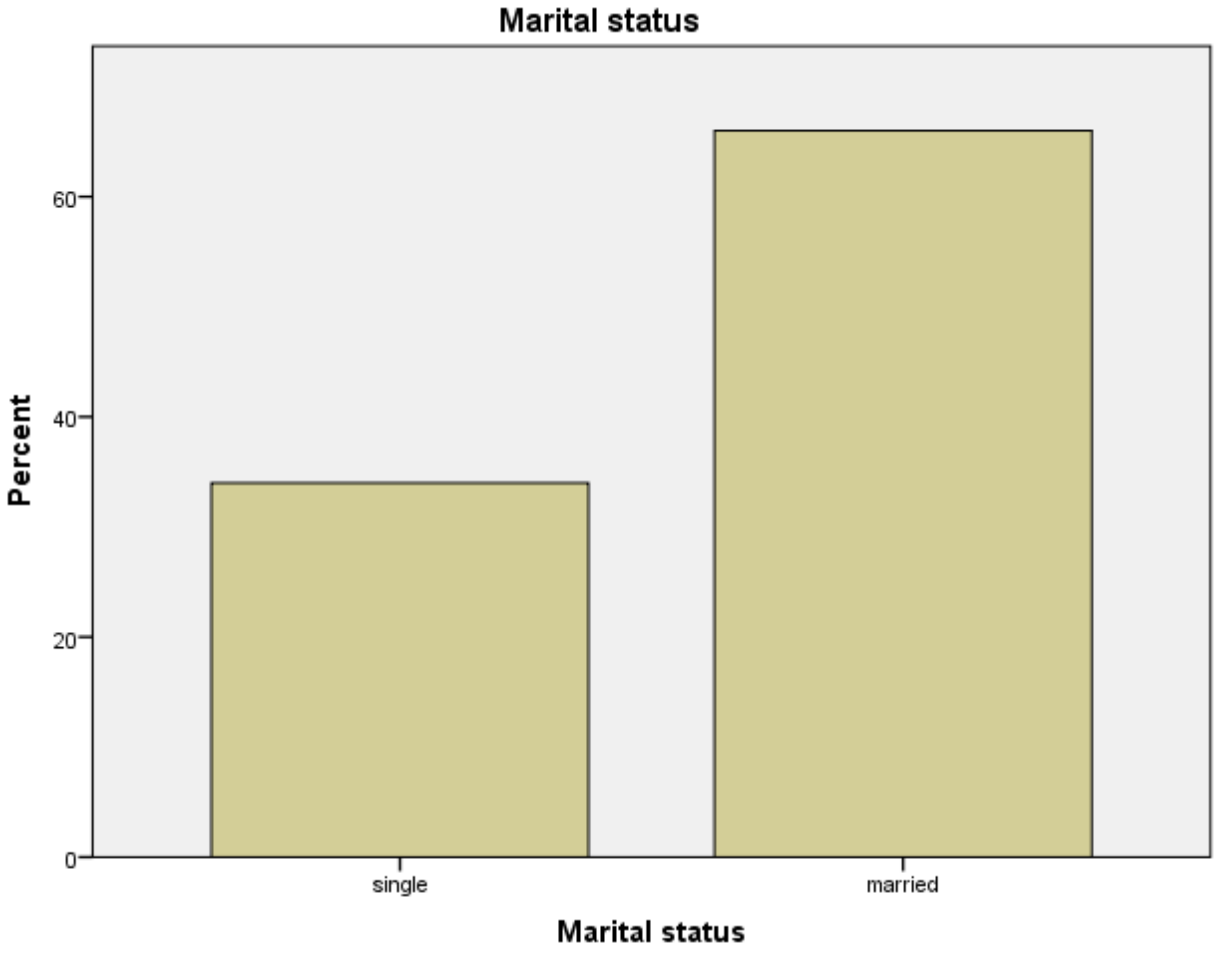
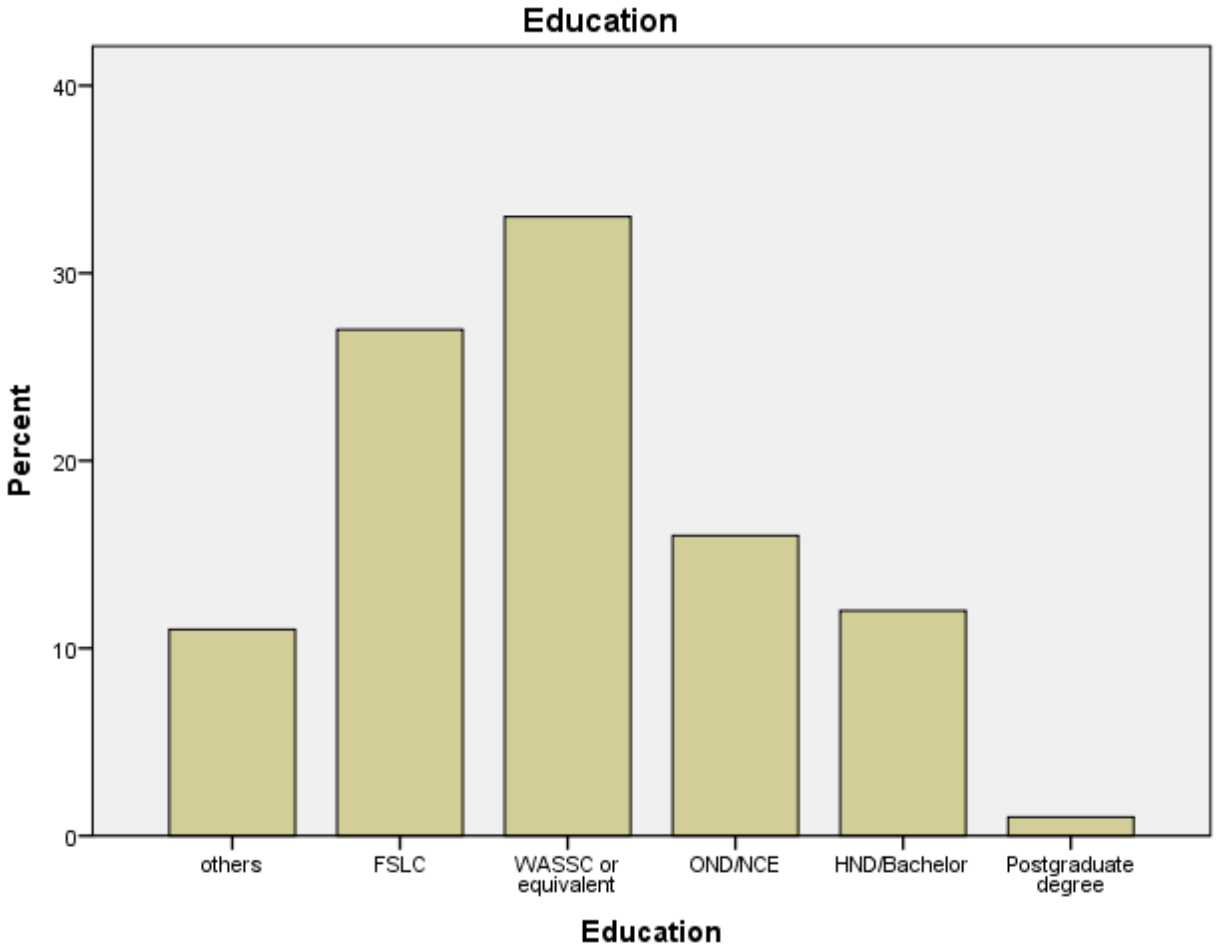
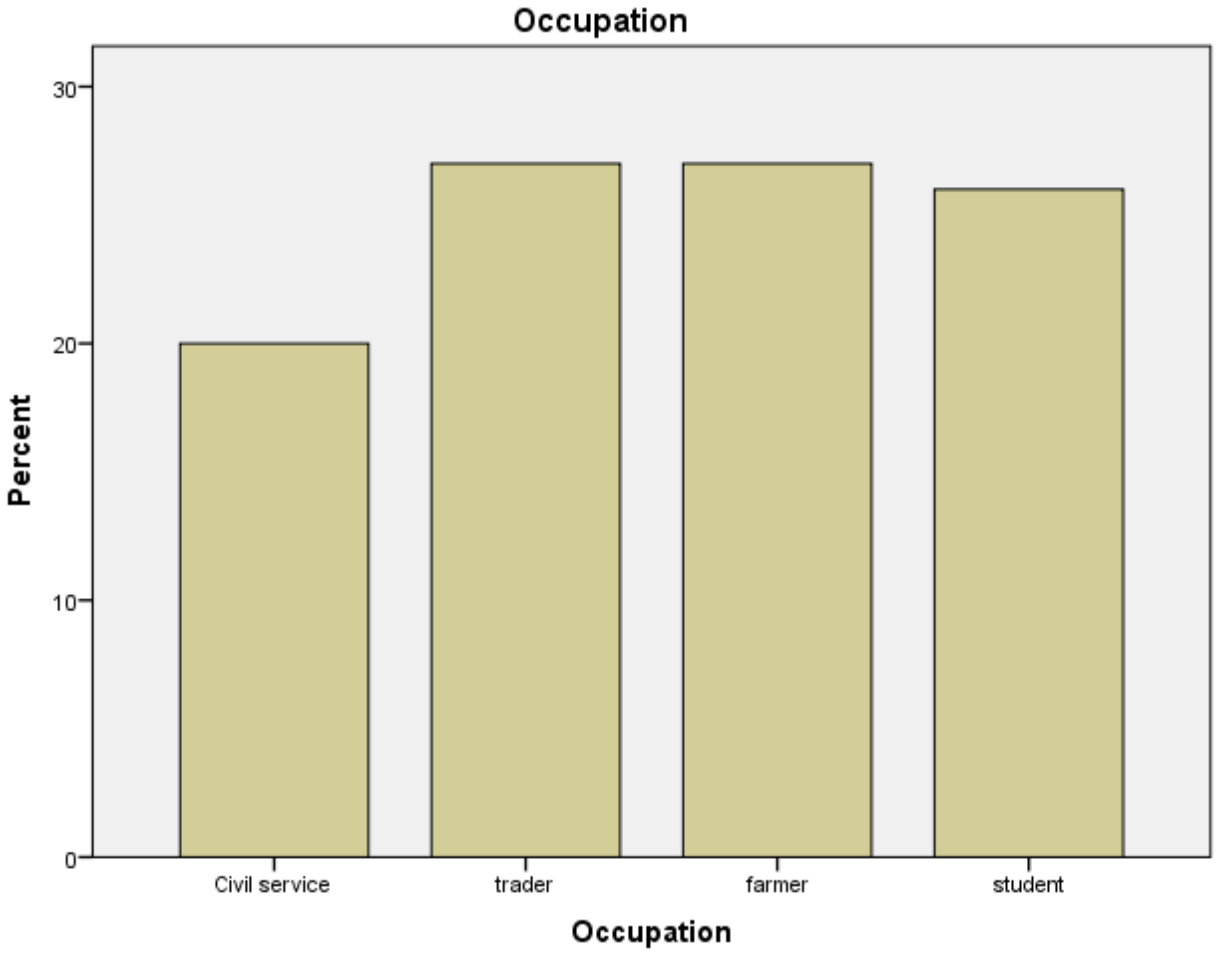
51.00
53.00
55.00
60.00
65.00
68.00
75.00
Age


Marital status
Percent
60
40
20
0
single
married
Marital status


Education
Percent
40
30
20
10
0
others
FSLC
WASSC or equivalent
OND/NCE
HND/Bachelor
Postgraduate degree
Education



Impacts

The impacts were calculated using SPSS method to obtain the mean, standard deviation and cumulative frequencies of data collected.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Physical (land)	100	5.00	14.00	9.8800	1.81063
Physical (water)	100	5.00	14.00	10.8200	1.88765
Valid N (listwise)	100				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Biological (plants)	100	7.00	14.00	10.6400	1.53426
Biologica (animals)	100	9.00	13.00	10.9700	1.08670

Valid N (listwise)	100				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Health (air)	100	9.00	13.00	10.5800	1.11174
Health (noise)	99	6.00	12.00	8.0808	1.77670
Valid N (listwise)	99				

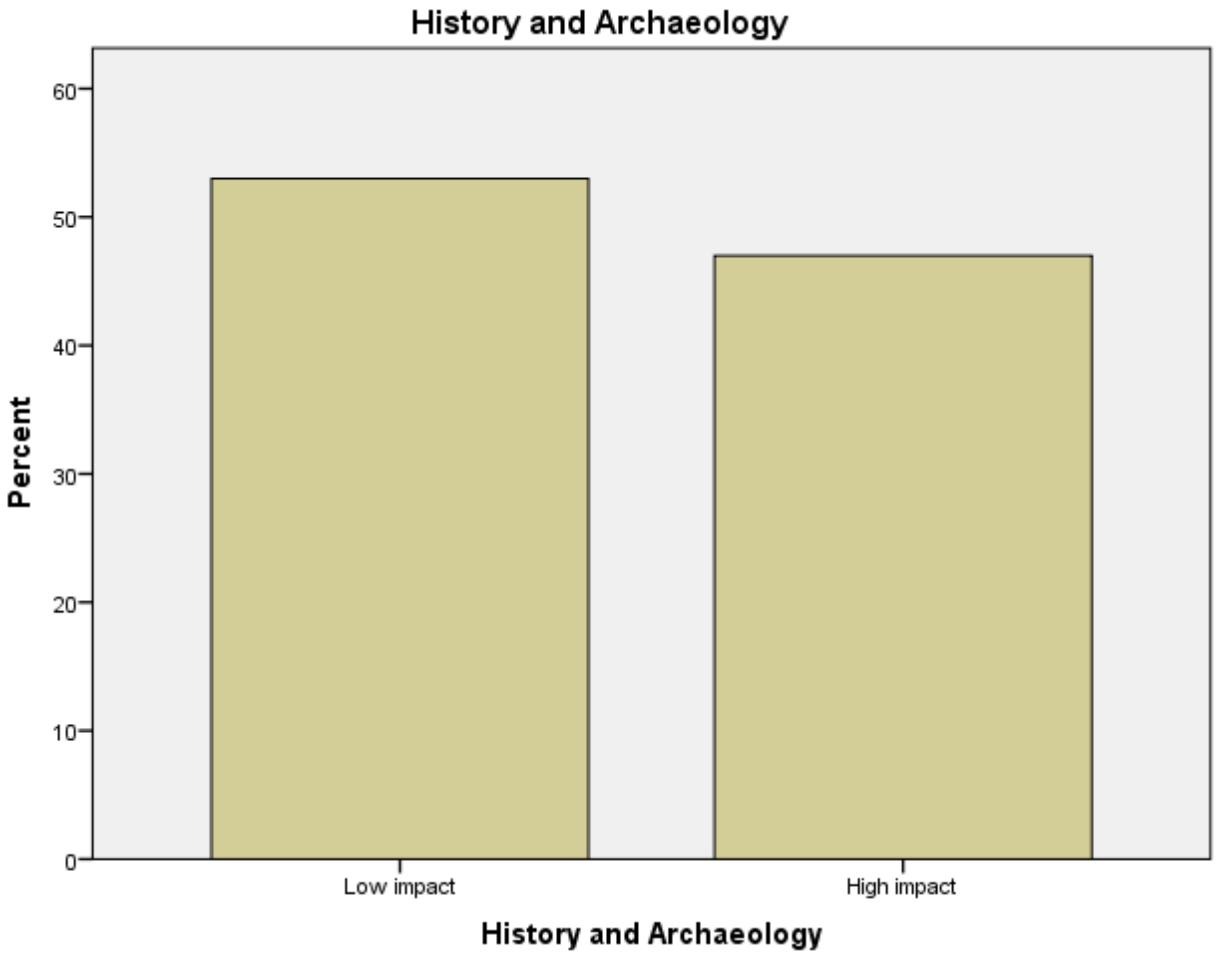
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Socio-cultural	100	19.00	24.00	21.7500	1.17529
Socio-economic	100	10.00	17.00	14.2000	1.57634
Valid N (listwise)	100				

N	Valid	100
	Missing	0
Mean		.4700
Std. Deviation		.50161
Minimum		.00
Maximum		1.00

History and Archaeology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low impact	53	53.0	53.0	53.0
	High impact	47	47.0	47.0	100.0
	Total	100	100.0	100.0	

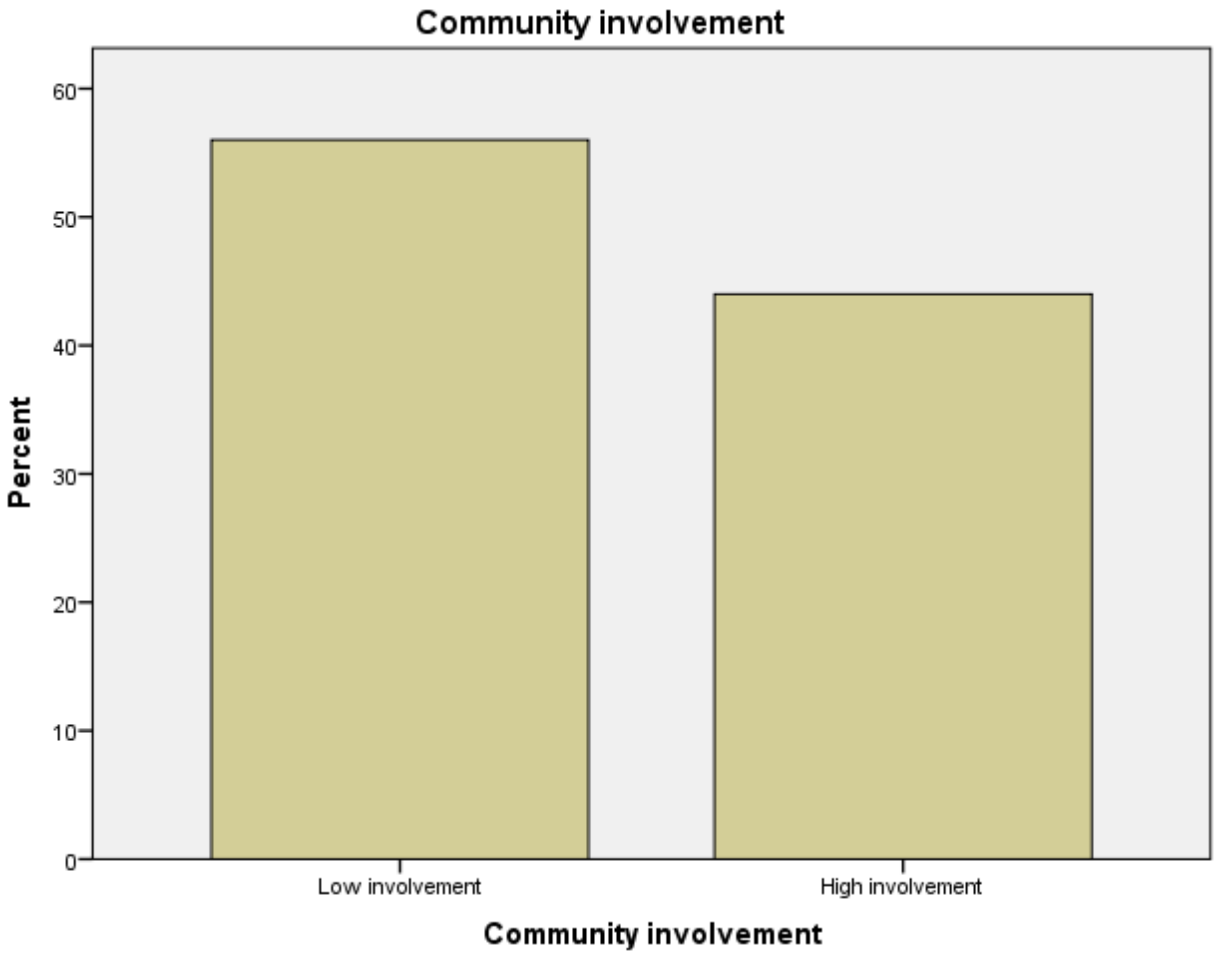


Statistics

N	Valid	100
	Missing	0
Mean		.4400
Std. Deviation		.49889
Minimum		.00
Maximum		1.00

Community involvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low involvement	56	56.0	56.0	56.0
	High involvement	44	44.0	44.0	100.0
	Total	100	100.0	100.0	


Community involvement
Percent
60
50
40
30
20
10
0
Low involvement
High involvement
Community involvement