



Environmental degradation and poverty among women in Niger delta: A study of Nembe local government area of Bayelsa State

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Article Info

ISSN (online): 2582-7138

Impact Factor: 5.307 (SJIF)

Volume: 04

Issue: 05

September-October 2023

Received: 20-08-2023;

Accepted: 08-09-2023

Page No: 390-409

Abstract

The study investigated environmental degradation and poverty among women of two communities in Nembe Local Government Area of Bayelsa State. This study adopted the cross-sectional survey research design. Primary data were collected with the use of structured questionnaire from 200 women from Nembe LGA. Data collected were analyzed using descriptive and inferential statistics and found that the mean age of the women respondents in Nembe LGA was 47 years, majority of about 78% are married and about 54.1% had secondary school education out of which about 82.4% are members of Community Development Committee (CDC). The result of the findings revealed 5 ways in which environmental degradation contributed to inadequate yield of farming activities such as deforestation and forest degradation, climate change, charcoal production and consumption, overgrazing, agricultural depletion of soil nutrient through poor farming activities. Based on the findings, the study among others recommended that government and critical stakeholders should be deeply involved in curbing environmental degradation and vandalism of oil structure for safe water for drinking and other purposes and that women farmers in degraded soil and polluted water bodies should be supported with subsidies of credits to cushion the effects of environmental threats in their farming activities.

Keywords: Environmental, women, Nembe, government

Introduction

Environmental degradation and poverty are both natural and man-made problems and can be grouped into physical, sociological and managerial. According to (Koleosho and Adeyinka, 2006) ^[34], environmental degradation renders the environment toxic and unsustainable over time. Environmental degradation is one of the ten threats officially cautioned by the High-level Panel on Threats, Challenges and Change. United Nations International Strategy for Disaster Reduction (2010) defines environmental degradation as “the reduction of the capacity of the environment to satisfy social and ecological objectives, and needs”.

The Niger Delta area of Nigeria is mostly afflicted by environmental degradation due to oil and gas exploration activities on the environment. This region is experiencing soil degradation and river pollution which have made agricultural produce very low for the women as this is their dominant occupation and source of sustenance. As a result the activities of women do not commensurate with their income.

Environmental degradation by natural forces is characterized by soil exhaustion, salinization, and desertification which occur on land. Two major issues effecting the water sector that play an essential role in poverty and environmental degradation nexus are water shortages, water pollution and contamination. All these man-made activities contributed to environmental degradation in Nembe Local Government Area. The principal victims of environmental degradation are the mostly under-privilege people, and the majority of these, are women (Senghor, 1985).

Environmental degradation is caused by numerous factors with devastating effect on the environment. It has its greatest impact on the rural population because the deterioration of the environment deprives them of their livelihood.

The farming and fishing trades decline and lead to aggravated economic hardships, deteriorating social conditions and abject poverty. The income of women in agricultural activities in Nembe Local Government Area is affected as a result of pollution of fresh water sources which contains all types of germs, virus, heavy metals, bacteria and dust particles (Galadima, 2011) ^[27]. This is exacerbated by oil spillage as a result of poorly maintained and monitored pipelines and sabotage (Ekubo and Abowei, 2001).

The combined issue of environmental degradation and poverty was promptly addressed in the report presented by the World Commission on Environment and Development 1987 which was termed "Our Common Future". In this report, the commission clearly stated that poverty is the bane of environmental degradation in most countries of the third world, particularly in the rural areas. Since this declaration, there have been growing scholarships on the field of environmental degradation and poverty, which aimed at discovering the possible linkage between poverty and environmental degradation. Some factors highlighted were low income destitution, low-level resource conservation and management, and high population density.

Poverty is the condition of being exceedingly poor, a lack of something or when the quality of something is extremely low. It is the deprivation of the fundamental human needs required for human survival. The basic needs include food, clothing, shelter, education, adequate health facilities and information (Omanawa, 2008). In Nembe Local Government Area of Bayelsa state, majority of women are in the agricultural and informal sectors of the economy; they constitute about 60 per cent of Nembe farm labour and produce over 90percent of the domestic food supply (Aina, 2001; Dankelman and Davidson, 1997) ^[4].

The Niger Delta Region as oil producing states of Nigeria, has natural endowment with its exploration and exploitation of oil and gas is anticipated to be an abundant blessing to the entire Nembe local government area of Bayelsa state. Unfortunately and regrettably too, oil has turned out to be a curse to the Niger-Delta Region of Nigeria since 1956 when it was first discovered in Oloibiri community. Today, the inhabitants are left with nothing but damaged farmlands and polluted rivers with no electricity, portable drinking water and other basic social amenities like the Nembe local government area of Bayelsa state claim to still live in primitive conditions side by side with the high tech and modern facilities of the multinational operation that they play host to. No tangible benefits, instead it ushered in high degradation of the environment with concomitant destitution to the region and area, Abidde, (2022) ^[1]. In this consideration, the study examined the effects and relationship between environmental degradation and destitution among women in Niger Delta with specific focus on Nembe local Government Area of Bayelsa State.

Statement of Problem

The Women in Nembe local government area are committed and preoccupied with farming activities as their main source of income. Despite their commitment, oil and gas production has caused agricultural and fishing outputs to be on the decline, due to widespread pollution. Most families hardly feed three square meal per day, and a number of children are school drop out (mostly the girl child) due to failure in the payment of their school fees. There are lot of health challenges that are acute and begging for solution, as

inhabitants of the region are confronted with severe environmental challenges due to gas flaring and oil spillage that lead to destruction of farmland, aquatic lives, air pollution, water pollution and the ecosystem. These activities therefore caused low yield of farm produce and wildspread of poverty among women of Nembe Local Government area, including activities that are inimical to the existence and survival of the of the region.

Previous researchers on the effect of environmental degradation and poverty like Idowu, *et al* (2017) ^[30], Chioma and Felix (2017) ^[18], Joseph, *et al* (2013) ^[32], have revealed that environmental degradation result to depletion of resources such as air, water and soil as well as the destruction of ecosystems; habitat and wildlife extinction pollution has also negatively affected the population. Researches have been undertaken in other regions of the world, which are Momtaz, (2008) ^[40], Mira (2002) Zebebe (2015), little or no research of such has been done in Nembe Local Government Area of Bayelsa State.

As a departure from the extant studies this study considered the danger of environmental degradation and poverty to the wellbeing of the women and their economy, it has become imperative that a study of this nature be conducted so as to determine the consequences and proffer remedies to problems identified. Therefore, this study want to generally investigate the impact and to determine how environmental degradation has impoverished Nembe Women, in spite of their significant commitment in farming and fishing. Based on the foregoing, the following queries were raised to guide this study;

1. To what extent does gas flaring influence Nembe women and their farming activities?
2. To what extent does oil spillage contribute to destitution among women in Nembe?

Objectives of the Study

The general objective of the study was to determine the effect of environmental degradation on women poverty in Nembe Local Government Area of Bayelsa State. The specific objectives were as follows:

1. To determine the extent to which gas flaring effect Nembe women and their farming activities.
2. To ascertain the extent to which oil spillage effect has contributed to destitution among Nembe women.

Hypotheses

This investigation will be guided by the following hypotheses:

1. Gas flaring has no significant influence on Nembe women farming activities.
2. Oil discharge has no significant effect on poverty among Nembe women.

Significance of the Study

The significance of this investigation is as follows: Theoretically, the findings and recommendations of this research will help to fill the gap on existing literatures and theories on how to solve the problems associated with environmental degradation and women poverty. This study will also add to the body of knowledge and serve as useful references for students, researchers in the academia.

The practical application of this study lies in the fact that the result of this study will be beneficial to environmentalist, government, industries, corporate organizations, NGO's etc

in addressing the resultant problems associated with environmental degradation.

Scope of the Study

The scope is on environmental degradation and destitution among women in Niger Delta with Nembe Local Government Area of Bayelsa State as a case study. It encompasses the period of 1999-2018. Specifically, the study concentrates on how gas flaring and oil spillage has caused degradation and pollution of the environment which has affected the women agricultural activities. It will also assess the impoverishment as result of lack of basic amenities that can enhance the life of Nembe women.

Limitation of the Study

The out comes were based on the information solicited from the internets, materials of other scholars and respondents, therefore the findings are subjected to human errors, omissions and potential mis-statement. Also on the aspect of finance, the researcher went through rigorous ordeals to finance this research project, ranging from the gathering of resource materials, internet bundle subscription fees, cost of text books, library fees, transportations and the purchase of writing materials including printing gadgets which were Herculean to the researcher, owing to the present economy of Nigeria.

However, in spite of the above, the researcher did ensure that the research fulfills all the relevant requirements for a scientific research and thereby reducing errors to be barest minimum if not to eradicate it completely.

Literature Review

This chapter is concerned with the review of other literature related to the topic under study with the aim of identifying possible gaps in existing body of knowledge so as to determine the appropriate point of entry for present effort, as used to explain the theories used or adopted to analyse the subject under study with the following subheadings.

Environment

The Federal Environmental Protection Agency Act, Section 38 defines environment as including water, air, land and all plants and human beings or animals residing therein and the inter-relationships that exist between and among them. According to Mabogunje, (2002) ^[36], the Nigerian environment is known for substandard and inadequate housing, squalor and lack of infrastructure, transportation problems, low productivity, crime and juvenile delinquency. Degradation of the environment has been mostly attributed to non-natural or man-made incidents such as climate change, invasion of alien species, over-harvesting, deforestation, charcoal production and consumption, pollution, hazardous and untreated wastes, and land cover change. The continual depletion of the environment by these activities reduces the natural potential of the environment resulting to increased destitution. In 1975, at the Mexico City First World Conference on Women, Vandana Shiva, the Indian scholar and environmental activist, introduced the issue of women's relationship to the environment. At the time, concern was raised about the depletion of forestry resources and women's role in agriculture, and a connection was made between the influence environmental developments had on women. Over the past several decades, demand for resources and industrial

processes have been responsible for increasing levels of pollution and for the degradation of air, water, and land. In addition to unrestricted exploitation of natural resources, unsound agricultural practices have had detrimental effects on the environment. Because women play a significant role in managing and conserving natural resources, there is worldwide agreement on the need to improve their status and utilize their full potential (Adeyemo,1991) ^[3].

Environmental Degradation

The United Nations International Strategy for Disaster Reduction (2010) defines environmental degradation as "the reduction of the capacity of the environment to meet social and ecological objectives, and needs". Environmental Degradation is the deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems, habitat destruction: the extinction of wildlife and pollution is a process through which the natural environment is compromised in some way, reducing biological diversity and the general health of the environment, this process can be entirely natural in origin, or it can be accelerated or caused by human activities. Environmental degradation can thus be characterized as the process of reducing the quality of the environment. Environmental degradation in most rural areas in Nigeria has increased over the years and both human activities and natural disasters have contributed to this problem (Titola 1998; Girigiri 2000) ^[28]. During the last decades, one of the greatest challenges confronting countries has been the effects or consequences of global environmental degradation (desertification, solid and hazardous waste, water scarcity, soil degradation, pollution, deforestation, biodiversity and climate change). Prominent environmental degradation found in most rural communities include - deforestation, loss of biodiversity, loss of soil fertility, drainage of the soil, land degradation, land and water pollution, desertification, flood, drought, and erosion. Environmental Degradation is related to the deterioration of the environment both in terms of quantity and extinction of some fauna species and quality like air, water or land pollution. Environmental degradation lowers the labour productivity level of the poor by diverting their abilities into ventures that inevitably places more strain on the environment. Environmental degradation is of many varieties. When natural habitats are devastated or natural resources are depleted, the environment is degraded.

In Nigeria, the Niger-delta communities are mostly cited as examples of environmentally degraded rural areas like the study area Nembe Local Government Area. A recent World Bank research has identified the vulnerability of people on fragile lands (i.e. lands that steeply-slopped, arid or covered by natural forest) as a significant basis of rural poverty and natural resources degradation in developing countries (World Bank, 2003). Land degradation is defined as loss of fertility or potential utility or the reduction, loss or change of features or organisms, which cannot be replaced. Approximately 1.4 billion people live on fragile lands that are steeply-slopped, arid or forested and many of these people are mostly women and there is consensus among researchers and policy-makers that the people on fragile lands bear a high risk of natural resources degradation and they are impoverished (Awan, 2013). Efforts to counteract this problem include environmental protection and environmental resources management.

Poverty

Poverty is inseparably linked to lack of access over resources including land, skills, knowledge, capital and social connections United Nations, (2013). The average human being have always interacted with natural environment for its subsistence by way of extraction, agriculture, processing and consumption of natural resources to prosper and meet his economic needs (Ahmad, 2012). Poverty has increased dramatically in the over the years and is often associated with environmental degradation the rural population are often marginalized and the backward economic condition in the rural area of Nembe have caused underdevelopment such as lack of portable water, health care system, quality education system and poor rural infrastructure. Most critically, poverty could be said to be "Urban Bias" (Girigiri, 2000) ^[28]. The vulnerability of women to poverty results from their lack of education and effective participation in decision making affecting them in communities. They are often relegated to the background and endure a second-class status as traditional societies create and sustain inequality in the distribution of resources such as land. In typical traditional settings in Nigeria, women are prohibited from possessing land. The estimation that nearly half of the world's impoverished live in environments that are highly degraded which has led many observers to advocate that there is a causal link between poverty and environmental degradation (OECD, 2001). (Ahmad, 2012) cited in (Sharma, 2004, as arguing that the realization of relationship between man and environment is the dictum that environmental degradation leads to poverty. Poverty is cited as a major factor behind land degradation in many developing countries. This is because the rural poor people in many developing countries depend heavily on their natural resources and lack access to alternative sources of income. Moreover poor households are usually marginalized to less fertile and steeper slopes, which are prone to high risks of soil erosion and could not be cultivated sustainably without the use of appropriate conservation measure. However, these farmers do not have the resources to undertake investments that enhance long-term productivity of their land (Barbier and Bishop, 1995). Poor households are also considered to have short time horizon due to lack of ability to forgo present consumption to maintain the quality of their land and ensure future consumption (Prakash 1997) ^[59]. Poverty is also believed to affect natural resources notably land through the indirect effects on levels of education, population growth, and off-farm employment (Dasgupta, 1992). Poor households, for example, usually have higher family sizes because they live at a subsistence level and may regard children as an investment for their old age. They also have little or no access to education and, therefore, no access to information about birth control methods. Poverty, therefore, accelerates population growth among the rural impoverished people thereby the pressure on land (Mink, 1998) ^[38]. As accurately observed by (Fabra, 2002) ^[25] poverty and environmental degradation are often bound together in a mutually reinforcing vicious cycle, and thus human rights abuses related to poverty can be both cause and effects of environmental problems. It is defined as any change or disturbance to the environment perceived to be deleterious or undesirable (Ahmad, 2012). Women, especially those who are pregnant and/or residing in rural or marginal suburban areas in developing countries, are particularly susceptible to

environmental threats. Until recently, women had few choices regarding their lifestyle and fewer opportunities to change unsatisfactory domestic or work conditions and enhance their families' and their own health. Women are susceptible to health problems and hazards because of their responsibilities as home-managers, economic providers, and their role in reproduction. Being raised in poverty locations, women are at a higher risk for a wide range of problems. Research indicates that impoverished women are disproportionately exposed to factors that may impair and affect cognitive, social, and emotional functioning (Hair, Hanson, Wolfe, & Pollak, 2015) ^[29].

The women and development unit of the Economic Commission for Latin America and Caribbean (ECLAC) and the International Labour Organization (ILO), jointly convened an expert meeting on Poverty and Gender which was held in Santiago Chile, defined poverty by taking its various dimensions into consideration. Firstly, poverty indicates that it is a situational syndrome in which the associated factors include under consumption, malnutrition, precarious living conditions, low educational levels, poor hygienic conditions, feelings of discouragement and anomaly, etc. In addition to its approach also explained poverty as lack of economic resources, or what society perceive to be basic living conditions. ECLAC has reasserted the importance of perspectives such as social exclusion and capacities comprehension of poverty as a phenomenon with multiple dimensions and causes. From this point of view, it has been proposed that poverty should be defined as "the result of social and economic process with cultural and political components in which individuals and households become deprived of essential assets and opportunities as consequence of different individuals and collective reasons and processes, thus making it multidimensional in nature". So, apart from material deprivation, poverty incorporates subjective dimensions that go beyond material subsistence (ECLAC 2003).

The impact of poverty on environmental resources such as (Dasgupta and Maler, 1994), (Scherr, 1999) ^[64] and (Thrupp, 1998), observed that many local level environmental degradation are caused by low participation of the rural population in the process of protecting and managing their environmental resources which they depend on for livelihood. The same studies observed that in most rural areas, farmers tend to disregard natural conservative methods in their agricultural practices, thus inflicting more damages on already depleted environmental resources due to natural causes.

The Niger Delta Region is the area encompassed by the natural delta of the Niger River and the areas to the east and west. The broader Niger Delta Region consists of nine states (Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers), and 185 local governments. The estimated population is approximately 30 million people. Difficult topography encourages people to congregate in small communities. Of the estimated 13,329 settlements in the Niger Delta, approximately 94 percent have populations of less than 5000 individuals. The main effect on the environment in the Niger Delta however, is the oil production. Several of the different groups exist in conditions described as an environmental nightmare (Watts, 2005) ^[75]. The soil has lost its fertility and the water its fecundity, destroying the premise for farming and fishing (Bassey, 2001). The Niger - Delta paradoxically provides the global

economy with oil and gas while its people live in deprivation and starvation because massive oil spills and gas flaring have severely degraded the environment (Obi, 2010) ^[46]. The primary signs of environmental degradation in the region are soil erosion, deforestation and overgrazing; leading to irregularity of water flows, loss of biodiversity, and declines in fallow periods. The resulting declines in crop yields and stocking capacities endanger the livelihoods of the often already impoverished local farmer households and cause losses to the rural economies of the women specifically in Nembe.

Effects of Gas Flaring on Women Farming Activities

Women have been making prominent and significant contributions to agriculture right from creation and they actually constitute the bulk of the world's food producers. In the pre-colonial days, women in Africa cultivated food crops while males hunted and fought wars. Women are responsible for farm labor and related domestic food production. A recent statistic on rural farming population in Nigeria indicate that women farmers are more in population than the men IFAD (2010). Having limited access to rural resources necessary for their subsistence like land, pushes them further into poverty. An increasing number of women are taking over and expanding their involvement in agricultural duties but this has not changed the gender division of labor with regard to reproductive work. Ester Boserup looked into the farming systems of men and women in Africa and found that many African tribes, nearly all the duties connected with food production continue to be left to women. (Shultz, 2001) found that 90% of women in developing world, where most of the planet's biological wealth is located depending on their land for survival. Women constituted an essential live wire of peasant farming distributed all over Nigeria. Women in Nembe Local Government Area engage in various farming activities such as planting, pruning, hoeing, harvesting, threshing and winnowing of agricultural products as well as the processing, storage and marketing of these farm produce. Many of these women farmers in the country are also directly engaged in the production of some important crops like yams, maize, cassava, groundnut, among others. Similarly a good number of women in rural areas undertake many responsibilities concerning care and management of farm animals like poultry, goats and sheep (Loagun, 1998), (Norman 1993) ^[44] argues that the poor feel compelled to do what they often recognize is harmful to their own long-term interest yet they feel they have no alternative by virtue of their absolute poverty. Thus the impoverished through farming activities are often the principal cause of deforestation, desertification, and soil erosion with its resultant problems as watershed degradation, disruption of hydrological systems and mass extinction of species. The poor have no capital to employ in agricultural adaptations to make their farming less destructive environmentally so their own activities perpetuating more poverty. Poor households are at risk of falling below the subsistence levels of consumption so they consider available natural resources as an asset to be drawn down in times of emergency. On the other hand degraded environment encourages impoverishment, because the poor, who depend on the environmental resources for survival, will be pushed into more poverty when these resources become depleted. They often destroy their immediate environment for survival by cutting down forests and trees, allowing their livestock to overgraze in marginal lands; using harmful

chemicals in their agricultural practices such as in harvesting fishes and cultivation; and farming in marginal lands. (Vivian, 1994) observed that the reason for this problem is the influence of destitution and high population density, which encourage rural people to over exploit their environmental resources for food, shelter and income generation. Moreover, challenges of poverty tend to facilitate deterrence from effective conservation of environmental resources such as land, sea water and trees; which form significant supplies for food and agriculture for the rural population. In many areas, an increasing paucity of biomass energy adds to the burden of women, who are generally responsible for collection of woody biomass (OECD, 2004) ^[47]. Inadequate access to land is another significant contribution to poverty and is further compounded by high population growth rates. The exceedingly poor struggling at the margin of subsistence levels of consumption are preoccupied with survival strategies on a day-to-day basis. The inability of the impoverished to plan ahead often reduces their income and forces them to the vicious circle phenomenon. The circle occurs where farmers, pushed by population increase and destitution extend cropping onto fragile marginal lands and degrade them. The high population in an area leads to uncontrolled clearance of trees and bushes and cultivation on fragile hillsides, overgrazing of hilltops, wild fires, drainage of wetlands and continuous cultivation of the small parcels of land are the main causes of land degradation. In rural settlement this occupational activities is mostly conducted by the women. Also, lack of decent alternative livelihood and poor income generation compel rural agriculturalists to damn consequences and engage in harmful agricultural practices which deplete these resources. In typical agro-based rural societies where agriculture is the major source of livelihood, poverty could increase the depletion of environmental resources because these rural agriculturalists cannot afford to practice efficient resource conservation methods in their agricultural activities due to low income generation. Most developing countries are particularly vulnerable to and consequently threatened by climatic variability because their economies are closely connected to agriculture (Mendelsohn, Dinar & Williams 2006); World Bank 2002). Moreover, by reducing agricultural production, climatic variability has direct and indirect negative influence on agriculture incomes. This effects is particularly high in African countries, where of Nigeria agricultural production is the principal source of livelihoods for 66 % of the total active population, International Labor Organization (2007). The unsustainable agricultural practices found in most rural areas in the developing countries at most illustrate a clearer picture of the relationship between environmental degradation and poverty. For instance, in Nigeria, the pastoral population of Nembe Local Government Area depends on agriculture for sustenance and income generation. A report from IFAD (2010) noted that about 90% of the rural residents depend on agriculture for their livelihood. Major agricultural activities in these areas include: cultivation (planting and keeping of husbandries), hunting, nomadic cattle rearing, fishing and wine tapping all dependent on the built environment. In the rural areas, environment forms the main supply for food, raw materials, livelihood, and income generation. It is also noted that the rural areas inhabit majority of the impoverished and marginalized in the country.

Effects of Oil Spillage on Women in Nembe

The people of the Niger Delta region have been known to be very vocal and agitated over their purported natural resource devastation in the face of chronic poverty, weak infrastructure and the poor state of social services. This is as a result of the activities of oil and gas exploration which have destroyed the livelihood sources amidst other health and social implications on the rivers which has affected the fishing activities of the women in the host communities and socio-cultural lifestyle are the disturbing scale of environmental degradation and its social implications on rural people whose major source of income are connected to the river. The prevailing environmental situation in Nembe Local Government area in Bayelsa State, many of these fishery communities face numerous problems, such as inadequacy of fish catches, spoilage, loss of income. The women divide their time between household chores and income-generating activities, sometimes spending between both functions of fish marketing and the marketing of other products that are lucrative is also revealed that women, children and other relatives participate in the daily household chores fish marketing and the marketing of other products is the most lucrative activity in the communities. Also, activities in kind, though these do not directly attract income, are indirect income-generating activities for these women. For most of them, particularly the fulltime house-wives, activities in kind are the only income-generating activities fisher folk are aware of their dwindling fortunes due to inadequate capital to expand their businesses, low volume of catches and loss of income due to spoilage. Multinational corporations' exteriorization of its hydrocarbon exploration, production and distribution transfers the hazards from its activities to host communities.

Environmental Degradation and women Poverty

Environmental degradation and its effects on the life of women has become an overarching issue mostly in developing economies like Nigeria. In 2010, more than 1 in 5 women (22 percent) lived in families with incomes below the poverty line, the highest level since 1993; by 2015, this had fallen to 20 percent (Proctor, Semega, & Kollar, 2016)^[60]. Women particularly those living in the rural areas of third world countries, play a significant role in managing natural resources. In addition, their tasks in agriculture and animal husbandry as well as in the domestic make them the daily managers of the living environment (Dankelman and Davidson, 1997). The inability of most families in engaging in agriculture and other related activities due to degradation results in a reduced income for most families and consequently among women. According to (Kaye, 1997:14)

When men leave their villages for better-paid jobs in cities or abroad, women get saddled with the farm work as well as their domestic duties. When bloated state enterprises "rationalize" their workforces, women get laid off before male "heads of household" when sweatshops seek underpaid impermanent labour, women are the first to be recruited.

The inability of impoverished households to compensate for this diversion of labour from agriculture results in a further reduction in the income of women as they are increasingly recognized as caretakers of the environment. Women are

particularly reliant on the environment to satisfy their basic needs and play an essential role as managers (i.e. use and control) of natural resources, (Sahai, 2004)^[62]. Women are responsible for reproduction and production in the household and for water and energy requirements, placing them in direct contact with the natural environment on a daily basis. Women therefore rely more heavily on natural resources than males as they have fewer alternative sources of livelihood. They rely on the resources available to them locally as they tend to grow crops and maintain animals for consumption and rarely engage in cash cropping or market orientated production as they are too occupied meeting household activities. This prompted (Wangari, 2004: 3)

To stated that; Throughout Africa, women are the primary caretakers, bearing significant responsibility for tilling the land and feeding their families. As a result, they are often the first to become aware of environmental devastation as resources become scarce and incapable of sustaining their families".

In impoverished communities wood or dung is collected as fuel by women and burned for cooking, warming water and as a source of heat, so women are frequently blamed for deforestation due to their fuel wood collecting activities. Access to resources is a critical factor affecting poverty reduction and income generation. Women tend to have very insecure access to natural resources despite their reliance on them for their livelihoods. Redistribution of land by government, resettlement and the transfer of traditionally held lands to commercial enterprises can leave women landless or reliant on more marginal lands. Tenure security encourages farmers to invest in their land through soil conservation, fertilization and irrigation and it can enable them to access credit using the land as collateral. However, women traditionally do not have access to technical inputs and advise that increase productivity and some actors may erroneously not perceive them to be 'farmers' or to be economically active. The World Bank estimates that if women in sub-Saharan Africa had equal access to agricultural inputs, the total agricultural output for the region could increase by up to 20 percent (World Bank, 2013). Poor men and women are extremely dependent on Common Property Resources (CPRs) such as forests, pastureland, fishing grounds and wetlands for their livelihoods. These commonly owned resources provide women with wild foods (particularly essential as a coping strategy during food shortages) medicinal plants and construction materials. CPRs are managed by traditional, socially accepted rules, which may or may not guarantee equity of access and sustainable use (matriarchal versus patriarchal systems). When these principles break down due to pressures from population growth and development, resources can become scarce and degraded. Women are especially dependent on CPRs as they often don't have access to formally recognized farming properties. As CPRs become degraded or are converted to other uses (e.g. wetlands reclaimed for intensive farming, forests cleared for roadways) women lose a valuable source of food and income which also affects their children school fees payment (mostly the female child): leading to their drop out in school. With the massive exploration of oil in this area, the ecosystem has been severely destroyed resulting to occupational redundancy, thus affecting the means of livelihood of the women in Nembe Local Government Area

of Bayelsa state.

The study of linkages between poverty and environment was jointly commissioned by the United Nations Development Programme (UNDP) and European Commission (EC) in order to provide an overview of current debates and uncertainties concerning the relationship of poverty and environmental degradation in developing countries. However, the objectives are ambitious for a broad and controversial topic of debate. The study focused on issues currently dominant in “main stream” social science and policy, and those novel approaches within poverty and environment thinking which may challenge such themes. The view adopted in their study is the question orthodox view in much discussion of the sustainability or otherwise of livelihoods that poverty and environmental degradation are linked in a downward and naturally enforcing circle. Today, the dominant viewpoint on poverty and environment reflects this image of a vicious downward spiral of need. Population growth and economic change occurs in ecologically vulnerable urban and rural areas (poverty reserves), then the environmental implications are greatest. Equally, the study also emphasizes the significance of conceptualizing livelihoods and wellbeing in terms which extend well beyond conventional in-come-based definitions of poverty. In other words, it also focuses attention on the ways and institutions through which, specific groups of people access, control and manage specific environmental resources or service which are important to their wellbeing. The study argued that many current conceptions of environmental degradation are based on misinformed linkages of human activity in landscape changes.

Empirical Review

In this section we would empirically review other related studies in nexus with the research questions and objectives of this study.

Idowu, Omowunmi, Owioye, Taiwo and Oladele, (2017) ^[30], carried out a study on “Women environmental degradation and food security”: The study was conducted out in Oloibiri community of Bayelsa State Nigeria. The study was anchored on two theories of Social Cost and Property Right theory, Pigou, (1920) ^[58], with both qualitative and quantitative analysis, and drawing from primary and secondary data sources. Survey research method was employed, sample size drawn from the community with the use of 1,500 questionnaires administered and 1,350 was retrieved and used for analysis. Specifically, the study dwelt more on statistical analysis, both descriptive and inferential using Pearson correlation coefficient with 5 percent level of significance to ascertain the extent at which environmental degradation has affected women in attaining and to ascertain, if there is any significant relationship between the socio-economic status of Niger Delta women and food security attainment at household level. The study found out that environmental degradation influences negatively on food availability and utilization. However, there is no established effect on food accessibility. On the other hand, education of women has no relationship with food security in Oloibiri, whereas income does, while employment and social status of women affect food availability than its utilization. In addition the study also observed how environmental degradation impacts on the ability of women to confront the challenges of food security in an oil producing community in Nigeria; and the abilities to overcome challenges to food security induced

by environmental degradation in Oloibiri community. Therefore the study recommended that it is important that women should be empowered such that their level of income could be enhanced and government should enact poverty – reducing environmental policies as a key component of poverty programme. However, the study failed to give the government and policy makers to offer the women opportunity with adequate representation of environment ministries as part of the coordinating bodies.

Similarly, Joseph, Dickson and Theophilus, (2013) ^[32], carried out a study on, “Oil exploration and poverty in Niger Delta region of Nigeria.” The study which took place in the Niger Delta region of Nigeria, anchored on the Dependency theory which derived its tradition from Marxism. The population of study encompasses of selected oil producing states in the Niger Delta region of Nigeria with sample size of 512 was drawn. Three research topics were used with the survey research design. Data were collected from the respondents with the use of close ended structured questionnaire of 400 was administered and 350 were retrieved. From the data collected and analyzed, the study found that most of the sample believes that the ecological devastation occasional by oil exploration has rendered farming and fishing, which are the primary occupations of the rural people of this region, are useless. The study also found that pollution and continuous flaring of gas from oil prospecting and production have created health hazards and rendered fish and agricultural activities almost impossible. In addition, occasionally large oil spills kills fish; destroy agricultural crops; polluted the water which severely affect families and communities. The study recommended that the Nigeria government and the multinational oil corporations operating in the Niger Delta area should come to terms with the fact that they are compelled to take care of the people in reciprocation of the crude oil extracted from there. However the study failed to be specific on the level of empowerment that the government should enact for the enhancement of environmental policies to reduce poverty.

In the same, Oviasuyi, and Uwadiae, (2010) ^[55], x-rayed a study “The dilemma of Niger Delta region as oil producing states of Nigeria”. The study anchored on Burton’s human needs theory on conflict and conflict management with research design of survey employed with qualitative and quantitative analysis. The population of the study is the complete oil producing states in the Niger Delta region. The data collected were primary and secondary data that were analyzed using descriptive statistics

Based on the data collected the study identified the criminal neglect of the entire region and the various approaches to the de-development of the region were stated and the out the impressionistic efforts made by the federal government of Nigeria to ameliorate the problems of the region that were identified. In addition the study also posited a 12-stage strategy that could be employed to solve the problems of the region with these strategies broken down into three phases of implementation. The study recommends that the implementation of these strategies would bring succors to the people of the region and thereby extricate them from their present extreme poverty level. The study surmised that the inhabitants of the Niger Delta region of Nigeria have suffered untold hardship as a result of the criminal neglect, abandonment, exploration and exploitation of oil and gas by the federal government of Nigeria in collaboration with the transnational oil companies (TOC) operating in the region.

Oil and gas, with which the Almighty God has endowed the region, has become a scourge to the people of the region; instead of being a blessing has become a curse. Essentially the study failed to acknowledge the fact that the oil producing states (elites and populace) should also make sure they avoid greed and vandalisation of pipelines in the region.

Also, Momtaz, (2008) ^[40] studied “the impact of environmental degradation on women in Bangladesh. The research took place in north western region of Bangladesh (Barind Tract), and anchored on the theoretical perspectives of Pessimists or Neo- Malthusian. The study is done entirely on the basis of secondary sources that adopted survey design of qualitative research which was analyzed and found out that in the third world women constitute half of the entire population and the poorest of the poor-not merely in wealth, but in every other index of development so natively women are the worst victims of environmental degradation as they depend upon the responsibility of natural systems to provide them food, fuel, water and shelter for existence. The study also found out that environmental degradation effects the third world countries most adversely because of the vicious circle of destitution. The work recommended that the principal victims of environmental degradation are the most underprivileged people and the majority of these are women, therefore the whole process of environmental degradation needs to be viewed from a gender perspective, since women are still socially responsible for management and conservation of natural resources. However the above study could not address the issues of environmental degradation.

More so, Mira, (1975) ^[39], conducted a study in “Environmental Degradation and subversion of Health”. The investigation was anchored on dependency theory as its theoretical framework. It adopted a mix method of both qualitative and quantitative approaches, using documentary and survey as methods of data acquisition. The study discovered that there is over-supply and over-consumption of inessential and unnecessary products and services in the industrialized countries and in their small annexes in the third world. Also found out that ‘mal-development’ is expanding in the third world together with the increase in abject poverty which trend can be described as one of irrational excess on the one hand and of extreme deprivation on the other of care and essentials like food, clean water and health care and safe living working conditions. In addition, also found out that there are deficiency of iron, iodine, vitamins and general neglect of women health; that is adversely affected by a range of social and cultural biases and practices which result in common, avoidable gynecological disorders, sexually transmitted diseases, AIDS, infertility and a very high incidence of anemia, urinary tract infections and cervical cancer. In addition that women are also frequently in peril of extreme physical violence. The study deciphered with a section devotional to the politics of population policies, an area where the North for more than thirty years has been attempting to solve problems of extreme deprivation of essentials with an ever increasing number of hazardous and irrational technological fixes. Essentially, the study failed to acknowledge the fact that both development have forced us to realize that health and environmental issues cannot be dealt with in isolation; not only are they intrinsically linked to each other, but neither can be easily addressed by a fast technological fix.

Sindh programme office of IUCNP (2002). “Environmental degradation and impacts on livelihoods sea intrusion – A case

study. The study area encompasses of three Talukas of district Thatta. The Thatta District resides in the province of Sindh, at the Southern-boarder of Pakistan where the River Ludus enters the Arabian Sea. The report is primarily based on secondary research literature reviews and community interviews etc, though some primary research has also been conducted. The population of the study is 1, 113, 194, out of which 158, 848 (14.08%) is concentrated in the three Talukas Covered in this research as the sample size belongs to a number of clans and tribes such as the such as the Tata, Khaschalis and Dablas was used to select an in-dept and focused analysis. The study analysis data for the period of 1995 -2000 to predict future trends in the sectors of agriculture, fisheries and forestry. With the data collected and analyzed the study that the livelihoods of the littoral population are mostly dependent on fisheries, agriculture and forestry. With the degradation of the natural resources basis, there has been a persistent decline in socio-economic conditions of the local communities. However, the study failed to have a detailed desired result of analysis as a constraints where encountered during the data collection process.

Similarly, Zenebe (2015) ^[78], “Trajectories of name resource environmental degradation and scarcity: examining access to and control over resources in Ethiopia”. The study took place in the Northern Ethiopia predominantly agricultural land by women in two rural communities of Tigray and Wello. The survey research design was used with three main types of case studies among others are correlation analysis, controlled-case comparison and process tracing (Van Evera, 1997). Primary and Secondary sources of data were employed, interviews, structural questionnaires, informal discussion were conducted with 200 women, other books, official documents, internet were used. The study employed correlational analysis relates to conducting large amounts of quantitative data. Based on the data collected and analyzed, the study found out that, it is worth calling for access to and control over resources predominantly land by women in the mainly Agrarian society of Ethiopia. And also found that the multinational nature of problem is reflected in women’s position and status, which according to Lawrence Haddad, is formed around a series of cultural and economic factors such as resources use, (total ownership, control, legal and ideological, structures and education and information. (Gray, 1999). The study also found oil that acute environmental degradation and resource scarcity also contributed to the increase in the values control over land as a resource. The study found out that women are more active in environmental and resource conservation activities, which are widely recognized and documented, (Merchant, 1995) and (Steel, 1996). The United Nations gave credence to women as closely associated with local ecological resources and management of biodiversity on a daily basis (2001). The research study conducted intensive interviews with more than 250 farmers and women in the two regions in a four-year period. Almost two third of the respondents (127) were women with access to land resource. The women in Ethiopia were not only intended to have or control over land but also resources. The study recommended that the strategy a household can implement depends on, among other factors, access to productive resources such as land, capital, education and skills (United Nations, 2001) ^[67]. The study concluded that the indispensability of land resources for the subsistence of millions of rural people in Africa is

tremendous. Agrarian societies are facing increasing problems of environmental degradation and resource scarcity and are producing impacts that severely challenge the capacity to provide enough agricultural land for an increasing world population with various needs. However, the study failed to confront the challenges in responding to demand for resource distribution amid acute scarcity.

Alexandra (2008) ^[10]. Carried out a study on “The straight facts on women in Poverty”. The study was carried out in America to discover high rates of poverty level men and women primarily the gap and also the Latina Women and the Black Women. The study anchored on survey research design with quantitative analysis of straightforward percentages. With data collected and analyzed the study found out that women in America are more likely to be impoverished than men. Over half of the 37 million Americans living in poverty today are women considering the facts that women are poorer than males in all racial and ethnic groups. Black and Latina women confront particularly high rates of poverty. The study also found out that women face a much greater risk of poverty for a number of interrelated reasons even including women are paid less than men even when they have the same qualifications and work the same hours. Women are more likely to endure the costs of raising children pregnancy affects women’s work and education opportunities more than men. The study recommended that women received the pay they deserve and equal work conditions, and have access to higher paying positions. Also women receive the support they need and protection they need to flee violent situations while maintaining job and housing stability. However, the study failed to address the multiple barriers to economic security women confront based on their race, ethnicity, immigration status, sexuality, physical ability and health status.

Chioma, and Felix, (2017) ^[18], “Impact of Environmental Degradation on Agricultural Production and Poverty in Rural Nigeria”. The study anchored on qualitative analysis and descriptive in nature, drawn largely from Secondary data sources. The study discovered that most rural areas, agriculture is the main source of livelihood and environmental resources became depleted the people are once again forced into more poverty. And also that few attentions have been given to the impact of unsustainable agriculturists to forsake traditional resources management methods for immediate benefits. The study also found out that the backward economic condition in the country have caused underdevelopment in the rural areas such as, lack of portable water, health care system, quality education system, inaccessible road networks, unemployment and inadequate rural infrastructure and. However, the study recommended that sustainable agriculture is a significant issue in the context of sustainable development. It is therefore critical that local populations are sensitized of the importance of efficient management of their environmental resources, it avoid depletion which could contribute to food insecurity. This means that traditional methods of environmental resources conservation must both be initiated and strengthened in addressing environmental degradations related to economic activities in the rural areas. The study failed to address poverty effecting rural populations (especially women) in Nigeria, but was able to highlights the impact of unsustainable agricultural practices on the environment.

Summary of Literature

The review captured the conceptual review, the theoretical

review, the empirical review and theoretical framework of the study. The conceptual review of this study, focuses on the research of relevant concepts, and/or ideas, normative contributions and submissions of scholars on environmental degradation and environment, women poverty among and Nigeria Delta of oil producing states in Nigeria and other related research in other country that are affected with similar study. The study also empirically reviewed extant related studies in nexus with the research question/objectives of the study. The existing studies reviewed, include the works of Idowu, Omowumi, Owioye, Taiwo, Idowu and Oladele (2017) ^[30], Chioma and Felix (2017) ^[18], Joseph, Dickson and Theophilus (2013) ^[32], Oviasuyi and Uwandiae (2010) ^[55], Alexandra (2008) ^[10], Montaz (2008), and Mira (2002) Zebebe (2015). More, so there exist no scholarly literature that addresses in concrete terms environmental degradation and destitution among women of Niger Delta: A study in Nembe Local Government Area of Bayelsa State from 1999 to 2017. Again the scope of this study: thus aims to also fill the gap deciphered in the scope of the extant studies.

Gap in Literature

Although the theoretical positions on the subject are quite diverse, the conventional wisdom is that environmental degradation results in destitution. Empirical research, however, does not conclusively support the conventional wisdom. Generally, these scholars like Idowu, Omowumi, Owioye, Taiwo, Idowu and Oladele (2017) ^[30], Chioma and Felix (2017) ^[18], Joseph, Dickson and Theophilus (2013) ^[32], Oviasuyi and Uwandiae(2010) ^[55] Montaz (2008), and Mira (2002) Zebebe (2015) surmised and submitted that there exist imbalance in the debate of environmental degradation and poverty among women, they also affirmed that there exist acute poverty in the region where the oil producing states has the major negative effect of their environment and lives in conditions described as an environmental nightmare and deprivation especially the women in the area of their lack of basic amenities like healthcare, condition of living and resultant health challenges women face as a result of oil exploration and exploitation.

They have not been able to systematically analyze the effects of environmental degradation and poverty among the women of Nembe Local Government Area of Bayelsa State in Niger Delta begs for further empirical inquiry considering the reported cases of high level environmental degradation resulting to poverty, among Nembe women as a predominant sex in the area of fishing and farming which is the major source of income for the women. It becomes imperative that a study of this nature be conducted so as to proffer solution therefore, this study intends to fill this void by examining empirically the effects and investigating environmental degradation and poverty among women in Nembe Local Government Area of Bayelsa State.

We deciphered methodological gap in the existing studies, Idowu *et al* (2017) ^[30], Joseph *et al* (2013) ^[32] and Oviasuyi and Uwadiae (2010) ^[55], Momtaz (2008) ^[40], Chioma and Felix (2017) ^[18], Mira (2002) Zebebe (2015) anchored their beacon of explanation and analyses on Dependency analysis from the Marxian political economy approach; except Oviasuyi, *et al* (2010) ^[55], who anchored on Buurton’s human needs theory on conflict and conflict management and used historical survey research design, descriptive and comparative method of analysis. While Oviasuyi and Uwadiae (2010) ^[55] on their part analyzed their data using

descriptive statistic and analysis of variance (ANOVA). Momtaz (2008) ^[40] on his part, employ survey research design of qualitative analysis, anchored on pessimists of Malthusian perspective propounded by Malthus, Ehrlich and Ehrlich (1968, 1990), Mira (2002) Zebebe (2015). The above research methods cannot properly address the scope, issue and variables under interrogation. Again, the scopes of the extant studies are at variance with the scope of this study; thus, this study aims to also fill the gap deciphered in the scope of the extant studies.

Hence, in carving a niche for this study and in an attempt to close the Lacuna highlighted above, this study, using survey research design, qualitative and quantitative approach and Marxist theory of centre periphery as the theoretical framework analysis.

Theoretical Framework

This investigation was anchored on Marxist theory of Centre Periphery. The Centre Periphery model are mostly encountered in studies of economic underdevelopment And drawn from the Marxist tradition of analysis. This theory is also implicated in numerous types of world system of theories like A.G. Frank, (1978) dependent accumulation and S. Amin (1976) unequal development, propounded in the 18th century by Karl Marx and Fredrick Engels.

This model defines the structural relationship between the advanced center and the less periphery within a country or society or as applied to the relationship between capitalist and developing societies. Centre Periphery models are mostly used in studies of economic underdevelopment and dependency with analysis drawn from the Marxist tradition, the theory implies that the world system of production and distribution is the unit of analysis. The theory implies that underdevelopment is not a simple descriptive form that refers to a backward traditional economy, but it is a concept rooted in the theory of imperialism.

According to the theory model, underdevelopment is not the consequence of tradition but is produced as part of the process necessary for the development of capitalism in the center. The theory also assumes a central core capitalist centre in which there is high organic composition of capital and wage levels are relatively high, whereas at the periphery, there is a low organic composition of capital and wage level not to meet the cost of reproduction of labour, with this capitalist economy, likewise in the peripheral economics, production and distribution may be determined largely by none market forces such as kinship or patron-client relationship. The centre periphery model thus suggest that the global economy is characterized by a structure relationship between the economic centre using coercive forces to extract economic samples from the subordinate periphery units. One aspect of this is the inequality wage level between the centre and periphery which makes it possible for capitalist enterprise to situate part or all of their production in underdeveloped regions. The extraction of profit depends on the portion of the cost of production of the labour force that is not met by wages being met in the non-profitable capitalist sector. This according to the centre periphery model, the appearance that capitalism is developing traditional and backward societies by locating enterprises in an underdeveloped regions confirm the structural relationship by which capitalist economics develop and prosper at the expense (or progressive underdevelopment) of non-capitalist economics.

Application of the Theory to the Study

The centre constitutes of the ruling class who encourages law and cultural values that are inimical to the progress of the women that constitute majority in the occupation of farming and fishing in the rural Nembe community of Bayelsa State in the Niger Delta region. The ruling class in consonance with the capitalist economist, degrade the environment of the Nembe Women of Niger Delta and destroy their main source of livelihood to their advantage. This can be linked to the case of the rural women in Nembe Local government area who toil and labour, but are impoverished by laws and policies of imperialist that perpetually relegated them without considering their basic needs of amenities and health challenges but relegate them to the background all in the name of cultural norms, beliefs but subject them to poverty. Therefore, this model will be ample for this study as it will explains the relationship between imperialist capitalist laws and policies as it affects the rural Nembe women of Bayelsa State in the Niger Delta region.

Research Methodology

Research Design

This study used a cross-sectional survey research strategy, which involves gathering and analyzing data from a single sample of people who are thought to be typical of the total population in order to analyze a set of items that include both independent and dependent variables.

Data Collection Sources

For this investigation, both primary and secondary data were gathered. In the sampled communities of Nembe Local Government Area in Bayelsa State, primary data were gathered using questionnaires and observational techniques from a representative sample of the population of women organized groups, community leaders like Chieftaincy Councils, Community Development Councils (CDC), etc. The study's secondary data came from the internet, journals, newspapers, and past research projects.

Participants in the Study

According to the 2006 census, Nembe Local Government Area in Bayelsa State has a population of 130,966 people, with 64,198 women and 66,768 males (NPoC, 2006). According to the census statistic from the 2006 population census, the population of this study would therefore be 64,198 since it is a study on women.

Sample Size

The Taro Yamane formula would be used to calculate the sample size based on the population size of 64,198. The sample size calculation is shown below;

$N =$

Where; $n =$ Sample size

$N =$ Population size

$e =$ error margin (0.05)

$n = 400$

Therefore, the sample size is 400 women from Nembe LGA.

Sampling Procedure

The study used a technique called purposive sampling. Because there is no trustworthy demographic frame that accurately captures the membership of organized groups in the sampled communities, this technique was employed. In

order to give the surveys to 400 women members in person, the researcher would personally identify organized groups such as women corporative societies, community leaders as CDC, Chieftaincy Councils, etc.

Research Instrument

Tools A well-designed questionnaire served as the study's research tool. Osuala (1990) asserts that questionnaires are the primary source of information about samples of the general population. A and B were the two sections of the questionnaire. Section B contained 15 (fifteen) structured questions on women's awareness of environmental degradation and poverty in line with the study goals. Section A contained five questions about the demographics of the respondents. In five oil-bearing communities—Okoraba, Okoroma Clan, Minikinse, Nembe Creek, and Oluasiri—in the Nembe Local Government Area of Bayelsa State, copies of the questionnaire were distributed to organized groups of women, such as women corporative societies, other women groups, and community leadership groups, such as Chieftaincy Councils, CDC's, etc. These areas' severe levels of environmental degradation, primarily brought on by oil exploration, erosive processes, and flooding, led to their deliberate selection. A Likert-type scale with the following options was used to gauge respondents' opinions: Strongly Agree (SA-5), Agree (A-4), Undecided (U-3), Disagree (D-2), and Strongly Disagree (SD-1) on the study's factors. A Likert-type scale adopts the assumption that attitudes can be quantified and that the strength/intensity of experience is linear, i.e. on a continuum from strongly agree to strongly disagree (McLeod, 2008).

Validity Instrument

The content validity was used for the objectives of this study. The measuring instrument's content was evaluated for its ability to measure the specific things that were intended to be tested. Before it was used on sampled respondents, the instrument was given to the project manager and other departmental specialists for review, necessary feedback, and modifications.

Reliability of Instrument

Using test-retest methodologies, a pilot test was conducted to determine the instrument's reliability. In order to assess the reliability of the instruments, the test of test re-test reliability trial was carried out on 20 respondents who were different from the sample respondents over a period of two weeks, numerous times. The data from the two administrations were correlated, and the instrument's high reliability was indicated by the 0.83 Pearson product moment correlation coefficient.

Data Analysis

Descriptive and inferential statistics were used to analyze the data collected. Tables and charts were used to present the descriptive analysis, which was conducted using percentages and frequencies. A cutoff threshold was established in order to respond to the research question as follows: For example,

$$5 + 4 + 3 + 2 + 1 = 15$$

$$5 = 3.00 \text{ (cut-off point).}$$

On a 5-point rating scale, responses to the research question were evaluated as "Agreed" or "Disagreed" depending on the

mean value, which ranged from 3.00 to above. The Statistical Package for Social Science (SPSS) 25.0 version was used to do inferential analysis using the Chi-square test to examine the hypotheses developed to lead the investigation.

Presentation of Results and Findings

The findings of the study are presented in line with the research questions answered and the hypotheses tested Women Age Bracket.

Table 1: Frequency and percentage distribution of women in Nembe LGA by Age Bracket

SN	Age Brackets	Frequency	Percentage (%)	Mean
1	18 – 35 years	72	36	
2	36 – 60 years	89	44.5	47
3	61 years & above	39	19.5	
	Total	200	100	

Source: Field Survey, 2022

According to the data in Table 1, the bulk of the Nembe LGA's selected women—44.5%—fall into the 36–60 year age range, while 19.5% are 61 years or older. This means that around 36% of the women in this group are between the ages of 18 and 35. The bulk of the women in Nembe LGA are still in their active working stage, as seen by the mean age of the female respondents, which was 47 years old. The bar graph in figure 1 also provided a visual representation of the age distribution of the ladies.

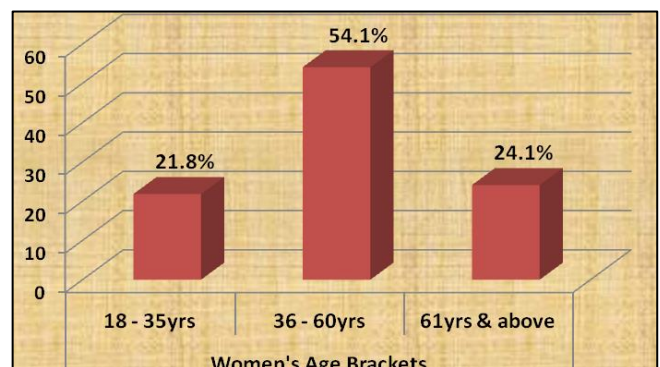


Fig 1: Bar Chart of Percentage Distribution of Women by Age Brackets

Marital Status

Table 2: Frequency and percentage distribution of women in Nembe LGA by Marital Status

SN	Marital status	Frequency	Percentage (%)
1	Single	9	4.7
2	Married	156	78.0
3	Divorced	19	9.8
4	Widow	16	8
	Total	200	100

Source: Field Survey, 2022.

Only 4.7% of the selected women in Nembe LGA were single as of the time of the study's execution, according to the data in Table 2. The bulk of the women—78%—was married, 9.8% were divorced, and 8% were widows. The bar chart in figure 2 below also provides a visual representation of the distribution of women's marital statuses.

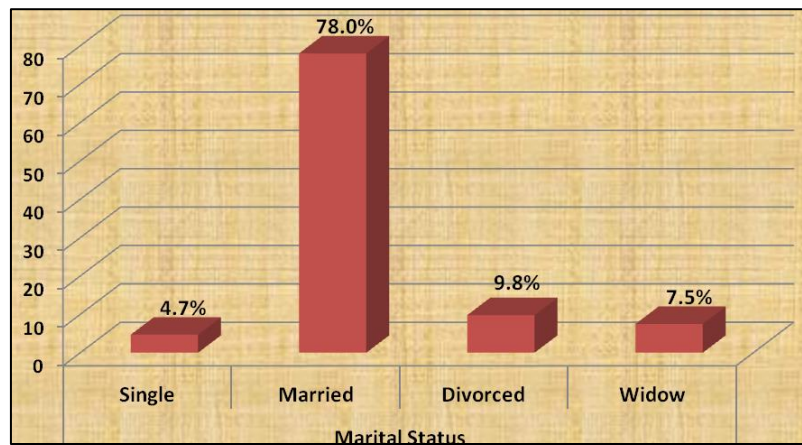


Fig 2: Bar Chart of Percentage Distribution of Women by Marital Status

Educational Qualification

Table 3: Frequency and percentage distribution of women in Nembe LGA by Educational Qualification

SN	Edu. Qualification	Frequency	Percentage (%)
1	No Formal Education	24	12
2	Primary school	37	18.7
3	Secondary school	108	54.1
4	Higher institution	31	15.8
	Total	200	100

Source: Field Survey, 2022

The data shown in Table 3 showed that only 12% of the women respondents in Nembe LGA had no formal education, 18.7% had completed elementary school, 54.1% had completed secondary school, and only 15.8% had completed higher education, which included courses at universities, polytechnics, and colleges of education. The bar chart in

figure 3 below also provided a visual representation of the distribution of women's educational backgrounds.

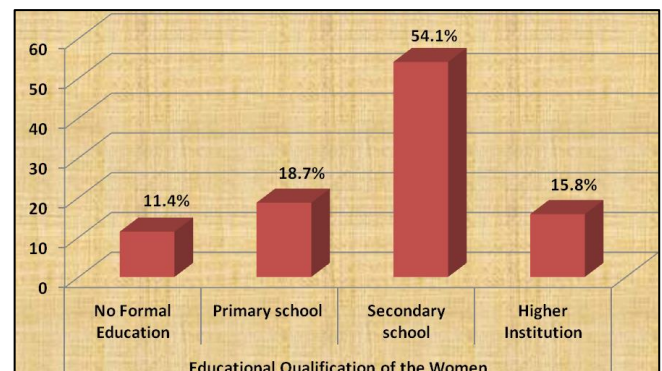


Fig 3: Bar Chart of Percentage Distribution of Women by Educational Qualification

Status in the Community

Table 4: Frequency and percentage distribution of women in Nembe LGA by Status in the Community

SN	Status	Frequency	Percentage (%)
1	Traditional ruler	0	0
2	Community ruler	0	0
3	Religious leader	3*	1.3
4	Member, Community Development Committee (CDC)	165*	82.4
5	Women leader	50*	25.1
6	Member, Women Cooperatives	122*	60.9

Note: * indicates multiple responses

Source: Field Survey, 2022

According to the information in Table 4 above, none of the chosen women respondents in Nembe LGA are traditional or community leaders. As a result, the men's folks are responsible for maintaining traditional and communal order. Only 1.3% of the chosen Nembe women are religious leaders, 82.4% of them are Community Development Committee (CDC) members, 25.1% are in charge of different women's

organizations in Nembe communities, and 60.9% belong to cooperative societies. This shows that Nembe women are actively involved in a variety of community development organizations, making them vital contributors to the growth of Nembe communities. Figure 4 below's bar chart added to the graphical.

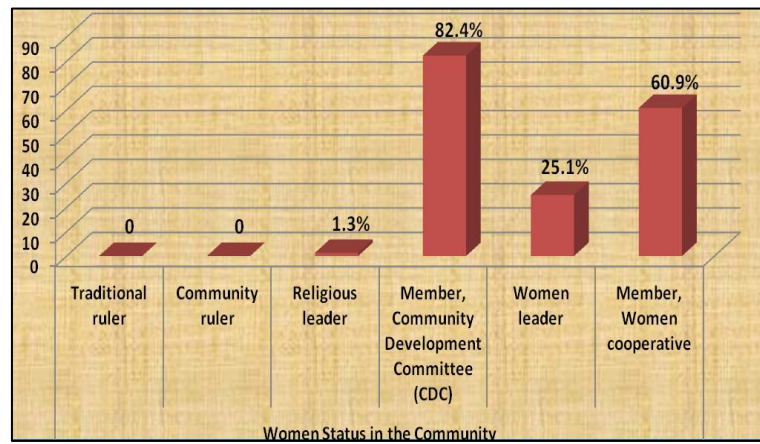


Fig 4: Bar Chart of Percentage Distribution of Women by Status in the Community

Findings of the study are presented in line with the research questions answered and the hypotheses tested.

Women Age Bracket

Table 5: Frequency and percentage distribution of women in Nembe LGA by Age Bracket.

SN	Age Brackets	Frequency	Percentage (%)	Mean
1	18 – 35 years	72	36	
2	36 – 60 years	89	44.5	47
3	61 years & above	39	19.5	
	Total	200	100	

Source: Field Survey, 2022.

According to the data in Table 1, the bulk of the Nembe LGA's selected women—44.5%—fall into the 36–60 year age range, while 19.5% are 61 years or older. This means that around 36% of the women in this group are between the ages of 18 and 35. The bulk of the women in Nembe LGA are still

in their active working stage, as seen by the mean age of the female respondents, which was 47 years old. The bar graph in figure 1 also provided a visual representation of the age distribution of the ladies.

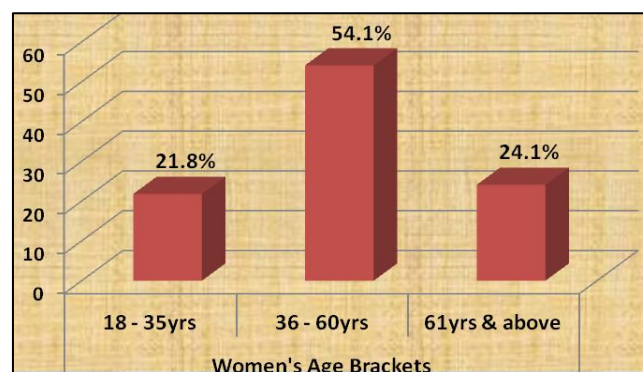


Fig 5: Bar Chart of Percentage Distribution of Women by Age Brackets

Marital Status

Table 6: Frequency and percentage distribution of women in Nembe LGA by Marital Status.

SN	Marital status	Frequency	Percentage (%)
1	Single	9	4.7
2	Married	156	78.0
3	Divorced	19	9.8
4	Widow	16	7.5
	Total	200	100

Source: Field Survey, 2022

Only 4.7% of the chosen women in Nembe LGA were single as of the time of the study's execution, according to the data in Table 2. The bulk of the women—78%—were married,

9.8% were divorced, and 7.5% were widows. The bar chart in figure 2 below also provides a visual representation of the distribution of women's marital statuses.

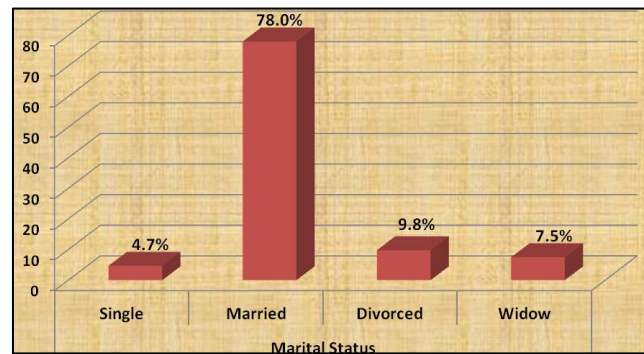


Fig 6: Bar Chart of Percentage Distribution of Women by Marital Status

Educational Qualification

Table 7: Frequency and percentatge distribution of women in Nembe LGA by Educational Qualification

SN	Edu. qualification	Frequency	Percentage (%)
1	No Formal Education	24	12
2	Primary school	37	18.7
3	Secondary school	108	54.1
4	Higher institution	31	15.8
	Total	200	100

Source: Field Survey, 2022

The data shown in Table 3 showed that only 12% of the women respondents in Nembe LGA had no formal education, 18.7% had completed elementary school, 54.1% had completed secondary school, and only 15.8% had completed higher education, which included courses at universities, polytechnics, and colleges of education.

The bar chart in figure 3 below further showed the pictorial illustration of the educational qualification distribution of the women at glance.

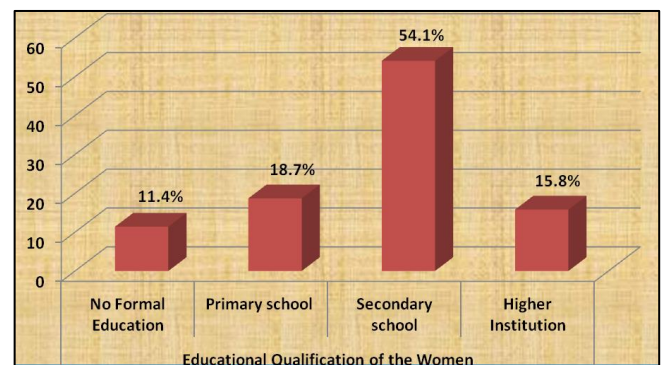


Fig 7: Bar Chart of Percentage Distribution of Women by Educational Qualification

Status in the Community

Table 8: Frequency and percentatge distribution of women in Nembe LGA by Status in the Community

SN	Status	Frequency	Percentage (%)
1	Traditional ruler	0	0
2	Community ruler	0	0
3	Religious leader	3*	1.3
4	Member, Community Development Committee (CDC)	165*	82.4
5	Women leader	50*	25.1
6	Member, Women Cooperatives	122*	60.9

Note: * indicates multiple responses

Source: Field Survey, 2022

From the data presented in Table 4 above, it was revealed that none of the selected women respondents in Nembe LGA are traditional and community ruler. Hence, the responsibility of traditional and community rulership rest on the shoulders of the men folks. Only 1.3% of the selected Nembe women are religious leaders, majority of about 82.4% of the women are members of Community Development Committee (CDC), 25.1% of the women are leaders in their various women

groups within Nembe communities while 60.9% of the women are members of cooperative societies. This indicate that Nembe women are actively involved in various community development groups, hence, they are dynamic players in the development of Nembe communities. The bar chart in figure 4 below further showed the pictorial illustration of the community status distribution of the women at glance.

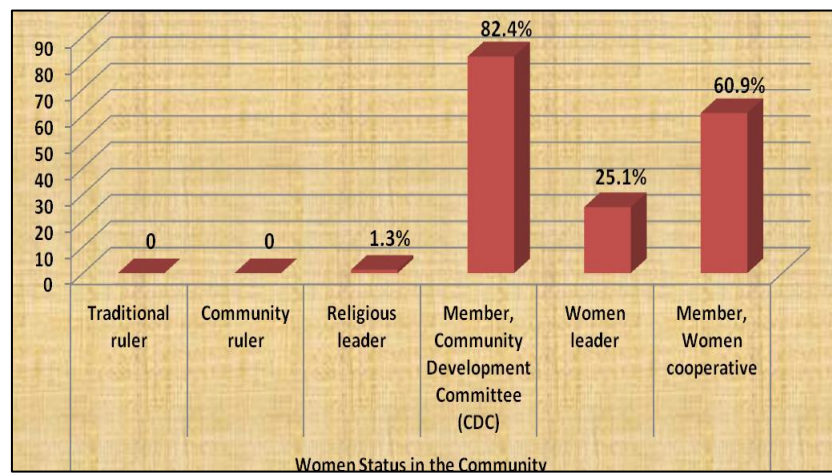


Fig 8: Bar Chart of Percentage Distribution of Women by Status in the Community

Research Question One

To what extent has Gas Flaring affect the Nembe women and their farming activities?

The data for answering research question one are presented in Table 5 below.

Table 5: Mean ratings of respondents on how gas flaring has affected Nembe women farming activities. (n=386)

Hypothesis One

Gas flaring has no significant effect on Nembe women farming activities.

The data for testing hypothesis One are presented in Table 7 below.

Table 9: Result of Chi-Square Tests of No Significant Effects of gas flaring on Nembe Women Farming Activities

	Value	df	Asymp. Sig. (2-sided)	Decision
Pearson Chi-Square	72.991 ^a	3	.000	S*
Likelihood Ratio	73.021	3	.000	S*
Linear-by-Linear Association	72.455	1	.000	S*
N of Valid Cases	386			

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.32.

Note: S* = Significant at 0.05 level of probability.

The data on Chi-square statistics presented in table 9 above showed that the Pearson Chi-Square was 72.991 and Asymptotic significant value of 0.000 which is less than 0.05 level of significance. This indicates that gas flaring has significant effect on Nembe women farming activities. Hence, the hypothesis of no significant effect of gas flaring on women farming activities is rejected.

Hypothesis Two

Oil spillage has no significant effect on poverty among Nembe women.

The data for testing hypothesis two are presented in Table 8 below.

Table 10: Result of Chi-Square Tests of No Significant Effects of oil spillage on poverty among Nembe Women

	Value	Df	Asymp. Sig. (2-sided)	Decision
Pearson Chi-Square	84.894 ^a	3	.000	
Likelihood Ratio	86.019	3	.000	
Linear-by-Linear Association	84.602	1	.001	
N of Valid Cases	386			

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.32.

The Pearson Chi-Square was 84.894 and the Asymptotic significant value was 0.000, which is less than the 0.05 level of significance, according to the data on Chi-square statistics shown in Table 8 above. This suggests that oil leakage has a major impact on Nembe women's poverty. Therefore, the claim that an oil spill won't have a big impact on Nembe women's poverty is disproved.

Summary of Results

According to the study's findings, the majority of the women are still in their active working stage because the mean age of the women respondents in Nembe LGA was 47 years old.

About 82.4% of the women in the group identify as members of Community Development Committee (CDC) reports Nembe women are actively involved in a variety of community development groups; as a result, they are key contributors in the growth of Nembe villages.

Invasion of alien species, deforestation and forest degradation, climate change, production and consumption of charcoal, overgrazing, and agricultural depletion of soil nutrients through poor farming practises are five ways that gas flaring affects the farming activities of Nembe women, according to the study.

According to the study, there are five ways that oil spills

cause Nembe women to live in poverty. These include: a lack of basic necessities including food, water, and drinking water; health problems caused by these shortages; water pollution and contamination; low levels of output and consumption; and a low standard of living.

Nembe women's farming activities are significantly harmed by gas flaring because the air gas flaring and oil spills cause air and water pollution as well as land degradation.

Oil spillage has a substantial negative impact on poverty among Nembe women because it lowers their income, lowers their standard of living, makes it harder for them to pay their expenses, and leaves them unable to get quality healthcare.

Discussion of the results

The following discussion of the study's findings is in keeping with its specific objectives:

Gas Flaring's Effects on Nembe Women's Farming Activities

This study on the research issue revealed five factors, including the following, that contribute to the insufficient yield of Nembe women's agricultural operations. Increased deforestation impacts firewood output, air pollution, and acid rains, while soil degradation reduces agricultural productivity, the production of firewood is impacted by increased deforestation, the production of food is impacted by air pollution and acid rains, Nembe women lack the funds to invest in farm produce, and gas flaring hinders the growth of women in farming activities.

The results of this study were consistent with those of Ojimba (2012), whose findings showed that the impact of crude oil pollution on crop farms resulted in a substantial 1% reduction in field size and a reduction in marginal physical product (MPP), while output grew in non-polluted farms. In farms that are oil-polluted, physical inputs, crude oil pollution variables, and their interactions result in strongly negative (diminishing) returns to scale, yet results for unpolluted farmlands reveal strongly positive returns to scale. The study's findings also supported those of Akpokodje and Salau (2015), who looked at oil pollution and agricultural production in Niger Delta in Nigeria, and it was discovered that while rising oil spill levels and forest loss severely effect agricultural output, land, labour, and capital have a beneficial impact.

The results of the current study also supported those of Leera, George-West, and Alalibo (2017), who conducted research on environmental pollution in the Niger Delta and related barriers to the region's sustainable development. In their study, the authors found that environmental pollution is at the root of the region's problems because it has hampered farming and economic activity and posed a threat to sustainable development. In a 2016 study, Onyerika (2016) examined how farmers in Imo State, Nigeria viewed the effects of soil degradation on agricultural production in the area were reduction in crop yield, loss of farm labour due to forced migration, reduction in land productivity, decrease in farm income and destruction of markets and other infrastructure.

The results of this study are consistent with those of Momtaz (2008) ^[40], who examined how environmental degradation affects women in Bangladesh and discovered that women are the worst affected because they are dependent on natural systems for their food, fuel, water, and shelter. The study also discovered that because of the poverty-driven cycle, third-

world countries are most negatively impacted by environmental deterioration.

The impact of the oil spill on poverty among Nembe women Regarding research question two, this study two identified five ways through which oil spillage contributed to poverty among Nembe women which are inadequate basic amenities, such as food, drinking water of Nembe women which include that: Poor yields from farming reduce women's ability to afford good clothing and other basic needs, while land depletion lowers agricultural output, which affects women's food production and increases poverty. Additionally, the destruction of forests and desertification reduce wildlife and adequate living conditions, while environmental degradation affects agricultural resources, roads, and clean drinking water.

The results of this study were consistent with those of Joseph, Dickson, and Theophilus' (2013) ^[32] investigation of the relationship between oil exploration and poverty in Nigeria's Niger Delta region, which indicated that most feels that farming and fishing, which are the two most environmentally sensitive activities, are no longer viable due to the ecological damage caused by oil exploration oil leaks. The results of this study also corroborated those of Sam, Coulton, and Prpich (2017), who found that oil activity lowers fish output over time due to the unfavourable environmental deterioration that comes along with crude oil exploration in the area. Gas flaring, oil well blowouts, incorrect disposal of drilling mud, and pipeline leaks are a few examples of oil-driven environmental problems that have an impact on fishing activities. Sam, Coulton, and Prpich (2017) proposed prioritising the locations for the clean-up effort in the Niger Delta region, emphasising that high risk areas may not always be the most contaminated zones but rather based on the measured levels of hydrocarbon pollution and importance of the zone to the livelihood of the inhabitants. Noni, Omotor, and Adun (2006) looked into the impact of oil spillage on crop yield and farm income in Delta State, Nigeria, and discovered that it significantly decreased farm income. For example, a 10% increase in oil spill decreased crop yield by 1.3 percent while farm income fell by 5 percent.

According to Ojimba (2012), the effect of crude oil pollution on agricultural farms reduced the size of the farmland, considerably at 1%, and decreased marginal physical product (MPP), while output grew in non-polluted farms. In farms that are oil-polluted, physical inputs, crude oil pollution factors, and their interactions exhibit large negative (diminishing) returns to scale, but farmlands that are not polluted will return to scale.

The findings of this study equally collaborated that of Akpokodje and Salau (2015) who examined oil pollution and agricultural productivity in the Niger Delta of Nigeria and found that increasing levels of oil spill and forest loss negatively affect agricultural productivity, while land, labour and capital positively improved agricultural productivity in the Niger Delta. Furthermore, the Anejionu, Ahiamunnah and Nri-ezedi (2015) in a study found that health risk is not averted by abstinence from fish killed by spilled oil. Some of the fishes and animals that escape instant death from pollution are known to have taken in some of the toxic substances, which in turn get into human beings that eat them. This will in turn cause infections on man coupled with other "side effects in form of genetic mutations". Also in agreement with the findings of this study, Eze and Olaifa (2018) investigated effects of oil spills on fish production in

the Niger Delta and found that suggest that oil production, oil spills and soil degradation in Niger Delta have negatively affect fish production, while farm labour has a positive effect on fish production. On the other hand, fishery loan exerts a negative effect on fish production and this could be ascribed to the bottlenecks in accessing these loans.

Summary, conclusion and recommendations

Summary of the Study

The study was carried out to investigate environmental degradation and poverty among women of Niger Delta using Nembe Local Government Area of Bayelsa State as case study. To achieve the broad objective of the study, two specific purpose and two research questions were developed to guide the study. This study adopted the cross-sectional survey research design.

Primary data were collected with the use of structured questionnaire and observational techniques from a representative sample of the population of women organized groups in Nembe communities. The population for the study was 64,198 women in Nembe LGA of Bayelsa State. Through the Taro Yamane formula with purposive sampling, 400 women from Nembe LGA were selected as respondents to the study from which data were collected. The purposive sampling technique was used for the study because there is no reliable population frame that captured the membership of organized groups in the sampled communities.

The data for the study were collected using a well-structured questionnaire. The questionnaire was divided into two sections of A and B. Section A comprised of five questions on the demography of the respondents while section B comprised of 15 (fifteen) structured questions on the knowledge of environmental degradation and poverty among women in line with the research questions. Section B of the questionnaire were structured into 5-point rating scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD) with corresponding values of 5, 4, 3, 2 and 1 respectively. The instrument was face and content-validated by the project supervisor and other experts in the department for scrutiny and necessary input and corrections before it was administered on sampled respondents. All the suggestion of the supervisor and the experts were duly incorporated in the final draft of the questionnaire use for data collection. The reliability of the instrument was carried out using a pilot test of test re-test techniques was used. The test of test re-test reliability trial was conducted on 20 respondents different from the sample respondents over an interval period of two weeks several times in order to evaluate the reliability of the instruments. The data obtained from the two administrations were correlated and the Pearson Product Moment Correlation coefficient of 0.83 was obtained indicating that the instrument was very reliable. Data collected were analyzed using descriptive and inferential statistics such a mean, frequency, percentage, charts, and Chi-square test with the aid of Statistical Package for Social Science (SPSS) 25.0 version.

Conclusion

The impact of environmental degradation and poverty on the livelihood of people in the affected area most especially women and children has continued to raise questions of great concern among stakeholders. Women in Nembe local government area are committed and preoccupied in farming

and fishing occupations as their major source of income. Unfortunately, despite their commitment to raise their living standard and that of their families, the overwhelming effects of gas and oil pollution in the area has negatively affected them in terms their farming activities, fishing, health and access to good drinking water.

Therefore, it was based on this background that this study was to examine effects of environmental degradation and poverty among women of Niger Delta using Nembe Local Government Area of Bayelsa State as case study. Based on the data collected and analysed, the study found that the mean age of the women respondents in Nembe LGA was 47 years which indicated that majority of the women are still in their active working stage, that majority of about 78% are married and about 54.1% had secondary school education, that majority of about 82.4% of the women are members of Community Development Committee (CDC) which indicate that Nembe women are actively involved in various community development groups, hence, they are dynamic players in the development of Nembe communities.

The study identified ways in which gas flaring and oil spillage has affected the farming activities and caused poverty among Nembe women.

Recommendations

Based on the findings of this study, the following recommendations were made:

- The government and donor agencies at all levels should provide awareness campaign on the part of the women and rural dwellers on how best to increase food production in the face of continuous soil degradation and water pollution in the area.
- That gas flaring and indiscriminate discharge of crude oil to the area by oil companies should be restricted by a law enacted by government to control land degradation in the state.
- That women farmers should come together to form a cooperative societies among themselves to discuss and look for a best way on how to handle land degradation menace to increase the fishing and farming output.
- The number of extension visit to women farmers is not encouraging and this could affect dissemination of land degradation. Hence, there is need for the three tiers of government to improve the extension-farmers ratio so that more women farmers could be reached and the contact period could be enhanced for sustained production.
- Government and critical stakeholders should be deeply involved in curbing environmental degradation and vandalism of oil structure for safe water for drinking and other purposes.
- Government should allocate higher investments to environmental sanitation and improved health condition of women and other vulnerable groups in Niger Delta. Increased investments in environmental sanitation and hygiene will promote good health and welfare benefits of the women which will also avert large economic losses and raise the standard of living of the women and their families.
- That the operation of the oil companies should be guided by adoption of best practices in the environmental management for improved farming and fishing in the Niger Delta.

Women farmers in degraded soil and polluted water bodies should be supported with subsidies of credits to cushion the effects of environmental threats in their farming activities.

References

1. Abidde KV. Environmental Degradation and Poverty among women of Niger Delta: A study of two selected communities in Nembe Local Government Area of Bayelsa State. *International Journal of Advance Academic Research*. 2022; 4(1):99-112.
2. Aboyeji OO. Freshwater Pollution in Some Nigerian Local Communities, Causes, Consequences and Probable Solutions. *Academic Journal of Interdisciplinary Studies*. 2013; 2(13):111-117.
3. Adeyemo OA. Women in Development. A workshop co-sponsored by the Ford and Rockefeller foundations. NCEMA National workshop Report, 1991.
4. Aina IO. Women, Cultural Society in Amadu S. and Adetanwa O. (eds) "Nigerian Women in Society Development: Ibadan: Dokun published House, 2001.
5. Aina IO. Two halves make a whole gender at the grassroots of a Nigerian Development Agenda. Being the 250b. "Inaugural lecture" series Obafemi Awolowo University, Ile-Ife, Nigeria, 2012.
6. Akinbode A. Introductory Environmental Resources Management. Ibadan: Daybis Publishers, 2002.
7. Akinyele IO. Poverty reduction and urban violence: the case for street food vendors in Nigeria", in Albert. O.I *et al.*, 1993-1994.
8. Akpan D, Omoogun A. Adverse Effect of Water Contamination or Pollution to Human Health and Safety in the Nigeria Delta – Nigeria: An Environmental Case Study. *Journal of Environment and Earth Science*. 2016; 6(10):91-94.
9. Akpokodje J, Salau S. Oil pollution and agricultural productivity in the Niger Delta of Nigeria. *Journal of Environmental Economics*. 2015; 6(4):68-75.
10. Alexandra C. The straight facts on women in poverty. Centre for America progress, 2008.
11. Aluko MAO. Sustainable Development, Environmental Development and the Entrenchment of Poverty in the Niger- Delta of Nigeria. *Krepublishers.com/JHE*. 2004, 15-1-063-068.
12. Amnesty International. Bad Information: Oil Spill investigations in the Niger Delta, United Kingdom, 2013. www.amnesty.org
13. Anejionu O, Ahiamammunnah P, Nri-ezedi C. Hydrocarbon Pollution in the Niger Delta: Geographies of Impacts and Appraisal of Lapses in Extent Legal Framework. *Journal of Resource Policy*. 2015; (45):65-77.
14. Atubi AO, Ogbija TE, Ojeh VN. Effects of Environmental Degradation on Human Health in Selected Oil Communities in Delta State. *Journal of Environment and Earth Science*. 2015; 5(9):72-88.
15. Aworawo G. The Impact of Environmental Degradation of the Rural Economy of the Niger Delta in Osuntokun and Akinjide (eds) Environmental problems of the Niger Delta. Lagos: Friedrich Ebert Foundation, 2000.
16. Centre-periphery model A Dictionary of Sociology Retrieved March 25, 2019 from Encyclopedia.com.
17. Chelala C. Environmental Degradation Takes a Heavy Toll on Women and Children's Health. *Common Dreams*: Saturday, 2016. February 20.
18. Chioma VN, Felix OC. Impact of environmental Degradation on Agricultural production and poverty in Rural Nigeria. *American International Journal of contemporary Research*, 2017, 7(2).
19. Dankelma I, Davidson J. Women and environment in the third world". London. Earth Scan Publications Ltd., 1997.
20. Dixon S. Aids and Economics in Africa a panel data analysis, 2001, 13(4).
21. Ekpenyong NS, Udemé US. Crude Oil Spills and its consequences on seafood safety in coastal area of Ibeno: Akwa Ibom State. *Studies in Sociology of Science*. 2015; 6(1):1-6.
22. Ekubo A, Abowei J. Review of some water quality management principles in culture fisheries. *Research journal of applied science*. 2011; 3(12):1342-1357.
23. Emuedo OA, Anoliefo GO, Emuedo CO. Oil Pollution and Water Quality in the Niger Delta: Implications for the Sustainability of the Mangrove Ecosystem. *Global Journal of Human-Social Science: B Geography, Geo-Sciences, Environmental Disaster Management*. 2014; 14(6):9-16.
24. Eze SO, Olaifa E. Effects of oil spills on fish production in the Niger Delta, 2018, 13(10). [10.1371/journal.pone.0205114](https://doi.org/10.1371/journal.pone.0205114)
25. Fabra B. Understanding Trauma: integrating Biological: Clinical and cultural perspectives, 2002, 298-303.
26. Food and Agriculture Organization. Food and Agriculture in Ethiopia Available online, 2000. [Hhttp://www.fao.org/giews/english/basedocs/eth/ethpop le.stm](http://www.fao.org/giews/english/basedocs/eth/ethpop le.stm).
27. Galadima A. Domestic water pollution among local communities in Nigeria causes and consequences". King Fahd University of Petroleum and Minerals Dhahran, Eastern Province, Saudi, Arabia, 2011.
28. Girigiri B. A Sociology of rural life in Africa". Owerri: Springfield Publishers, 2000.
29. Hair NL, Hanson JL, Wolfe BL, Pollak SD. Association of child poverty brain development, and academic achievement". *JAMA Pediatrics*, publisher, 2015.
30. Idowu O, Owofe O, Taiwo I, Oladele O. Womem, Environment Degradation and Food Security": The case of Oloibiri community of Bayelsa State, Nigeria. *European Journal of Research in Social Science*, 2017, 5(3).
31. IFAD. Enabling poor rural people to overcome poverty in Nigeria. IFAD country project report, 2010.
32. Joseph CE, Dickson E, Theophilus OA. Oil Exploration and Poverty in the Niger Delta Region of Nigeria: A Critical Analysis. *International Journal of Business an Social Science*, 2013, 4(3).
33. Kolawole OD. Soil Miners, Science Enthymemes and African farmers. Saarbrücken: LAP Lambert Academic publishing, 2012.
34. Koleosho HA, Adeyinka A. Impact of Environmental Degradation. Slum on Youth Growth and Development, 2006.
35. Leera S, George-West O, Alalibo IK. Environmental Pollution in the Niger Delta and Consequential Challenges to Sustainable Development of the Region: the Role of an Individual. *Researcher*. 2017; 9(8):10-17.
36. Mabogunje A. Nigeria and the Good Urban Governance Campaign. The Launching of the Global Campaign for Good Urban Governance in Nigeria. Federal Ministry of

- Works and Housing, Abuja, Nigeria, 2002.
37. Marx Karl, Friedrich Engels, Robert Tucker The Marx-Engels Reader: Second Edition, www Morton and Company New York page 66.
 38. Mink S. Poverty, Population and Environmental" World Bank Discussion paper, 1998, 189.
 39. Mira S. Environmental Degradation and Subversion of Health. CEO, Development dialogue, 1975.
 40. Momtaz J. The impact of environmental degradation on women in Bangladesh: An overview of Asian affairs. 2008; 30(2):5-15
 41. Munasinghe M. Environmental Economics and Sustainable Development". Washington D.C: World Bank, 2003.
 42. National Population Commission, 2006.
 43. Nigeria Police. Nigeria Police Crime Report" 2005 Paper presented at International Conference on Environmental Economics and Conflict Resolution, University of Lagos, 2005.
 44. Norman DA. Things That Make us Smart Defending Human Attributes in The Age Machine"ssss. Pursues Book Group, 1993.
 45. Norman DA. The Design of Everyday things: Revised and Expanded Edition, 2013, 12.
 46. Obi C. Oil Extraction, Dispossession, Resistance and conflict in Nigeria's oil rich Niger Delta. Canadian Journal of Developmental studies. 2010; 30(1-2):219-236
 47. OECD. Key Environmental Indicators SIREN database, 2004.
 48. Ogunsanya, A. (1999) "*Contemporary Issues in Environmental Studies*". Intt.l Jinidi and I.P. Fabiyi (eds) Contemporary Issues in Environmental Studies. Ilorin, Nigeria: Haytee Publishers.
 49. Ojimba T.P. (2012). Determining the Effects of Crude Oil Pollution on Crop Production Using Stochastic Translog Production Function in River State Nigeria, Journal of Development and Agricultural Economics, 4 (13),346–360.
 50. Okoronkwo-Chukwu U. Female Representation in Nigeria". The case of 2011 General Elections and the Fallacy of 35% Affirmative Action" Res. Humanities and Social Sci. 2013; 3(2):39-47.
 51. Omonona BT, Udoh EJ, Adeniran AA. Poverty and its determinants among Nigerian farming households- Evidence from Adekinyele Local Government Area of Oyo State, Nigeria. European Journal of Social Science. 2008; 6(3):402-413.
 52. Onosode G. Environmental Issues and the Challenges of the Niger Delta: Perspectives from the Niger Delta Environmental Survey Process, Yaba: The CBN Press Limited, 2003.
 53. Opukiri CO, Ibaba IS. Oil induced environmental degradation and internal population displacement in the Nigeria's Niger Delta. Journal of Sustainable Development in Africa. 2008; 10(1):173-193.
 54. Ovuakporaye SI, Aloamaka CP, Ojeh AE. Effects of gas flaring on lung function among residents of Gas flaring community in Delta State, Nigeria. Research Journal of the Environmental Earth Sciences. 2012; 4:525-528.
 55. Oviasuyi PO, Uwadiae J. The Delimma of Niger Delta Region as Oil Producing States of Nigeria. Journal of Peace Conflict and Development, 2010. Wwww. Peacestudiesjournal.org.uk.
 56. Onyerika AI. Perceived effects of land degradation on agricultural production among farmers in Imo State, Nigeria. Unpublished Masters Projects submitted to Department of Agricultural Extension, Federal University, Owerri, Imo State, 2016.
 57. Pegg S, Zabby N. Oil and Water. The Bodo Spills and the Destruction of traditional livelihood structures in the Niger Delta". Oxford University Press and Community Development Journal. 2013; 48(3):319-405.
 58. Pigou AC. The Economic of Welfare Macmillan". London, 1920.
 59. Prakash S. Poverty and environmental linkages in Mountains and Uplands. CREED Working Papers Series No.12 international Institute for Environment and Development, London and Institute for Environmental Studies, Amsterdam, 1997.
 60. Proctor B, Semega J, Kollar M. Income and poverty in the United States 2015 Current Population Reports, Series, 2016, P60-256.
 61. Reardon T, Vosti S. Links between Rural Poverty and the Environment in Developing Countries, 1995. Retrieved from: <http://www.census.gov/content/dam/Census/library/publications/2016/demo/p60-256.pdf>.
 62. Sahai S. Tips and Biodiversity. A gender perspectives. Think Indian Quarterly. 2004; 9(2):64-79
 63. Sam K, Coulton F, Prpich G. A multi-attribute methodology for the prioritization of oil contaminated sites in the Niger Delta. Science of the Total Environment. 2017; 579:1323-1332 pmid:27916308
 64. Scherr S. Poverty and Environment Interactions in Agriculture. Key Factors and Policy Implications. Working paper for UNDP, 1999.
 65. Schultz PW. In conclusion with Nature The Academic Publishers, 2002. Bostum/Dordrecht/London See website: <http://www.eclac.cl/cgi bin/ getprod.asp?xml=/mujer/noticias/notcias/0/12810/p/12810.xml&xsl=/mujer/tpl/plf>.
 66. Sharma BR, Gupta M. Gender Based violence in India". A Never-ending Phenomenon. Journal of international Women's studies. 2004; 6(1):114-123.
 67. The United Nations. Advancement of Women Improvement of the Situation of Women in Rural Areas". "Report of the Secretary-General. Fifty-Sixth Session, item 124 of the Provisional agenda. General Assembly, New York, 2001.
 68. The United Nations Development Fund for Women. Women's Land and Poverty Rights in Situations of Conflict and Reconstruction. Kigali, Rwanda, 2001.s
 69. Titola K. Agricultural Production and Sustainable Development in Nigeria. Lagos: Flaghan Printing Press, 1998.
 70. UNDP. Nigeria Human Development Index 2007-2009 Abuja: United Nations Development Programme UNDP Abuja, 2010.
 71. UNDP Human Development Report 1993, 25, quoted in International Human Rights in Context: Law, Politics and Morals by Henry J. Steiner and Philip Alston, 2010, (Oxford: Clarendon Press, 1996), 894.
 72. United Nations Development Programme Human Development Report, 2009, www.hdr.undp.org.
 73. Vanvera S. Guide to Methods for students of Political Science Ithaca and London: Cornell University Press, 1997.

74. Wachter D. Land titling for land conservation in developing countries. Working Paper No. 1992-28, the World Bank Washington, D.C., 1997.
75. Watts AG. Career Guidance Policy. An international Review, 2005, 461-0045.
76. World Bank. Gender in Agriculture Source book” Washington: DC World Bank, 2009.
77. World Commission on Environment and Development (WCED) Report. Our Common Future”. Oxford: Oxford University Press, 1987.
78. Zenebe NB. Trajectories of women environmental degradation and scarcity: Examining access to and control over resources in Ethiopia. ISBNI-Journal of Internal women’s studies. 2015; 12(1):256-259.
79. Dr. Chen Wei, Dr. Jacob Smith³. Journal Growth, Open Access, and Equity Trends in Soil Science Publication: A Global Analysis of Scientific Communication Patterns (2000-2022). Journal of Soil Future Research. 2022; 3(1):51-55.