



Offshore operations of multinational oil corporations and the survival of coastal communities in Nigeria

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Abstract

This study sought to evaluate the extent to which offshore operations of MNOCs have impacted on the survival of coastal communities of Nigeria. The research was carried out in six littoral LGAs, three each from Bayelsa and Delta States, which are in the central Niger Delta. The design for the study was a field survey using stratified sampling technique and snowballing sampling frame. The sample size was 471 respondents, which was determined using Raosoft online software calculator, set at a minimum error margin of not more than 5%. The respondents were randomly selected, having determined the sample size. The instrument for data collection was a structured questionnaire, which was subjected to content and construct validity. A four-point Likert ordinal/rating scale was adopted to capture the various opinions of the respondents. Non-parametric statistics including mean and standard deviation involving the software (SPSS) were used to determine the effects of MNOCs operations, while percentages were used to analyse the socioeconomic characteristics of the respondents. The results on the socioeconomic characteristics revealed that the active population of the households in these communities engaged in fishing/government employment were between the age bracket of 31 – 40 years (34.797%), dominated by male folk (67.73%); out of this composition, 49.05% were holders of WASC, while 68.58% of them are married, maintaining an average household size of 11 – 15 persons (49.05%) with an average annual income of ₦361,000 – ₦480,000 (45.22%). The results on the other variables including conflict (mean, 3.256 and standard deviation, 0.65736), income (mean, 3.6513, standard deviation, 0.41631), environment and food security (mean, 3.5387, and standard deviation, 0.37466), health and shelter (mean, 3.5847, standard deviation, 0.41548), as well as the safeguard measures proffered were all accepted. The results/responses were above the benchmark of 2.50, and with a remarkable degree of closeness, indicated also from the standard deviation values. As a result, the study concluded that the offshore operations of MNOCs are responsible for the depleting ecological resources, and endangered the survival rate of the people in the study area. The study therefore, recommends that the Nigerian government and its regulatory authorities should endeavour to take adequate steps to ensure the conservation and sustenance of the ecological resources of the study area to guarantee the survival of the people for the present and future generations.

Keywords: Offshore operations, multinational oil corporations, survival, coastal communities.

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List of Acronyms

ACHPR	African Cluster on Human and People's Rights.
AHRLJ	African Human Rights Journal.
b/d	Barrels per day
BTEX	Benzene, Toluene, Ethylbenzene, Xylene.
Cap.	Captioned.
CBN	Central Bank of Nigeria.
CCBD	Cluster-Community-Based-Development.
CCGS	Company-Community-Government Strategy.
CMI	Comité Maritime International.
CNA	Clean Nigeria Associates.
CNL	Chevron Nigeria Limited.
COR	Crude Oil Revenue.
CSOs	Civil Society Organisations.
CSR	Corporate Social Responsibility.
DELSU	Delta State University.
DPR	Department of Petroleum Resources.
EEZ	Exclusive Economy Zone.
EGASPIN	Environmental Guidelines and Standards for Petroleum Industry.
ERA	Environmental Rights Actions.
EU	European Union.
FAT	Frustration-Aggression Theory.
FBOs	Faith-Based Organisations.
FDI	Foreign Direct Investment.

FEPA	Federal Environmental Protection Agency.
FLO	Fisheries Liaison Officer.
FLSC	First School Leaving Certificate.
FLTC	Fisheries Legacy Trust Company.
FoE	Friends of the Earth.
FOOCG	Fisheries and Offshore Operators Consultative Group.
FPSO	Floating Production Storage and Offloading.
GDP	Gross Domestic Product.
GMoU	Global Memorandum of Understanding.
HNT	Human Need Theory.
HRW	Human Rights Watch.
IAOGP	International Associations of Oil and Gas Producers.
ICESR	International Convention on Economic, Social and Cultural Rights.
ICOPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation.
ICPPSO	International Convention for the Prevention of Pollution of the Sea by Oil.
IMO	International Maritime Organisation.
IOCs	International Oil Corporations.
IOGP	International Association of Oil and Gas Producers.
IPCC	Intergovernmental Panel on Climate Change.
IPIECA	International Petroleum Industry Environmental Conservation Association.
KEEFFES	Koluama, Ezetu I, Ezetu II, Foropa, Fishtown, Ekeni, Sangana.
LFN	Laws of the Federation of Nigeria.
LFN	Living Faith Church.
LGAs	Local Government Areas.

MARPOL	Marine Pollution Convention.
MNCs	Multinational Corporations.
MNEs	Multinational Enterprises.
MNOCs	Multinational Oil Corporations.
MPAs	Maritime Protected Areas.
NBC	Nigeria Bitumen Corporation.
NCDMB	Nigerian Content Development Monitoring Board.
NCE	National Certificate of Education.
NCRC	National Control and Response Centre.
NDHDR	Niger Delta Human Development Report.
NDU	Niger Delta University.
NESREA	National Environmental Standards and Regulation Enforcement Agency.
NGOs	Non-Governmental Organisations.
NNPC	Nigeria National Petroleum Corporation.
NNPE	Nigeria National Policy on the Environment.
NO	Nitrogen Oxide.
NOGICDB	Nigeria Oil and Gas Industry Content Developments Board.
NORMS	Naturally Occurring Radioactive Materials.
NOSDRA	National Oil Spill Detection and Response Agency.
NPC	National Population Commission.
NRDC	Natural Resources Defence Council.
NURTW	National Union of Road Transport Workers.
NWU	North-West University.
OCM	Oil Content Meters.

ODME	Oil Discharge Monitoring Equipment.
OECD	Organisation for Economic Cooperation and Development.
OGUK	Oil and Gas United Kingdom.
OILPOL	International Convention for the Prevention of Pollution of the Sea by Oil.
OND	Ordinary National Diploma.
OPOL	Offshore Pollution.
OPRC	HNS Oil Pollution Preparedness, Response and Corporation - Hazardous and Noxious Substances.
OPRC	Oil Pollution Preparedness, Response and Corporation.
OWS	Oily Water Separators.
PH	Potential of Hydrogen in a chemical solution.
PPSE	Special Sea Area.
RCCG	Redeemed Christian Church of God.
R&D	Research and Development.
SCF	Standard Cubic Feet.
SO ₂	Sulphur Dioxide.
SPDC	Shell Petroleum Development Company.
SPSS	Statistical Package for the Social Sciences.
TNCs	Transnational Corporations.
TNTC	Too Numerous to Count
UDHR	Universal Declaration of Human Rights.
UKCS O&G	United Kingdom Continental Shelf Oil and Gas.
UNCLOS	United Nations Convention on the Law of the Sea.
UNDP	United Nations Development Programme.
UNEP	United Nations Environment Programme.

UNEPFI	United Nations Environment Programme Finance Initiative.
UN IRI	United Nations Integrated Regional Information Network.
UN	NHDR United Nations National Human Development Report.
US	EIA United States Energy Information Administration.
USD	United States Dollar.
WBC	World Business Council.
WILPF	Women’s International League for Peace and Freedom.
WWF	World Wildlife Fund.
ZSL	Zoological Society of London.

Chapter one

Introduction

1.0 Introduction

This chapter outlines the background and significance of the study, offers the statement of the research problem, aim, specific objectives and research questions, as well as a summary.

1.1 Background and significance of the study

After the Second World War and the Cold War eras, the international political system had to contend with a wide range of structural, institutional, legal, economic, political, environmental, developmental, individual, religious and cultural issues. States were at the forefront of the international arena in efforts aimed at resolving such complex challenges. Within the framework of these complex problems, however, various non-state actors and players in the international system emerged, whose role, power, influence and dominance, constrained the sovereignty of States. Prominent among such actors were local and international non-governmental organisations (NGOs), civil society organisations (CSOs), multinational corporations (MNCs) or transnational corporations (TNCs) (Roach, 2007:1-38), terrorist networks, faith-based organisations (FBOs) and individuals. Notably, MNCs are the “most important, powerful, influential and efficient private or economic actors” (Goldstein & Pevehouse, 2013-2014: 341-343; Goodwin, 2005: 135-166). Many MNCs possess resources far in excess of some poorer States (Goldstein & Pevehouse, 2013-2014: 341-343; Gilpin, 2016; Kowaleski, 1981:45-64).

The economic power and influence of MNCs expand beyond national boundaries. Rapid technological advancements, particularly in the 21st century, encouraged their drive for overseas commercial interests (Omoredede, 2014: 79-99). For this reason, MNCs seek to gain access to vital mineral resources (e.g. oil and gas) and markets with the aid of their advanced technology in order to exploit these from anywhere in the world and to maximise profits. MNCs have a marked influence in today’s globalised world. They deepen globalisation (Gabor, 2012: 384) through a network of subsidiaries, promote economic development as well as transfer their technologies to the States in which they operate (Goldstein & Pevehouse, 2013-2014; Roach, 2007:1-38). MNCs generally, influencing the “lives of billions of people and society every day, but often in complex and imperceptible ways” (Goldstein & Pevehouse, 2013-2014: 341-343; Roach, 2007:1-38). MNCs even “create friendly relations with foreign governments” (Goldstein & Pevehouse, 2013-2014: 341-343).

In addition, MNCs provide poor nations with natural resources, “the much-needed foreign investment and tax revenues” (Goldstein & Pevehouse, 2013-2014: 341-343), as well as contribute to infrastructural development. For instance, since 1958, Nigeria’s path to development has had an intricate link with engagements of Multinational Oil Corporations (MNOCs) in the oil and gas sector (when oil was first found in commercial quantities in Oloibiri, Bayelsa State). Notable MNOCs operating in Nigeria’s Niger Delta include Shell Petroleum Development Company (SPDC), Chevron Nigeria Limited (CNL), ExxonMobil, Agip or Eni, among others. Iwejingi (2013: 76-80) states that these corporations collaborate with the State-owned Nigeria National Petroleum Corporation (NNPC) in providing about 95 percent of export earnings, accounting for over 80 percent of government revenue, as well as generating over 40 percent of the country’s GDP solely from Nigeria’s Niger Delta. This situation however, has changed in recent years due to external shocks such as depressed oil demands, production cuts and price fluctuations (Nigeria Economic Outlook, 2019: 1-25). The sector’s contributions to the total GDP of Nigeria in the first quarter of 2019 was 9.14% (NBS, 2019: 2-4). Nevertheless, the operations of MNOCs are bound to continue and increase in Nigeria’s Niger Delta. In recent years, the major activities of MNOCs have increasingly shifted from onshore areas to coastal and offshore locations in Nigeria’s Niger Delta due to instability, drying up of onshore wells, theft and sabotage in onshore areas (US EIA [Country Analysis Brief: Nigeria, 2016]:1-20). Another reason is divestment - a government policy designed to encourage local participation and “to transfer ownership of equity holdings to indigenous oil companies, and selling off bonds, securities, stocks or investments” (Allen, 2015:1-26; Oil and Gas Year [Nigeria], 2015: Article 61).

One major characteristic of MNOCs is that they seek protection from the State where they operate in order to secure their investments – have access to well-regulated markets and ensure a stable political environment. On this anchor lies the matrices of complicity - double standards, corporate irresponsibility, environmental harm and risks and violence of MNOCs that tend to undermine the survival of local host communities (such as those in Nigeria’s Niger Delta). The aim of this study is to assess offshore operations of MNOCs and the survival of coastal oil-bearing communities, particularly the coastal host-communities of Chevron Nigeria Limited (CNL), offshore fields in Bayelsa and Delta States of the Nigeria’s Niger Delta.

Generally, the operations of MNOCs are known to have devastating consequences, which not only threaten the health of the natural environment, but also the very essence of existence of local communities and their future generations (Agbonifo, 2016:26-37; Okonkwo, Kumar &

Taylor, 2015:452-463; Yusuf & Omoteso, 2015:1372-1386; Kadafa, 2012:38-51; Kadafa, 2012: 19-28). Several studies conducted have revealed that oil-producing countries contend with governance challenges (no political will and capacity to implement or enforce national regulatory regimes) with regard to issues of operations of MNOCs and protection of the environment (Greyl *et al.* 2013:1-73). Furthermore, the operations of MNOCs provoke agitation, conflict and violence, human rights abuse and State suppression, among others, a dilemma which some scholars have referred to as “resource curse” or “oil republics” in Nigeria’s Niger Delta (Osaghae, 2015:109-129). MNOCs operating in various developing countries are culprits of these evils. As a result, MNOCs have initiated certain measures - corporate social responsibility (CSR) activities, community engagements and local participation (Baumuller *et al.* 2011:18-42) to cope with the enormous challenges contending with and confronting their operations. These measures “remain largely piecemeal and short-term, inadequate in respect of the requirements for accountability and transparency among the operators that are either insufficient or not enforced” (Baumuller *et al.* 2011:18-42).

The major MNOCs activities have, in recent years, increasingly shifted from onshore zones to coastal and offshore locations in the Nigeria’s Niger Delta. The Nigeria Country Analysis Brief (2005: 1-4) states that an estimated 606 oil fields exist in the Niger Delta region, out of which 360 are onshore and 246 are offshore. Combined, these fields have an estimated reserve of about 37.2 bn. bbl. as at the end of 2010 (Nigeria Oil and Gas Industry Brief, 2014: 5). The decision to move offshore is due to issues related to insecurity, drying up of onshore wells, theft, and sabotage in the onshore areas (US EIA [Country Analysis Brief: Nigeria, 2016]; Allen, 2015:1-26). Allen (2015:1-26) also confirms that the reasons for the shift is to re-strategize their business opportunities and focus more on profitable areas of investment. It was also an opportunity to accommodate government preferences for inclusion of local entrepreneurs in the oil industry (Allen, 2015:1-26). Furthermore, the strategy basically, was to address the rising threats to the oil industry, such as social resistance and other forms of protests, litigations in foreign courts against MNOCs for environmental infractions (Allen, 2015:1-26). In other words, “it is not going to be business as usual” (Allen, 2015:1-26). The position of oil-bearing communities is that it was a calculated agenda to exclude local indigenes, who claims ownership of the land and water resources from participating in the oil industry. Another school of thought is convinced that in the event of a consequent damage to the environment by MNOCs, the littoral waters do not belong to communities and hence no one would have the right to lay claim as stakeholders for compensation. Allen (2015:1-26)

confirms the position of the oil-bearing communities that the shift by major MNOCs to offshore [seabed] areas is an attempt by the corporations to run away from their ecological liabilities. Another possible reason for the development of offshore oil production was to ease the loading of crude oil legally or fraudulently. It was also in an attempt to avoid the government policy of divestment. Divestment is a government policy carved to encourage local participation and “to transfer ownership of equity holdings to indigenous oil companies, and selling off bonds, securities, stocks or investments” (Allen, 2015:1-26; Oil and Gas Year [Nigeria], 2015: Article 61). Additionally, the MNOCs claim that the production environment has become too volatile for continued exploitation of mineral resources onshore. In addition to this, they seek protection from States where they operate in order to secure their investments.

Nevertheless, the constant growth and development of the offshore petroleum industry around littoral regions of the world raises critical questions. Such queries include the industry’s impact on marine ecosystems and biological resources, which directly or indirectly jeopardizes the livelihood and survival of coastal dwellers. Different views exist on this issue. Some believe, with confidence, in the industry’s environmental safety standards, while others totally disagree and offer the darkest forecasts (Patin, 1999). Considering the potential adverse impacts on the marine environment, a greater level of environmental protection may be required, knowing too well that the environment and man are inseparable. Man eke out a living from the environment. It implies that both the MNOCs and local communities depend on the environment; hence, their actions must take into cognizance the quality of the environment in order for the oil industry businesses to thrive and to ensure survival of coastal communities in Nigeria’s Niger Delta.

The health of the environment is *sine qua non* to human survival in particular, plants and animals in general. This is because ecosystems provide services such as food production, water and disease management, climate regulation, spiritual fulfilment, as well as aesthetic enjoyment for man (UNEP [UN Environment], 2017:24-29). Ken Saro-Wiwa (1991) describes the right of man to the environment as his “first right and that without a clean environment, man cannot exist to claim other rights, be they political, social, or economic” (UN Environment, 2017:24). Similarly, sustainable development experts of different orientations have also acknowledged the immutable fact of the environment in human survival (Omoredede, 2014:79-99; Ivanova, 2014:138-151; Nigerian National Report, 2011: 53; UNDP [Nigeria], 2006:73-92; Elliott, 2006:1-43). These authors, respectively, have emphasised that “the properties of healthy ecosystems are the preconditions for human survival”, and warned

humanity “to avoid the consequences of transgressing the physical limits of the earth’s resources.” Nevertheless, the natural environmental resources, particularly in Nigeria’s Niger Delta, have been stressed beyond unimaginable dimensions due to the operations of MNOCs (Omoredede, 2014:79-99; Anochie & Mgbemena, 2015:13-31; Kadafa, 2012:38-51; Kadafa, 2012: 19-28; UNDP [Nigeria], 2006:73-92). Indeed, the operations of MNOCs have deleterious impacts on the environment, they destroy the livelihoods of oil-bearing communities in the Niger Delta. For example, operations of MNOCs provoke environmental harm and risks - the net effects are significantly devastating (Maingangwa & Agbiboa, 2013:71-83).

Coastal communities in the demarcated study area feel that they have a right to clean and sustainably balanced environment. The indigenous people of the Niger Delta lay claim to the environment as their fundamental right. This is because the environment is synonymous with human life and survival. It is the source of their material well-being and asset for development. By the Nigerian law of land ownership and control, the indigenous people believe that land has been forcefully taken away from them for oil production operations, which operations and exploitation damage their renewable and non-renewable resources. It also affects their socio-cultural and productive patterns and capacity. For a sustainable environment, man must exercise caution in the exploitation and use of the naturally-endowed resources. A sustainable environment is that which can provide adequate quantities of both renewable and non-renewable resources for human survival from generation to generation. There has been an outcry over the years by oil-bearing communities that oil production activities are injurious to the environment, and threaten their very existence. Frynas (2012: 4) states that oil production operation causes the greatest damage to the environment. The expression, environmental damage, describes the destruction of private property such as farm crops and buildings, and degradation of abiotic and biotic resources in an environment (Frynas, 2012: 4). This affects the food supply potentials, income generation potentials and food security of the indigenous peoples. In addition, Agbonifo (2016: 26-37) argues, some proven and sometimes unsubstantiated reports about the complicity of MNOCs on issues of environmental damage, State exploitation and suppression, are responsible for the extreme conditions in the Niger Delta.

Coastal dwellers and their environment are inseparable and therefore have to contend with the situations and challenge the powers that engender and perpetuate environmental unrighteousness. These challenges cause outflow of income from the perpetrators of

environmental degradation. Since the sole business of MNOCs is to exploit the environment, they strenuously resist accepting liabilities and claims made by host communities to maintain unholy profits. This often times culminates in conflicts that further undermine the livelihood and survival of coastal communities. Animasahun (2008: 68-74) and Ogunyemi (2004: 211) state that conflict is inherent in human interaction and relationships. The Niger Delta has been an epicentre of crises in recent years, and the majority of them are pivoted on oil exploration and exploitation activities. The reasons for the conflicts are socioeconomic in nature, ranging from deprivation, environmental damage and claims for reparation, as well as human rights abuses. They are also known to have been stimulated by competition over inadequate resources, contradicting value system, and psychological needs as a group of people, as well as individual manipulation of information and perception (Albert, 2001 In. Akinnubi *et al.* 2012: 168-174). These contradictions characterising the conflict between MNOCs and the people of Nigeria's Niger Delta have gained centre stage in national and international discourses. This is because oil sustains the world energy needs and the economy of Nigeria. In a nutshell, the negative consequences of conflict are far-reaching. They slow down economic activities, cause unemployment, and loss of lives and property of the groups in conflict.

Human survival depends largely on a sustainable ecosystem. It implies that the ecosystem should be rich and have quality supply of air and water, bio-resources and stable abiotic conditions necessary for life. Ecosystems are essential sources for human survival and other living things. In humans, air and water are required for physiological processes such as respiration, digestion and transportation of materials and a major component of body fluids. In addition, it implies that sustainable bio-resources from the environment can ensure food security of households. Food security at household level is a subset of national objectives, and all households or individuals should have access to sufficient food either by producing it themselves or by generating sufficient income to demand for it. Access to food is a crucial aspect of living in coastal communities of the Niger Delta, as the people almost entirely depend on fishing to meet all their consumption needs. However, oil production operations essentially impact on the air, water and land by fouling them to cause injury to crops, fishes, other animals and human beings. It is important to state that water is life as every living tissue requires 70% water and that without protecting the quality of water resource in the interest of consumers, they would continue to die annually from a combination of factors that are directly linked to contaminated water. As a result of the contamination by oil pollution, the people, especially those living in the coastal areas of Warri to Calabar, cannot adequately engage in fishing,

cannot drink safe and clean water, and their health is in jeopardy (Ashton-Jones *et al.* 1998). In addition, Nriagu *et al.* (2016: 1-23), Ordinioha & Brisibe (2013:10-16), and the Nigeria Country Analysis Brief (2004) respectively, report that oil spilled on marine environment has adverse effects on marine lives, which in turn become contaminated, and on consuming them by humans, negatively impact on their health. The same reports have it that gas flares can equally be blamed for a variety of health issues such as respiratory illness, hearing loss, serious childbirth problems, asthma, bronchitis, and skin diseases in the Niger Delta communities. For many of the people in the Niger Delta, ecological disaster is discernible and crying for solution. This study assesses offshore operations of MNOCs and the survival of coastal oil-bearing communities, particularly coastal host-communities of Chevron Nigeria offshore fields in Bayelsa and Delta States of Nigeria's Niger Delta.

This study is expedient for all developing countries involved in offshore hydrocarbon exploitation in Sub-Saharan Africa, especially new nations such as South Africa that is entering into the petro-business in several ways. Recently, Nott & Forfar (2013:13), reports that South Africa discovered its first offshore petroleum resources in the Karoo area. In addition, the report states that negotiations with international oil corporations (IOCs) or MNOCs to exploit these vital energy resources are ongoing. In the light of such developments, this study is necessary, and shall be quite revealing and beneficial to all oil-producing countries/communities. It is also expected to further unravel some of the enormous challenges faced by oil-producing areas such as Nigeria's Niger Delta as identified by many scholars in recent times (Abutu & Ejeh, 2017:54-63; Babatunde, Norafidah & Zengeni, 2016; Agbonifo, 2016 26-37; Osaghae, 2015:109-129; Maianagwa & Agbiboa, 2013: 71-83; Pegg & Zabbey, 2013:391-405; Oruonye, 2012:152-156; Baumuller *et al.* 2011:18-42).

Considering the views held by previous researchers, this study intends to create further understanding of the activities and impact of MNOCs on the environment in relation to issues of development challenges faced by oil-producing countries, governments and local communities. In particular, this study clarifies the increasing trend of offshore activities of MNOCs and associated environmental risks that undermine the survival of coastal communities in Nigeria. Undoubtedly, the study proffers measures that if adhered to, could safeguard the offshore operations of MNOCs and solve some of the development challenges of governments and local communities in oil-producing countries of Sub-Saharan Africa for now and future generations. The study further broadens the global specific literature on offshore operations of MNOCs and the survival challenges of coastal communities.

1.2 Statement of the problem

As indicated earlier, activities of MNOCs have, in recent years, increasingly shifted to coastal and offshore locations in Nigeria. In any case, the activities of MNOCs are known everywhere for their deleterious impact. Therefore, the shift in operations by MNOCs to offshore areas is almost certain to have some negative impact on coastal communities that depend on fishing as a major occupation for survival. In Nigeria, the primary sector of the fishery industry occupies a very significant position in the country's economy. The sector contributes over 50% of animal protein intake of the country's population particularly the resource-poor (Oyakhilomen, 2016: 45-49; Oruonye, 2014: 15-24). In addition, Okwu *et al.* (2011: 408-413) reports that the upstream and downstream sectors of the fishery industry in Nigeria, actively engage an estimated 10 million persons, providing raw materials for the animal feed industry. Furthermore, CBN (2013: 193-194) reports that artisanal fishing from coastal and brackish catches represent about 691.61million metric tonnes, while inland rivers and lakes account for 78.93%, which account for an estimated 899.00 million metric tonnes of total fish production in Nigeria for a year. The estimate for the domestic fish demand in the same year was 1.5 million metric tonnes. The annual production falls far short of the estimated fish needs of the country. The coastal areas hold a large quantity of fish stock exploited by both artisanal fisher folks and fishing companies for the country. The heavy presence of activities of MNOCs around fishing areas of coastal communities affects this vital traditional economy, the basis of survival for the people of the coastal communities. The operations of MNOCs generate pollution - a common feature in Nigeria (Kadafa, 2012: 38-51; Kadafa, 2012: 19-28; Adelana *et al.* 2011: 834-845). Marine pollution, in particular, can engender adverse effect on ecosystems and services (Ejiba, Onya & Adams, 2016: 1-12) – the very sources of survival of coastal oil-bearing communities.

The concern is that most discourses about oil exploitation in Nigeria's Niger Delta previously focused on issues of the environment, development and governance generally. The specific scholarly efforts in each of these broad areas about the region are seminal in interrogating the exploitation of resources in the region. In particular, the significance of the environment to human existence and how the pristine Niger Delta ecosystems and services have been stretched beyond the natural limits by the activities of MNOCs, and agitations of communities are evident in the majority of the studies. However, these efforts (in the past) are general in outlook but limited in focus, when considering the recent offshore drive by MNOCs, and the impact on the survival of coastal (fishing) communities. It is also obvious that previous studies have not

covered much ground in respect of the recent trend of operations of MNOCs in predominantly coastal and offshore areas, and their impact on oil-bearing communities situated along the Atlantic coast of Nigeria's Niger Delta. Most importantly, the reasons why oil corporations lay off their onshore assets to operate on a more conducive offshore environment to avoid the reach of local communities and free from their agitations are quite informing for further investigation.

In addition, the economic and business models in Nigeria have failed to recognize the value of the ecosystem and the cost of environmental harm. Wherefore, government and MNOCs have excluded the cost of pollution (environmental externalities) from their operations in Nigeria's Niger Delta as a burden that ought to be borne by oil-bearing (in this case, coastal fishing communities) as third parties. The burden is severe and manifests in different forms. It includes environmental damage and discrimination, criminalization of protests and civil conflict, poverty, amongst others (Greyl *et al.* 2013:1-73).

In the light of the foregoing, this study examines the offshore operations of MNOCs and the survival of coastal (fishing) communities in Nigeria's Niger Delta. In order to articulate the subject matter properly, the researcher focuses on Chevron Nigeria Limited (CNL) and its coastal host-communities in Bayelsa and Delta States within the central Niger Delta. CNL is one of the five major oil giants (most of its oil production activities are offshore) operating in the country since 1963. The choice of this company is also to build on the hiatus evident in previous studies that have focused solely on Shell Petroleum Development Company (SPDC) in Nigeria, thereby leaving out an examination of the deleterious effects caused by CNL. In addition, the choice of Bayelsa and Delta States for this study was appropriate. The consideration was based on the fact that a cluster of CNL operations is found in the region of the two states/coastal communities in the magnitude of this study than other locations of the Niger Delta.

1.3 Aim of the study

The research explores offshore operations of MNOCs and the survival of coastal, mainly subsistent fishing communities in Nigeria's Niger Delta.

1.4 Objectives of the study

The specific objectives of the study are:

- Determine the socioeconomic characteristics of households in oil-bearing coastal fishing communities in the Niger Delta.

- Identify the extent to which the offshore operations of MNOCs have caused conflicts that undermine the survival of the people of oil-bearing coastal communities in the Niger Delta.
- Assess the impact of MNOCs offshore operations on the income of oil-bearing coastal communities in Niger Delta.
- Determine the effects of MNOCs offshore operations on coastal environmental sustainability and food security in oil-bearing coastal communities in the Niger Delta.
- Establish the specific effects of MNOCs offshore operations on the health and shelter of the people in oil-bearing coastal communities of the Niger Delta.
- Identify measures that could safeguard offshore operations of MNOCs and the survival of coastal oil-bearing communities in the Niger Delta.

1.5 Research questions

The research questions raised in the study are:

- What are the socioeconomic characteristics of households in oil-bearing coastal fishing communities in the Niger Delta?
- To what extent have the offshore operations of MNOCs caused conflicts that undermine the survival of people in oil-bearing coastal communities in the Niger Delta?
- To what extent have the offshore operations of MNOCs specifically affected the income of oil-bearing coastal communities in the Niger Delta?
- To what extent have the offshore operations of MNOCs specifically affected the coastal environment and food security in oil-bearing coastal communities in the Niger Delta?
- To what extent have the offshore operations of MNOCs specifically affected the health and shelter of the people in oil-bearing coastal communities in Niger Delta?
- What are the necessary measures that could safeguard offshore operations of MNOCs and the survival of coastal oil-bearing communities in Nigeria's Niger Delta?

1.6 Summary of the chapter

The chapter commenced with an introduction that summarises the different sections that constitute the chapter. The background of the study generally examined the emergence of MNCs as non-state actors in the global arena after two major epochs of world history. It highlighted that MNCs are powerful global economic entities whose capacity constrains the sovereignty of developing countries such as Nigeria. The section also discussed how MNOCs have played a significant role in the economy of Nigeria since the discovery of petroleum resources in commercial quantities in 1956. It further underscored how MNOCs' activities have shifted from onshore areas to offshore locations, and examined the negative impact on the marine environment and survival of coastal oil-bearing communities in Nigeria's central Niger Delta. The critical fact is that the coastal oil-bearing communities' major source/s of livelihood is subsistence fishing and that the negative impact of oil production grossly hinders their total way of life.

The chapter also discussed the significance of the study as part of the background. It stated that the study would further create an understanding and broaden the local and global literature of MNOCs offshore activities and associated environmental risks that would undermine the survival of coastal communities in Nigeria's Niger Delta. It further states the importance of the enactment of safety measures that could enable the conservation of marine environmental resources for both MNOCs' offshore operations to thrive and guarantee the survival of the people of oil-bearing coastal communities in Nigeria's central Niger Delta and similar regions of the world for the present and future generations.

The chapter also gives account of the statement of the problem. It underscored the fact that oil production activities are known everywhere in the world for their deleterious impact, and that the increasing presence of MNOCs operations in offshore locations have some negative impact on the survival of coastal communities that depend on fishing. The problem statement explains that oil production is associated with pollution (oil spills and gas explosion, flaring/emission), which impact negatively on the marine ecosystems and services that the coastal oil-bearing communities depend on for their survival. It further explains that these negative externalities are borne largely by third parties such as coastal communities in the case of the Niger Delta. Lastly, the chapter presents the aim, objectives and research questions of the study.

Chapter Two

Literature Review

2.0 Introduction

This chapter presents the literature review of the study and it comprises three sections namely, conceptual clarification, review of literature and theoretical framework. The section on conceptual clarification explains the key concepts used in the study which include offshore operations of MNOCs and survival of coastal communities. This is to enable readers to appreciate the concepts as used in the study. The second segment presents the review of literature. The intention here is to offer a broader view of the nexus between offshore operations of MNOCs and the survival of coastal communities as it relates to the Nigeria's central Niger Delta. It consists of themes such as socioeconomic characteristics of coastal communities and MNOCs and host-communities' conflicts. The third section discusses the theories of environmental externality and ownership of resources. This is to accentuate the theoretical foundation of the study.

2.1 Conceptual clarifications

The two main concepts used in the study, namely, offshore operations of MNOCs and survival of coastal communities are clarified below.

2.1.1 Offshore operations of multinational oil corporations

This concept describes the whole gamut of MNOCs' oil and gas exploration and production activities around the coastal/marine areas and/or below the seabed in Nigeria's Niger Delta. The MNOCs are also called international oil companies (IOCs) such as the SPDC, CNL, ExxonMobil, Agip or Eni, among others operating in Nigeria. In addition, the MNOCs belong also to the wider category of multinational or transnational corporations and/or enterprises (MNCs, TNCs or MNEs; Kordos & Vojtovic, 2016: 151-152; Hansen, 2008: 410-451). Regulation of a host-country and the sphere of engagement of the MNC can make it to adopt a name slightly different from its parent name/country in the host-country. This sometimes appears only on the surface in most developing countries. Irrespective of the nomenclature or engagement, the MNCs are regarded as non-state actors in the international political system, and are major players in the global economy (Kordos & Vojtovic, 2016: 150-158). Their operations expand beyond national boundaries, usually carried out from a parent country (mostly, in developed countries) through a network of subsidiaries in developing countries (mostly, raw materials endowed countries) (Brown, Fercher & Leitner, 2017; Averchenkova,

et al. 2015: 1-25), and through this business network, they play a leading role in the world economy by generating an enormous proportion of the global GDP that accounts for one-third of the world trade (Kordos & Vojtovic, 2016: 150-158). In addition, they command greater wealth and/or resources than individual GDPs of many developing countries (Hansen, 2008: 410-451). In other words, the MNCs wield huge economic power and influence on the pace of development of many developing countries. Such economic power and international reach of the MNCs subject a State in which they operate to regulatory challenges because they are not totally confined to national territories and jurisdiction (Hansen, 2008: 410-451).

On the other hand, the phrase ‘offshore operations’ refers to the whole gamut of oil and gas exploration and production engagements of MNOCs, which include seismic operations (geological and geophysical surveying and/or exploration), construction of facilities and drilling (development and production), and decommissioning of production platforms (Vinogradov, 2013: 335-362). It also means the exploration, extraction, processing, transportation, storage and consumption activities carried out by the MNOCs in the study area (Iwejingi (2013: 76). These operations of the MNOCs are highly technical and unique, and they are undertaken in more profound waters involving the development of massive oil and gas infrastructure such as offshore platforms, fixed or mobile, and fleets of vessels with devices collocating submarine pipelines. Others are floating production storage and offloading (FPSOs) installations that receive and process oil and gas on board, which in the past were tank vessels. The tank vessels have been disposed of their machinery and replaced with oil and gas processing equipment and a universe of tugboats specialised in services and maintenance of the offshore structures.

These offshore sector petroleum activities are ongoing around the world (Rochette & Wright, 2015: 1-3). Klinger *et al.* (2018: 352-362) explains that they actually started in the world between 1960s and 70s, and have in recent decades seen a marked increase in the traditional littoral regions of the globe. The Department of Petroleum Resources [DPR] (2015: 6-7) reports that the Nigerian experience of the upstream sector began earnestly in 1908, when a German company known as the Nigerian Bitumen Corporation explored oil in the south-west area known for Nigerian Tar Sand deposits in recent years. The DPR report further stated that World War I punctuated these early activities, after which Shell-D'Arcy, a consortium of Shell and Royal Dutch resumed exploration in 1937 on the northern fringes of the Nigeria's Niger Delta. Precisely in June 1956, the exploration activities of Shell-D'Arcy (now Shell Petroleum Development Company or SPDC) yielded a positive result in the country – the first oil well was

struck in viable quantity at Oloibiri, a community in Bayelsa State. Since then, oil resources have been the mainstay of Nigeria's economy (Nwoba & Abah, 2017: 885-899).

The SPDC, being the first company to secure oil exploitation rights, was able to establish control over the major oil reserves in Nigeria, and consolidated its lead over other MNOCs who arrived later (Ezeudu, 2011: 28). Currently, Nigeria's oil industry hosts more than a dozen MNOCs, the majority of which are European and American companies. Besides Shell, which is Dutch/British owned, there are other major participants such as Mobil, Chevron/Texaco and Ashland (US), Agip (Italy), TotalFinaElf (France). Others are Deminex (Germany), Pan Ocean (Switzerland), British Gas (Britain), Statoil (Norway), as well as Nigerian companies including Conoil and Dubri (Ezeudu, 2011: 28). These MNOCs operate joint venture agreements with the Federal Government of Nigerian, represented by the Nigerian National Petroleum Corporation (NNPC), which holds Nigeria's equity stake (about 60 per cent) in most of them (NNPC, 2017; Marshall, 2016: 214-220). This form of commercial arrangement arguably has created a negative perception on the ability of government to coerce MNOCs into respecting regimes for oil production and environmental resources protection in Nigeria. In this study however, some discussion on the offshore operations of MNOCs is limited to Chevron Nigeria Limited (CNL) and the study area.

2.1.2 Survival of coastal communities

To appreciate the concept of survival of coastal communities, let us first explain the phrase 'coastal communities'. Coastal communities are settlements which lie adjacent to a tidally influenced waterway. The concept also describes communities or settlements located on coastal barrier islands, a part of the landmass that is adjacent to the Atlantic Ocean, or estuarine seas within Bayelsa and Delta States in Nigeria's central Niger Delta. In addition, it refers to the inhabitants of such settlements as a group of people living together, having particular socioeconomic and environmental characteristics, which differentiate them from their onshore or inland counterparts (McElduff, 2016-17: 1-10). Lastly, it further refers to a group of different organisms or species living within the ecosystems around the coastal landmass, the Atlantic and estuarine seas in the study area. Hence, the concept of survival of coastal communities denotes the socioeconomic impacts of the offshore operations of MNOCs on the coastal (fishing) communities in the Nigeria's Niger Delta. It is a determinant and/or a measure of the expected standard of living of the people in relation to the depleting environmental resources of the study area. In addition, the concept defines the environmental risks and/or negative environmental externalities imposed on the ecosystems and services and the standard of living

of the people in the coastal communities of Nigeria's Niger Delta. The intention was to ascertain the depletion of the ecological resources and its impact on survival (socioeconomic existence) of communities under this study.

To further appreciate the concept of survival of coastal communities, it is also important to establish the nexus between the environment and survival in the context of this research. The environment connotes all complex systems of interactions including atmosphere, land, bodies of water, living and non-living things. It is the most vital source of human existence and/or survival all over the world, for it provides the physical milieu and resources required by man for development. Interestingly, this vital source of livelihood of the study area covers a stretch of about 853 km Atlantic coastline, an inland area extending about 15km to Lagos in the West, and about 150 km base of the Niger Delta, as well as an area of about 25 km East of the Niger Delta (Nigeria National Policy on the Environment [NNPE-Revised], 2016: 16-17).

This document also indicated that the composition of the shoreline includes barriers/lagoon system, the Mahin mud coast, the Niger Delta, Strand coast and a moderately wide continental shelf. While the part running through the Niger Delta contain diverse important habitats including marshes, mangroves, sandy beaches and seagrass beds (Martin, 2017: 1-2). This area is known for its resources similar to what obtains in other deltaic regions of the globe (Makowski & Finkl, 2018: 224-225). The coastal enclave of the Nigeria's central Niger Delta provides very essential services to the government of Nigeria, MNOCs and the coastal communities in the region. It provides seafood and makes profits for the fisheries industry, beaches for recreational opportunities, coral reefs/estuaries for fish breeding and mangroves/barrier islands for storm protection to communities. In addition, the Exclusive Economic Zone (EEZ) of Nigeria within the study area contains vast deposits of oil and gas that is undergoing development and production (Egede, 2005: 73). The EEZ can be described as a stretch of water, the seabed and subsoil, which is adjacent to the territorial sea of a littoral State, and not exceeding a maximum breadth of 200 nautical miles, as measured from the base-line or tidal mark. The United Nations Convention on the Law of the Sea (UNCLOS) 1982, recognizes that coastal State has the sovereign right to "exploit, develop, manage and conserve all resources including fish or oil, gas or gravel, nodules or sulphur, which are found in the waters, on the ocean floor and in the subsoil of an area extending 200 miles from its shore" (Article 193). Thus, Nigeria exercises sovereignty over the exploration, exploitation, conservation, and management of all available natural resources in the EEZ of the study area

(Egede, 2005: 73-93). It implies that the study area will further undergo severe exploration and contamination stress.

As a result, Oyebamiji & Mba (2014: 27-36) asserted that it is important to sustain the quality of the natural environment while exploiting the resources of the region for the development of the country. The quality of the marine environment was described by IPIECA-IAOGP (2015: 1-56), “as a unique one with diverse network of habitats and species, interwoven by complex physical and ecological processes that interact with humans and their activities at many levels”. It also stated this complex network of habitats and associated communities, including the open ocean, deep sea, coral reefs, estuaries, saltmarshes, mudflats, beaches among others are called ecosystems, which are all connected and influence the Ocean (IPIECA-IAOGP, 2015: 1-56). Ivanova (2014: 138-273) states that these ecosystems and the economies of the local communities are closely intertwined. It implies the ecosystems within the study area and economies of the communities are closely intertwined. Evidently, the people heavily depend on them as the main source(s) for their subsistence living (Ejiba, Onya & Adams, 2016: 1). Coastal ecosystems provide many services including the provision of fish stock and other seafood for the people to consume, derive recreational or aesthetic and spiritual fulfilment and enjoyment, as well as other benefits such as disease management and climate regulation from these habitats (UNEP-UN Environment, 2017: 25; IPIECA-IAOGP, 2015: 1).

Unfortunately, human activities continue to degrade the ecosystems and the services they provide for the survival of the coastal communities and/or for their socioeconomic development (UNEPFI, 2011: 1-43; WBCSD, 2010: 1-73). The most critical of all known human activity that have much impact on the marine environment is pollution caused by the extractive industries or MNOCs (WWF International Report (2015: 33-39). Pollution from the activities of MNOCs causes environmental risks. Environmental risks are the direct and indirect or cumulative pollution impacts (negative environmental externalities) of MNOCs’ offshore activities on the environment, which manifests in the forms of ecosystems depletion, climate change, coastal erosion, among others, borne by the people of the coastal oil-bearing (fishing) communities in the Nigeria’s Niger Delta. Vinogradov (2013: 335-340) affirms, the global development of offshore petroleum activities has increased pollution accidents in offshore locations, and have tremendously impacted marine lives to a large scale.

Yang (2017: 469) presents a chronicle of these accidents and/or environmental risks caused by offshore platforms between 2009 and 2012 as follows: Australia, 2009; United States, 2010;

China, 2011; Brazil, 2012). Also in 2012, there was a similar event in Koluama, Nigeria (Abowei & Ogamba, 2013: 373-3881). All these events have led to dramatic consequences that undermines the survival of coastal communities in and around the affected locations/regions. The events have altered the “physical, chemical and biological” composition of the natural environment, as some “800 substances [mostly] oil and oil products” as pollutants released into it, “causes damage to fishing grounds and loss of marine life” (Vinogradov, 2013: 335-340).

Undoubtedly, offshore installations spill millions of gallons of oil and gas pollutants, which quickly traverses vast distances, when powered by ocean current and wind and wave actions, which wreak havoc on shorelines, beaches and estuaries, even if, it occurs at 600 miles away from the shores (Vinogradov, 2013: 335-340; Abowei & Ogamba, 2013: 373-3881). Such amounts of pollution inflict devastating economic losses to coastal communities (Abowei & Ogamba, 2013: 373-3881; Natural Resources Defence Council (NRDC), 2009). Pollution destroys the very subsistence livelihood of the coastal communities for it disrupts the local fishing industry, transportation, recreation and tourism sectors. It also destroys sea plants and animal populations, fish and other marine organisms.

In addition, oil spills have lasting ecological impacts. The NRDC (2009) report attributed this situation to current clean-up methods. The established fact is that this process can only remove a small fraction of the oil spilled into Oceans, and usually left behind substantive amounts of the oil to continue to impact the ecosystems overtime. In addition, the report indicated that the scientific investigations on the Exxon Valdez spill reveal nearly 20000 gallons of oil from that spill remains in Prince William Sound, continuing to harm the environment, and undermining its recovery as well as threatens lives of endangered species. These scientific investigations on the incidence reveal that oil pollution and its long-term toxic effects affects marine mammals, sea birds, fish species, and other sea life, it makes them extremely vulnerable and impair their reproductive success for generations. The study on the spill also contended that tiny amounts of oil as little as one part per billion left behind by a spill can harm pink salmon and cause their eggs to fail on the long run. It implies that if offshore operations of MNOCs are not controlled, and alteration of the quality of coastal/marine environment continues, the survival of coastal communities in the Niger Delta will be in jeopardy. It is therefore, crucial to have a healthy interaction with the ecosystems (the Atlantic Ocean, wider seas, estuaries, saltwater marshes, etc.) for the sustenance of marine life and survival of the people in coastal communities. The reason is that the local economies of the coastal communities are depended on subsistence artisanal fishing, recreation and tourism (NRDC, 2009). This was emphasised by the Oregon

Resilience Plan (2013: 47-72), which state that a high level of interaction is inevitable for that that “all coastal communities have a necessary relationship with its connected marine environment”. The kind of relationship or proximity does not only define the communities but also is the basis of their economies, whether they are dependent on a port, recreation or tourism (The Oregon Resilience Plan (2013: 47-72). Hence, any distortion of this unique environment of the complex interactive systems of the air, land and water bodies, as well as living things will have positive or negative feedback effects (externalities) (NNPE-Revised, 2016: 6).

Obviously, the offshore operations of MNOCs have subjected the coastal ecology of the study area to changes, and has increasingly put pressure on the communities as vulnerable places facing uncertainty and an unpredictable future. The WWF International Report (2015:1-69) and Kadafa (2012: 38-51; Kadafa, 2012: 19-28) affirms that exploitation of oil and gas causes waste and pollution, and damages the ecosystems and causes resources depletion. In the case of the Nigeria’s Niger Delta, Greyl *et al.* (2013: 1-73) reported that the operations of MNOCs causes waste and pollution, which further engender environmental damage and risks human survival. The National Human Development (NHD) Report (2015: 47-69), also indicated that pollution from sources including oil spills and flaring/emissions of gas over the years in the Niger Delta, results into climate change in Nigeria. It also states that the changes take the form of extreme weather conditions, acid rains and flooding, coastal erosion, biodiversity loss, deforestation, depletion of fisheries resources, as well as other attendant negative consequences in the region. It implies that the survival of the coastal communities within the study area are severely threatened because they are still depended on the ‘rich natural’ ecosystems and/or marine resources for existence destroyed by the exploitation activities of the MNOCs.

Furthermore, it is fundamental to understand that the continuous exploitation of the environment means the reduction of the ability of the habitats to absorb waste and pollutants, as well as provision of goods and services for the communities in the Niger Delta (Okonkwo *et al.* 2015: 452-463). In particular, an uncontrolled exploitation of the offshore areas will further expose the marine environment to risks, including damage to the Atlantic Ocean, shoreline and natural beaches and habitats. Petroleum risks causes harm to marine life and losses to the local economies of the coastal communities. Hence, an appreciation of a sustained healthy coastal/marine ecosystems is vital to understanding the concept of survival of coastal communities in this study. The concept of survival of coastal communities is therefore a tool for measuring the impacts of offshore operations of MNOCs impact on the ecological resources and affect the standard of living (socioeconomic life) of the people in the study area.

2.2 Review of literature

2.2.1 Socioeconomic characteristics of coastal communities of Nigeria's Niger Delta

The socioeconomic characteristics of coastal communities of Nigeria's Niger Delta are determined by the environment. In other words, the environment regulates the socioeconomic activities of the people in coastal communities. These are not coastal cities but communities or fishing settlements located on the coastal barrier islands of the Atlantic Ocean, which covers a stretch of land comprising freshwater forest trees that are interlocked between mangrove forests. The lands are prone to tidal erosion as the waves often bang on them. Usually, one stretch of land is broken from another by an estuary from which the tributaries of River Niger such as River Nun, River Forcados, Middleton, Pennington, among others open into the Atlantic Ocean. The soil is purely sandy with minimal amount of organic matter. Therefore, they are very loose and can hardly retain water to support the growth of crop plants. Economic crops found in the area include coconut, almond and other fruit trees.

McElduff (2016-17: 1-10) describes coastal regions as containing highly productive and diverse ecosystems that in turn support a range of socioeconomic activities including fisheries for survival of the coastal people. Artisanal fishing is the main occupation of the inhabitants of coastal barrier islands of the Nigeria's Niger Delta. That is, they engage mainly in fishing for their livelihood. In addition, they also practise marine water fish farming, processing and marketing. The fishermen carry out their fishing occupation mainly in inland rivers, lagoons and creeks, and also make regular incursion in to the Atlantic Ocean, extending to about five nautical miles off the sea shore (Akingba *et al.* 2017: 222-228; Adesulu & Syndenham, 2002:397), especially during the dry season when the waves size becomes smaller and less turbulent. Large populations of artisanal fisher folks who live along the coastline rely on the use of small fishing gears. Oladimeji *et al.* (2013: 445-455) and Inoni & Oyaide, (2007:135-149) respectively stated, the fishing gears and equipment used by artisanal fishermen are not sophisticated, and comprises hooks and line, fish traps, cast net, gill net, fishing craft mostly paddled canoes and a few motorized canoes, which are operated by 3-6 persons. Fish farming, on the other hand, takes place in ponds constructed on the *chikoko* soil of the tidal flood plains. The source of water for these ponds is underground water, which seeps through the *chikoko*. Usually, the fingerling for stocking is obtained from the wild, especially the flood plains. Other

economic activities carried out in coastal communities include basket making and carving of dugout canoes, whose raw materials are cane ropes and large trees obtained from the forest.

Pollution from offshore operations of MNOCs affect these economic activities of coastal communities. However, it occurs mainly from offshore petroleum installations by accident in the study area. Notwithstanding, when pollution occurs, it brings harm to the environment and inhabitants of communities. In particular, it evidently destroys bio-resources and jeopardizes livelihoods of the coastal communities as it halts fishing activities of fisher folks, and damages fishing gears with no means of replacing them in the very short-run. On the long-run, the people face untold hardships because they mainly depend on fishing to sustain their large family sizes. Olaoye *et al.* (2012:8-22) established that 59% of fisher folks aged between 21 and 40 years are married and operating a nuclear family, while Onemolease & Oriakhi (2011:55-61) pegged the average family size (household membership) of seven (7) persons in each artisanal fishing community in Delta State. Evidently, most of the artisanal fisher folks have a large household, and the head of the households in fishing communities in the Nigeria are usually males (Akinwumi *et al.* 2017:084). The large family sizes are traceable to the extended family system. Large household constitutes an important labour source for farmers and fisher folks. Another argument was that the large household size in fishing communities was due to polygamy. Jim-Saiki *et al.* (2016: 31-35) and Lawal *et al.* (2016: 31-35) in their studies, observed that the average aged fisherman marries between two to three wives who will assist him in sales and processing of the fish catch. Their study also revealed that a fisher folk has a compound, which consists of four or more number of huts, one for each of the wives and one for the husband, but they all eat from the 'same pot'.

Such a living implies that the daily income of fisher folks is a major factor for the large family sizes in fishing communities. However, the daily income of the family depends on the catch volume with respect to the type of fish or species composition of the catch. It is also determined by the freshness of the fish for such enhances easy sales and improved prices. This translates to better earnings. Another factor is that majority of the fisher folks are not members of any fisher cooperative society. It limits them from accessing credit facilities from financial institutions and government agencies. Credit facilities enable fisher folks to make large investments in the occupation. However, it has been argued, artisanal fisheries in Nigeria suffers low capital investment and high labour intensive practices (Oladimeji, Abdulsalam & Damisa (2013:445-455). Abowei & Hart (2008:5-11) explained, the low investment in the

sector can be attributed to the earnings of fisher folks. The study reports that a fisher folk highest earnings per annum was one hundred and twenty-one thousand, forty-nine naira and thirteen kobo or one hundred and eight dollars, seventy-four cents (₦121,049.13 or \$1008.74), spent for drift net, while two thousand, seven hundred and fifteen naira, eighty-four kobo (₦2,715.84 or \$22.63) as the least annual earning, spent also for local fishponds. In addition, the estimate for cast net, gill net, hook and line, assorted traps and stakes recorded eight thousand, five hundred and twenty naira, twenty-four kobo (₦8,520.24 or \$71.00), nine thousand, four hundred and twenty-five naira, forty-eight kobo (₦9,425.48 or \$78.55), three thousand, two hundred and eighty-two naira, seventy-five kobo (₦3,282.75 or \$27.36) and eight thousand, nine hundred and twenty-three naira, sixty-one kobo (₦8,923.61 or \$74.36) (at exchange rate of ₦120.00 per dollar in 2008) respectively (Abowei & Hart, 2008: 11). Furthermore, Okwu *et al.* (2011: 408-413) reports, the annual income distribution of majority of the fisher folks indicate that 56% earn more than three hundred thousand naira or one thousand, eight hundred and seventeen dollars, eight cents (₦300,000.00 or \$1817.08). This study shows that the fisher folks earn an income range of fifty-one thousand naira or three hundred and eight dollars, ninety cents (₦51,000.00 or \$308.90) to one hundred thousand naira or six hundred and five dollars, seventy cents (₦100,000.00 or \$605.70) (at ₦165.10 per United States Dollar (USD) in 2011), which is an improvement over previous findings of Akegbejo-Samson (2006: 47-54) and Adeokun *et al.* (2006: 966-971) respectively. However, it still points to the fact that the annual income of a fisher folk is still relatively low, considering the present cost of living. This might account for their inability to use modern fishing gears and improved fishery practices in their fishing activities.

Ijatuyi *et al.* (2016: 309-317) discovered that about 65% fisher folks are not members of any social group, while 35% are members, which indicate that majority did not have social affiliation within their environment. This contradicts the findings of Ofuoku *et al.* (2008:16-21), which was that farmers who subscribed to joining social organizations have more access to information and credit, input and aids from government agencies and extension workers. In the same vein, fish folks who join fish farmer associations did so because of easy access to extension services, market and credit facilities. Okwuoche, Asogwa & Obinne (2012: 202) and Basorun & Olakulehin (2007: 10-11) in their studies, affirm that fish farmers joined fish farmer association in Lagos State, because of the results achieved by members, mostly in terms of the association's link to markets, credit facilities and extension services. This explains that fish

folks who do not have social affiliations are deprived of some opportunities only membership in an association can offer.

Another socioeconomic characteristic of coastal (fishing) communities in the study is gender composition of the families or households. Jim-Saiki *et al.* (2016: 31-35), Olaoye *et al.* (2012:8-22), Onemolease & Oriakhi (2011: 55-61), and Akpoko (2003:13-18) have in their separate studies observed that artisanal fishery, particularly the offshore sector is a male dominated occupation, with an age range of 20 – 60 years in Nigeria. The reason for the male dominance and/or low female participation in the sector was because of the risks associated with the offshore fishing activities (Onemolease & Oriakhi, 2011: 55-61; Okwu *et al.* (2011: 408-413). However, Okwu *et al.* (2011: 408-413) based their argument on the notion that the fish capture involves hard labour, it is strenuous and risky for most female folks to withstand.

Formal education and experience are key players in the socioeconomic development of the people in coastal fishing communities in Nigeria. Several historical facts attest to the fact that the coastal communities along the Atlantic coast of West Africa have first contact with the Europeans. Evidently, their early interaction with the Europeans makes these communities known to be highly educated. However, over 60% of the fisher folks in times past had no formal education up to the senior secondary education level, but gain the knowledge and skill of fishing within the household through regular participation with their parents (Oruonye, 2014: 16-24). In line with this submission, Tshiunza, Lemchi & Uloma (2001: 90-96) was somewhat emphatic in stating that artisanal fisher folks had low educational background. While Okwu *et al.* (2011: 408-413) support the view of experience, and state that those involved in fish capture are in the active age bracket.

2.2.2 Conflicts between MNOCs and host-communities in Nigeria's Niger Delta

Conflicts between MNOCs and host communities are age-long occurrences in the Niger Delta. The conflicts have equally assumed several forms and magnitudes (Abutu & Ejeh, 2017: 54-63; Babatunde, Norafidah & Zengeni, 2016: 1-20). Quite a number of explanations have also been offered for the conflict situation experienced in the region (Osaghae, 2015: 109-129; Anochie & Mgbemena, 2015: 13-31; Maiangwa & Agbiboa, 2013: 71-83); Eweje, 2006: 27-56). Nevertheless, the truth is that the peoples' expectation to land and ownership of petroleum resources, as well as payment of adequate compensation for resources damaged become very high in the life of the host-communities. In addition, the Nigerian security forces are equally blamed for colluding with MNOCs on a number of occasions in their direct responses of host-

communities with acts of repression that culminate in abuses of human rights in the region. Consequently, the people have also come to believe that since peaceful negotiation and dialogue have failed to resolve the unabated pollution crises in region, the only option for gaining international sympathy was through armed struggle to save the population already dying from the pollution of their environment.

Notably, the MNOCs and host-communities' crises initially started as peaceful protests by youths of the communities and later matured to violence, including armed militancy in the forms of hostage taking and kidnapping of MNOC staff members, as well as armed engagement with the Nigerian security forces who are backed by the MNOCs. Apparently, this approach paid off. It gave birth to the widespread view among protesters that the only language that the Nigerian State and MNOCs would listen to is violence (Obi 2009a, 2010; Watts 2007; Ikelegbe & Ikelegbe 2006: 179-194). The MNOCs enshrined this behaviour. However, there is relative peace in the area for some time now. Nevertheless, let us examine a chronicle of few past incidences between MNOCs and host communities in the study area. This is practically to enable us appreciate the situation in relation to this study and further elucidate the views held by previous researchers on the subject.

The very first notable conflict between MNOCs and a host-community was in 1987. It involved SPDC and Iko community in Akwa Ibom State, Nigeria. Essential Action (1999: 18) reported that the community approached SPDC to ask for their rights in a peaceful manner when deteriorating environment and socioeconomic conditions resulting from the company's operations became unbearable. The complaints of the community centred on two major issues, namely:

- That the operations of SPDC had led to the closure of the creek where fishing is carried out; and
- That the gas flares posed a health hazard to the community.

In order to mitigate their plight, the community asked for jobs for their youths and a general improvement of the conditions on the environment. In response, the Nigerian military burnt down many houses and tortured the people of Iko community. In 1995 (i.e. eight years later), the community organized a new protest and a team of mobile police (code named Kill and Go) invaded the village at night, burnt down many houses and killed a schoolteacher. This surprise attack taught the community a hard lesson that would be a scare in their life for a very long time (Essential Action 1999: 18).

The next one was between Texaco and youths of Koluama communities between January 20th -27th 1995. The youths of the community occupied Funiwa 5 platform operated by Texaco, and shut down the facility for that period and Texaco lost its daily production of about 55,000bpd. Texaco at the time blocked every efforts of publication of this incident (Dan-Woniowei, 2005). The grievances of the youths were unemployment, non-compensation for environmental damage and the construction of social infrastructure including pipe-borne water and hospital. The protest was mainly because of long time destruction of their environment (pollution of the Ocean, estuaries and adjoining rivers) by the offshore operations of Texaco. Oil slicks are still a common feature in area.

There was another protest and forceful closure of the Texaco's Funiwa 5 platform by youths from Koluama communities in March 10th – 20th 1998. This time around, the youths asked for an immediate compensation for a spillage which the company was cunningly avoiding. They argued that the spill hampered their fishing rights for a livelihood. The action by Texaco was a slap on the communities. The youths of the communities occupied the platform and stopped workers from working, and eventually seized two vessels and expatriate crew on board during the incidence. The protest caused the Pennington terminal of the company an eleven-day stall of export loading schedules.

In 4th January 1999, Opia and Ikenwa communities in Delta State alleged that CNL apparently aided an attack by the Nigerian military on the two villages in response to their ongoing public protest for reparation and compensation. Goodman & Scahill (1998: 164) reported that the military injured and killed persons and livestock, destroyed religious shrines, canoes and other fishing equipment, water wells, as well as burnt down homes in both communities.

There was yet another conflict between MNOC and host-community on the 8th of July 2002. This also involved Chevron/Texaco but at this time was with Escravos community. This happened after the company ignored the community's June correspondence concerning an issue relating to compensation. As a result, some 600 women of the community occupied the company's export terminal and tank yard to express their grievances. It was reported that the takeover was a response to the negative attitude of the MNOC. In addition, the ten-day event disrupted the flow of 450,000 barrels a day (b/d) of the terminal. Furthermore, the women were able to make 26 demands from the company's management. The demands include establishment of a permanent tripartite conflict resolution body of stakeholders (government officials, representatives of CNL management and the women leadership of the community).

This demand suggests that the women wanted to be involved as stakeholders for because they bear most of the burden of the negative externalities from the company in the area. Through negotiation, some commitments were made by the company to resolve the conflict, a Memorandum of Understanding (MoU) was signed between the women and CNL. Turner & Brownhill (2004: 63-93) cited the MoU commitments as follows:

- Upgrading of 15 members of the communities who are on contract staff to permanent staff status;
- Building of one house each for the elders - Oloja Ore and the Eghare-Aja in the communities;
- Provision of vital infrastructure;
- A monthly allowance of at least N50,000 (U.S.\$375; 1 Naira = U.S.\$0.0075) for the elderly aged 60 years and above;
- Employment of one person from each of the five Ugborodo villages every year; and
- Establishment of income generating schemes”.

The study further revealed that the major request, that CNL should cease operations in the area, was not accepted by the company negotiators. However, this incident raised one remarkable question, which is that “why women got involved in conflict with CNL”? It was answered thus:

We want Chevron to employ our children. If Chevron employ our children, we the mothers will survive; we will see food to eat. Our farms are all gone due to Chevron’s pollution of our waters. We used to farm cassava, okro, pepper and others, now all the places we have been farming are sinking, and we cannot farm. We cannot catch fishes and crayfish, that is why Escravos women and Chevron are in conflict (Turner & Brownhill, 2004: 63-93).

Another remarkable facet of this particular incident was that it encouraged 12 other occupations. It was reported that before the Escravos group concluded negotiations, well over 1,000 women occupied six Chevron/Texaco flow stations at Abiteye, Makaraba, Otuana, and Olera Creeks among others (Wamala, 2002: 38). It was also reported that about one hundred women paddled a massive canoe five miles into the high seas to take over the company’s production platform in the Ewan oilfield. Chevron/Texaco evacuated its staff, shut down production and refused to negotiate with the women claiming that, “they are not from the company’s host-community” (Turner & Brownhill, 2004: 63-93).

One of such remarkable takeovers is the Abiteye incident. Turner & Brownhill (2004: 63-69) reported, when ERA investigated the incidence on July 22, 2002, one Felicia Itsero, 67 and spokesperson for the women narrated their ordeal thus:

We are tired of complaining, even [i.e. and moreover] the Nigerian Government and their Chevron have treated us like slaves. Thirty years till now, what do we have to show by Chevron, apart from this big yard and all sorts of machines making noise, what do we have? They have been threatening us that if we make noise, they will stop production and leave our community and we will suffer, as if we have benefited from them. Before the 1970s, when we were here without Chevron, life was natural and sweet, we were happy. When we go to the rivers for fishing or forest for hunting, we used to catch all sorts of fishes and bush animals. Today, the experience is sad. I am suggesting that they should leave our community completely and never come back again. See, in our community we have girls, small girls from Lagos, Warri, Benin City, Enugu, Imo, Osun and other parts of Nigeria here every day and night running after the white men and staff of Chevron, they are doing prostitution, and spreading all sorts of diseases. The story is too long and too sad. When you go (ERA) tell Chevron that we are no longer slaves, even slaves realize their condition and fight for their freedom (Turner & Brownhill, 2004:63-93).

Furthermore, Turner & Brownhill (2004: 63-93) stated, the Niger Delta is “exploited, misused, abused, polluted, underdeveloped, and almost completely dead; like a cherry fruit sucked and discarded.” In addition, the study argued, the “death economy” operated by the government and MNOCs was behind the depletion of the environment, high magnitude of unemployment, prostitution, and general absence of social amenities in the host-communities (Turner & Brownhill, 2004: 63-93).

Undoubtedly, the agitations of the women triggered some commitments from CNL and SPDC in July 2002 to the affected communities (Turner & Brownhill, 2004: 63-93). Thereafter, the majors refused to implement their undertakings. Due to that, on 8 August 2002, there were 4,000 insurgent Warri women who demonstrated at the companies’ regional headquarters. This was in demand for the fulfilment of the promise made by the company management on July 2002. In response, it was reported that police and soldiers attacked the women, which was affirmed as stated:

...we were just singing; we didn’t destroy anything. We were peaceful. The police and soldiers misbehaved. Look at me, seven armed men pounced on me and reduced me to nothing. I found myself in a Shell clinic a day after the protest (Turner & Brownhill, 2004: 63-93).

In addition, Turner & Brownhill (2004: 63-93), acknowledged that police killed a woman during the attack. Nonetheless, it was denied by SPDC in local media, stating there was no such killing during the protest (Turner & Brownhill, 2004: 63-69). Adebayo (2002), however,

reports that the protest was widely published, in which about 4,000 women demonstrators gave an ultimatum to the corporation to pay medical bills of those them injured, without which, they would parade naked and place a curse on SPDC. It was also reported that the women were ready to give up their lives if their demands were not met, and threatened to undress themselves before officials of the company. The act of a woman undressing before a man in protest is believed in most parts Africa as a bad omen to the man concerned. It is believed that when a woman makes herself naked publicly in protest and swears that, “this is where life comes from I hereby revoke your life”, especially by an elderly woman, initiates life threatening conditions on men. The belief is that such a curse has some spiritual powers to inflict madness or even cause death of the foe. It was reported that many men subjected to this “social execution” may eventually die when exposed to serious life threatening situations. It was also reported that this spiritual strategy was widely used by the Gokana people of Ogoni in the 1980s for compelling Shell to meet their demands (Turner & Brown, 2004: 63-93).

Another conflict yet took place in Warri on March 2003 (Nzeshi, 2003). In addition, the report stated that the communities involved lost over 100 people while struggling to take over oil facilities belonging to CNL because the corporation expelled its contract workers who were members of the communities. Nzeshi (2003) further reported that SPDC and CNL at the time shut down their operations and evacuated expatriate staff from facilities that were producing a total of 817,500 b/d.

The protest story in the area assumed a new dimension on April 16, 2003. This involved the lower workforce of Transocean, a contract firm of CNL and their management. Workers of the firm stopped CNL operations in four offshore platforms after it sacked five union leaders who were allegedly organizing members against the firm’s transport policy, which workers of Nigerian origin were transported to workplace in boats, while their expatriate counterparts were conveyed in helicopters. As a result, the workers on board rig MG Hulme staged a strike in protest of the discriminatory transport policy. The protesters argued, boats conveying local staff takes at least four hours to arrive at offshore production platforms, and this was not healthy for them as they are susceptible to attacks for hostage taken/kidnapping by aggrieved community members. They also argued, this was not the case with the expatriates who took just 45-minute flight to land at the offshore production platforms. In addition, Oyawiri (2003) reports that on April 19, 2003, a general strike was called by the staff union in solidarity with staff of Transocean, and three additional CNL’s deep-sea platforms joined their colleagues in the protest. Furthermore, it was reported, protesting union members stopped work at offshore

platforms and held hostage over 200 foreign and Nigerian workers (mostly management cadre) of Halliburton, Schlumberger, TotalFinaElf and SPDC across the region. However, Vidal (2003) reported that the protests were called off on May 2, 2003 about the time British and Nigerian security forces were planning to use force to stop it.

The most significant fact in all the reports of the civil unrest recorded in the study area is that the MNOCs were responsible for fuelling most of the discord between themselves and the host-communities. The MNOCs encouraged and sponsored the civil unrests in the region by engaging in acts inimical to the environmental resources and peoples of the host-communities. The incidents show that the MNOCs on occasions collude with the Nigerian state and security agencies by not keeping to safe environmental conditions, using excessive force to quell communities' peaceful protests, killing and destroying lives and property at will, and dishonouring agreements reached with the host-communities. This is a clear indication of a superior power (Nigerian state-MNOCs coalition) imposing itself on the weak and helpless Niger Delta host-communities. However, there is relative calm as at the time of this research in the area.

2.2.3 Effects of offshore operations of MNOCs on environmental resources and livelihoods

Chittirapap (2016: 309) states that human well-being and ecosystems are inextricably linked. In addition, Chittirapap (2016: 309) affirms, ecosystems provide goods such as forest products (food) as marketable goods, and non-marketable ones as services including water flow regulation, storm protection, amongst others. The study argued, degradation of ecosystems or reduction in supply of its goods and services can lead to loss of human welfare (Chittirapap, 2016: 309).

Evidently, fisher folks in the coastal communities of Nigeria's Niger Delta eke out a living from ecosystems. The indigenous coastal dwellers depend on the ecosystems for a living, including generation of income, provision of food, and recreation amongst others. Likewise, the operations of MNOCs heavily rely on the marine environmental resources (oil and gas) from the study area. That is to say that both the fishing industry of coastal communities and its offshore oil and gas counterpart share and interact on this environment, especially on its major habitats - the Atlantic Ocean, seas and estuaries, creeks and mangrove forests among others in the Nigeria's central Niger Delta. This further implies that both industries' activities impose huge impact on ecosystems. Hence Gómez & Green, (2013: 1-56) state that the protection and

sustainable use of environmental resources is now a subject of intense regulations. This is important as coastal communities rely on marine ecosystems for survival. For example, the mangrove habitat provides a wide range of goods and services beneficial to man (Nwilo & Badejo, 2005: 1-15). Such ecosystem goods and services provided by the mangrove forest include habitats for many aquatic organisms and animals, and fuel for the coastal communities, as well as protective barriers for the communities against storms and tidal waves/coastal erosion. Adeyemo *et al.* (2009: 56-61) increases the list of the services to include shoreline protection, stabilization, filtration, trapping and removal of water-borne pollutants, maintenance, nursery and feeding grounds for numerous species of finfish and prawns, habitat for crabs and molluscs, as well as nesting sites for sea and shore birds. Consequently, an alteration on the ecosystem through reckless petroleum production activities could spell doom for the communities of the study area. For example, the depleting mangrove regions of the study area poses serious concerns (Adeyemo *et al.* 2009: 56-61). The imprints of the MNOCs on this is obvious throughout the Niger Delta. Manby (1999: 52) asserts that oil spills are “homicidal in effect”. Studies have shown that mangroves are susceptible to oil. That when oil spill occurs, the soil retains part of the oil and re-releases it annually during inundations, and gradually destroys an estimated 5 to 10% tracts of mangrove forests in the region. Evidently, Nigeria’s mangrove forests are fast depleting annually as a result of oil exploration and production activities, and uncontrolled use by locals. Some oil industry activities that have led to mangrove vegetation disappearance include cutting of seismic lines, laying of pipelines and construction of flow stations. The clearing of the mangrove vegetation for these activities causes many problems. For example, studies have shown that mangroves take between 30 to 40 years to regenerate once they are removed.

Pollution from oil spills impact adversely on the fisheries resources of the Niger Delta (Akpofure *et al.* 2000: 21-33). Pollution matters are highly controversial in Nigeria. As a result, it is very difficult to have a correct oil spills data from the industry regarding offshore platforms and vessels collocating coastal regions of the country. However, indirect evidence from oil washed secretly into the shores of the coastline and/or from open accidents recorded in the past in the area by ongoing development activities of offshore platforms suggest that the once pristine coastal mangrove forested region and beaches have become increasingly vulnerable. Oil spills affect the mangrove habitats when it permeates exposed tree trunks and accelerates the rate of its decay and later destroys the precious plants. Consequently, it leads to their disappearance, and communities are exposed to shoreline erosion. Pollution also causes

devastation of flora and fauna, migration and extinction of creatures big and small that depend on mangroves as their habitat. Oil spillages badly affect the livelihoods of individuals, especially fisher folks and farmers (Eweje, 2006: 27-56). This is because the traditional economy of the Niger Delta people depends mostly on environmental resources. The outcome is low income, food insecurity and poverty in the region.

Aworawo (2000) affirms, the economic conditions in the Niger Delta unequivocally depict endemic poverty, which is worse by the day due to oil pollution such that the habitat has limited the productive capacity of the people. Obviously, fisher folks in recent years have suffered massive reduction in fish catches due to oil spills. The offshore operations of MNOCs affect fish populations, especially at vulnerable spawning seasons, because of the presence of physical structures and a range of techniques used. The most serious impact on fish population is the disruption of natural spawning processes of both anadromous and catadromous fish species. The presence of oil makes it unsafe for spawning processes. This affects the ability of the wild to replenish itself. The results ultimately include low fish population and catch, and hence lower or inadequate fish supplies and income as well as attendant malnutrition.

Restriction of coastal communities from fishing in designated areas is another major offshore oil and gas production impact on income of coastal communities. The MNOCs usually establishes a 500m radius around offshore surface installations and sub-sea structures (excluding pipelines) as safety zones, when they become operational. To ensure compliance by fishing communities, the MNOCs contract support vehicles to patrol the designated safety zones and monitors them at the installations (Gomez & Green, 2013: 18, Oil and Gas United Kingdom [OGUK], 2009: 1-129). It is also important to note that living things are highly sensitive to threat and safety, fish not exempted. Traditionally, communities manage their water environment by declaring some identified fish spawning sites or areas as no fishing zones in order to create an ambient environment for fish spawning and reproductive activities. This enhances fish population. Once an ambient or safe environment identified, there is greater fish migration to new areas for safety. When restrictions are placed on such spawning or nursery areas, fisher folks are forced to find alternative areas, and if not found, they go into the company's prohibited/fish safety zones. This is sometimes costly and affects the traditional fisheries industry.

Declining fish stocks and increased regulation could lead to increase in conflicts between fisher folks and MNOCs competing for the same water space. The declaration of safety zones does

not only prevent accidents but also limits economic activities of indigenous people. This may warrant fisher folks to fish in such zones where fish may also find safety. Prevention of indigenous people from fishing in their waters is a breach on their fundamental rights to subsistence living. The Universal Declaration of Human Rights (UDHR) recognises fishing rights as subsistence rights and inherent human rights. In order to enforce the rights, it places obligation on State Parties (Article 23). In addition, with regards human rights, the UN Norms and Responsibilities of Transnational Corporations and other Businesses, compels MNCs to protect the subsistence rights of individuals in their areas of operation (Paragraph 10 (c)). Similarly, the Inter-American Commission on the *Yanomami Case* expressly, affirms Article 6 of the International Covenant of Economic and Social Rights (ICESR). This covenant obliges State Parties to protect and preserve the rights of indigenous peoples, which include the right to ancestral territories. The reason for this declaration is that indigenous people depend on their ancestral territories for continuity of life (Olawuyi, 2012: 1-15). In addition, the Commission in the *Toledo Maya case* made a similar declaration stating that development activities must accompany appropriate and effective measures to ensure that they do not infringe on the rights of indigenous peoples to their environment (Olawuyi, 2012: 1-15). This is fundamental because the environment is the source of the people's physical, cultural and spiritual well-being (Olawuyi, 2012: 1-15).

Furthermore, as postulated by John Locke (1948: 1-148), the rights to life, liberty and possession are inalienable human rights. The UDHR (1948) therefore, recognizes the rights of individuals to exclusive possession and use of property. In particular, Article 23 of UDHR and Article 6 of ICESR states:

Indigenous peoples and communities shall not be deprived of their own means of subsistence, nor shall they be removed from lands, which they occupy in a manner inconsistent with Convention No. 169. Further, they shall avoid endangering the health, environment, culture and institutions of indigenous peoples and communities in the context of projects, including road building in or near indigenous peoples and communities. Transnational corporations and other business enterprises shall use particular care in situations in which indigenous lands, resources, or rights thereto have not been adequately demarcated or defined (Olawuyi, 2012: 1-15).

Whereas total area protected increases with the number of offshore installations, MNOC operators in the Niger Delta do not consider safety zones as affecting catching rates, migration of fish/fisher folks and accidents in their plans before making restrictions. However, to ensure successful development and interaction of both sectors, the United Kingdom (UK) has created joint forums for discussion. For example, the Fisheries and Offshore Operators Consultative

Group (FOOCG) in the UK, is a forum where representatives of all parties involved discuss concerns and advise on best practices. The Fisheries Legacy Trust Company (FLTC) established in 2007, manages interactions between the fisheries and offshore oil and gas sectors in the UK. The FLTC created Fish SAVE for fisher folks. It is a device which provides fishers with updated locations of offshore installations to prevent accidents and conflict. In addition, the United Kingdom Continental Shelf Oil and Gas (UKCS O&G) requires the appointment of Fisheries Liaison Officer (FLO) by MNOCs. The FLO liaises with relevant government departments and fishery organisations on likely impact the operations of the MNOC may bring to fisher folks before issuance of licence for any offshore contract. In Norway, a similarly petroleum regulation requires that a fishery expert must be on board vessels carrying out seismic surveys in its waters. It is preventive measure to the Norwegian fishery industry in its waters. These measures imply that the economic mainstay of the people was not hampered and their livelihoods protected and preserved. However, Nigeria's environmental impact assessment (EIA) model greatly differ from such specific protective measures.

Protection of the economic mainstay of the people is to prevent any outbreak of food crises in and around the fishing communities. Low fish catch and inadequate income of the people as a result of the offshore operations of the MNOCs entails food insecurity in the area. Food insecurity means not being able to obtain a nutritionally satisfactory, and culturally acceptable diet at all times through local non-emergency sources (Chittirapap, 2016: 308). It is important that there should be sufficient food production or imports and economic access to food by households at all times to ensure a healthy active life (Chittirapap, 2016: 308). Furthermore, it compromises the capacity of the people to effectively harness their environmental resources for the satisfaction of their basic human requirement (provision of goods and services) with caution. Therefore, damage or overexploitation and misuse of environmental resources by MNOCs/government puts the communities' lives, health or well-being at risk.

Evidently, operations of MNOCs in the study area has resulted in a number of negative consequences on the environment and its resources. It affects the soil, water and air in no small dimension. For example, pollution renders most traditional fishing grounds useless and aggravate loss of livelihoods. The outcome is hunger and poverty in the fishing communities (Intergovernmental Panel on Climate Change [IPCC] 2007a). The reason is that pollution when it occurs, not only damages the traditional fishing grounds, it also damages fishing gears, kills fishes and other organisms, as well as causes the migration of humans, fishes and sea animals, birds and other organisms to safer zones. The environmental assessment report of Ogoniland

stated that due to migration of fishes to safer and cleaner water, fish contamination was not all that high (UNEP (2011: 1-262). It implies that fisher folks had to migrate in pursuit of the fish to such localities in order to make reasonable catch. This causes exhaustion and is economically not rewarding as so much energy was spent in an attempt to make adequate catch. The consequence of an inadequate catch is food insecurity. Evidently, Ikelegbe (2005: 241-270) stresses that oil spills affect food security because of the complex chemical composition of petroleum itself that makes it almost impossible for the environment to regain itself back after oil spill disasters. The study argued, some of the chemicals are very toxic while others are of low toxicity, but whatever the level of toxicity, the consequences are always dire.

Furthermore, Eweje (2006: 27-56) argued, oil pollution affects the physicochemical properties of the soil - temperature, structure and nutrients. It hampers soil aeration as the oil film on its surface prevents air from gaining access to it. In that process, the soil becomes less fertile because essential nutrients needed for plant growth become scarce, while those toxic to them become predominant. Such conditions in fishing areas are not different. Marine lives are adversely affected, and eventually destroyed. In any case, the people cannot fish or farm because the fish spawning sites and farm lands are polluted. Specific to fishing areas, fishes migrate longer distances into safer zones with fisher folks engaging in energy consuming expeditions. The result is low fish catch/income, food insecurity and conflict where the affected MNOC refuses to pay compensation for damages or clean-up the environment. A case in point was the people of Ikot Ada Udo, Akwa Ibom State. Ridderhof (2013) reports that not until January 2013, when a Dutch court ruled in their favour in an oil spill suit, the community filed against SPDC for destroying the source of their livelihood. It was reported that the company refused to admit the spill and pay compensation for the damages it caused. The court ruled that SPDC was liable and should pay compensation for the damages. It also pronounced that SPDC must carry out processes to restore the environment (Ridderhof, 2013). Other cases in point were the ExxonMobil on January 1998 and August 2012 (Nyong, 2012; Kadafa, 2012: 38-51; Kadafa, 2012: 19-28). These events are believed to have caused pains in the lives of the local fishing communities and remained ever fresh in their memories. One is therefore tempted to ask if there are lessons ever learnt from past oil spills? In addition, are adequate compensations paid, and remediation processes carried out in such circumstances? Environmental degradation leads to loss of economic empowerment, which is a root cause of poverty (IPCC 2007a). Furthermore, the poverty plaguing the Niger Delta cannot be over-emphasised.

Empirical evidence generated by Akhionbare & Osuji (2013: 19–24) shows that the area has been greatly plagued by impoverishment/poverty, invasion of traditional customs and absence of empowerment from the oil companies. These conditions affect the income of the people and food security of the region. According to Amnesty International (2015: 1-38), life in the region has degenerated to the point that, the people, especially young men feeling deprived of their means of livelihoods, have resorted to other means, including pipeline vandalism, illegal bunkering among others, to “make up” for their losses, and combat the lingering impoverishment that has befallen them. This, in a way, “sustains” and perpetuates the vicious circle of insecurity in the region (Amnesty International, 2015: 1-38).

Outside food insecurity in the Nigeria’s Niger Delta are adverse health and shelter challenges. It has been argued that majority of the problems confronting the people of the region over the years are products of the activities of the MNOCs. On health hazards for example, Aroh *et al.* (2010: 70-87) argued, incidents of *diarrhoea* have increased in the Niger Delta due to incessant oil spills and consumption of hydrocarbon-infested seafood (fish, animals among others). Evidently, pollution resulting from oil spills, blowouts, and other forms of hydrocarbon releases from oil installations and refinery such as gas flaring, explosions among others causes devastating consequences for the region. They not only pose environmental risks and consequences on the peoples’ livelihoods, they equally have severe impact on health and properties of the indigenous people and communities. Ordinioha & Brisibe (2013: 1-16) corroborated this view in their study, stating hydrocarbons through bioaccumulation of benzo(o) pyrene contains toxic amounts of heavy metals in high protein content sea foods such as periwinkle (*Tympanotonus fuscatus*) and Mudskipper (*Periophtalus papillio*). Epstein & Selber (2002: 1-73) in their earlier study affirmed that oil spills and gas flares have very serious ailments such as cancer, asthma and other lung diseases. Edwards & White (1999: 1-8) highlighted possible health disorders of local communities in oil spills prone regions as nausea, headaches and skin irritations. In addition, beach workers not wearing adequate protective clothing can as well suffer dermatological problems. Furthermore, Hussain & Gondal (2008: 391-399) affirmed, high concentration of trace elements such as chromium and barium are detected beyond safe limits at Gulf war oil spill sites. Egbe & Thompson (2010: 189-203) argued, skin contact with such chromium compounds can cause skin ulcers. These investigations point to the fact that ingesting large amounts of chromium can cause stomach upset and ulcers, kidney and liver damage that may eventually lead to death of victims. The health effects of barium depend on water-solubility of the compounds. Small amounts of water-

soluble barium may cause a person to experience breathing difficulties, increase in blood pressures, heart rhythm changes, stomach irritation, muscle weakness, changes in nerve reflexes, swelling of brains and liver, as well as damage kidney and heart of victims. Serious respiratory problems and associated ailments are experienced in many oil-bearing communities such as Koluama communities in recent years, which are caused by activities of MNOCs (Sako, 2017: 1-172). Omofonmwan & Odia (2009: 25-30) had earlier summed up the common ailments found in oil-bearing communities, which include respiratory problem (internal bleeding), skin rashes, tumours, gastrointestinal disorders, different forms of cancer, and malnourishment.

Equally dangerous to human health and other aquatic organisms is the water produced in the extraction process. It is a waste generated during petroleum production. It is a mixture of water (formed and injected water) and dissolved oil (hydrocarbons), a complex compound of hazardous chemicals including large quantities of heavy metals, inorganic and organic substances, as well as naturally occurring radioactive materials (NORMs) (Kharaka *et al.* 2013: 418; Andrade *et al.* 2010: 693). Tellez *et al.* (2002: 455-470) state that produced water can only be discharged either through shore side outfalls or coastal rim releases. This could be dangerous to the environment. Tellez *et al.* (2002: 455-470) affirms, the array of hazardous chemicals contained in petroleum waste streams and their unwholesome disposal techniques have impacted severely on environment. The implication is that the environment no longer responds to known remediation technologies. UNEP (2017: 16-19) affirm that in the UN 2011 Assessment report of Ogoniland. According to the report, indiscriminate disposal of numerous industrial packing bags containing 1000–1500m³ of waste, suspected to be cuttings from oil drilling operations were dumped in open dump sites. The report attributed the severe human and environmental health risks suffered by the people of Ogoniland to these open dump sites. It has been argued that such open waste disposal method used by SPDC in Ogoniland clearly confirms the non-compliance attitude of MNOCs for contravening environmental regulations in Nigeria. Aside produced water, are drilling muds and drilling cuttings. These also contain substances that are injurious to human health in areas engaged in petroleum exploration and production activities.

Gas flaring is another major contributor to human health risks in the Niger Delta. It is the venting or disposing of natural gas during the process of oil production around parts of the world. Emam (2015: 532-555) stated that the statistics of gases that are flared or vented as contained in a World Bank report was between 150 to 170 billion m³ per annum, estimated to

cost about \$ 30.6 billion, equivalent to the yearly gas consumption rates of the United States and European Union. The flared or vented gases discharged into the atmosphere have serious implications on the air quality of the region. Available literature shows that gas flares emit gases such as alkanes including methane, ethane, propane, hydrogen sulphide, nitrogen dioxides, BTEX (coal tar, crude oil, benzene, toluene, ethylbenzene, and xylenes), and sulphur dioxide. These have detrimental consequences on the health of the people. Ovuakporaye *et al.* (2012: 525-528) argued, several human health problems are caused by hazardous air pollutants.

In addition, the study argued, when humans are consistently exposed to gas flares, they are bound to suffer adverse cancerous, neurological, reproductive and developmental health conditions. There are also reports of deformities in children, lung damage and skin problems in the region (Sako, 2017: 1-172). The people in living in the Niger Delta suffer most of these ailments because of exposure to “too numerous to count (TNTC)” toxic chemicals such as benzene, dioxin, and benz[*a*]pyrene (UNEP, 2017: 16-19; Yakubu, 2017: 1-19). UNEP (2017: 16-19) argued, gas emissions in the Niger Delta far exceed local and international standards, and attributed it to the severe health complications in the region. Such health consequences include stroke, asthma, heart and respiratory diseases in adults, as well as respiratory symptoms in children, lung cancer, and miscarriages among pregnant women, which leads to premature deaths (UNEP, 2017: 16-19; Yakubu, 2017: 1-19; Friends of the Earth [FoE] Cymru, 2016: 1-28).

Furthermore, Yakubu (2017: 1-19) reveals that alkanes such as methane, ethane and propane at low levels can result in swelling, itching and inflammation, while at high levels, they may cause skin infections such as eczema and acute lung swelling in humans. The study also confirms that alkenes such as ethylene and propylene may cause weakness, nausea and vomiting, while carbon monoxide can cause permanent damage to the heart and brain, as well as harm foetus. There is evidence that carbon monoxide at higher levels can lead to miscarriages in pregnant women and even death. Similarly, in an earlier report by Aroh *et al.* (2010: 70-87), it was revealed that sulfur dioxide at low levels can make asthmatics to be very sensitive to respiratory effects, while copper miners who exposed to higher levels can experience burning sensation of the nose and throat, as well as breathing difficulties or severe airway obstructions. Some other studies have equally demonstrated that 100 ppm of sulphur dioxide in parts of air could pose immediate danger to human health and life. For example, Godson, Sridhar & Bamgboye (2009: 183-191) observed, toxics such as BTEX generated from flares can cause severe health risks, especially those who live or work close to the flare sites.

In addition, gas flaring releases other air pollutants that also capable of causing some other ailments which may be developmental, neurological, and reproductive abnormalities (Ndubuisi & Asia 2007: 18-26). Sheppard *et al.* (1980: 873-878) have also stated that diverse health problems affects people who live near flare sites. This is applicable mostly to onshore and shallow coastal production fields in the Niger Delta. However, most onshore gas flaring sites are in close proximity to communities. The effect of gas flaring was demonstrated by Aroh *et al.* (2010: 70-87) in a comparative study, using Ayama as a control town, and Igwuruta and Umuechem communities, which study established that the frequency of health conditions such as asthma, eye and skin irritation, and cough are more prevalent in the two communities. Some clinical studies have equally argued that there is rapid onset of sulfur dioxide in a range of 0.25–0.5ppm in bronchoconstriction patients than in asthma patients (Bethel *et al.* 1983: 987-990; Kirkpatrick *et al.* 1982: 627-631; Sheppard *et al.* 1980: 873-878). In addition, Kindzierski (2000: 41-62) affirmed that hydrocarbon compounds cause some adverse changes in haematological parameters, blood and blood-forming cells and give rise to anaemia (aplastic), pancytopenia and leukaemia.

Aside human health implications, gas flaring is a risk to human shelters in the Niger Delta. Akpan (2003: 47-52) observed, gas flaring causes destruction of roofs of buildings from the effects of acid rain. Iyorakpo & Odibikuma (2015: 1857-7881) and Anomoharan (2012: 666-670) respectively asserted that acid rain is a by-product of gas flaring, and it is responsible for corroding corrugated roofs on buildings. In addition, Anomoharan (2012: 666-670) highlighted, gas flaring emits sulfur dioxide (SO₂) and nitrogen oxide (NO), which combine with atmospheric moisture, respectively produces sulfuric and nitric acids as end product. It falls as acid rain across the entire Niger Delta (Agbebi, 2011: 456-460, Ejelonu *et al.* 2011: 189-203, Nduka & Orisakwe, 2010: 237-246, and Efe, 2010: 307-319).

Furthermore, gas flaring has increased the acidic concentration of heavy metals in the air and water bodies in the Niger Delta (Nwankwo & Ogagarue, 2011: 131-136). The study revealed that the acidity of heavy metals found in water for example, ranges from a pH value of 5.05 to 6.81. Ajugwo (2013: 6-8) therefore, argued that the size of an MNOC and the environmental philosophy prevalent become critical on matters relating to gas flaring and/or emission of obnoxious gases in the region. The impacts are severe on the health of the environment, people and their properties (buildings). It is therefore, very important to state that in state of depressed economy, the rural dwellers with poor economy, cannot afford adequate health or replace their roofs regularly. As a result, many homes remain a gory sight in the Niger Delta.

2.2.4 Regulations relating to offshore operations of MNOCs and environmental safety in Nigeria

Two categories of regulatory regimes are considered, namely, national regulations and international conventions.

2.2.4.1 National regulations

Suffice to state that enormous reserves of recoverable hydrocarbon resources are found in the continental shelf of Nigeria. As a result, petroleum exploration and production activities in recent years have increasingly intensified in the seabed of the Niger Delta. It implies that the coastal environment is bound to experience increasing pollution risks. Accordingly, Nigeria has over the years made regulations to ensure 'good oil field practices' in the country. Consequently, all MNOCs in Nigeria are expected to comply with the standards considering the role the environment plays in human life. MNOCs' compliance to set standards is a contentious issue in Nigeria (Ezeudu, 2011: 23-56). However, in order to ensure compliance, the government has instituted regulatory agencies to monitor the operations of MNOCs according to the approved standards. Some of the instruments/authorities governing oil and gas exploitation and environmental safety in Nigeria are:

- Oil Pipelines Act, Cap. 145, 1956, 1958, 1965, Cap. 07, LFN, 2004;
- Associated Gas Re-Injection Act and the Regulations, Cap. 20, LFN, 2004;
- Petroleum Act 1969; and the Petroleum (Drilling and Production) Regulations;
- Oil in Navigable Waters Act, Cap. 06, LFN, 2004;
- National Oil Spill Detection and Response Agency (Establishment) Act 2006;
- National Effluent Limitation Regulation, of 1991;
- Pollution Abatement in Industries and Facilities Generating Wastes Regulations of 1991;
- Federal Environmental Protection Agency Act (Decree No.58 of 1988), the National Guidelines and Standards for Environmental Pollution Control in Nigeria (published March, 1991, and replaced by NESREA Act, LFN, 2007);
- Harmful Waste (Special Criminal Provisions, etc.) Act, Cap. H1, LFN, 2004; and
- National Environmental Standards and Regulation Enforcement Agency (NESREA) Act, LFN, 2007, etc.

These instruments provide the framework for the exploitation of petroleum resources and environmental safety in Nigeria. However, it has been argued that only a few of the environmental regulations provide guidelines on petroleum pollution (Salu, 1999). It thus

appears that these enormous regulations have not helped Nigeria check the egregious environmental degradation by MNOCs in Niger Delta (Ezeudu, 2011: 38). Eweje, (2006: 27-56), Ogri, (2001: 11-21), Aghalino & Eyinla (2009: 117-182), as well as Eaton, (1997) have also posited that the existing statutory laws and regulations for environmental protection applicable to the Nigerian petroleum industry appear to be grossly inadequate and ineffective.

In particular, the contention by Eaton (1997: 261-571) implies that the laws have defects and have severely prevented Nigeria from regulating the oil and gas industry and environmental safety in the country. Such defects include fines, which are fixed at insignificant rates that favour and preferred by the financially towering MNOCs to pay-up, and continue the violation of the regimes. Another defect is that of the government's pecuniary interests in the joint venture agreements with the MNOCs, which makes it very difficult for the government to enforce their compliance (Ezeudu, 2011: 38). In addition, Doyle, Pappworth & Caudle (2008: 155-187) highlighted that the failure to regulate the activities of MNOCs effectively is because of technological limitations and the need to support the industry and the influence of public opinion.

The Oil Pipelines Act Cap. 145, 1956, 1958, 1965, CAP. 07, LFN 2004, was one of the earliest laws on pollution enacted in 1956. This Act establishes legal liability in compensation for physical or economic injury suffered as a result of a broken or leaking oil pipeline. It restricts granting of licence for the establishment of oil pipelines based on public safety and environmental pollution considerations. However, for the purpose of oil mining, the Act empowers the regulating authority of the sector to grant licenses to firms for establishment, and maintenance of oil pipelines incidental to oilfields, as well as ancillary mechanisms of such pipelines. In addition, the Act enables regulating authorities to issue permits to MNOCs to make surveys. The intention of these provisions was to protect the environment from pollution that may result from oil pipelines. If this is true, and the provisions are adhered to strictly, there would be a healthy environment for the people of Niger Delta. Nonetheless, the intention was clear in Section 174) of the Act, which stipulates that:

Every license shall be subject to the provisions contained in this Act as in force at the date of its grant and to such regulations concerning public safety, the avoidance of interference with works of public safety in, over and under the land included in the license and the prevention of pollution of such lands or any waters as may from time to time be in force (Oluduro & Oluduro, 2015: 68-82).

Section 17(1) of the Act fixes a term, not exceeding 20 years for an oil pipeline license (Oluduro & Oluduro, 2015: 68-82). Nwosu (1998: 80-108) argued that the intention of the Act was clear as the pipelines would undergo corrosion after long usage and pressure.

In the event of pollution arising from any breakage of, or leakage from oil pipeline or ancillary installation, the Act confers a right of action on victims in Section 11 (5), stating that the holder of a licence shall pay compensation to:

- any person whose land or interest in land (whether or not it is land respect of which the license has been granted) is injuriously affected by the exercise of the rights conferred by the license, for any such injurious affection not otherwise made good; and
- any person suffering damage by reason of any neglect on the part of the holder or his agents, servants or workmen to protect, maintain or repair any work structure or thing executed under the license, for any such damage not otherwise made good; and
- any person suffering damage (other than on account of his own default or on account of the malicious act of a third person) as a consequence of any breakage of or leakage from the pipeline or an ancillary installation, for any such damage not otherwise made good.

In addition, if the amount of such compensation is not agreed between any such person and the holder, it shall be fixed by a court in accordance with Part IV of this Act. The Act confers strict obligation on the licence holder; therefore, the claimant is not required to establish negligence. Ekpu (1995: 55) argued that this provision has been under-utilised by those injured probably due to ignorance, and the defence of sabotage mostly raised by MNOCs. Furthermore, for the removal of doubt, it also declares that the powers granted to the holder of a licence under this Act shall be exercisable only subject to the provisions of this Act and of any other enactment or rule of law.

The Associated Gas Re-Injection Act and its Regulations, Cap. 26, LFN, 1999, as amended, commenced on 28 September 1979. The Act compels every oil and gas producing company in Nigeria to submit preliminary programmes and detailed plans for implementation of gas re-injection in the country not later than 1st October 1980 to the Minister of Petroleum Resources. This stipulation was intended to cease gas flaring by 1st January 1984. However, close to the end of 1984, evidence reveal that no MNOC had complied with the provisions of the Act, or was there any evidence from the office of the Minister proving that the MNOCs have complied with the provisions of the Act. It has been argued that the Minister could not enforce the Act

due to the adverse effects such an action would impose on the nation's economy (Oluduro & Oluduro, 2015: 68-82; Kassim-Momodu, 1987: 83). As a result, the Act was revisited with an amendment Decree No.7, 1985 to allow the Minister to permit gas flaring in certain oil fields on the payment of a prescribed fee. This Decree fixed a fine of 2 kobo (\$0.0009 equivalent in 1985) for any MNOC which flares 1000 standard cubic feet (*scf*) of gas each in the country. Obviously, this paltry sum could not deter the MNOCs from flaring gas continually to the detriment of the health of the environment and people of the Niger Delta. In addition, the government/MNOCs believed that it is far more economical or cost effective to flare than to re-inject or utilize the associated gas flared. Nevertheless, the government raised the fines in January 1998 to \$11 for every 1000 *scf* of gas flared, but the MNOCs continued the flaring (Malumfashi, 2007: 199-216).

Furthermore, the government revisited the unabated gas flaring issue with the Associated Gas Re-Injection (Amendment) Act 2004. This Act made it compulsory for all MNOCs in the country to submit detailed plans for utilisation of their gases. It also prohibits flaring of associated gas without a written permission from the Minister. But, there was no compliance until recently when projects like the West African Gas Pipeline started gathering the associated gas for exports and domestic use. However, looking at the history of gas flaring in the country, it could be argued that government has not made enough commitment on the gas flaring in Nigeria with respect to its impact on the environment and human life in the Niger Delta.

Another pointer to the government's ineptitude was that the Federal Government, through the Nigeria National Petroleum Corporation (NNPC), owns majority shares in all joint venture projects with the MNOCs. As a result, the government was expected to pay-up its own percentage of the cost for any gas re-injection project initiated by MNOCs in the country, which may be a huge cost on the country's economy (Ezeudu, 2011: 38).

The Petroleum Act 1969 and the Petroleum (Drilling and Production) Regulations in Section 9 (1) (b) (iii) also empowers the Minister to make regulations for the prevention of pollution of watercourses and the atmosphere during petroleum operations. Pursuant to this Act, Regulation 25 empowers the Minister to issue license to:

Licensee or lessee shall adopt all practicable precautions, including the provision of up-to-date equipment approved by the Director of Petroleum Resources, to prevent the pollution of inland waters, rivers, watercourses, the territorial waters of Nigeria or the high seas by oil, mud or other fluids or substances which might contaminate the water, banks or shoreline or which might cause harm or destruction to fresh

water or marine life, and where any such pollution occurs or has occurred, shall take prompt steps to control and, if possible, end it (Omorogbe, 2001: 136).

This regulation imposes some element of legal duty on the 'operator to take prompt steps "to control and, if possible, end" the pollution by adopting all practicable precautions, through the use of "up-to-date equipment". This ensures that the licensee takes reasonable steps to control the flow of petroleum, prevent its escape, as well as other hydrocarbon discharges/wastes into any water course, well, spring, river, lake, reservoir, estuary, or harbour to cause any harm, as little as it may be, to such water bodies. This also includes trees, crops, buildings, structures and other property. The term up-to-date equipment is a relative term, thus imposing a weak legal restraint on the use of equipment. Hence, Ekpu (1995: 89) has argued that "the use of poorly defined terms permits maximisation of production rather than protection of the environment". As a result, the Nigeria's Niger Delta have experienced high frequency of oil spillages over the years.

Regulation 36 provides that "the licensee or lessee shall maintain all apparatus and appliances in use in his operations, and all boreholes and wells capable of producing petroleum, in good repairs and conditions, and shall carry out all his operations in a proper and workmanlike manner, and in accordance with these and other relevant regulations, and methods and practices accepted by the Director of Petroleum Resources as good oil field practices". This provision is quite good in view of the impacts, seismic operations and oil spillages bring upon buildings and vegetation (Ebeku: 197). However, the terms "workmanlike manner", and "good oilfield practices", requires interpretations in law for enforceability, and not as they are defined in the Regulations. Though the need for definition of these phrases is not particular to developing countries like Nigeria, the lack of a strong and independent judiciary together with a government strongly committed to protection of the environment, may subject their interpretations to require the lowest level of environmental protection, rather than the strictest level of behaviour (Wawryk, 2003: 1-27).

The Act also places obligation on the licensee or a lessee to pay "adequate compensation" to any person whose fishing rights are interfered with by the unreasonable exercise of the licensee or lessee's rights. This provision which seeks to assist victims of oil pollution has some inherent weaknesses. Aside from the fact that it contains vague terms such as "adequate compensation", its scope is limited to fishing rights, as well as other interests that may be affected by the

unreasonable exercise of the licensee's rights which are not covered. Another heinous task imposed on the victim is the duty to prove that the licensee or lessee exercises its right 'unreasonably'. Considering the peculiar economic and social constraints of victims (e.g. fisher folks), which are illiteracy and poverty, it is unthinkable for them to procure expert evidence that will be able to match that of the MNOCs.

There is also the shortcoming of strong sanctions or penalty prescribed in the Act to deter the licensee or lessee from contravening any of the provisions of the Regulations, aside the general power given to the Minister of Petroleum Resources to revoke the licence or lease of the licensee or lessee (Cap. 26, LFN, 1990). The Minister is also empowered to order the suspension of any company operations for non-compliance with the enabling Act or any regulation issued therein. However, the economic consequences on the nation may make the sanctions unrealistic (Oluduro & Oluduro, 2015: 68-82).

Another national regulatory instrument for the sector is the Oil in Navigable Waters Act, Cap. 06. LFN, 2004. This Act was designed to implement the terms of the International Convention for the Prevention of Pollution of the Sea by Oil (ICPPSO) 1954 to 1962, and to also make provisions for the prevention of pollution in the navigable waters of Nigeria. This Act prohibits the discharge of any oil from a Nigerian ship into a part of the sea, which in relation to that ship is at sea area. It also prohibits the discharge of any mixture containing not less than 100% parts of oil from a Nigerian ship into such a part of the sea, the owner or master of the ship shall subject to the provisions of this Act, be guilty of an offence under the Act. Section (1) of the Act thus state that “if any oil or mixture containing oil is discharged into waters to which this section applies from any vessel, or from any place on land, or from any apparatus used for transferring oil from or to any vessel (whether to or from a place on land or to or from another vessel), then subject to the provisions of this Act”. The subsections section 1 also states thus:

- If the discharge is from a vessel, the owner or master of the vessel; or
- If the discharge is from a place on land, the occupier of that place; or
- If the discharge is from apparatus used for transferring oil from or to a vessel, the person in charge of the apparatus, is guilty of an offence under this section.

In addition, Section (2) of the Act which applies to waters state that:

- The whole of the sea within the seaward limits of the territorial waters of Nigeria; and
- All other waters (including inland waters) which are within those limits and are navigable by sea-going ships.

Section (3) applies to harbour authority provides that the harbour authority may appoint a place within its jurisdiction where the ballast water of vessels in which a cargo of dangerous petroleum has been carried may be discharged into the waters of the harbour. It further provides that, at such times, and subject to such conditions as the authority may determine where, and a place so appointed, the discharge of the ballast water from such a vessel shall not constitute an offence under this section. Provided the ballast water discharged at that place, and at a time and in accordance with the conditions so determine, and the ballast water contains no oil other than dangerous petroleum.

The legal status quo of environmental regulation in Nigeria's petroleum industry significantly changed with the establishment of the Federal Environmental Protection Agency Act (FEPA) 1988. One of such changes noticed in the oil and gas sector was the establishment of the National Oil Spill Detection and Response Agency (NOSDRA) (Establishment) Act, Cap. No. 157, LFN, 2006. Section 1 of the Act authorises the Agency to prepare, detect, and respond to all oil spillages in Nigeria (Ezeibe, 2011: 2). Under the Act, penalties and enforcement mechanisms are imposed on the MNOCs operating the country. Such liabilities include costs of clean-ups, restoration and payment of compensation to parties injured by their illegal practices. The objectives, functions and penalties are contained in Part three of the Act.

Section 18 of the Act empowered the Agency to establish the National Control and Response Centre (NCRC) to play advisory, monitoring, evaluating, mediating and coordinating role (Ezeibe, 2011: 2). The role of the NCRC is co-ordination and implementation of the National Oil Spill Contingency Plan for Nigeria (NOSCP) (referred to as "the Plan" in the Act) (Ezeibe, 2011: 2). However, the major objectives of the Agency are contained in Section 5 of the Act, which include:

- Safe, timely, effective and appropriate response to major or disastrous oil pollution;
- Identify high-risk areas as well as priority areas for protection and clean up;
- Establish the mechanism to monitor and assist or where expedient direct the response, including the capability to mobilize the necessary resources to save lives, protect threatened environment, and clean up to the best practical extent of the impacted site;
- Maximize the effective use of the available facilities and resources of corporate bodies, their international connections and oil spill co-operatives, that is Clean Nigeria Associates (CNA) in implementing appropriate spill response;

- Ensure funding and appropriate and sufficient pre-positioned pollution combating equipment and materials, as well as functional communication network system required for effective response to major oil pollution;
- Provide a programme of activation, training and drill exercises to ensure readiness to oil pollution preparedness and response and the management and operational personnel;
- Co-operate and provide advisory services, technical support and equipment for purposes of responding to major oil pollution incident in the West African sub-region upon request by any neighboring country, particularly where a part of the Nigerian territory may be threatened;
- Provide support for research and development (R&D) in the local development of methods, materials and equipment for oil spill detection and response;
- Co-operate with the International Maritime Organization and other national, regional and international organizations in the promotion and exchange of results of research and development program relating to the enhancement of the state of the art of the oil pollution preparedness and response, including technologies, techniques for surveillance, containment, recovery, disposal and clean up to the best practical extent;
- Establish agreements with neighboring countries regarding the rapid movement of equipment, personnel and supplies into and out of the countries for emergency oil spill response activities;
- Determine and preposition vital combat equipment at most strategic areas for rapid response;
- Establish procedures by which the Nigerian Customs Service and the Nigerian Immigration Services shall ensure rapid importation of extra support response equipment and personnel;
- Develop and implement an appropriate audit system for the entire plan;
- Carry out such other activities as are necessary or expedient for the full discharge of its functions and the execution of the plan under this Act” (Ezeibe, 2011: 2).

The functions of the Agency are contained in Section 6 of the Act, which include:

- Be responsible for surveillance and ensure compliance with all existing environmental legislation and the detection of oil spills in the petroleum sector;
- Receive reports of oil spillages and co-ordinate oil spill response activities throughout Nigeria;

- Co-ordinate the implementation of the plan as may be formulated, from time to time, by the Federal Government;
- Co-ordinate the implementation of the Plan for the removal of hazardous substances as may be issued by the Federal Government;
- Perform such other functions as may be required to achieve the aims and objectives of the Agency under this Act or any plan as may be formulated by the Federal Government pursuant to this Act (Ezeibe, 2011: 2).

Others designated as special functions are contained in Section 7 of the Act, which include:

- Ensure the co-ordination and implementation of the plan within Nigeria including within 200 nautical miles from the baseline from which the breadth of the territorial waters of Nigeria is measured;
- Undertake surveillance, reporting, alerting and other response activities as they relate to oil spillages;
- Encourage regional co-operation among member States of West African sub-region and in the Gulf of Guinea for combating oil spillage and pollution in our contiguous waters;
- Strengthen the national capacity and regional action to prevent, control, combat and mitigate marine pollution;
- Promote technical co-operation between Nigeria and member States of the West African sub-region (Ezeibe, 2011: 2).

The Act also empowers the Agency to facilitate the following activities:

- The arrival and utilization in and departure from Nigeria of ships, aircrafts and other modes of transport engaged in responding to oil pollution incidents or transporting personnel, cargo, materials and equipment required to deal with such an incident; and
- The expeditious movement into, through and out of Nigeria of personnel, cargoes, materials and equipment;
- The National Control and Response Centre (NCRC) shall for the purposes of a Tier 3 oil spill response, undertake such functions as specified under Section 20 of the Act;
- The Director-General shall have the power to co-opt all the Government Ministries and Agencies mentioned under the Second Schedule to this Act, in the management of a Tier 3 or a major Tier 2 oil spill (Ezeibe, 2011: 2).

Section 6(2) and (3) of the Act further empowers the Agency to ensure that defaulters comply with following:

- To report an oil spill to the Agency in writing not later than twenty-four hours after the occurrence of an oil spill, in default of which, the failure to report shall attract a penalty in the sum of five hundred thousand naira (N500,000.00) for each day of failure to report the occurrence.
- The failure to clean-up the impacted site, to all practical extent including remediation, shall attract a fine of one million naira (N1,000,000) (Ezeibe, 2011: 2).

In addition, the enactment of the Harmful Waste (Special Criminal Provisions, etc.) Act, Cap. H1, LFN, 2004 as amended, took effect from 25th of November 1988, further enabled environmental protection in Nigeria. The Act prohibits the carrying, depositing and dumping of harmful waste on any land, territorial waters and matters relating thereto. The Act criminalizes or prohibits the purchase, sale, importation, transit, transportation, deposit, storage of harmful wastes. This was a bold step in altogether stopping or reducing pollution. Furthermore, it stipulates penalties, to serve as deterrents to the crime. The Centre of Laws of Nigeria (2017) succinctly summarized the penalties as follows:

- That any person found guilty of a crime under Sections 1 to 5 of this Act shall on conviction be sentenced to imprisonment for life, and in addition-
- Any carrier, including aircraft, vehicle, container and any other thing whatsoever used in the transportation or importation of the harmful waste; and
- Any land on which the harmful waste was deposited or dumped, shall be forfeited to and vest in the Federal Government without any further assurance other than this Act.

In order to establish a crime and also deal decisively with the crime, the Act gives powers to police officers to search, seize and arrest offenders without warrant.

- Enter and search any land, building or carrier, including aircraft, vehicle, container or any other thing whatsoever which he has reason to believe it is related to the commission of a crime under this Act;
- Perform tests and take samples of any substances relating to the commission of the crime which are found on the land, building or carrier, including aircraft, vehicle, container or any other thing whatsoever searched pursuant to paragraph (a) of this subsection;
- Arrest any person who he has reason to believe committed a crime under this Act;
- Seize any item or substance, which he has reason to believe, has been used in the commission of a crime under this Act.

A written receipt shall be given for any item, substance or thing seized under Sub-section (1) of this section.

Another vital national regulation for protection of the environment in Nigeria is the National Environmental Standards and Regulations Enforcement Agency (NESREA). NESREA was established by Act, Cap. No. 25, LFN, 2007. This Act repealed the FEPA Act (Ladan, 2012: 116). The Act charged the Agency to take responsibility of protecting the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general, and environmental technology, as well as coordination and liaison with relevant stakeholders within and outside Nigeria on matters relating to enforcement of environmental standards, regulations, rules, laws, policies and guidelines. The relevant sections concerning this research include:

Section 7: Authority to ensure compliance with all of Nigeria's environmental laws and treaty obligations.

Section 8 (d, e, g and k): Authority to make and review regulations concerning air and water quality, effluent discharges, and other harmful substances, as well as control of other forms of environmental pollution.

Section 20 (1): Authority to set specifications and standards for protection and enhancement of the quality of Nigeria's air resources, promotion of public health or welfare, national development, and enhancement of the productive capacity of the nation's human, animal, and marine or plant life. In particular:

- The minimum essential air quality standards for human, animal, marine or plant health;
- The control of concentration of substances in the air which separately or in combination are likely to result in damage or deterioration of property or of human, animal, marine or plant health;
- The most appropriate means to prevent and combat various atmospheric pollution;
- Control of atmospheric pollution originating from energy sources, including that produced by aircraft and other self-propelled vehicles, industries, factories and power generating situations or facilities;
- Standards applicable to emissions from any new mobile or stationary source which in the Agency's judgment causes or contributes to air pollution which may reasonably be anticipated to endanger public health or welfare; and
- The use of appropriate means to reduce emission to permissible levels

Section 27 deals with the following:

- The discharge of harmful quantities of any hazardous substance into the air or upon the land and the waters of Nigeria or at the adjoining shorelines is prohibited, except where such discharge is permitted or authorized under any law in force in Nigeria.
- A person who violates the provisions of subsection (1) of this Section, commits an offence and is liable on conviction, to a fine, not exceeding N 1,000,000 or to imprisonment for a term not exceeding 5 years.
- If an offence under subsection (1) of this section is committed by a body corporate, it shall on conviction, be liable to a fine, not exceeding N 1,000,000 and an additional fine of N 50,000 for every day the offence subsists.
- Where an offence under subsection (1) of this section is committed by a body corporate, every person who at the time the offence was committed was in charge of the body corporate shall be deemed. to be guilty of such offence and shall be liable to be proceeded against and punished accordingly provided that nothing contained in this subsection shall render any person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.
- Notwithstanding the provisions of this section or any other sections of the Act, the provisions of the Harmful Waste (Special Criminal Provisions, etc.) Act shall apply in respect of any hazardous substance constituting harmful waste as defined in section 37 of the Act.

The national laws expounded appear quite significant for regulating the activities of the MNOCs and the environment in Nigeria. Conversely, Ezeudu (2011: 23-56) has argued that the regimes have failed to check the ongoing deleterious environmental impacts of the MNOCs in the Nigeria's Niger Delta because they are inefficient and ineffective, and are largely ignored and scarcely enforced. Ezeudu (2011: 23-56) also recognises that the non-implementation of these regulations was as a result of government's joint venture arrangement with the MNOCs. As a result, Ezeudu (2011: 23-56) further asserted that environmental concerns are not prioritised in the agenda of both government and the corporations because of the shared cost in enforcing regulatory regimes that can amount to substantial reduction of their earnings. It has been argued, even if the national regimes "are enforced, the sanctions they prescribe are considered a mere pittance to the financially-towering MNOCs" (Ezeudu, 2011: 23-56). Undoubtedly, the insignificant remedies proffered by the national regulations favour the MNOCs in the event of any default at the detriment of the people, for they in most cases, opt

to pay the fines and defer environmental remediation processes and continue to risk the survival of the people in the Niger Delta (Ezeudu, 2011:23-56).

2.2.4.2 International conventions

Suffice to say that increasing global demand for energy resources and major advances in technology has resulted in a shift of operations of MNOCs to offshore locations. This has encouraged a phenomenal development of petroleum infrastructure in areas that were once beyond human reach into becoming production centres of large-scale oil and gas energy resources (Gavouneli, 1995). Such offshore petroleum infrastructure includes platforms and drilling rigs, which are now a common feature of many continental shelves around the world (Canadian Maritime Law Association, 2006). This huge development of the offshore petroleum sector has raised many important questions, including its impact on marine ecosystems and biological resources on which humans depend on for survival. Some oil and gas industry experts believe in the industry's capacity for maintaining environmental safety, while others totally disagree and offer the darkest forecasts (Patin, 1999: 425). Pollution is one of such darkest forecast, which can occur by events such as oil spills from offshore installations damaged by storm or by ships, leakages from ruptured marine pipelines, oil well blowouts, as well as accidental fires and explosions (White, 1994). Apart from accidental pollution, there are intentional discharges of oil from offshore platforms that causes environmental harm (Brown, 1998: 110), or by unlawful acts such as terrorist attacks, sabotage, or arson (Office of Transport Security, 2006). These illegal activities also pose a significant pollution risk to the marine environment. Both accidents and intentional discharges may result in loss of human life, cause injury, destruction of expensive equipment, and serious pollution with catastrophic long-term impact on marine ecosystems (California Coastal Commission, 2006). Through advection, oil slicks are deposited across boundary potentials to cause environmental damage. Advection is the mechanism by which suspended and surface oil slick is transported across boundaries. The combined effect of factors such as wind drift current, waves, tides, ocean current, as well as longshore current can advect oil on water speedily. Considering the potential adverse impact this will cause on the marine environment, a greater level of environmental protection is required to achieve environmental safety. International/regional commitments regarding implementation of efficient regimes could help to bring about the desired environmental safety in the world.

International/regional conventions play significant role on rational use of marine resources and protection of the marine environment from pollution. For instance, in customary international

environmental law, there is a fundamental obligation for States not to pollute the surrounding environment (Gavouneli, 1995). Today, apart from customary international legal principles, other legal international/regional instruments address the issue of marine pollution (Esmaeili, 2017: 228-249). However, in the available international instruments, only few of the legal provisions deal with pollution from offshore installations (Gold, Chircop & Kindred, 2003). Among them are the Marine Pollution Convention (MARPOL) 73/78, Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990 and United Nations Convention on Law of the Sea (UNCLOS, 1982).

The International Convention for the Prevention of Pollution from Ships, otherwise called MARPOL 73/78, was developed by the International Maritime Organization (IMO) on 17 February 1973 and its protocol in 1978. Both the convention and its protocol were ratified on 2 October 1983 (Annex I, MARPOL 73/78). Available records show that as at January 2018, a total 156 States that are parties to the convention have subjected themselves to its requirements. It implies that irrespective of where ships sail from, the member nations are responsible for such vessels registered on their national ship registry (Copeland, 2008: 1-26). The MARPOL framework is one of the most important international instruments with regards oil pollution of the marine environment by ships and other marine vessels traversing the seas. This Convention aims at preventing pollution of the oceans and seas by rejecting ships/vessels from dumping harmful oil wastes and emission of gaseous substances into the air. In other words, the objective of MARPOL was the preservation of the marine environment from pollution, including accidental or deliberate discharges of oil and other harmful substances by ships/vessels. It therefore gives specifications on tanker design and features to member countries of IMO. For example, Annex I of MARPOL practically deals with prevention of oil and oily water pollution. The first half of Annex I deals with engine room wastes, while the second part deals with cleaning of cargo area and tanks. In addition, MARPOL gives recognition to International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL). While the IMO, through MARPOL, have urged stakeholder nations to develop various generations of technologies and equipment to prevent waste such as oily water separators (OWS) and oil content meters (OCM), as well as encouraged port reception facilities (Annex I, MARPOL, 73/78). Furthermore, the MARPOL instrument provides regulations on treatment of engine room bilge water. Such regulations include the installation and use of OWS in all large commercial vessels, and ODME for ballast and tank cleaning wastes. It also introduces the concept of "special sea areas (PPSE)" which are considered to be at risk to

pollution by oil. The discharge of oil within them has been completely, outlawed with a few minimal exceptions (IMO, 2012).

Furthermore, the MARPOL instrument requires offshore structures to be equipped with the same pollution control devices for ships of 400 gross tonnes and above, including oil discharge monitoring and controlling systems, as well as oily water separating equipment and sludge tanks. The convention prohibits the discharge of sewage into the sea, and discharge of oil in mixtures greater than fifteen parts per million in certain areas. It also requires that a record of all operations be kept for possible scrutiny in cases of sabotage or accidents.

Although, MARPOL generally applies to offshore units in mobile configuration, it does not specifically address offshore oil and gas exploration and production activities by MNOCs, which now poses more threat to the marine environment than previously known sources of pollution. However, this Convention is necessary for offshore oil production industry because it uses vessels majorly for the transportation of oil in marine waters by international shipping lines.

Accordingly, the Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990 requires that Parties should establish measures for dealing with pollution incidents, either nationally or in cooperation with other countries. The framework specifically demanded that State Parties should ensure that all vessels, offshore drilling units, production platforms, and onshore facilities under their jurisdiction to have emergency pollution plans. For ships and offshore drilling units in particular, it stipulates, they must carry “a shipboard oil pollution emergency plan or make similar arrangements with national coordinating systems” (Esmaeili, 2017). This is to enable national coordinating systems to respond to pollution incidents promptly and effectively (Esmaeili, 2017). In addition, ships must report incidents of pollution to coastal authorities promptly. It also requires that such a report must contain the details of the incidence and the actions necessary to be taken. The OPR instrument also require State Parties to make adequate arrangements to stockpile oil spill combating equipment, hold regular oil spill combating exercises and develop detailed plans for dealing with pollution incidents. Furthermore, the instrument encourages State Parties to give assistance to each other in the event of pollution emergencies and make provision for reimbursement of any such assistance provided. It also provides that the IMO should play an important coordinating role for matters relating to marine pollution. As a result, State Parties adopted the OPRC-HNS Protocol in 2000 for combating hazardous and noxious substances at seas. This Protocol defines offshore units

comprehensively to include both floating and fixed structures engaged in exploration, production, loading, and unloading of oil (Article 2(4)), and also requires State Parties to ensure that offshore unit operators report discharges promptly (Article 4). The Protocol encourages State Parties to cooperate and establish national/regional systems for oil pollution preparedness and responses (Article 6). Articles 7, 8 and 9 provide details regarding value of information about pollution prevention and control, and emphasises mutual assistance and/or international cooperation concerning exchange of information on the capabilities of State Parties to respond to oil pollution incidents, preparation of oil pollution emergency plans, exchange of significant pollution incident data and/or reports regarding safety of the marine environment, as well as engagement of joint efforts in research and development towards combating oil pollution at seas. Evidently, the OPRC instrument contains very specific and detailed provisions relating to marine pollution from offshore installations, which probably made most analysts to regards it as the most important international instrument for combating marine pollution in the world (Esmaeili, 2017).

The United Nations Convention on Law of the Sea or UNCLOS 1982 is another international instrument when it comes to matters relating to the sea. UNCLOS came into force in 1974 but Nigeria ratified by it in 1984. The Convention is a codification of customary international law norms, which imposes an obligation on all UN members not to degrade the environment (Article 9). In other words, member countries of the United Nations under this Convention have an obligation to protect the environment. However, the Convention recognizes the right of members to exploit natural resources of the sea (Article 193). In the same vein articles 61, 62, 63, 64, 65 and 66 respectively stipulates utilization of living resources and compliance with the conservation measures in relations to the terms and conditions established in the laws and regulations of the coastal State that oversee the operations undertaken in its territory. Article 73 specifies the enforcement of laws and regulations of the coastal State. The obligations are summarised as follows:

- That the coastal State may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources in the exclusive economic zone, take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this Convention.
- The arrested vessels and their crews shall be promptly released upon the posting of reasonable bond or other security.

- That coastal State penalties for violations of fisheries laws and regulations in the exclusive economic zone may not include imprisonment, in the absence of agreements to the contrary by the States concerned, or any other form of corporal punishment.
- That in cases of arrest or detention of foreign vessels, the coastal State shall promptly notify the flag State, through appropriate channels, of the action taken and any penalties subsequently imposed (Faculty of Law (2016)).

Furthermore, UNCLOS 1982 requires members to take individually or jointly all measures using the best practicable means at their disposal to reduce, prevent and control the pollution of the marine environment (Article 194). States are required under the convention to adopt laws to prevent, minimize and control pollution of the marine environment from land based sources including estuaries, rivers, pipelines, and other structures taking into account internationally agreed rules and standards (Article 197). Member States are also required under the Convention to adopt and enforce laws and measures necessary for the reduction, prevention and control of marine pollution (Article 207).

The UNCLOS treaty is a formidable legal international instrument for oceans' development (Boyle). However, the greatest challenge currently facing the Convention is that developing countries are unwilling to enact more stringent legislations on marine pollution in line with the treaty because such may likely clash with their quest for unbridled exploitation of the natural resources for development. It may be that such unwillingness may be the reason why MNOCs are also not held accountable for the ongoing deleterious impacts on the environment of Nigeria's Niger Delta. Nevertheless, the UNCLOS instrument is significant for resolving conflicts that may arise among nations extracting offshore oil and gas energy resources in the oceans.

2.3 Theoretical framework

Scholars of different scientific orientations (particularly, in the field of international political economy), have propounded several theories to explain the activities of global business enterprises or MNCs. The majority of these theories address the logic in the growing influence and expansion of foreign capital or foreign direct investment (FDI) of MNCs in many developing countries. Equally, there are many other theories postulated to explain the relationship between business outfits and host-countries/communities and individuals. As a result, the operations of MNOCs generally cannot be treated in isolation from the physical environment and society. Indeed, the operations of MNOCs in all their known phases interfere with the physical environment and society – from exploration (seismic operations), exploitation, development of fields (construction of facility and drilling activities),

transportation and decommissioning of production facility, among others. Thus, any theory that is considered amenable to the study should necessarily go beyond emphasis on capital or investment to accommodate other elements that have potential impact on the corporations, environmental resources and survival of coastal oil-bearing (fishing) communities. This is because business and any economic activity “depends on functioning ecosystems and services – plants, animals, microbes and the physical environment, it provides “free” inputs such as food and raw materials, pollination and generic resources...forests, grasslands, wetlands and marine areas provide life-supporting services such as nutrient cycling, freshwater and climate regulation” (UNEP Finance Initiative, 2011: 1-43). As a result, hinged on this research are the environmental externalities and human need theories to lay the foundation in explicating the theoretical underpinnings of the activities of MNOCs and survival of coastal communities in Nigeria.

2.3.1 Theory of environmental externality

Two famous English economists, Henry Sidgwick (1838-1900) and Arthur C. Pigou (1877-1959) are credited for the theory of environmental externalities (Pigou, 2017; Sidgwick, 1901). Sandmo (2015: 43-63) states that these scholars initiated and formalised the development of the concept of externalities, or “spill over effects”. The theory of environmental externality attempts to explain the costs and benefits of human productive activities on the environment. It defines and clarifies what environmental problems are, where they come from and how to solve them. An externality occurs when some of the costs or benefits of the activity are externalised or imposed on a third party without compensation. This could take two forms, namely, negative externality (also called “external cost” or “external economy”) and positive externality (also called “external benefits” or “external economy”). Negative externality refers to an economic activity that imposes a negative effect on an unrelated third party. It could arise either during the production or consumption of a good or service (Goodstein & Polasky, 2005: 32). The theory of negative externality can also arise when the welfare of one party adversely affect the action of the other party, and the loss in welfare uncompensated due to lack of liability to the third parties who suffered the damages. This explains why pollution from the offshore operations of MNOCs which the coastal communities suffer in the Niger Delta are inadequately compensated, for the MNOCs are not liable to the communities as third parties in the petro-business. Pearce (2002) argues that pollution, as far as polluters force others to pay for something from which they get no benefit, is an injustice, having “caused damage to third parties [without being] required paying for that damage”. Codato (2001) considers it as a “by-

product of a product or consumption process that harms or otherwise, violates the property rights of others”. Accordingly, Mitchell (2003: 429-461) states that:

...it is a kind of theft, a theft of well-being for the fact that whether it is committed reciprocally to each other or not, does not stop it from being a theft; though situations of reciprocal externalisation are somewhat distinct from those where the externalisation runs one way.

However, in situations of reciprocal pollution, issues such as those relating to environmental protection are strongly dependent on the sociological concern of trust. Fairbrother (2016: 359-382) and Irvin & Berigan (2013) argue that trust and public support for policies that protect the environment expect others to make “offsetting efforts to protect the environment. This is because they have confidence that public authorities will implement systems for environmental protection as promised, since they have the requisite level of expertise and administrative capacity and without corruption, will be willing to pay for the environmental damage”. In this regard, the views of Malesios & Botetzagias (2009: 511-530) and (Boyce (2017: 1-15, 1994: 169-178) are quite relevant when they separately maintain “situations entailing the imposition of an externality by one party on others, but not reversed, are based on power imbalance and inequality. The ongoing environmental impacts in the Niger Delta can be inferred that the government/MNOCs are the winners while the indigenous people of the Niger Delta are the losers. This is because the power to impose costs on the MNOCs for pollution damages rest on the government who has major stakes in their businesses. This is detrimental to the people as their means of survival is eroded continually. Nonetheless, the problem of distribution of the cost of benefit to an individual or group or society as a whole (including future operations as it affects a company), may therefore imply that some people benefit at the expense of others, and so it might not want externalities internalised for they stand to lose out.

Negative environmental externality is also possible when producing corporations fail to consider the cost of environmental harm in their business models (Baumol & Oates, 1988; Meade, 1973; and Coase, 1960: 1-40). Undoubtedly, the process of oil and gas production involves transformation of matter to energy (inputs into products as outputs), which generates wastes and causes pollution that severely impact ecosystems (WWF International Report, 2015: 1-68; Kadafa, 2012: 38-51; Kadafa, 2012: 19-28). Considering the value of ecosystems to life, MNOCs’ business models are expected to recognise the cost of harm on the environment in the event of pollution caused by them in the Niger Delta. It appears, the current economic and business models of the MNOCs in Nigeria could not recognise this fact wherefore, excluded the cost of environmental damage from oil spills and gas flaring in the Niger Delta to

be borne by a third party (the oil-bearing coastal communities in this case). Odoemene (2011: 123-135) and Edino, Nsofor & Bombom (2010: 67-75), as well as Emoyan, Akpoborie & Akporhonor (2008: 29-37) highlighted the negative externalities orchestrated by MNOCs and borne by the oil-bearing communities in the Niger Delta include, loss of fishing grounds, forced migration, persistent health and shelter problems, social tension and other forms of deprivation. These negative externalities have severely impacted on the quality of life of the people in the study area.

The positive aspect of the theory of environmental externality refers to the benefits derived from an activity by an unrelated third party. Better still, positive externalities could be regarded as benefits or costs generated as unintended outcomes in a given economic activity, which attract no compensation as they accrue not directly to the parties involved in the transaction. The benefits or costs could come either on the production side or on the consumption side (Varian, 2010). In addition, the unintended outcomes can manifest themselves in the form of changes in the physical or biological environment. Furthermore, positive externality arises when actions of an individual or a group confers to others, benefits or rewards. For example, a technological spill over is a positive externality which occurs when a firm's invention not only benefits the firm but also enters into the society's pool of technical knowledge and benefits the society as a whole. Nigeria has enormously benefited from the technical knowledge of the MNOCs operating in the country.

The theory of environmental externality is expedient in judging the impact of the offshore activities of MNOCs (negative or positive) on the survival of coastal (fishing) communities in the Nigeria's Niger Delta. Suffice to state that the activities of MNOCs impact negatively on the natural environment. For example, pollution from oil spills and gas flaring provoke negative environmental externalities of global dimension (WWF International Report, 2015: 1-68). It reduces the ability of ecosystems to absorb wastes and/or pollutants as well as provide the goods and services needed for the survival of the earth's inhabitants. The cost of such devastating consequences is not considered either in the State legislations or business models of the MNOCs. The fines prescribed in the State legislations for remediation of the negative environmental externalities caused by the activities of the MNOCs has been queried as inadequate. To control pollution, the external costs should be internalized as a tax or with other instruments that may require both producers and consumers of the polluting good to account for. The instrument of tax can reduce the effects of pollution. However, it can raise the price of goods and the quantity of it produced.

The theory of environmental externality has been able to explicate the fact that petroleum exploration and production activities in Nigeria cause negative environmental externalities which are borne by the people of the Niger Delta.

2.3.2 The human need theory

The human need theory (HNT) was developed between 1970s and 1980s as a generic or holistic approach for studying how human beings respond towards satisfaction of their needs in society. HNT is grounded on the preposition that a stable society is possible when certain basic needs of those who make up that society are satisfied (Burton, 1990: 31-32). The theory argues that humans take part in conflict in order to satisfy their primordial or universal needs including identity, recognition, belief, development, security among others as members of society. This notion of humans participating in conflicts in order to satisfy their basic needs have a correlation with the frustration-aggression theory (FAT). The FAT is based on the ‘stimulus response’ assumption that humans tend to be frustrated and aggressive when there is struggle for societal resources for survival. In such a situation, the peaceful co-existence of the people is threatened, and by extension, the whole society is at risk of jeopardy. The frustration experienced in the non-satisfaction of the basic needs of a people could lead to aggression and conflict subsequently. The basic difference of the two concepts is that HNT pursues social stability, while FAT rationalizes conflict.

There are fundamental universal human needs that societies must meet if it is to remain stable (Burton, 1990: 31-32). Thus, HNT emphasises that unless identity needs of the people are met especially, in multi-ethnic societies, and unless every social system has an acceptable distributive justice system, with a sense of control and prospects for the pursuit of all other human societal developmental needs, instability and conflict are inevitable. In this sense, HNT does not provide any ideological basis for the establishment of institutions and policies in societies. However, it recognises and legitimizes both the business concerns of the owners and the people who suffer the consequences of their operations. It implies that the needs of both parties must be met, not one at the expense of the other. In this regard, the notion of ‘human needs’ helps to reduce the tendency of individuals pursuing fulfilment of personal goals at the expense of mutually beneficial goals either on the part of MNOCs or the coastal communities in the study area. However, the underlying assumptions of HNT can sometimes be contentious. For example, the assumption that “primordial struggles are difficult to curb or instability and conflict are inevitable” (Burton (1990: 31-32), can generate contentions of far-reaching implications. Nevertheless, the contention here is that ‘if certain human needs must be satisfied

for the essential stability of society', it also means that solution to conflicts must be based on the ability of all segments of the society to mutually interact and create a conducive environment for itself to pursue and/or satisfy its needs.

The HNT is therefore, relevant to this study as it provides the basis to underscore the offshore operations of MNOCs and survival of coastal communities over access to environmental resources for the satisfaction of their private needs such as profit maximization (MNOCs) and basic standard of living (coastal communities) in this context. As stated by Burton (1990: 31-32), this kind of struggle is difficult to curtail for it is primordial in nature.

2.4 Summary of the chapter

Chapter two presented the review of literature, and it commenced with the introduction and clarification of the two main concepts that form the topic of the research, namely, 'offshore operations of MNOCs' and 'survival of coastal communities'. The MNOCs are described as powerful global economic actors responsible for exploiting oil and gas resources around several countries in the world, headquartered in a parent country, and having a network of subsidiaries in mostly resources endowed countries. The chapter also showed that these MNOCs have almost abandoned their onshore areas for some obvious reasons, and have extended their operations to offshore locations. The totality of their exploitation activities in offshore areas and/or from the seabed are, referred to as the offshore operations of MNOCs. It argued that these operations provoke environmental risks, which are the direct and indirect or cumulative pollution impacts (environmental externalities) of MNOCs that impact on the environmental resources and survival of coastal communities in Nigeria's Niger Delta. It also argued that environmental safeguards are all the concerted efforts of stakeholders geared towards controlling environmental risks perpetrated by MNOCs to ensure the survival of coastal communities in the Niger Delta. Survival of coastal communities describes the socioeconomic conditions of oil-bearing coastal communities in the Niger Delta. It was described as a determinant of the socioeconomic conditions (standard of living) of the people of oil-bearing coastal (fishing) communities in the region.

In addition, the chapter examined major themes in the literature review section, which include socioeconomic characteristics of coastal communities such as marital status and family size of households or fisher folks in fishing communities of Nigeria, income and membership of organizations or cooperative societies, sex composition and formal education and experience of fisher folks. All these characteristics define the economic status and well-being of the fishing families of coastal communities in Nigeria's Niger Delta. It also appraised conflicts between

MNOCs and host-communities. It indicated that major causes of their conflict were directly linked to environmental pollution and damage to ecological resources by MNOCs and protests of host-communities for basic livelihoods (income and food security), which turns out violent and results to killings and abuses of human rights by the Nigeria security agencies in collusion with MNOCs. The chapter also examined the effects of offshore operations of MNOCs on the health and shelter of the coastal communities. It argued that oil pollution related health problems such as cancer, respiratory difficulties, among others affects the people of the communities in the Niger Delta. Equally, gas-flaring causes skin irritation and destroys the roofs of buildings in host-communities, and that the impact is a gory site in the region.

Furthermore, the chapter examined related national and international regulatory regimes for offshore operations of MNOCs and safety of the environment. The discourse relates to protection of offshore drilling operations and the marine environment/resources based on national laws of Nigeria and international conventions. The section places emphasis on the Petroleum Act and UNCLOS and among others.

Lastly, the chapter on its theoretical framework centred on two theories, namely, the theory of environmental externality and the human need theory (HNT). These theoretical underpinnings justify that the offshore operations of MNOCs are a threat to the survival of the coastal communities in the Niger Delta. The chapter concluded with a succinct summary of chapter.

Chapter Three

Research Methodology

3.0 Introduction

This chapter discusses the design, choice and rationale of the design, area, population, sample size and selection method, research questions posed, data collection methods and sources (primary and secondary respectively), data analysis technique, ethical considerations of the study and the chapter summary.

3.1 Design of the study

This research adopted mixed methods approach including the quantitative (survey research technique) and the qualitative (concurrent mixed method) among others in the collection, integration and analyses of the data. The mixed methods design was useful for this study as it is a non-experimental descriptive research technique that describes reality (Nigel, Fox & Hunn, 2009: 147). This design enabled the researcher to frequently collect the data and relate it to the attitudes, behaviour and/or conduct of the respondents each time. In addition, it gives opportunity to the researcher to select the respondents and focus groups randomly, sometimes for either ethical or practical reasons. As articulated by Nigel, Fox & Hunn (2009: 147), the design helped the researcher to restrict the representatives of each focus group, for reasons of practicality and cost-effectiveness (see distribution in Table 3.3).

3.2 Choice and rationale of research design

The rationale for the choice of the mixed methods design was that it is useful for non-experimental descriptive studies of this sort that seeks to describe reality. In addition, it is useful during the collection of data, which relates to attitudes, behaviour or conduct. The advantage of it was that it allowed the researcher to randomly select the participants or respondents in the focus groups out of the large population of the study area, and assigned them roles to achieve the aim and objectives of the study. The design helped the researcher to examine the socioeconomic characteristics of coastal fishing communities (rural households), which includes age, sex, marital status, educational level, household size, occupation/experience, and annual income. It also enabled the researcher to examine the extent to which the offshore operations of MNOCs have engendered environmental risks and undermined the survival of coastal fishing communities in the study area. The risks include conflict, health, shelter, income, food security amongst others.

Furthermore, the mixed methods technique enabled the researcher to investigate measures that could foster healthy oil operations, sustenance of environmental resources and survival of coastal fishing communities in Nigeria.

3.3 Study area

The study area of this research is Nigeria. However, two oil-producing States (Bayelsa and Delta) in the Niger Delta are the focus of this research. In terms of geography, Nigeria is located on the Western part of Africa within the Gulf of Guinea. It is situated on latitudes 4°N and 14°N of the Equator, and 3°E and 15°E of the Greenwich Meridian. Nigeria has land borders with the Republic of Benin in the West, Cameroon in the East, Chad and Niger in the North, and on the South, by the Atlantic Ocean (extending to its Continental Shelf and Exclusive Economic Zone, EEZ). Nigeria occupies a total surface area of 923,768 km² (comprising mainly of 910,768 km² land and 13,000km²water) with a total population of 184million people (National Population Commission [NPC, 2010], 2006 Census). It also has a coastline of at least 853km.

Nigeria's Niger Delta is the largest delta in Africa and one of the largest wetlands in the world. The Niger Delta is situated in the southern part of Nigeria and lies between latitudes 4°49'160"N and 8°N, 5°E and 9°E of the Equator. It is a lowland area of about 96m above mean sea level and covers a surface area of about 75,000km² with one of the largest mangrove ecosystems (Ogwu, *et al.* 2015: 60-71; Etekpe & Ibaba, 2013; Adebajoko & Ojua, 2013: 179-193; Kadafa, 2012: 38-51; Kadafa, 2012: 19-28).

The ecological composition of the Niger Delta consists of tropical rainforest that is dominant at its Northern fringes, while the South is a coastal area of mangrove vegetation traversed by many rivers, tributaries and creeks, made up of saltwater. The saltwater rivers and the freshwater from the River Niger and its tributaries meet at the hinterland forming a brackish line, which is a clear demarcation between the saltwater from the Ocean and freshwater from the River Niger and its tributaries. The freshwater from the River Niger and its tributaries do not flow freely into the Atlantic Ocean. This is against the popular opinion that the River Niger empties into the Atlantic Ocean. Hence a brackish water area is found further inland (Etekpe & Ibaba, 2013: 1-9; Adebajoko & Ojua, 2013: 179-193).

Nigeria's Niger Delta is home to over 30 million people who live in about 13, 400 aboriginal communities, mainly artisanal fishermen and subsistence farmers, and belong to over 40 ethnic groups. The region houses Nigeria's oil and gas industry, which accounts for 80 percent of

government revenue and 95 percent of export earnings (Omoredede, 2015: 79-99; Etekpe & Ibaba, 2013: 1-9; Adebajoko & Ojua, 2013: 179-193).

The Nigeria's Niger Delta was relevant for this study because it holds the largest oil and gas reserves in the country, which makes the country the largest producer in Africa (US EIA [United States Energy Information Administration] Country Analysis Brief Nigeria, 2016: 1-20). This report indicates that Nigeria has the largest natural gas reserves in the continent and is a major player in the world's energy market. The oil and gas reserves are mainly located in the Niger Delta. MNOCs engaged in the exploitation of these vital energy sources and their impact on the Niger Delta is enormous. Thus, Nigeria's Niger Delta provides a meaningful platform in understanding the most contentious issues of the operations of MNOCs and environmental risks when measured with the indices of survival of oil-baring coastal communities. Nigeria is a living testimony of the operations of MNOCs and related issues among developing countries in the world (see maps of the study area in annexures 1 and 2).

3.4 Population of the study

The total population of the study – Bayelsa and Delta States is N=7,197,000 (male and female) (National Population Commission [NPC, 2010], 2006 census projections 2015) (see Table 3.1).

Table 3.1: Population of Bayelsa and Delta States.

State	Total population
Bayelsa	2,320,000
Delta	4,877,000
Total population	N=7,197,000

Source: NPC, 2010 (2006 census projections 2015).

Furthermore, only local government areas that are located in the coastal area were used for the study. There are three (3) coastal LGAs in each of the selected States. Therefore, six (6) LGAs are used for the study. The selected LGAs have a population of N=1,236,598 (see population distribution per LGA as indicated in Table 3.2).

Table 3.1: Population distribution of the study area by LGAs.

Bayelsa State		Delta State	
LGA	Population	LGA	Population
Brass	184,127	Burutu	207,977
Ekeremor	269,588	Warri North	136,560
Southern-Ijaw	321,808	Warri South-West	116,538
Total	775,523		461,075

Source: NPC, 2010 (2006 census projections 2015).

3.5 Sample size and selection method

The Raosoft online software calculator was used to determine the appropriate sample size for the study. Thus, four hundred and seventy-one (471) respondents were selected as the minimum sample size of the study, ensuring that the error margin set at 5% was not altered (see formula).

$$X = \left(\frac{c}{100} \right)^2 r(100 - r)$$

$$n = N x / ((N-1)E^2 + x)$$

$$n = \sqrt{[(N - n)x / n(N-1)]}$$

where N is the population size,

r is the fraction of responses that you are interested in, and

$Z(c/100)$ is the critical value for the confidence level c .

The researcher made use of stratified sampling technique. Through this method, the researcher divided the study area into a number of homogenous or non-over-lapping groups (Maree, 2015: 332-348; Thompson, 2012: 14). The stratified sampling model was utilised to eliminate the problem of non-homogenous populations. This technique enabled the researcher to obtain a representative population, which was much better than employing a single model such as simple random sampling (Maree, 2010: 172-216). With this advantage, the researcher was able to produce a representative sample from the study population with a strata sharing same attributes as that of the entire study population. Furthermore, proportional sampling was adopted to achieve a fair distribution of respondents proportionate to the population of each Local Government Area that was selected for the study, (see table 3.3).

In order to reach respondents in each strata, the researcher employed the snowballing sampling frame to overcome the problems of accessing the respondents. The researcher requested respondents to refer or recommend other respondents who were likely rich sources for information sharing. The researcher also ensured that this referral meets the prescribed criteria. The criteria considered for selection is as follows:

- Respondents were inhabitants of oil-bearing coastal communities within the 6 coastal LGAs of Bayelsa and Delta States who have global memorandum of understanding (GMoU) with Chevron Nigeria;
- Respondents were staff of Chevron Nigeria and the Nigeria National Petroleum Corporations (NNPC);
- Officials of the Ministries of Environment and Petroleum Resources, Directorate of Petroleum Resources (DPR), National Environmental Standards and Regulation Agency (NESREA), as well as the Nigerian Oil and Gas Industry Content Development Board in Bayelsa and Delta States respectively;
- Members of local and international environmental or civil rights groups in Bayelsa and Delta states and
- Staff and postgraduate students of state-owned tertiary institutions, one each for Bayelsa and Delta states.

Table 3.3: Sample distribution [study population] per LGA and institutions/agencies.

State/Institutions	LGA	Community	Number of Questionnaire	Sample size using proportional distribution
Bayelsa	Brass	Sangana	20	36
		Fish-town	16	
		Ajamabiri	10	
	Ekeremor	Ogbointu	10	50
		Agge	15	
		Amatu	15	
	Southern-Ijaw	Ekeni	19	110
		Ezetu I	19	
		Ezetu II	19	
		Foropa	21	
		Koluama I	20	
		Koluama II	22	
	Burutu	Beniboye	11	51
		Ogulagha	15	
		Odimodi	14	
Delta	Sokebolor	Sokebolor	11	46
		Ajamogha	13	
		Abegborodo	18	
	Ayogboro	Ayogboro	15	58
		Ogidigben	20	
		Olusumere	12	
	Ugborado	Ugborado	15	58
		Yokriegbe	11	
		Chevron	8	
	NNPC	NNPC	20	120
		DRP	5	
		NCDMB	5	
Institutions/agencies	NESREA	NESREA	5	120
		NDU	20	
		DELSU	21	
		ENV/CIVIL RIGHTS	5	
		MIN. OF ENV. BYS	10	
		MIN. OF MIN. RES. BYS	5	
	MIN. OF ENV. DELTA	MIN. OF ENV. DELTA	10	
		MIN. OF OIL & GAS DELTA	6	
Total	6 LGAs & 12 institutions			n=471

3.6 Research questions

The research questions as already stated in the initial chapter are restated here as follows:

- What are the socioeconomic characteristics of households in oil-bearing coastal (fishing) communities in the Niger Delta?
- To what extent have the offshore operations of MNOCs caused conflicts that undermine the survival of people in oil-bearing coastal communities in the Niger Delta?
- To what extent have the offshore operations of MNOCs specifically affected the income of oil-bearing coastal communities in Niger Delta?
- To what extent have the offshore operations of MNOCs specifically affected the coastal environment and food security in oil-bearing coastal communities in the Niger Delta?
- To what extent have the offshore operations of MNOCs specifically affected the health of the people in oil-bearing coastal communities in Niger Delta?
- What are the necessary measures that could safeguard offshore operations of MNOCs and the survival of coastal oil-bearing communities in Nigeria's Niger Delta?

3.7 Data collection method

The instrument for data collection in this study was a structured questionnaire. The questionnaire was constructed based on experience and existing literature. The information obtained from the questionnaire was deemed appropriate and unbiased as it was the opinions of those that are directly impacted upon by the effects of oil production activities. The questionnaire have three major sections as follows:

Section 1: Socioeconomic characteristics of respondents such as age, gender, marital status, educational level, household size, occupation and average annual income.

Section 2: Coastal communities' survival and environmental risks/resources sustainability scale, which has the following subsections.

- Conflict between MNOCs and oil-bearing Communities;
- Effects of MNOCs offshore operations on income, food security and livelihood of coastal communities;
- Impact of MNOCs offshore operations on health and shelter of oil-bearing coastal communities in Nigeria's Niger Delta; and

- Impact of MNOCs offshore operations on environmental sustainability and survival of oil-bearing coastal communities in Nigeria's Niger Delta.

Section 3: Safeguards for healthy oil operations and survival of coastal oil-bearing communities in Nigeria's Niger Delta.

Responses to each question raised were weighted on a 4-point Likert scale as indicated: Strongly agree = 4 points; Agree = 3 points; Disagree = 2 points; Strongly disagree = 1 point (see details in annexures 3 and 4).

The respondents are male and female adults between ages 20-60 years and above, who are single/married or separated, divorced/widowed, and having minimum level of education. In addition, they are fisher folks, farmers, traders/businessmen, contractors, government/company employees, chiefs, and members of local/international civil/environmental rights organizations from the following:

- Coastal fishing communities of Bayelsa and Delta states;
- Federal agencies such as NNPC, DPR, NESREA and NCDMB.
- Bayelsa and Delta states Ministries of Environment, Mineral Resources and Oil and Gas;
- The two states owned tertiary institutions - NDU and DELSU;
- Civil Rights Groups; and
- CNL (see details in Table 3.3).

The researcher employed the services of research assistants in the administration of the questionnaire. This helped to ease the distribution and retrieval of the questionnaire. In the course of the study, the researcher also made personal observations and interacted with the people to strengthen the discussion of the results.

3.8 Primary source(s) of data

The primary source of data were the inhabitants of the study area who suffer the direct impact and consequences of the operations of MNOCs. This was obtained using a structured questionnaire. The researcher ensure that the structured questionnaire was reliable. Thus, the researcher ensured that the items on the questionnaire were consistent with the research focus. The structured questionnaire for this study was standardised using test, and retest approach. These items were rated in a 4-point Likert ordinal/rating scale to allow opinions of respondents on each item for comparison. This was to further ensure that the information obtained from the

instrument was reliable, appropriate or unbiased irrespective of the strata or locations from where it was obtained.

Similarly, the researcher ensured that the structured questionnaire was valid. Validity requires that a measuring instrument should be able to measure or cover the extent of what it is supposed to measure (Maree, 2015: 332-348). The researcher therefore ensured that the measuring instrument of this study covered three major objectives of the study; demographic characteristics, MNOCs perpetrated environmental risks that hinder survival of coastal communities, and the necessary measures/safeguards for environmental resources conservation/sustenance and survival of the people in the oil-bearing coastal (fishing) communities in Niger Delta, Nigeria.

3.9 Secondary sources of data

The secondary sources of data are from books, journal articles, magazines, newspapers, documents from government ministries and agencies, reports from MNOCs and communities under investigation, as well as electronic versions of the stated sources from the Internet. The Internet served as an inestimable source of information for the study given the contemporary nature of the subject matter as it concerns the stakeholder interests that surround petro-business in Nigeria. The secondary data provided extensive bibliographic and contextual information, which complemented the primary data, thus providing an in-depth account of the study.

3.10 Data analysis

This study employed nonparametric statistics such as mean, standard deviation and percentages in analysing the data. The use of the nonparametric statistics was appropriate as the researcher was able to determine the degree of closeness of the opinions of respondents, which were tested at a benchmark of 2.50. The study also employed the Statistical Package for Social Sciences (SPSS) software for data presentation and analysis. The use of the SPSS software also assisted the researcher in terms of avoiding wrong results, which would have undermined the integrity of the outcome of the study.

The responses retrieved from the 471 questionnaires were organized, computed and analysed in accordance with the research questions. The responses to each question in the three sections were coded numerically, strongly agreed = 4; agreed = 3; disagreed = 2; strongly disagreed = 1. The percentages, mean and standard deviation values were calculated with aid of SPSS at

the set benchmark of 2.50, and the results are presented in tables, discussed and analysed in chapters four and five respectively. All helped in realising the research aim and objectives.

3.11 Ethical considerations

The researcher observed the highest possible codes of conduct throughout the study. Efforts were made to eliminate all forms of prejudice, bias and sentiments that would have prevented objectivity and neutrality of the research. Ethical issues that were taken into consideration in this study include:

Anonymity and confidentiality: The personal identifiers of respondents such as name, sex or religion were not required. It was to ensure anonymity of the respondents. However, age, educational qualification, marital status, family size, etc. were required in the questionnaire. The information elicited from respondents was treated with utmost confidentiality. This was to ensure the protection of respondents and freedom of expression to participate in giving adequate information and guarantee the quality of the study.

Voluntary participation: Research assistants and respondents who were interested and willing to participate were engaged to take part in the study. Thus, there was no coercion or inducement of any sort to divulge information from participants. The researcher allowed a reasonable period (at least two weeks) before retrieving the copies of the questionnaire that were distributed to each study group.

Informed consent: The objective of the study was stated clearly for the respondents to make a choice whether to participate in the study or not. Their willingness to participate was outlined in the questionnaire.

Beneficence and non-beneficence: The researcher throughout the study ensured that the welfare of the respondents was not compromised. The researcher was not in any way engaged in anything harmful to the health and interest of respondents. Adequate safety and precautionary measures were taken to secure both materials and participants throughout the field trips.

North-West University (NWU) Ethics Codes: Apart from the above, the researcher also abides by the NWU ethics committee rules and regulations guiding research of this magnitude.

3.12 Summary of the chapter

The chapter discussed the design of the study, which focused on mixed methods such as the survey research technique, a useful non-experimental descriptive design for describing reality

of the study area. The choice and rationale for this approach is that it facilitated the collection of data by randomly selecting the participants from the large population in to focus groups.

The chapter described the geographical features and ecology of the study area as a deltaic terrain, especially in the regions of Bayelsa and Delta States, the focus states of the study. The area is endowed with the nation's hydrocarbon energy resources both in the onshore and offshore locations. The population of the study area (male and female) is 7,197,000, while that the sample size of the study is 471. The chapter stated, this was achieved with the help of Raosoft online calculator set at an error margin of 0.5%. Stratified and proportional sampling techniques are discussed as being employed to have a fair distribution of the respondents in the focus groups.

Furthermore, the chapter discussed the six research questions which were drawn from the literature on the activities of MNOCs in the region. The sources of data collection presented in this chapter were primary and secondary, however, the major instrument presented is a structured questionnaire. There are three major components of the questionnaire with opinions rated on a four-point Likert scale. The chapter also stated the use of SPSS and nonparametric statistics (mean and standard deviation) for presentation of data and analysis.

Lastly, the chapter examined the ethical considerations of the study, which the North-West University (NWU) ethics committee rules and regulations guiding students of the faculty of humanities for this magnitude of research. Finally, the chapter summary section condenses the contents of the chapter and of the facts.

Chapter Four

Data Presentation and Analysis

4.0 Introduction

This chapter deals with the presentation and analysis of the data obtained from the field survey using the SPSS. The results are exhibited in percentages, mean and standard deviations, and presented in tables and analysed in accordance with the research questions.

4.1 Presentation of data and analysis of result of research question one

What are the socioeconomic characteristics of households in oil-bearing coastal (fishing) communities of Nigeria's Niger Delta? (see presentation in table 4.1).

Table 4.1: Socioeconomic characteristics of households in oil-bearing coastal (fishing) communities in the Niger Delta.

S/N	Variables	No of Responses	Relative Percentages (%)
1	Age of head of household 20 -30years 31 -40years 41 -50years 51- 60years 61 years and above	124 145 119 52 31	26.33 30.797 25.27 11.04 6.58
2	Sex Male Female	319 152	67.73 32.27
3	Marital status Single Married Divorced Widowed Separated	5 323 26 49 21	10.62 68.58 5.52 10.40 4.46
4	Educational Level Less than FSLC FSLC WASC Tertiary	23 154 212 52	4.88 32.70 45.01 11.05
6	Household size 1 – 5 6 – 10 11 -15 16 -20 21 and above	15 156 231 69 0	3.19 33.12 49.05 14.65 0.00
7	Occupation Fishing Farming Govt. employee Trading/ businesses Company employee	161 3 161 124 22	34.18 0.64 34.18 26.33 4.67
8	Average income /annum N240,000 - N360,000 N361,000 – N480,000 N481,000 – N600,000 N601,000 - N960,000	87 213 126 45	18.48 45.22 26.75 9.56

Source: Field survey 2018 Note: Household size excludes those that have migrated.

The presentation is based on the various characteristics considered in this research, and the results indicated that about 26.33% of responses fall between people of ages 20 – 30 years, 30.797% responses were from persons between 31 – 40 years, and 41 -50 years had 25.27% of the respondents, while 51 – 60 years represented by 11.04% and 61 and above was 6.58%.

The result on gender shows that males were 67.73%, while females were 23.27%. The results on educational qualification reveals that majority of the people who remained in the villages to fish and carry out other economic activities are holders of First School Leaving Certificate (FSLC) represented by 68.58%. This is followed by holders of West African School Certificate (WASC) or its equivalent with 45.01%. Still on educational qualification, it was identified that 11.05% of the respondents had tertiary education certificates such as Ordinary National Diploma (OND), National Certificate in Education (NCE), and Bachelor's degree and above.

The results in Table 4.1 also show the variable of marital status, and the results reveal that 10.62% of the respondents are single, while majority (68.58%) of them are married. The head of household who are divorced are 5.52% and widows/widowers are 10.40% of the respondents. Furthermore, those that separated are 4.46%.

The results on household size indicate that household size is predominantly average size. Result on the number of members of a household of 1 – 5 members is 3.19%; 6 – 10 family members was 33.12%; 11 – 15 persons, 49.05% and 16– 20 persons was 14.65% respectively and a membership of 20 and above was zero percent.

An analysis of the average income of households per annum revealed that 18.47% of the respondents make an average annual income of ₦240,000.00 or \$667.60 to ₦360,000.00 or \$1,001.40; two hundred and thirteen persons, representing 45.22% of the respondents earn an average annual income of ₦361,000.00 or \$1,004.20 to ₦480,000.00 or \$1,335.20, while one hundred and twenty-six persons, representing 26.75% confirmed that they make about ₦481,000.00 or \$1,337.00 to ₦600,000 or \$1,669.00 annually. Additionally, forty-five persons attested to the fact that they make an average annual income of ₦601,000.00 or \$1,672.00 to ₦960,000 or \$2,670.40 (exchange at ₦359.50 to \$1.00 (USD) in 2019).

4.2 Presentation of data and analysis of result of research question two

To what extent have the offshore operations of MNOCs caused conflicts that undermine the survival of people in oil-bearing coastal communities in the Niger Delta? (see presentation in Table 4.2).

Table 4.2: Conflicts between MNOCs and oil-bearing coastal (fishing) communities in the Niger Delta.

Variable	N	Min.	Max.	Sum	Mean	Std. dev.	Decision
Conflicts	471	1.71	4.57	1533.76	3.2564	0.65736	Accepted
Valid N listwise 471							

Table 4.2 reveals that the offshore operations of MNOCs cause conflicts among the stakeholders of the oil industry (corporations/government and the coastal communities) in Nigeria's Niger Delta. This was confirmed by the mean response of the respondents 3.2564 and the standard deviation 0.65736, indicating that the mean was above the benchmark of 2.50. The standard deviation corroborated this fact also by demonstrating the closeness of one to another in the responses of the respondent.

4.3 Presentation of data and analysis of result of research question three

To what extent have the offshore operations of MNOCs specifically affected the income of oil-bearing coastal communities in the Niger Delta? (see presentation in Table 4.3).

Table 4.3: Offshore operations of MNOCs on income of oil-bearing coastal communities in the Niger Delta.

Variable	N	Min.	Max.	Sum	Mean	Std. dev.	Decision
Income	471	2.20	4.80	1720.0	3.6513	0.41631	Accepted
Valid N listwise 471							

The results in Table 4.3 reveals the extent to which the offshore operations of MNOCs has specifically affected the income of coastal (fishing) communities in the Nigeria. It shows the mean response of respondents as 3.6513 and standard deviation as 0.41631, which indicates that the mean was above the benchmark of 2.50. This was also corroborated by the closeness of the responses of the respondents as revealed in the value of the standard deviation.

4.4 Presentation of data and analysis of results of research question four

To what extent have the offshore operations of MNOCs specifically affected the coastal environment and food security in oil-bearing coastal communities in the Niger Delta? (see presentation in Table 4.4).

Table 4.4: Offshore operations of MNOCs on the environment and food security in the Niger Delta.

Variable	N	Min.	Max.	Sum	Mean	Std. dev.	Decision
Env/FS	471	2.0	3.5387	1666.72	3.5387	0.37466	Accepted
Valid N listwise 471							

The result in Table 4.4 shows the mean responses on the effects of offshore operations of MNOCs on the environment and food security of coastal (fishing) communities in the study area as 3.5387, which is above the benchmark of 2.50, and the standard deviation as 0.37466, also indicating the closeness of responses one to another. This reveals that a greater proportion of the respondents attested to the fact that the offshore operations of MNOCs were responsible for majority of the environmental problems and food insecurity suffered by the people of the oil-bearing coastal communities in the Nigeria's Niger Delta.

4.5 Presentation of data and analysis of result of research question five

To what extent have the offshore operations of MNOCs specifically affected the health and shelter of the people in oil-bearing coastal communities in Niger Delta? (see presentation in Table 4.5).

Table 4.5: Offshore operations of MNOCs on the health and shelter of oil-bearing coastal (fishing) communities in the Niger Delta.

Variable	N	Min.	Max.	Sum	Mean	Std. dev.	Decision
Health/Shelter	471	1.66	4.66	1688.0	3.5847	0.41548	Accepted
Valid N listwise 471							

The result in Table 4.5 reveals that offshore operations of MNOCs cause complex health problems in the study area. This was made clear from the responses of the respondents regarding the problems of health and shelter affecting the people of the region. The results

indicated that the mean score of the respondents was 3.5847, which was above the benchmark of 2.50, and the standard deviation was 0.41548, which also demonstrated that responses are closer one to another. The mean score and value of the standard deviation jointly uphold the fact that offshore activities of MNOCs in the study area are partly responsible for the health and shelter problems of the people of coastal communities in the Nigeria's Niger Delta.

4.6 Presentation of data and analysis of result of research question 6

What are the necessary measures that could safeguard offshore operations of MNOCs and the survival of oil-bearing coastal communities in Nigeria's Niger Delta? (see presentation in Table 4.6).

Table 4.6: Measures/safeguards of offshores operations of MNOCs and the survival of oil-bearing coastal communities in the Niger Delta.

Safeguards for healthy oil operations in coastal areas	N	Min	Max.	Mean	Std. dev.	Decision
Create joint forum for fishing communities and MNOCs for discussion and dialogue.	471	1	4	3.7325	0.55408	Accepted
Operators are required to appoint a Fisheries Liaison Officer to liaise with relevant Government departments and fishing organizations on issues relating to their exploration and production activities before getting a license.	471	1	4	3.5541	0.67536	Accepted
Quick justice for parties to take up social responsibilities as early as possible before breakdown of law and order because justice delayed is counted as injustice.		1	4	3.6157	0.64815	Accepted
Improvements in maintenance, housekeeping, inventory control and training programs for both community leaders and oil workers.		1	4	3.4926	0.56817	Accepted
Maintenance of oil installations/put them in good conditions to prevent “the escape of avoidable waste of petroleum” and cause “as little damage as possible to the environment”.		1	4	3.4820	0.61124	Accepted
Quick response to disasters to avoid widespread pollution and casualties.		1	4	3.5711	0.65455	Accepted
Process or procedure modification, equipment and technology redesign as well as reformulation of products.		1	4	3.4013	0.66069	Accepted
Keeping of signs after decommissioning of installations to prevent accidents and damage to property.		1	4	3.4650	0.62086	Accepted
Institutionalization of cluster communities/global memorandum of understanding (GMoU) to resolve conflicts and articulate development agenda for coastal oil-bearing communities.		1	4	3.4522	0.85138	Accepted
Establishment of marine protected areas (MPAs) for conservation of ecological resources.		1	4	3.4246	0.75099	Accepted
Institutionalization/enforcement of comprehensive international/national legal frameworks for offshore oil exploitation and protection of the marine environment and resources.		1	4	3.6391	0.68826	Accepted

The results in Table 4.6 show that the safeguard measures presented for responses were necessary for healthy offshore operations of MNOCs and survival of coastal (fishing) communities in the Nigeria's Niger Delta. The various mean scores and values of standard deviation for each item are also presented in Table 4.6 above.

4.7 Summary of the chapter

Chapter four amplified and systematically outlined the data obtained from the field survey. This was statistically calculated and conveyed in percentages, mean and standard deviation scores/values in Tables 4.1 – 4.6 respectively as it affects each research question. The chapter concludes that based on the results revealed (i.e. the mean score in each case was above the benchmark of 2.50, and values of the standard deviation in each case was close to one another), was an indication of acceptance of the fact that the offshore operations of the MNOCs are responsible for the majority of the problems affecting the oil and gas industry, the environment and survival of the people in oil-bearing coastal communities in Nigeria.

Chapter Five

Discussion of Results

5.0 Introduction

This chapter discusses the results presented in Chapter four, and it also responds to the research questions guiding the study.

5.1 Discussion of results of research question one

What are the socioeconomic characteristics of households in oil-bearing coastal communities in the Niger Delta?

This was discussed in relation to each of the characteristics and variables directed at the respondents.

5.1 (a) Age of head of household

Recall that the results presented on Table 4.1 reveals that the ages of majority of the heads of households are within the age bracket of 31 – 40 years, with this category represented by 30.79% and 41 – 50 years being represented by 25.27%. On the other hand, some of the heads of household fall within the age bracket of 20 – 30years, which represents about 26.33% of the respondents, while 51 – 60years had 11.04% and 61 years and above was 6.58%. From these results, it could be deduced that the heads of household within forty years of age predominantly engage in fishing in the study area. The results of this study are supported by Olaoye *et al.* (2012: 8-22), who conclude that 59% of the fisher folks are aged between 21 and 40 years. This holds true in some respect, but varied for the fact that the residents of the communities were in their permanent homes, while the population presented in Olaoye *et al.* (2012: 8-22) was a temporary or transient population. In addition, the results of this study are indicative of the fact that the households belong to the economically active age bracket, and have also gained some level of occupational cum professional experience since they have depended on it for a relatively long period. This assertion was affirmed by Okwu *et al.* (2011: 408-413), who states that the age of those involved in fishing are in the active age bracket.

5.1 (b) Gender

The result on gender shows that males were 67.73%, while females were 23.27% (see details on Table 4.1). This reveals that fishing is culturally an occupation for the males, especially the offshore sector. This position is supported by a number of studies including Olaoye *et al.*

(2012:8-22); Onemolease & Oriakhi (2011: 55-61); Akpoko (2003:13-18) and Jim-Saiki *et al.* (2016: 31-35) respectively. The reason was that the occupation is energy demanding and risky as the sector is conducted under unpredictable weather conditions, ocean currents and turbulent waves to manoeuvre for a good catch (Jim-Saiki *et al.* (2016: 31-35). Onemolease & Oriakhi (2011: 55-61) therefore, submitted that the risks associated with the offshore fishing sector was responsible for the low female participation in the activity. Okwu *et al.* (2011: 408-413) also uphold the view that female folks are few in fishing because they cannot withstand the hard labour and strength it requires, as well as the risks associated with it. Interpersonal interactions with fisher folks in study area also revealed that the few women involved are either widows or divorcees who are now heads of the household who are left to take care of the children. The result is also consistent with the findings of Fregene (2007: 1-20).

5.1 (c) Marital status

The result indicates that 10.62% of the respondents are single, while the majority (68.58%) of them are married. The head of households who are divorced stood at 5.52% and widows/widowers constitute 10.40% of the respondents and those separated make 4.46% (see details on Table 4.1). The result indicates that artisanal fishermen live a real family life however; it is unfortunate that some inevitably died leaving the women to assume the status of heads of household. The single heads of household are probably ephemeral fishermen who source for cash to pay their children's school fees or may have been hit by the hazards of fishing and therefore died untimely. Furthermore, this is consistent with the findings of Olaoye *et al.* (2012:8-22), who identified that 59% of the fisher folks aged between 21 and 40 years are married. Fishing, as an occupation, is strenuous and demanding, therefore the men may be too exhausted to prepare meals when they return. This could inform why fisher folks seek partners to assist them in carrying out domestic chores, most especially preparing the meal and processing the fish for marketing.

5.1 (d) Household size

The household size indicates that they are predominantly an average size. The number of members per household of 1 – 5 members is 3.19%; 6 – 10 family members was 33.12%; 11 – 15 persons, 49.05% and 16– 20 persons was 14.65% respectively and there was no household with a membership of 20 and above (see details on Table 4.1). The result is a little at variance with the findings of Onemolease & Oriakhi (2011:55-61), which observed that the average household membership (family size) of each artisanal fishing community in Delta State was in the range of seven (7) persons. In this research, the household size of the coastal (fishing)

communities of Bayelsa and Delta States is as large as 11 -15 members (see details in Table 4.1). This figure implies that most artisanal fisher folks have a large household. The reason for large family size could be attributed to the practice of an extended family system. The people live a supportive group to strengthen their kinship structure. Secondly, because of extended family system, the spouses of those who die as part of the hazards of the occupation, are absorbed into such an extended family circle to keep life going. Absorbing other extended family members was never a problem, as large a household constitutes an important labour source for farmers and fisher folks.

5.1 (e) Educational qualification

The findings on educational qualification reveals that the majority of the people who remained in the villages to fish and carry out other economic activities are holders of First School Leaving Certificate (FSLC) represented by 68.58%. This is followed by holders of West African School Certificate (WASC) or its equivalent with 45.01%. Still on educational qualification, it was established that 11.05% of the respondents had tertiary educational qualification such as Ordinary National Diploma (OND), National Certificate in Education (NCE), and Bachelor's degree and above (see details on Table 4.1). This result is in line with the research of Oruonye, (2014: 16-24), which observed that over 60% of the fisher folks had no formal education or just had primary education, but they all gained the knowledge and skill of fishing within the household through regular participation with their parents. In addition, this study also confirms the submission made by Tshiunza *et al.* (2001: 90-96), which states that artisanal fisher folks had low educational background. The result shows that holders of FSLC and WASC holders dominate the fishing sector in coastal communities. That is not true of the entire population as those who have acquired higher education have migrated to the cities to seek white-collar jobs that are more befitting to their educational status. This assumption is captured by the study of Oruonye, (2014: 16-24), which observed that coastal communities along the Atlantic coast of West Africa were highly educated. This, the study attributed to the historical evidence that they had first contact with the Europeans. In addition, personal interactions reveal that there are virtually no jobs for the holders of FSLC and WASC from either the MNOCs or government in the area. Coupled with that was the lack of capacity in the people to pursue higher degree certificates under self-sponsorship outside their locality. One respondent said that “*abandoning fishing for further studies means signing a death warrant for his large family*”.

5.1 (f) Annual income of households

The average income of households per annum revealed that 18.47% earn an average annual income of N240,000 - N360,000; 45.22% earns an average annual income of N361,000 - N480,000, while 26.75% survives in the range of an income of about N481,000 – N600,000 annually, and 9.56% lives on an annual income of between N601,000 - N960,000 (see details in Table 4.1).

This indicates that the people of oil-bearing coastal (fishing) communities in the Niger Delta are predominantly low income earners. It also means that the majority of the people are poor, confirming the study by Oladimeji, Abdulsalam, & Damisa (2013:445-455), which submits that low capital investment and high labour intensive practices characterize artisanal fisheries in Nigeria. The daily income of the fisher folks depends on catch volume, type of fish or species of the catch. Since fisher folks' income are dependent on fish catch, the low level of livelihood and poverty prevalent in the study area could be attributed to the depletion of the ecological resources caused by the offshore oil and gas exploitation activities in the region. Adeyemo *et al.* (2009: 56-61) confirm that the massive mangrove die-off is a common phenomenon plaguing the mangrove regions where coastal oil exploitation activities are ongoing. The study also states that such imprints of the operations of MNOCs are visible throughout in the Niger Delta. In addition, Manby (1999: 52) asserts that oil spills are “homicidal in effect”, destroying immense tracts of the mangrove forests which are especially susceptible to oil (mainly because it is stored in the soil and re-released annually during inundations). Accordingly, the study estimated that about 5% to 10% of Nigeria's mangrove ecosystems have been gradually wiped-out by either oil exploration and production activities or settlement. The evidence is so copious and it suffices to say that the income of communities in the study area has been dealt a serious blow from the offshore operations of MNOCs. Nwilo & Badejo (2005: 1-15) state that the mangrove habitat provides a wide range of natural ecosystem goods and services that are beneficial to man. Such ecosystem goods and services of the mangrove forest include fuel wood for the coastal communities and serves as habitats for many aquatic organisms and animals, as well as serves as barriers to protect the communities from storms and tidal waves and coastal erosion. Adeyemo *et al.* (2009: 56-61) increase the list of the services to include stabilization and protection of shorelines, filtering, trapping and removal of water-borne pollutants, maintenance of nursery and feeding grounds for numerous species of finfish and prawns and habitat for crabs and molluscs, as well as the provision of nesting sites for sea and shore birds. The scenario painted by Nwilo & Badejo (2005: 1-15) and Adeyemo *et al.* (2009: 56-61)

confirms the fact of this study that the depletion of coastal and marine habitats undermines the survival of the people of the oil-bearing coastal (fishing) communities. Evidently therefore, an alteration of the ecosystem through reckless exploitation of oil and gas resources could spell doom for humanity living in the oil-bearing areas of the world.

5.2 Discussion of results of research question two

To what extent have offshore operations of MNOCs caused conflicts that undermine the survival of people in oil-bearing coastal communities in the Niger Delta?

The results on this reveal that conflicts in the study area are closely linked to offshore operations of MNOCs. Research conducted at various times confirms that conflicts between MNOCs and host-communities are age-long occurrences in the Niger Delta. These studies also state that such conflicts have equally assumed several forms and magnitudes (Abutu & Ejeh, 2017: 54-63; Babatunde, Norafidah & Zengeni, 2016: 1-20). The result also confirms those of a study conducted by Goodman & Scahill (1998: 164), which reported that the military injured and killed persons and livestock, destroyed churches, religious shrines and water wells, burnt down homes as well as destroyed canoes and fishing equipment in both communities. Some respondents from Koluama 1 and 2 affirmed that the Clan had in the past, involved in conflict with Chevron/Texaco on a number of occasions. In one particular incident, a respondent claimed, “youths who were in a peaceful mission to plead with Chevron at Funiwa 5 platform to negotiate with the Clan on a spillage matter in 2000 were tagged as sea pirates and killed on the high sea by Nigerian Armed Forces employed by the company Because they know that when an oil spill occurs, the communities will come for them. The bodies of the youths were not seen for burial up till today”. Naturally, it is evident that conflicts cause death, forced migration, loss of property and income, social dislocation including breakdown of family ties and kinship structures, as well as loss of man hours, and pathological hatred among those in conflict. From the foregoing, it is clear that the survival of the people in oil-bearing communities of the Niger Delta have been undermined by conflicts.

5.3 Discussion of results of research question three

To what extent have offshore operations of MNOCs specifically affected the income of oil-bearing coastal communities in Niger Delta?

The result on this indicate that offshore operations of MNOCs have significantly affected the income of oil-bearing coastal communities. Respondents variously affirmed that they suffer

low fish catch and income losses due to activities of MNOCs. In words of one respondent, *“the companies stop us from fishing in most cases for two to three months and will refuse to compensate us for the period. Are you aware of the 2012 incident? Chevron/government played over the matter and refused to pay us compensation. Their operations have destroyed our mangrove forests. We use mangrove trees for building our houses, smoke our fishes and other uses, oil spillage in 1980 destroyed them all and these ones you see are fresh forests. It also destroys our fishing gear and equipment, especially their facilities, and it reduces our saving gap and capacity for further investment”*. This is in conformity with the opinion of Nwilo & Badejo, (2005: 1-15) and other studies cited, that the mangrove habitat provides a wide range of natural ecosystem goods and services that are beneficial to man. In other words, the offshore operations of MNOCs destroy the essential ecosystem goods and services thereby jeopardizing the survival of coastal communities of Nigeria.

5.4 Discussion of results of research question four

To what extent, have the offshore operations of MNOCs specifically affected coastal environmental sustainability and food security in oil-bearing coastal communities in the Niger Delta?

The result indicates that the survival of oil-bearing coastal communities of the Niger Delta in terms of environmental sustainability and food security has been seriously undermined. The survival of the people has been jeopardized in the following ways: destruction of marine ecosystems such as the mangrove habitat, creating room for tidal erosion and exposure of the earth's surface to intense radiations, which are likely to generate health problems, reduction of ecotourism and a definitively lowered fish catch. One community activist stated, *“the activities of MNOCs (especially pollution) causes reduction in families' potentials to meet consumption needs for it destroys livelihoods, and basic nutrition and education needs of the people suffers due to lowered fish catch. They are also responsible for the environmental hazards suffered by the people today, and the breakdown of social structures, dysfunction and loss of values in the communities. The companies are also guilty of a number of deaths and loss of property in recent years from accidents at seas by wrecks mostly caused by decommissioned facilities and security operatives”*. The is in line with the study carried out by Intergovernmental Panel on Climate Change [IPCC] (2007a) which asserts that when pollution of traditional fishing grounds occur, there is an attendant loss of livelihood and consequently, hunger and poverty in fishing communities. In a similar study, Ikelegbe (2005: 241-270) reported that some chemical pollutants from oil are very toxic while others are of low toxicity. Whatever the level of

toxicity, the consequences are always dire. Eweje (2006: 27-56) further pointed out that oil pollution affects the physicochemical properties of the soil and makes it less fertile as nutrients that are essential to plant growth become scarce, while those that are toxic to the plants become more available. Environmental degradation leads to loss of economic empowerment, which is a root cause of poverty (IPCC 2007a). Furthermore, the issue of poverty that has plagued the Niger Delta cannot be over-emphasised. Empirical evidence generated by Akhionbare & Osuji (2013: 19–24) shows that impoverishment/poverty, invasion of traditional customs, lack of empowerment from oil companies greatly characterise the area. Amnesty International (2015: 1-6) notes that due to the threat on income and food security by pollution from MNOCs, young men have been deprived of their means of livelihoods, and these have resorted to illegal means (pipeline vandalism and bunkering, among others) to combating the lingering impoverishment in the region. This has ultimately generated the vicious circle of the convoluted problem of pollution in the Niger Delta.

5.5 Discussion of results of research question five

To what extent, have the offshore operations of MNOCs specifically affected the health and shelter of the people in oil-bearing coastal communities in Niger Delta?

The result in this segment shows that there is significant impact of offshore operations of MNOCs on health and shelter of oil-bearing coastal communities in the Niger Delta. These take the form of respiratory diseases due to inhalation of fouled air, health hazards due to intake of polluted rainwater, health hazard due to intake of polluted fish stock, low dietary protein intake resulting in deficiency related diseases. Shelter related effects are manifest in the form of corrosion of roofs due to particulate emission settlement and damage to shelter due to use of explosives during seismic operations. The aforementioned are the various ways by which the survival of coastal dwellers of the Niger delta have been undermined. This confirms the studies carried out by Gobo *et al.* (2009: 27-33), which state that the prevalence of diarrhoea in the Niger Delta is on the rise because of consumption of fish and other animals contaminated by hydrocarbons. Additionally, Ordinioha & Brisibe (2013: 10-16), demonstrate that bioaccumulation of benzo(o) pyrene and other heavy metals in hydrocarbons contain toxic amounts in major high protein content sea foods such as periwinkle and mudskipper.

In a related study by Epstein & Selber (2002: 1-73), it was confirmed that oil spills and gas flares cause very serious ailments such as cancer, asthma and other lung diseases. Furthermore, Edwards & White (1999: 1-8) highlighted some “possible short-term adverse [health]

conditions affecting local communities and dermatological problems of beach workers not wearing protective clothing include nausea, headaches and skin irritations.” Hussain & Gondal (2008: 391-399) also pointed out that the concentration of trace elements like Chromium and Barium detected in oil spill sites during the Gulf war were higher than permissible safe limits. In such a situation, Egbe & Thompson (2010: 24-34) argued that skin contact with certain chromium compounds can cause skin ulcers. Accordingly, ingesting large amounts of chromium can cause stomach upset and ulcers, kidney and liver damage and even death. The health effects of barium depend upon the water-solubility of the compounds. Small amounts of water-soluble barium may cause a person to experience breathing difficulties, increased blood pressure, heart rhythm changes, stomach irritation, muscle weakness, changes in nerve reflexes, swelling of brains and liver, kidney and heart damage. Serious respiratory problems and many other associated ailments witnessed in many oil-bearing communities such as Koluama communities in recent years have been linked to environmental pollution by MNOCs (Sako, 2017: 1-172). Accordingly, Omofonmwan & Odia (2009: 25-30) affirm that respiratory problems, coughing up blood, skin rashes, tumours, gastrointestinal problems, different forms of cancer, and malnourishment, are commonly reported ailments in many oil-bearing communities in the study area.

In the area of shelter, Akpan (2003: 47-52) indicates that gas flares also cause destruction of roofs of buildings from the effects of acid rain. Iyorakpo & Odibikuma (2015: 1857-7881) and Anomoharan (2012: 666-670) also confirm that acid rains are caused by gas flaring, and have corroded corrugated roofs of buildings in the Niger Delta. The study highlighted the primary causes of acid rain as emissions of sulphur dioxide (SO₂) and nitrogen oxides (NO), which combine with atmospheric moisture to form sulphuric acid and nitric acid respectively. On this view, Hassan & Konhy (2013: 124-134) assert that size and environmental philosophy in the industry have a very strong positive impact on gas flaring-related CO₂ emission. Studies conducted by Agbebi (2011: 456-460); Ejelonu *et al.* (2011: 189-203); Nduka & Orisakwe (2010: 237-246); and Efe (2010: 307-319) confirmed there is percentage distribution of acid rain in the Niger Delta. This was explained by Nwankwo & Ogagarue (2011: 131-136), that in gas flaring areas of the Niger Delta, the pH concentration value of heavy metals in surface and subsurface water, ranges above World Health Organization permissible limits. There is therefore, a high level corrosion of rooftops in the region. It should be appreciated that in a depressed economy, the rural dwellers with poor economy cannot afford to replace their roofs regularly. Many homes therefore, remain a sorry sight in the Niger Delta.

5.6 Discussion of results of research question six

What are the necessary measures that would safeguard offshore operations of MNOCs and the survival of coastal oil-bearing communities in Nigeria's Niger Delta?

To enable the respondents to react to this question, a number of measures that could safeguard the oil and gas operations, ensure environmental resources sustainability and the survival of the people living in the coastal fishing communities in Nigeria were suggested. The results obtained from the respondents concerning each of the measures are hereunder discussed (see the results in Table 4.6).

5.6.1 Establishment of a joint forum for MNOCs and fishing communities

The result on question five concerning the creation of a joint forum for MNOCs and fishing communities (who both do business within the marine environment) show that a greater proportion of the respondents, representing a mean of 3.7325 agreed to the suggestion that creating a joint forum for the parties to discuss and dialogue on issues of mutual concern could ensure safe operations of MNOCs, and guarantee environmental resources sustainability and the survival of the people living in the coastal (fishing) communities. It is an incontrovertible fact that the offshore oil and gas operations and fisheries are conducted in the same water bodies (the Atlantic Ocean, seas, estuaries, creeks, etc.). This was confirmed by Gómez & Green (2013: 17-18), that fisheries and offshore oil and gas industries interact by sharing the marine habitats. Their study identified both industries as human activities, which tremendously impact on the marine environment, and has been a subject of intense regulations in order to ensure protection and sustainable use of its resources. In addition, Gómez & Green (2013: 17-18) implied that the negative externalities of the oil and gas industry have affected the fishing occupation and living standards of the people in oil and gas producing countries in Sub-Saharan Africa in an inestimable dimension. Such dimensions have prompted countries like the UK to have established a practice to ensure successful development of the oil and gas industry. It created a joint forum known as the Fisheries and Offshore Operators Consultative Group (FOOCG), where representatives of all the parties involved discuss concerns and advice on best practices to foster development of fisheries and the oil and gas industry in UK waters. Another is the Fisheries Legacy Trust Company (FLTC), established in 2007 to manage interactions between the offshore oil and gas and fishing industries. The FLTC created a FishSAVE device, which provides fisher folks with updated locations of offshore installations to prevent conflict resulting from loss of lives and property at sea and fishing areas. This kind

of practice can be instituted in Nigeria to avoid the constant conflicts arising from unhealthy production environment in the Niger Delta.

5.6.2 Appointment of a fisheries liaison officer

The suggestion was made for the appointment of a Fisheries Liaison Officer (FLO) as one of the necessary safeguards to ensure healthy operations of both industries in the coastal and marine areas of the Niger Delta. The finding is that appointment of FLO for any operation is necessary, the FLO should be appointed from among registered community based fishing organisations in the area. The FLO, if appointed, shall liaise with relevant government departments on issues that relate to MNOCs oil and gas exploration and production activities, particularly ensuring that their operations do not destroy the environment and hinder fishing in the area before licences are granted to the corporations to operate in the region. The respondents agreed to this, representing a mean of 3.5541, which confirmed the study of Gómez & Green (2013: 17-18), stating that it is a policy in the UKCS for oil and gas operators to appoint FLO to liaise with relevant government departments and fishing organisations on issues relating to their exploration and production activities before getting a licence. Similarly, in Norway petroleum regulations require a fishery expert to be on board any vessel that is carrying out seismic surveys. This consideration is given to guarantee the fishing rights and operations on the seas. This measure is necessary to recognise restricted areas, avoid accidents and also to enable fishers do fishing freely.

5.6.3 Quick justice for parties to take up social responsibilities

Indisputably, the offshore operations of MNOCs have more and increased threats to the environment in the form of depletion of natural marine ecosystems and services, with negative impact on lives that depend on them for survival (Kashubsky, 2006: 2). The magnitude of such events in the region has ostensibly reduced the capacities of the local people in the coastal communities for survival. In other words, the peoples' rights to meaningful livelihood in their own environment have been severely compromised (Anugwom & Anugwom, 2009:333-346). Accordingly, the authors attributed this as the major reason for the incessant conflicts between the people of the Niger Delta and MNOCs/government. Their study also pointed out that the MNOCs have, on a number of occasions, played games of denial, and they are reluctant to release actual oil spill data, as well as conceal the true extent of environmental damages in the Niger Delta. In addition to this is the fact that MNOCs are often not interested to abide by set international standards for oil and gas operations and environmental safety due to the weak

regulatory regimes and inefficient regulatory authorities (Konne, 2014: 195; Edu, 2011: 307-327; Anugwom & Anugwom, 2009: 333-346), as well as corruption in the country (Anugwom & Anugwom, 2009: 333-346). In view of such compelling evidence, this study proposed to the respondents to react to the safeguard of quick justice for parties in the event of pollution related conflicts, especially the joint venture partners (MNOCs/NNPC on the behalf of government) to as early as possible, take up available corporate social responsibility (CSR) measures before there could be breakdown of law and order. The respondents agreed to it, representing a mean of 3.6157 that speedy dispensation of justice to victims of environmental risks such as immediate clean-ups, payment of adequate compensation, provision basic infrastructure and jobs, among others would foster peace and create healthy environment.

5.6.4 Improvements in maintenance, housekeeping, inventory control and training

It was posed to the respondents, whether making improvements in the areas of maintenance of oil installations regularly, ensuring housekeeping and inventory control measures, as well as engaging both community leaders and the oil and gas industry workforce in training programmes would ensure healthy MNOCs operations and guarantee the survival of coastal communities or not. The respondents, representing 3.4926, agreed that maintenance of oil installations to keep them in good conditions can prevent escape of avoidable waste of petroleum. In such a state, linkages can only cause as little damage as possible to the environment. This would help to ensure a healthy environment and guarantee survival of coastal communities in the Niger Delta. The rationale is that good oil field practice is essential for sustainable environment and development. To ensure this, however, the Nigerian Petroleum Act 1969 requires MNOCs to adopt precautionary measures that are practicable, including provision of up-to-date equipment for maintenance of petroleum installations effectively, and prevent hydrocarbon pollution “as little damage as possible” to the environment (Konne, 2014: 192). Nonetheless, Konne (2014: 195) observes that although the Nigerian government imposes regulations/sanctions on MNOCs for any breach, the regulatory agencies/authorities such as the DPR, do not have the capacity to adequately enforce the regulatory regimes because it lacks independent oversight in monitoring pollution incidences and assessment of potential damages in the Niger Delta. As a result, Konne (2014: 195) argues, the Nigerian government has highly compromised the oil and gas industry due to its huge stake in the lucrative petrodollar business in Niger Delta. It is important that the maintenance of oil and gas infrastructure and monitoring by relevant authorities of the oil and gas industry. It would help to identify the rates and magnitudes of changes taking place in offshore and coastal locations in the Nigeria’s

Niger Delta. In addition, the sustenance and conservation of ecological resources should be paramount in order to guarantee the survival of coastal communities whose livelihood depends on the natural environment. The management of the environmental resources for the survival of coastal communities should therefore form a major component in the overall monitoring efforts of any regulatory framework in Nigeria.

5.6.5 Quick response to disasters to avoid widespread pollution and casualties

The result of the study discloses that quick response to pollution disasters by MNOCs and regulating authorities in Nigeria could guarantee the survival of coastal (fishing) communities in the study area. Quick responses to disasters, especially oil spills could avoid its spread and prevent greater magnitude of casualties on the environment people in the region. This is in line with Article 9 of UNCLOS, which obliges states to quickly respond to pollution disasters and avoid high rate of casualties (Lyons, 2011: 4; Gavouneli, 1995). Member states of the UN under UNCLOS are also obligated to protect the environment while affirming their rights also to exploit the natural resources of the sea (Articles 194 (3), 77 (1); Lyons, 2011: 4). The concern, however, has been that only a limited number of the available international instruments deals with marine pollution from offshore installations (Gold, Chircop & Kindred (2003). However, Esmaeili (2017), affirms that when it comes to regulation of marine pollution by offshore oil and gas industry operations, OPRC 1990 is the most significant international instrument. This instrument requires Parties to establish measures that prevent pollution, either nationally or through cooperation with one another. The Convention obliges coastal States to ensure that vessels, offshore drilling units, production platforms, and onshore facilities operating under their jurisdiction must have pollution emergency plans (i.e. ships must carry a shipboard of oil pollution emergency plan). Apart from having oil pollution emergency plans, the Convention also requires operators of offshore units under their jurisdiction (coastal states) to coordinate their national systems to ensure prompt and effective response to oil pollution incidents (Esmaeili, 2017). To archive this, ships are further required to report incidents of pollution to coastal authorities and the convention details the actions that are then to be taken. The Convention calls for the establishment of stockpiles of oil spill combating equipment, the holding of oil spill combating exercises and the development of detailed plans for dealing with pollution incidents.

The parties to the Convention are equally required to provide assistance to others in the event of a pollution emergency and provision must be made for the reimbursement of any assistance

provided. The Convention provides for the IMO to play an important coordinating role. The IMO coordinated State Parties to the OPRC to adopt the OPRC-HNS Protocol in 2000. This relates to the discharge of hazardous and noxious substances at sea. It obliges States Parties to ensure that offshore unit operators report discharges (Article 4). In addition, the Convention encourages Parties to cooperate and establish national and regional systems for oil pollution preparedness and responses (Article 6). Furthermore, Articles 7, 8 and 9 consider the value of information in pollution prevention and control. In essence, these provisions emphasize international cooperation and assistance on matters relating to exchange of information on capabilities of States to respond to oil pollution incidents, preparation of oil pollution emergency plans, exchange of reports on incidents of significance that may affect the marine environment, as well as research and development aspects of combating oil pollution at high seas.

The OPRC instrument contains very specific and detailed provisions to effectively deal with prevention of marine pollution from offshore installations. By this Convention, for example, Nigerian authorities are to monitor the activities of MNOCs and take adequate measures to prevent widespread pollution and destruction of living and non-living environmental resources within the coastal/marine areas of the Niger Delta. The obligation for the promotion of measures to conserve and secure the ecological resources for the present and future generations of the people lies with the country/government. As a result, the Nigerian Petroleum Act 1969, and its subsequent amendments, expressly stipulate that in the event of a pollution, the MNOC in question must take prompt steps to control and, if possible, end it (Konne, 2014: 192). According to Konne (2014: 182-183), the Nigerian government has failed in this responsibility for not monitoring the extent of pollution events in the Niger Delta. In addition, Konne (2014: 182-183) states that regulatory authorities in the country could not enforce existing environmental laws that require MNOCs to quickly respond to preventing oil and gas related pollution disasters in the region. Furthermore, it was argued, the efforts of Nigeria were insignificant in the matters of protection of the rights of indigenous groups, even as party to the International Convention on Economic, Social, and Cultural Rights (ICESCR), and the African Charter on Human and People's Rights (Konne, 2014: 182-183). As a party to these agreements, it requires that the Nigerian government fulfil, respect, and protect the rights of the indigenous people to healthy environment and living are fulfilled, respected, and protected alongside its sustained economic development activities in the study area.

5.6.6 Process modification, equipment/technology redesign and product reformulation

Reacting to this measure, the respondents, representing a mean of 3.4013, agreed that the regulating authorities in Nigeria should ensure that MNOCs carry out periodic procedure modification exercises, equipment and technology redesign, and reformulation of products to help improve the living standard of the coastal (fishing) communities of the Nigeria's Niger Delta. This is in view of the fact that the offshore infrastructure consists of platforms (fixed or mobile), a fleet of vessels with devices collocating submarine pipelines, and FPSOs. It includes also vessels carrying processing equipment that go around offshore structures, carrying out maintenance work and other related services. A series of these structures have dotted the face of the blue planet in the region. Such huge presence of the offshore structures and magnitude of their operations causes accidents and environmental risks (Vinogradov (2013: 335-340; Kashubsky, 2006: 1-11). The chronicle of these accidents and/or environmental risks caused by offshore platforms between 2009 and 2012 are respectively, presented by Yang (2017: 469) and Abowei & Ogamba (2013: 373-3881). The impact of these events on the affected locations are quite overwhelming. In a bid to limit pollution from such operations, the IMO through MARPOL, urges stakeholder nations to develop various generations of technologies and equipment that would prevent waste such as oily water separators (OWS) and oil content meters (OCM). MARPOL also encourages member countries to ensure that port reception facilities for products are provided. The oil and gas industry should act accordingly in Nigeria.

5.6.7 Keeping of signs after decommissioning of offshore oil and gas installations

From the result of the study on this safeguard (i.e. a mean of 3.4650), it was revealed that retention of signs after decommissioning of offshore installations could help in reducing accidents at sea among ships and fishing vessels, as well as prevent loss of lives and damage to property. This is in line with the study of Kashubsky (2006: 1-11), arguing that decommissioned or abandoned offshore installations create environmental hazards, including interference on navigation. The study also shows that offshore installations that have been abandoned serve as wrecks, causing accidents on many occasions that have led to the release of large quantities of oil and other pollutants into marine waters. Personal interactions with fisher folks in the study area also attest to the fact that they have experienced on a number of occasions, loss of fishing equipment/gears due to submerged abandoned oil and gas installations that have drifted. In addition, Markus & Markus (2018: 157-158), affirm that usually after 30-50 years, hydrocarbon reserves within any oil and gas field can be exhausted,

thereafter, the production structures on such fields start to cause a number of environmental, technical and economic problems including threat to marine navigation, fishing and other offshore activities. The concern expressed by Vinogradov (2013: 335-340) therefore, was very apt. The author stated that since offshore structures are tremendously on the rise in offshore hydrocarbon producing regions of the world, there is also the tendency of a substantial degree of environmental risks to human life and property in such regions. Nevertheless, Markus & Markus (2018: 157-158) report that apart from keeping these signs as the practice, decommissioned offshore installations could be put to alternative uses as opposed to their proposed removal. One of such alternative uses of offshore platforms is artificial reefs (Markus & Markus, 2018: 157-158). Furthermore, their study indicated that over 200 decommissioned platforms have been converted to artificial reefs in the Gulf of Mexico following the successful implementation of the rigs-to-reefs technology in some regions of the world. Accordingly, they stated that the decommissioned platforms not only provide habitats for fish and other organisms, but also contribute to their reproduction. This finding was made possible through ecological monitoring of some decommissioned offshore oil and gas installations around the world (Markus & Markus, 2018: 157-158). Nevertheless, safety of lives and property of fisher folks in coastal communities of the Nigeria's Niger Delta could only be guaranteed when there is total removal of any decommissioned oil and gas facility, especially within accessible fishing areas of the marine environment.

5.6.8 Institutionalisation of global memorandum of understanding

From the result of the study on this mechanism (i.e. a mean of 3.4522), it was revealed that the institution of the Global Memorandum of Understanding (GMoU) among the cluster host-communities of CNL has helped to avoid conflicts and promoted healthy business environment in the study area for the past fourteen years. The respondents also agreed that CNL production activities caused conflict for many years and equally hampered harmonious production relationship between the corporation and the host-communities in the study area. In order to foster a healthy operational environment, the GMoU was conceived by CNL. The study revealed that the initiative was conceived primarily to resolve further conflicts and articulate a new development agenda for the corporation's host-communities. The GMoU was adopted in 2005 by CNL, and it is a cluster-community-based-development (CCBD) initiative to engaging its host-communities in the Nigeria. The GMoU is a pact between CNL and clusters of its host-communities. State governments in each case of jurisdiction, (e.g. Bayelsa or Delta State

respectively) endorses it as witnesses (Chevron, 2017: 1-5). The CCBD model strategically, functions through a company-community-government (CCG) approach. Chevron (2017: 1-5) states that this mechanism provides a unique opportunity for the promotion of economic and social stability around the corporation operating areas in the region. The fact is, the GMoU initiative was born amidst the violent conflicts between the corporation and host-communities on one hand, and on the other hand, clashes among age-long ethnic rivals, which resulted in the destruction of many Chevron's community development projects and production facilities (Chevron, 2017: 1-5).

Certainly, the CCG partnership approach to community engagement has helped to resolve conflicts and address community needs within its Niger Delta operations (Chevron, 2017: 1-5). Attesting to this fact, the corporation stated that towards the establishment of the GMoU model in 2005, it engaged 95 communities of different sizes, many of which, competed over land ownership and compensation from land acquisition, and community development projects (Chevron, 2017: 1-5). In addition, the success of the GMoU was as a result of the involvement of nongovernmental organizations (NGOs) and State government authorities (Chevron, 2017: 1-5). Furthermore, the formation of Regional Development Committees (RDCs) within each GMoU has also enhanced the relationship of cluster communities (Chevron, 2017: 1-5). The RDCs are composed of elected members from each of the cluster communities who represent their local interests and oversee the implementation of the GMoU for each cluster (e.g. KEEFFES) (Field work). The body has oversight functions on expenditure, health, education, jobs and community development projects, which are determined through a community planning process for each RDC (Chevron, 2017: 1-5; Field work). The annual community funding provided by the Chevron/NNPC joint venture is one other avenue of the operational success story of the corporation (Chevron, 2017: 1-5). The GMoU communities in which there are no disruptions earn a funding bonus (Field work). The GMoU has improved relationships with the communities; it has reduced ethnic conflicts, resulted in lowering cost and faster implementation of business projects when compared with the pre-GMoU period (Chevron, 2017: 1-5; Field work). The communities now realize that if the corporation's business is disrupted, they would lose the opportunity of having their community's bonus (Chevron, 2017: 1-5). The framework has established guiding principles of partnership in the areas of peace-building, sustainability assurances, transparency and accountability, and project monitoring and evaluation, as well as the decision to use the funds provided by CNL for some selected projects each year is given to the communities (Chevron, 2017: 1-5; Field work). One of the

guiding principles is that CNL participates as a member in the local committees and boards, which was to review and approve projects selected by the communities (Chevron, 2017: 1-5; Field work). Undoubtedly, the GMoU model has provided the communities some level playing ground to articulate areas of mutual interest with CNL.

Nonetheless, the study revealed that the GMoU model deemphasises issues relating to restoration of the environment, conservation and sustainability of the depleting ecological resources that many members of these communities depend on, for their survival. Through the initiative, CNL has succeeded in building consensus to avoid areas of conflicts, and have created a trouble-free production environment to continue to exploit the oil and gas resources, which further endanger the livelihoods of the coastal communities in Nigeria. The study also revealed another dilemma of the model, which is that CNL has through the initiative created a new set of community elites in the cluster communities. The situation is creating tensions internally in some of these cluster communities during election of community representatives into the RDCs, award of contracts to contractors/ implementation of the selected projects, management of the funds for health, education, as well as employment opportunities.

5.6.9 Establishment of marine protected areas

The respondents, representing a mean of 3.4246, agree that the establishment of marine protected areas (MPAs) will help conservation of ecological resources in the study area. MPAs are geographical territories or habitats mapped out for their ecological significance, which are regulated and managed to achieve specific conservation objectives (OECD, 2016: 226-227). It has been said that the fishing and oil production operations are both carried out in the same water bodies, and offshore oil and gas industry causes marine pollution. It therefore means that some form of protection should be given to areas which support survival of indigenous people in the Niger Delta. Protection should be given to the valuable ecological resources and habitats including the mangrove forest, estuaries, beaches, among others in order to conserve and ensure their continuous existence. This is in tandem with the protection cover of MPAs, which entails a “no-take zones” (OECD, 2016: 226-227). Such areas allow multiple uses of their available resources, including fish stocks to recovery (OECD, 2016: 226-227). In addition, Schaefer & Barale (2011: 237-245) indicated that the MPAs’ policy instrument has been broadened to include economic and social objectives. In Europe, the policy supports the “Blue Economy”, and provides an opportunity to create an optimal investment climate for the maritime sectors and give operators more certainty as to what opportunities for economic development are

possible (OECD, 2016: 226-227). The MPAs are one of the few management tools that addresses multiple sectorial development problems. According to (OECD, 2016: 226-227), there are currently in the world, some 7300 MPAs (some of them very large scale indeed), covering about 3.4% of the global marine area. It reported also that the target is to cover 10% of the blue planet by 2020 (OECD, 2016: 226-227). Furthermore, it indicated the vast majority of the MPAs are in the EEZs, with very few (well below 10%) established in areas beyond national jurisdiction (OECD, 2016: 226-227; Karousakis, 2015: 1-256). It is therefore, imperative for Nigeria to vigorously pursue this kind of measure that would sincerely prevent issues of over exploitation and destruction of some cultural heritage sights of the coastal people of the Niger Delta.

5.6.10 Institutionalization/enforcement of comprehensive regulatory frameworks

The respondents, representing a mean of 3.6391, agreed that institutionalization and enforcement of a comprehensive international/national regulatory framework and/ or legal regime for offshore petroleum exploitation and safety of the coastal/marine environment/resources was necessary in ensuring sustainable environment and survival of the coastal communities in the Nigeria's Niger Delta. This is in recognition of the fact that oil spills on any marine environment are never confined and restricted to one particular domain. This research reaffirmed the position of Hasson (2013: 227-303) who asserts that a comprehensive international legal regime can guide governments and MNOCs in engaging in best practices, and review the processes and apply safety policies, as well as evaluate the harm or risks through information sharing among them. Evidently, the MNOCs in Nigeria frequently, have failed to meet minimum national standards, let alone international oil industry standards (Agbonifo, 2016: 27-28; UNEP, 2011). Oluduro & Oluduro (2015: 67-82) also, have contended that the federal government of Nigeria, having major holdings in the petroleum industry, equally can be held accountable for the claims of environmental harm ongoing in the Niger Delta, for it hardly performs its oversight regulatory functions in the industry. A situation which has allowed the MNOCs to freely violate relevant regulatory regimes in Nigeria (Edu, 2011: 312). In addition, the MNOCs are at liberty to set standards, thereby easily polluting and/or depleting the coastal/marine environment/resources at the detriment of coastal communities in Nigeria's Niger Delta. This is so because the DPR, which is the domestic regulatory authority could not enforce its provisions in the existing national laws for the petroleum industry and the environment (Edu (2011: 312). The regulatory authority mostly relies on the reports and data

procured by the MNOCs, especially oil spill related data are therefore, heavily disputed and politically sensitive in Nigeria (Agbonifo, 2016: 26).

5.7 Summary of the chapter

Chapter five discusses extensively the results obtained from the analyses of the various research questions in Chapter four, which involves the socioeconomic characteristics of households in oil-bearing coastal communities of the study area including age, gender, marital status, household size, educational qualification, and annual income of the households. The chapter also articulated how the extent of the offshore operations of MNOCs have undermined the safety of the coastal/marine environment and the resources of the study area. It articulated that this activity has been responsible for the conflicts in the past, thanks to the relative peace existing now as a result of the commitment of CNL community engagement programmes. In addition, the chapter confirmed that the offshore activities of CNL and others in the study area are also responsible for lowering the living standard of the people (i.e. the survival limits have been overstressed), which manifests as food insecurity, health and shelter problems.

The chapter concluded the discussion on the safeguard measures, which include the establishment of a joint forum to encourage dialogue of stakeholders, appointment of FLO to liaise between fishing communities and MNOCs, and MNOCs/regulatory authorities should respond timeously to issues of pollution, and pay compensation to victims, encourage maintenance culture in the industry to prevent avoidable spills and disasters, through the use of modern equipment and technology to exploit the resources. Others are keeping of signs after decommissioning of abandoned offshore installations to prevent accidents at sea, and loss of lives and property, consolidate the already working GMoU, establishment of MPAs to prevent extinction of endangered ecological resources of the communities, and enforcement of existing international/national regulatory regimes to ensure environmental safety for both MNOCs and the communities in the study area. The chapter was emphatic that if these measures are adhered to strictly, a sustained healthy environment could be guaranteed in the Niger Delta for both the offshore operations of MNOCs and the survival of the oil-bearing coastal (fishing) communities in the region.

Chapter Six

Summary, Conclusion and Recommendations

6.0 Introduction

This chapter comprises the summary, conclusion, and recommendations of the study, as well as areas suggested for further research.

6.1 Summary

Chapter one introduced the topic through a discussion on the background and significance of the study, giving an account of the statement of the problem, the aim, objectives and research questions, and generally contended that MNCs are powerful global economic entities whose capacity constrain the sovereignty of some developing countries like Nigeria. In particular, the study asserted that MNOCs have played significant role in the economy of Nigeria since 1956. It underscored how MNOCs' activities have shifted from onshore areas to offshore locations and identified the attendant consequences for the environment and survival of oil-bearing coastal fishing communities in the Nigeria's central Niger Delta. The critical fact was that the oil-bearing coastal communities' major sources of subsistence livelihood (fishing) have been negatively affected by the offshore activities of MNOCs, in particular the operations of CNL in the study area of Bayelsa and Delta States.

The literature reviewed in this research constitute the main thrust in Chapter two. In this segment of the study, the two main concepts that form the research topic are clarified, and articulate the following: offshore operations of MNOCs, socioeconomic characteristics of coastal communities, the emergent conflicts between MNOCs and host-communities, the effects of offshore operations of MNOCs on health and shelter of the coastal communities, related national regulations of Nigeria and international conventions for offshore operations of MNOCs and safety of the environment, theoretical framework, which include the theory of environmental externality and the HNT. All these were thematically presented and reviewed in relation to the topic of this research.

In Chapter three of the study, presentations were made on the design of the study, the geographical features and ecology of the study area (the coastal LGAs of Bayelsa and Delta States), the sample size of 471 out of the estimated total population of the study area, which was 7,197,000 including male and female, using the Raosoft online calculator, with the error margin set at 0.5% not altered. Stratified and proportional sampling techniques were employed to get a fair distribution of the respondents in each of the focus groups. In addition, six research

questions were drawn from the literature in accordance with the objectives and research questions of the study. The sources of data were primary and secondary but much reliance was placed on a structured questionnaire. It comprises three major components with opinions rated on a four-point Likert scale. The data analysis was based on non-parametric statistical tests such as mean and standard deviation. This segment also examined the ethical considerations of the study, which include the North-West University (NWU) ethics committee rules and regulations guiding students of the faculty of humanities for such research.

In Chapter four the study presented the data obtained from the field survey. The presentation was conveyed through using the nonparametric statistical instruments including percentages, mean and standard deviation. The scores were presented in Tables 4.1-4.6 respectively in a bid to respond to each research question. The research in this segment arrived at specific conclusions based on the results that emerged (i.e. the mean score in each case was above the benchmark of 2.50, and values of the standard deviation in each case was close to one another), an indication of acceptance of the fact that the offshore operations of the MNOCs are responsible for the majority of the significant problems affecting the hydrocarbon industry, the environment and survival of oil-bearing coastal (fishing) communities in Nigeria.

The penultimate Chapter five discusses extensively the results obtained from the analyses of the research questions in the preceding chapter, which involves the socioeconomic characteristics of households in oil-bearing coastal communities of the study area including age, sex, marital status, household size, educational qualification, and annual income of the households. In this segment, the extent to which the offshore operations of MNOCs have undermined the safety of the coastal/marine environment and its resources are articulated, and the study confirmed that the offshore activities of CNL and others in the study area are responsible for lowering the living standard of the people, which manifests in the forms of food insecurity, health and shelter problems. Furthermore, the chapter discussed the safeguard measures, which include the establishment of a joint forum to encourage dialogue amongst stakeholders, appointment of FLO to liaise between fishing communities and MNOCs, and MNOCs/regulatory authorities quickly respond to issues of pollution (payment of adequate compensation to victims and restoration of the environment), encourage maintenance culture in the industry to prevent avoidable spills and disasters through the use of modern equipment and technology in exploiting the resources. Other recommendations pointed to the need to retain signs after decommissioning of abandoned offshore installations to prevent accidents at sea, and loss of lives and property, consolidate the already working GMoU, establishment of

MPAs to prevent extinction of endangered ecological resources of the communities, and the enforcement of existing international and national regulatory regimes to ensure environmental safety for both MNOCs and the communities in the study area. The study concluded that if these measures are adhered to strictly, a sustained healthy environment could be guaranteed in the Niger Delta for both the offshore operations of MNOCs and the survival of the communities in the study area.

6.2 Conclusion

The study revealed that in a population, there are inherent variations in socioeconomic characteristics. The age range of majority of the heads of household are within the age bracket of 31-40 years, which represents 30.79%. This means that fishing, which is the predominant occupation of the people of the oil-bearing coastal communities, is an undertaking in which the population participates across age groups but this is dominated by male adults. This is so because culturally men are the bread winners of the family. The occupation itself is energy demanding and associated with specific risks as it is conducted under unpredictable weather conditions, ocean currents and turbulent waves in the manoeuvres to have a good catch. The coastal community dwellers hold family life in high esteem, hence about 68.58% of the heads of household are married. However, social and natural phenomenon such as death cannot be ruled out. There are divorcees, widows and widowers and those that are separated for various reasons. It was also revealed that the majority of the households had 11 -15 members. This was because of the extended family system and supportive life style, which strengthens their kinship structures. The people had basic education that was necessary to carry out their occupation and means of livelihood as knowledge and skills of fishing are gained through communal participation, while those with higher education have migrated to urban centres for white collar jobs. An analysis of the average income of households per annum revealed that majority of the households earned an average annual income of between N240,000 – N360,000 (47%), which indicates that the people of coastal communities in the Niger Delta are predominantly low income earners and are poor. This characteristically poor livelihood is further complicated by the activities of MNOCs in the area.

In addition, the study revealed that the offshore operations of MNOCs greatly affect the main sources of livelihood (survival) of coastal communities in the Nigeria's Niger Delta. Their survival is affected in the following ways:

- That the offshore operations of MNOCs cause conflicts that undermine survival of coastal (fishing) communities in Nigeria.
- That the offshore operations of MNOCs affect the incomes of oil-bearing coastal (fishing) communities in the Nigeria's Niger Delta.
- That the offshore operations of MNOCs affect the coastal environment and food security in oil-bearing coastal (fishing) communities of Nigeria's Niger Delta.
- That the offshore operations of MNOCs have a negative impact on health and shelter status of the people in oil-bearing coastal (fishing) communities of the Nigeria's Niger Delta.

Furthermore, the research was aimed at solving the problems associated with the offshore oil and gas industry around oil-bearing coastal (fishing) communities of Nigeria. Thus, the study identified that the following measures, if strictly adhered to, could curtail the environmental risks emanating from the offshore operations of MNOCs, which critically undermine the survival of coastal oil-bearing (fishing) communities of the Nigeria.

- Creation of a joint forum for fishing communities and MNOCs for discussion and dialogue.
- Appointment of a Fisheries Liaison Officer (FLO) from a community-based fishing organisation in collaboration with the MNOCs to liaise with relevant government departments and the fishing communities on challenges relating to the exploration and production of oil and gas in their areas before granting licences to MNOCs.
- Quick justice for parties to take up social responsibilities as early as possible before the breakdown of law and order because justice delayed constitutes injustice.
- Improvement in maintenance, housekeeping, inventory control and training programmes for both community leaders and oil and gas industry workforce.
- Quick response to disasters to avoid widespread pollution and casualties.
- Procedure modification, equipment and technology redesign as well as reformulation of products so as to minimise the negative impact of oil exploration undertakings.
- Retention of warning signs after decommissioning of offshore installations to prevent accidents at sea and damage to lives and property.

- Institutionalization and consolidation of the cluster GMoU model to resolve conflicts and articulate development agenda for the oil-bearing coastal communities.
- Establishment of MPAs for the conservation and sustenance of the ecological resources of the region.
- Institutionalization and enforcement of existing international and national legal frameworks for offshore oil and gas exploitation and protection of the marine environment and resources of the Nigeria's Niger Delta.

6.3 Recommendations

Following the empirical findings established in this study, the following are consequent recommendations stated as follows:

- MNOCs operating in the Niger Delta should adopt the cluster GMoU/CCB CSR model, which has initiated relative peace between CNL and its host-communities in the study area. However, the model should include in its development agenda, how the depleting environmental resources could be conserved and sustained for the communities to live on.
- The regulatory authorities of the oil and gas industry in Nigeria should ensure that a FLO from community-based fishing organisations is appointed to collaborate with relevant authorities and ensure that fishing activities of members of the communities will not be disrupted by MNOCs exploration and production activities before granting licences to them.
- MNOCs should ensure the retention of warning signs after decommissioning of offshore installations to prevent accidents at sea and destruction of lives and property.
- MNOCs and NNPC should ensure that adequate maintenance culture is established in the industry through the use of available new equipment and technology to prevent avoidable oil spills, and keep unquestionable inventory of pollution data, and where it occur, quickly respond to it and avoid disaster and conflicts, pay adequate compensation to victims, and clean-up the spills immediately in accordance with set international standards.
- Nigeria should establish MPAs in the study area for conservation and sustenance of the depleting ecological resources, which are essential for the survival of the people

and other organisms in the region. For example, the coastal barrier islands, mangrove forests, beaches, coral reefs, among others, which have cultural significance (serving as recreation centres and protection to the communities - humans, animals, plants, and organisms).

- Nigeria and its regulatory authorities should not compromise the enforcement of all existing international and national regulatory regimes for oil and gas production and protection of the environment. In addition, the regimes were observed to exclude the survival of the oil-bearing communities, therefore, adequate measures should be included and enforced in the national laws of Nigeria for restoration of the environment for any breach that could further deplete the natural and traditional resources of the Niger Delta.

6.4 Contributions to knowledge

- The study deviated from the erstwhile theoretical and onshore-based academic narrative and engaged empirical offshore-based analytical perspectives to further appreciate the contending issues of oil and gas exploitation in the Niger Delta. The study was able to develop a solid empirical foundation for similar studies of the Nigeria's Niger Delta.
- This research succeeded in establishing a nexus of offshore operations of MNOCs, environmental risks and survival of coastal oil-bearing (fishing) communities in Nigeria's Niger Delta. This is an addition to the existing literature of the Niger Delta.
- It proffered basic solutions for healthy offshore operations of MNOCs, environmental resources conservation and sustenance, and survival of coastal oil-bearing (fishing) communities in the Nigeria's Niger Delta. Operators and stakeholders could benefit from these measures if they pay strict attention to them.
- This study opened up a new research space on the activities of MNOCs around offshore locations and their impact on the coastal and marine environment especially, towards the determination of the issues of survival (living standard) of the indigenous people of the oil-bearing coastal (fishing) communities around the Atlantic coast of Nigeria. Such reports could be beneficial to similar developing regions that exploit offshore oil and gas energy resources.

6.5 Suggestion for further studies

This research is socioeconomically inclined, I therefore, suggest that a more scientific and technology based study could be executed in the study area to further appreciate the impact of offshore oil and gas industry on this part of the Atlantic Ocean, “the Blue Planet,” as such a focus is the current project pursued by the OECD in Europe and other parts of the world.

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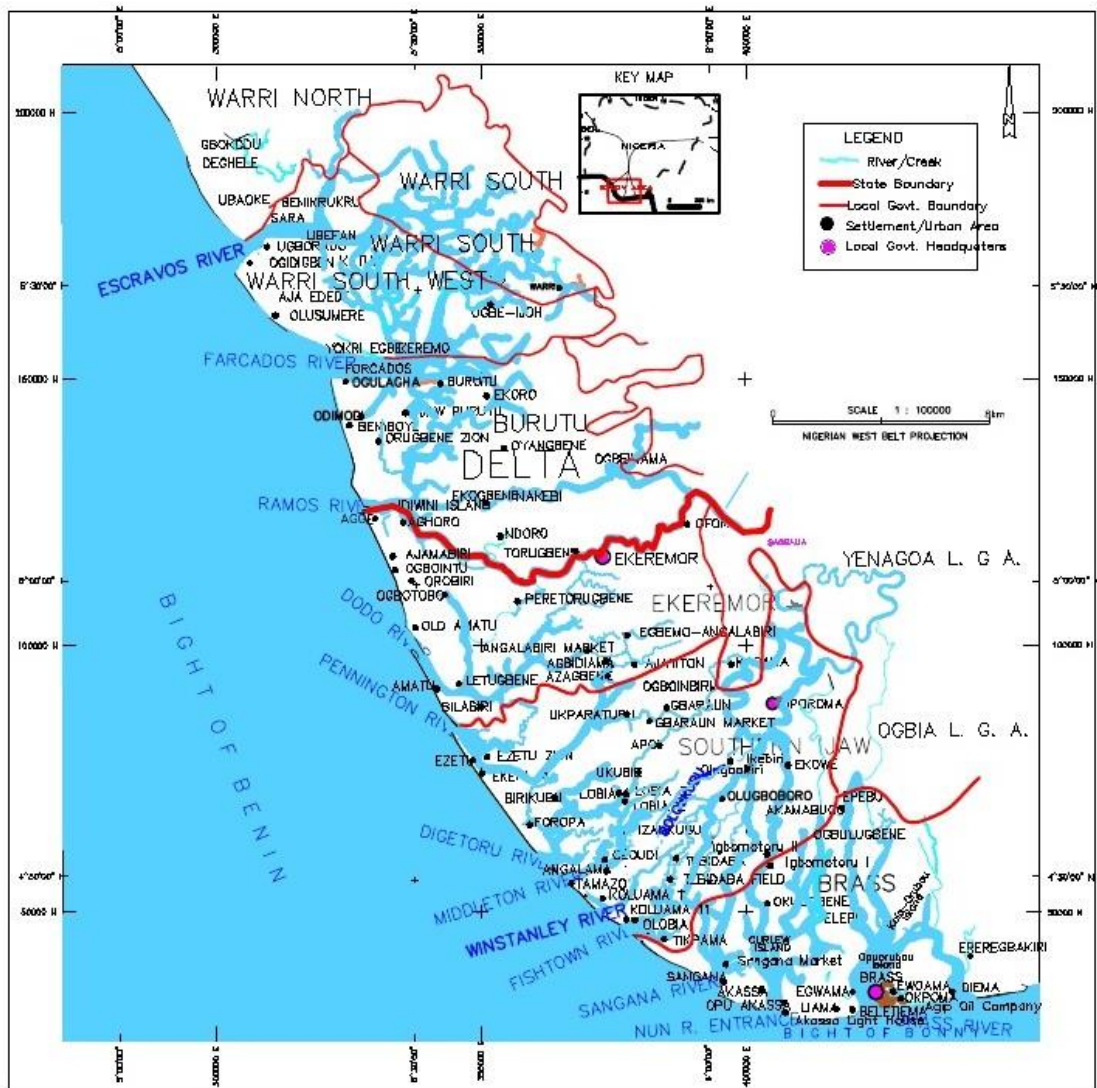
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Annexure 1

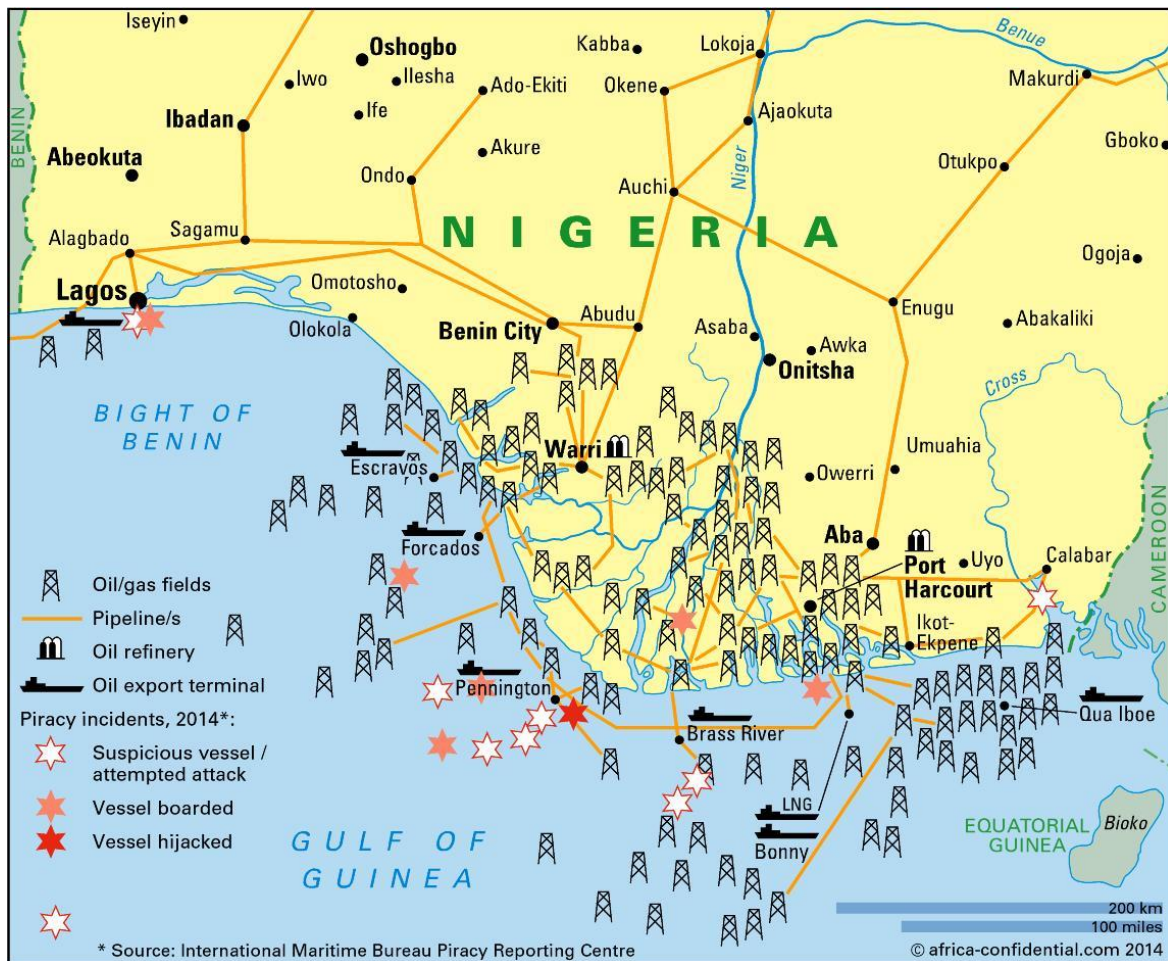
Map of the study area: coastal LGAs/communities in Bayelsa and Delta States of Nigeria.



MAP SHEWING COASTAL L.G.A.'S / COMMUNITIES OF DELTA AND BAYELSA STATES
SOURCE : OFFICE OF THE SURVEYOR-GENERAL YENAGOA BAYELSA STATE

Annexure 2

Map of Niger Delta oil and gas fields



Annexure 3

Questionnaire

Dear Respondent,

The purpose of this questionnaire is to find out the extent to which the “Offshore Operations of Multinational Oil Corporations (MNOCs)” have affected the “Survival of Coastal Communities in Nigeria’s Niger Delta”. You may not fill the questionnaire if you are not interested to participate or abreast with the issues involved in the study.

If you are willing to participate, kindly fill the questionnaire freely. Be assured that the details you provided and responses made will not be disclosed; it will be treated confidentially.

Finally, note that the outcome of this research will be published as a project and as articles on journals for knowledge purposes, but no reference will be made to you as the respondent. Thus, I highly appreciate your contributions to this study.

Section A: Socioeconomic characteristics of households in oil-bearing coastal (fishing) communities (write or tick as appropriate).

1. Name of community: -----

2. Local government area: -----

3. State: -----

4. Age range: 20 – 30yrs ☐ 31 – 40yrs ☐ 41 – 50yrs ☐ 51- 60yrs ☐ 61- above ☐

5. Sex: Male ☐ Female ☐

6. Marital status Single: ☐ Married ☐ Divorced ☐ Widow/Widower ☐ Separated ☐

7. Household size (no. of persons): 1- 5 ☐ 6 –10 ☐ 11-15 ☐ 16 – 20 ☐

8. Educational Level: Less than FSLC ☐ F SLC ☐ WASC ☐ Tertiary Education ☐

9. Occupation: Fishing ☐ Farming ☐ Trading ☐ Govt. employee ☐

business/Contractor ☐ Company Employee ☐

10. Average income of fisher folks/annum in ‘000’: N240 - N360 ☐ N361– N480 ☐

N481– N600 ☐ N661– N960 ☐

Section B: Survival of coastal communities (tick as appropriate).

Community and MNOCs conflicts	Strongly Agree	Agree	Strongly disagree	Disagree
Your community for any reason that bothers on oil exploitation have being at conflict with a neighbouring community?				
Inhabitants ran for safety, which indicates loss of man-hour and dislocation of businesses.				
Several deaths recorded and properties destroyed in conflicts.				
Military invasion causing unrest and social disorder.				
Dehumanization and torture by security agents giving rise to hatred and unrest in the oil industry.				
Oil operations have caused forced migration through military invasion and conflicts.				
Social conflicts between oil company workers and community members have caused breakdown of families.				
MNOCs offshore operations on income of coastal communities	Strongly Agree	Agree	Strongly disagree	Disagree
Lowering income through abrupt declaration of fishing holiday without adequate provisions to cushion the effects.				
Lower fish catch resulting in low family income thereby reducing the potentials of families to meet consumption needs such as basic nutrition and education.				
Family income supported by fuel wood supply for fish processing and preservation has been severally dislocated.				

Oil destroys fishing gears and equipment creating saving gap and reducing capacity for further investment.				
Fishing gears and equipment are lost due to abandoned oil facilities after decommissioning, which cause colossal loss of income.				
Effects on MNOCs operations on health and shelter	Strongly Agree	Agree	Strongly disagree	Disagree
Occurrence of respiratory diseases due to inhalation of fouled air.				
Health hazards due to intake of polluted rainwater.				
Health hazard due to intake of polluted fish stock.				
Corrosion of roofs due to particulate emission settlement.				
Low dietary protein intake resulting in deficiency related diseases.				
Damage to shelter due to use of explosives during seismic operations.				
Environmental sustainability and food security				
Destruction of marine ecosystems, which has led to inability of the wild to replenish itself as fish spawning sites damaged.				
Vast forest area of forest plants (mangrove) have been destroyed creating room for tidal erosion and exposure of surface to intense radiations which are likely to generate health problems.				
Reduction of ecotourism as natural environment is devastated.				
Devastation of forest culminates in further destruction of forest in search of fuel wood.				

Production of offshore oil has lowered fish catch in the area further aggravating food needs.				
Low fish catch thereby reducing the potentials of families to meet consumption needs such as basic nutrition and education.				
Oil operations have caused forced migration through lowered environmental sustainability.				
Migration has caused breakdown of kinship structure leading to social dysfunction.				
Lives and property are lost due to accidents caused by wrecks in the Ocean after decommissioning.				
Section C Safeguards for healthy oil operations in coastal areas	Strongly Agree	Agree	Strongly disagree	Disagree
Create joint forum for fishing communities and MNOCs for discussion and dialogue.				
Operators are required to appoint a Fisheries Liaison Officer to liaise with relevant Government departments and fishing organizations on issues relating to their exploration and production activities before getting a license.				
Quick justice for parties to take up social responsibilities as early as possible before breakdown of law and order because justice delayed is counted as injustice.				
Improvements in maintenance, housekeeping, inventory control and training programmes for both community leaders and oil workers.				
Maintenance of oil installations/put them in good conditions to prevent “the escape of avoidable waste of petroleum” and cause “as little damage as possible to the environment”.				
Quick response to disasters to avoid widespread pollution and casualties.				

Process or procedure modification, equipment and technology redesign as well as reformulation of products.				
Keeping of signs after decommissioning of installations to prevent accidents and damage to property.				
Institutionalization of cluster communities/global memorandum of understanding (GMoU) to resolve conflicts and articulate development agenda for coastal oil-bearing communities.				
Establishment of marine protected areas (MPAs) for conservation of ecological resources.				
Institutionalization/enforcement of comprehensive international/national legal frameworks for offshore oil exploitation and protection of the marine environment and resources.				

Thank you.

F. D. Dan-Woniwei
(*Researcher*)

Annexure 4

Sample of retrieved questionnaire

Dear Respondent,

The purpose of this questionnaire is to find out the extent to which the “Offshore Operations of Multinational Oil Corporations (MNOCs)” have affected the “Survival of Coastal Communities in Nigeria’s Niger Delta”. You may not fill the questionnaire if you are not interested to participate or abreast with the issues involved in the study.

If you are willing to participate, kindly fill the questionnaire freely. Be assured that the details you provided and responses made will not be disclosed; it will be treated confidentially.

Finally, note that the outcome of this research will be published as a project and as articles on journals for knowledge purposes, but no reference will be made to you as the respondent. Thus, I highly appreciate your contributions to this study.

Section A: Socioeconomic characteristics of households in oil-bearing coastal (fishing) communities (write or tick as appropriate).

1. Name of community: Koluama 2

2. Local government area: Southern Ijaw

3. State: Bayelsa

4. Age range: 20 – 30yrs ☐ 31 – 40yrs ☒ 41 – 50yrs ☐ 51- 60yrs ☐ 61- above ☐

5. Sex: Male ☐ Female ☒

6. Marital status Single: Married ☐ Divorced ☐ Widow/Widower ☐ Separated ☒

7. Household size (no. of persons): 1- 5 ☒ 6 –10 ☐ 11-15 ☐ 16 – 20 ☐

8. Educational Level: Less than FSLC ☐ F SLC ☐ WASC ☒ Tertiary Education ☐

9. Occupation: Fishing ☒ Farming ☐ Trading ☐ Govt. employee ☐

business/Contractor ☐ Company Employee ☐

10. Average income of fisher folks/annum in ‘000’: N240 - N360 ☒ N361– N480 ☐

N481– N600 ☐ N661– N960 ☐

Section B: Survival of coastal communities (tick as appropriate).

Community and MNOCs conflicts	Strongly Agree	Agree	Strongly disagree	Disagree
Your community for any reason that bothers on oil exploitation have being at conflict with a neighbouring community?	√			
Inhabitants ran for safety, which indicates loss of man-hour and dislocation of businesses.	√			
Several deaths recorded and properties destroyed in conflicts.	√			
Military invasion causing unrest and social disorder.	√			
Dehumanization and torture by security agents giving rise to hatred and unrest in the oil industry.	√			
Oil operations have caused forced migration through military invasion and conflicts.	√			
Social conflicts between oil company workers and community members have caused breakdown of families.	√			
MNOCs offshore operations on income of coastal communities	Strongly Agree	Agree	Strongly disagree	Disagree
Lowering income through abrupt declaration of fishing holiday without adequate provisions to cushion the effects.	√			
Lower fish catch resulting in low family income thereby reducing the potentials of families to meet consumption needs such as basic nutrition and education.	√			
Family income supported by fuel wood supply for fish processing and preservation has been severally dislocated.	√			

Oil destroys fishing gears and equipment creating saving gap and reducing capacity for further investment.	√			
Fishing gears and equipment are lost due to abandoned oil facilities after decommissioning, which cause colossal loss of income.	√			
Effects on MNOCs operations on health and shelter	Strongly Agree	Agree	Strongly disagree	Disagree
Occurrence of respiratory diseases due to inhalation of fouled air.	√			
Health hazards due to intake of polluted rainwater.	√			
Health hazard due to intake of polluted fish stock.	√			
Corrosion of roofs due to particulate emission settlement.	√			
Low dietary protein intake resulting in deficiency related diseases.	√			
Damage to shelter due to use of explosives during seismic operations.	√			
Environmental sustainability and food security	√			
Destruction of marine ecosystems, which has led to inability of the wild to replenish itself as fish spawning sites damaged.	√			
Vast forest area of forest plants (mangrove) have been destroyed creating room for tidal erosion and exposure of surface to intense radiations which are likely to generate health problems.	√			
Reduction of ecotourism as natural environment is devastated.	√			
Devastation of forest culminates in further destruction of forest in search of fuel wood.	√			

Production of offshore oil has lowered fish catch in the area further aggravating food needs.	√			
Low fish catch thereby reducing the potentials of families to meet consumption needs such as basic nutrition and education.	√			
Oil operations have caused forced migration through lowered environmental sustainability.	√			
Migration has caused breakdown of kinship structure leading to social dysfunction.	√			
Lives and property are lost due to accidents caused by wrecks in the Ocean after decommissioning.	√			
Section C Safeguards for healthy oil operations in coastal areas	Strongly Agree	Agree	Strongly disagree	Disagree
Create joint forum for fishing communities and MNOCs for discussion and dialogue.	√			
Operators are required to appoint a Fisheries Liaison Officer to liaise with relevant Government departments and fishing organizations on issues relating to their exploration and production activities before getting a license.	√			
Quick justice for parties to take up social responsibilities as early as possible before breakdown of law and order because justice delayed is counted as injustice.	√			
Improvements in maintenance, housekeeping, inventory control and training programmes for both community leaders and oil workers.	√			
Maintenance of oil installations/put them in good conditions to prevent “the escape of avoidable waste of petroleum” and cause “as little damage as possible to the environment”.	√			
Quick response to disasters to avoid widespread pollution and casualties.	√			

Process or procedure modification, equipment and technology redesign as well as reformulation of products.	√			
Keeping of signs after decommissioning of installations to prevent accidents and damage to property.	√			
Institutionalization of cluster communities/global memorandum of understanding (GMoU) to resolve conflicts and articulate development agenda for coastal oil-bearing communities.	√			
Establishment of marine protected areas (MPAs) for conservation of ecological resources.	√			
Institutionalization/enforcement of comprehensive international/national legal frameworks for offshore oil exploitation and protection of the marine environment and resources.	√			

Thank you.

F. D. Dan-Woniwei
(Researcher)